THE SECRETS OF SPECIALISTS

Incorporating

Profitable Office Specialties

BY

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The knowledge that a man can use is the only real knowledge; the only knowledge that has life and growth in it and converts itself into practical power. The rest hangs like dust about the brain, or dries like raindrops off the stones.—*Froude.*

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Preface

In the year 1903 the author launched his first publication, the "Secrets of Specialists," in which he endeavored to unfold the somber robe which had formerly clothed some of the "Secrets and mysteries connected with the healing art, and present information which is not generally found in medical text books, relative to the different methods of treatment, which are successfully used by medical men, who style themselves as Specialists, but are familiarly known to the ethical physicians under the pseudonym of "quacks." This publication was greeted with the general approval of the Medical Profession, and in a short time three very large editions were exhausted. Two years ago the author published a companion book entitled "Profitable Office Specialties," in which he attempted to promote the usage of such specialties as are used by the ethical physicians, and are conducive to large financial returns, and inasmuch as all former editions of both publications have been nearly exhausted, he has decided to blend in this publication the cream of both books, under the title of "The Secrets of Profitable Office Specialties," with the object of not only exposing the methods used by advertising Medical men and Professional promoters, who are fleecing the Profession by the sale of some secret system, with an extra charge for territorial right, but also to outline the remunerative Medical and Surgical specialties, which are used by the ethical practitioner and will render assistance in establishing an office practice, for either the specialist or general practitioner. With this object in view I have endeavored to carry out my former policy in both publications by briefly discussing the different subjects, believing that physicians prefer condensed

facts to exhaustive theorizing, and while there are many subjects briefly treated which could have occupied the entire space of this publication, I have endeavored to make the text and technique in each subject discussed, in comprehensive language that it may easily be understood and applied to a practical purpose.

I am not attempting to commercialize medicine, but I am endeavoring to point out a way whereby an office practice may be conducted to a financial success, and "profitable" to the patient by restoring the greatest jewel in life's crown of happiness—Health—by adopting some of the unknown, or perhaps the secret methods successfully used by many Specialists. One of the principal missions of this book is to encourage the general practitioner to properly equip his offices with modern therapeutic appliances, that he may be better able to "wage war" against disease, and I only hope that the practical application of many of the methods given will prove as successful in other hands as they have in mine. I am always pleased to affiliate with members of the Medical Profession in weeding out the mysteries which lurk around the practice of medicine, with the view of throwing more light on the subject in future editions of this book. The information here contained has been gained and can only be maintained by a hearty co-operation on the part of the Medical Profession, and I hope the same liberal policy will govern our relations in the future as it has in the past. It is therefore always a pleasure to correspond and co-operate with physicians interested in this line of investigation, regarding any subject this publication contains, believing our mutual interest and the welfare of the Profession may be benefited thereby. Therefore your correspondence is solicited.

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Foreword

If we would allow our minds to drift back to the importance of the insignificant, we would find that many of the world's greatest achievements originated from apparently little things; in fact, a man's life is made up of an aggregation of little things. From the cradle to the grave, life is covered by a series of events, each small in itself, but all lengthening into a chain which comprises the span of earthly being. Shakespeare has said, "Some men are born great, some achieve greatness, and some have greatness thrust upon them." This is quite true, but the really great men of the world, those who have built the imperishable structures of success, and pointed out the way to civilization and progress, leaving behind them the golden heritage of mighty achievements, did not have greatness thrust upon them, as the present Czar of Russia, but will more often be found among the common people. The writings and teachings of the late Count Leo Tolstoi will have a greater influence upon the world's future progress and civilization than all the wars brought to that nation through church and state.

In achieving greatness from little things we have had a Watt, who observed the steam pouring from the spout of a kettle, and evolved the steam engine. Davy, experimenting in the kitchen with pots and pans, discovered the safety lamp for miners. Edison says, "I was singing to the mouthpiece of a telephone, when the vibrations of my voice caused a fine steel point to pierce one of my fingers, held just behind it, that set me to thinking; if I could record the emotions of the point and send it over the same surface afterwards, I could see no reason why the thing would not talk." He made

the experiment and the phonograph is the result of the pricking of a finger.

So trifling a matter as the seaweeds floating past his ship enabled Columbus to quell mutiny, which rose among his sailors at not discovering land, and to assure them that the eagerly sought for New World was not far off.

The quacking of a goose is fabled to have saved Rome from the invading Gauls, and flies hastened the birth of American Independence. The continental congress held its meeting near a livery stable; its members wore knee breeches and silk stockings, and with handkerchiefs in hand, were diligently employed in lashing flies from their legs. To so great an impatience did the annoyance arouse the sufferers that it hastened, if it did not aid, in inducing them to promptly sign their names to that immortal document, the greatest ever penned, namely, The Declaration of Independence.

In all the world we find nothing which exists wholly within itself. There seems to be no form of existence so low, no atom so small, that it has not its appointed task in the economy of nature; even the dust which we despise, and with which the housekeeper wages a life long war, has, within a few years, been found to render varied and wonderful service. It gives to us the blue of the sky and of the sea; it is the canvas on which the sun paints the gorgeous colors of the morning and of the evening; without the dust there would be no diffused daylight. We would have to choose between the glare of the sun's direct rays and total darkness.

In the sciences, we have had a Newton unfolding the composition of light and the origin of colors, with a prism, a lens, and a piece of cardboard, and demonstrating the laws of gravity by the fall of an apple. Galileo conceived the idea of the telescope by watching little children putting pieces of glass on top of one another. Imprisonment could not convince him that the earth was stationary.

What has been discovered from the apparently insignificant in nature and the sciences is equally true with the heal-

ing art. Franklin brought electricity from the clouds with a paper kite and key, which was followed by Galvani, an Italian anatomist, whose wife was making soup from frogs put them in proximity to a charged electrical machine; on touching them with a scalpel their legs became greatly convulsed. He then united the lumbar nerves of a dead frog with its crural muscles by a metallic circuit, and came to the conclusion that animal electricity existed in the nerves and muscles of frogs. His experiments, together with those conducted by his contemporary, Volta, have developed into the present system of Electro-Therapeutics.

Hahnemann, the founder of Homeopathy, after graduating at the University of Erlangen and practicing the old school methods for several years, found that aconite and other remedies used at that period were given in too large and often in toxic doses, which produced more harm than good. Being disgusted with the prevailing methods of treatment, he abandoned his profession and devoted himself to chemical research and the physiological action of drugs. In these investigations he occupied six years; they proved to him that, in all instances, the medicine which had cured produced a similar condition in healthy persons to that it had relieved. This conclusion he published in an essay in Hufeland's Journal in 1796. It was in this essay that the principle of Similia Similibus Curantur, "similar things are cured by similar things," was put forward by him. His views at once met with vehement opposition, and are, even to this day, severely ridiculed by many members of the old school practitioners. If these physicians, however, would take the pains to investigate the physiological action of drugs they would discover that Hahnemann's fundamental principles are correct in most instances.

Referring to Potter's Materia Medica, or any other Materia Medica of the old school, we find that in toxic doses and in the physiological action of aconite, "the heart rate becomes very rapid." Concerning its therapeutic action we see stated: "It has well been called the therapeutic lancet.

Its power over the circulation, to control forcible cardiac action renders it of the greatest value in all affections characterized by a high resisting pulse.'' Potter further states that ''aconite is best administered in small doses.'' Quoting from the same author, (Potter), we find that quinine has, ''in many well authenticated instances apparently caused a well marked febrile paroxysm, beginning with a chill, then fever and headache, which gradually subsided, with slight perspiration,'' resembling in nearly all its details intermittent fever.

Name a remedy which will produce symptoms resembling syphilis more than mercury, in toxic doses, and show me a text-book of the old school, in which mercury is not pointed out as the specific treatment; ''touching the gums'' with this remedy is the first step sought for by nearly all practitioners. We could study the physiological action of nearly every medicine used by the Homeopaths, and find the laws of Similia founded upon a logical basis; and, although Hahnemann's teaching was not directed toward the high potencies it established a basis for the study of the physiological action of drugs.

Dr. Samuel Thompson, the founder of the Botanic school of medicine, was laughed at when he was seen carrying his little tin teapot from house to house, to administer infusions from roots and herbs, which he had garnered from nature's vast laboratory of healing products; yet he laid the foundation which has been evolved into the Eclectic system of medicine. I have always admired the word ''eclectic;'' it has a meaning—selecting or choosing from different systems—in the broad sense of the term, all liberal and broad-minded physicians are eclectic.

Dr. Still, who was a surgeon in the United States army during the civil war, observed that the soldiers were only human machines, that might become impaired by fatigue or injury, the same as other pieces of mechanism. From this reasoning, he conceived the idea that manipulation could be made to stimulate functions to their normal activity, and

concluded that he had found a new science. To this system of healing he gave the name "Osteopathy," not because he regarded all healing as "bone setting," but because he regarded the bones as nature's medium of manipulating the human system; just as the different schools of medicine regard drugs as a means of healing disease. Through Dr. Still's instructions has been laid the foundations for vibratory massage, chiropractic, therapeutics, etc.

In investigating psycho-therapeutics we find the same humble beginning: the "shrine of our lady" at Lourdes was discovered by two little children, who were gathering fire wood in the forest; yet if we could witness the pilgrimages to these holy waters and accept the authenticated reports of cures we would bow our heads in reverence.

When Mrs. Eddy, the late Lydia Pinkham of the soul, and the founder of Christian Science, was a hysterical maniac, and would live for days at a time in an almost continuous state of collapse, her good husband, Mark Baker, would take the grown woman in his arms and rock her to sleep like a baby, for which treatment she seemed to have a mania; she little realized that self-control of mind would develop into a sacriligious healing art (?), which is neither Christianity nor science, yet her teachings are reverenced by over one million disciples.

I have always attempted to make it a practice, if I could not say something good about a person or cause to say nothing at all. I will, therefore, refer my readers to Mrs. Eddy's book "Science and Health," which, according to my belief, could be synonymed "pseudo-nonsense."

We find there are as many "pathies" in the healing art as there are creeds and dogmas in religion, and while each sectarian college is endeavoring to excel the other, as physicians we are all aiming at the same physiological target—to maintain and retain health. When we prove our poor marksmanship, and waste our ammunition on the desert air our reverend brethren are dogmatically directing our pathway

towards only one great pinnacle—the immortality of our souls.

There has been much said in medical literature regarding a united medical profession, but little advancement has been made in this direction. The medical profession within the last few years, however, has learned that medicine alone does not play the only important role in restoring health to the sick and suffering, and there are many drugless sanitariums contributing their records of success in healing the sick. As disciples of Hippocrates, we must accept the truth when it is placed before us in an unquestionable manner. We therefore find electricity, baths, manual and vibratory massage, osteopathy, heat, light, rest, and allied therapeutics, as adjuncts to medicine, are indispensable as therapeutical measures. To the hard shelled medical practitioner, who is wedded to his "pill bags," these adjuncts may appear as little things, yet, in reality, they are the big things which will assist him in a professional and financial way.

Every physician may not achieve the reputation of being a great surgeon, pathologist or therapeutist, yet in his humble way, he may be doing more good for humanity's sake in healing the sick and alleviating suffering than some of the greater lights, and to receive the gratitude of his patients will not always depend upon some capital surgical operation or heroic therapeutic measure. I have often received more gratitude for the eradication of some unsightly scar, birthmark or even mole on the face than I have for the removal of a large malignant growth elsewhere on the body.

If the information contained in the following pages will render any assistance in directing the pathway toward success by pointing out the way whereby the apparently little things have proven successful in the healing art, the writer will feel that this little book has quite fulfilled its mission.

The Specialist

A medical specialist has been defined as a physician or a surgeon who knows something about every disease and everything about some disease, but we find that this definition is not applicable to all physicians who are in special practice, for we find men at the highest pinnacle of the profession adding the title of specialist to their names while the caption is also adopted by the boldest kind of an advertising quack.

We therefore find that under the above title we could discuss many types of medical men, but inasmuch as every general practitioner is familiar with the work of the Regular Medical Specialist, we shall first discuss this subject from an advertising and non-ethical standpoint. What is to be said regarding advertising is to explain the method rather than to encourage the practice.

These specialists might be classed as the itinerant advertising specialist; the local advertising specialist; the special disease advertising specialist; the mail order specialist; the ethical specialist; the office specialist; the observing specialist, etc.

All of these except the ethical and the office specialist are considered irregular practitioners, whose methods we wish to briefly outline. Those who think all advertising physicians are destitute of a sound knowledge of medicine are entertaining an erroneous idea, which should be released as soon as possible. While I must admit that there are a great many advertising physicians who are nothing more than medical ignoramuses, and are justly entitled to the name "quack" which best identifies them, on the other hand we find among them some of the best therapeutists we have ever had the

pleasure of meeting. These physicians are advertising purely from choice, as they are better remunerated for their services and their labors are not so hard.

Many advanced methods of treatment have originated with the irregular practitioner. Many condemnable, demoralizing influences have also come from the same source. In all other lines of business, if a man makes a discovery he can have it patented and his rights protected, but if a physician holds his special method of treatment a secret, or sells the right to use it, he is at once denounced by the regular physicians.

The estates of Drs. Keeley and Brinkerhoff, and the promoters of the various injection treatments for hernia and other methods, would not have been so large if they had made their treatments publicly known. Fortunately "the tricks of medicine will out," and I doubt if there is a secret in the practice of medicine today which cannot be exposed or duplicated with equal therapeutic results. I shall endeavor to throw some light on the subject in the following pages, but I will scarcely be able to begin to tell what might be said.

There has been many discussions at medical societies as to the best methods of eliminating the quack, but to my knowledge there has never been any definite decision. My answer to this perplexing question would be, to adopt his methods, whenever they are worthy of recognition.

Advertising physicians are, generally speaking, good financiers and business men. They advertise as specialists for revenue instead of for the honor of practicing medicine. Oftentimes they depend upon their business ability more than on their knowledge of medicine to make a success. At least, I have seen many cases in which their skill was not apparent, even if they possessed any.

Of the advertising specialists I have met, I would say that fifty per cent. of them have a medical education equal to that of the average general practitioner. Twenty per cent. have a superior knowledge of certain diseases; the remaining

thirty per cent· are far below the average, and why they should class themselves as specialists is beyond my comprehension.

The inducements from a financial standpoint are certainly such as to encourage one to enter the advertising arena, for advertising specialists often receive more money for one day's labor than many physicians do in a year. You may think this is an overdrawn statement, but it is a fact.

I believe that there comes a time in life when a large percentage of physicians feel that they would like to enter the advertising field, but owing either to a lack of confidence in themselves, or to the fear of being called a quack by their brother practitioners they confine themselves to the code of ethics, and it is well that these objections are considered, for advertising practices are not all sunshine, and they have been the means of ruining both the reputation and financial standing of many physicians.

Many of the most successful advertisers will tell you that if they had their lives to live over again they would prefer the general practice of medicine, wherein they could enjoy the esteem, confidence and respect of their patients and the many social functions of which the advertiser knows very little. I do not mean to say that advertising physicians have no grateful patients, but there is not the same friendly and respectful feeling towards them that there is between the general practitioner and his patients.

THE ITINERANT SPECIALIST

These specialists travel from town to town and generally plan their circuit so as to make each point either once a month or once in two months. They advertise either to treat all chronic diseases or else they limit their practice to one or more diseases, such as piles, rupture, etc.

Most of the chronic disease specialists who travel have a deficient knowledge of medicine, and could not make a living if they had a permanent residence. It is rather discouraging for the local physician, who labors night and day for the good of his patients, and does more work for sweet charity's sake than any one else in the community, to read the advertisements of one of these specialists and witness the financial success of his visit, for, no doubt, he has received more cash in his pocket for his day's work than the local practitioner could book in a month.

It is rather amusing to read the headlines of some of the advertising circulars issued by the traveling doctor. I once picked up a bill on the street in a neighboring town with the bold faced headlines, "The President is coming." This certainly was a very "catchy" caption and everybody was wondering at first sight if the Chief Executive of the United States was going to make them a visit, but by reading a little farther it was Dr. Gordon, a traveling specialist, who was President of some Medical Institute.

There seems to be no way to suppress the practice of the itinerants, unless it is done by legislation. The laws of many states are so rigid that it prevents their operations to a certain extent.

The itinerant specialist treats his patients by the month; his charges range from five dollars to as much as he can get for each month's treatment, which, of course, includes all medicine. He always tries to bind them by a contract to take several months' treatment for a certain consideration; for this he takes their notes, which are indorsed by responsible parties. These notes are made payable each month as he visits the city. If possible, he will dispose of the notes at the bank and leave the city with cash on hand.

The traveling specialist's principle field is in the treatment of chronic, obscure and long standing diseases, the thus afflicted are pseudonymed by them as "rounders" for nearly all patients consulting them have gone the rounds of the local

physicians, and when they see the advertisements of these specialists, appearing in their local papers, they are attracted to them, as a boy is to the aroma of sawdust at a circus.

These specialists always dispense their own medicines which necessitates a road equipment and dispensary, which can be obtained in as portable and compact form as possible. In these days of compressed tablets, tablet triturates, pills and alkaloid granules. Such an equipment is an easy way of dispensing, but experience has taught them in many instances, in order to secure large fees they must "give their patients their money's worth," and dispense large packages; they therefore cannot be weaned from the bottle and liquid medications; with this object in view many of these specialists have become quite expert extemporaneous dispensors.

There is no prescription writing done by the traveling specialists; he exercises sufficient judgment to keep his knowledge to himself and fatten his purse by direct prescribing. In order to carry a reasonably well equipped outfit from town to town, it is necessary that such remedies be selected as will occupy as little space as possible. Fluid extracts and Lloyd Brother's specific tinctures, which represent one grain of the drug to the minum are selected. Lloyd's tinctures are often preferred for this purpose, as they mix more readily with water and do not allow the resin to separate and be deposited on the side of the bottle or float on top of the mixture. The principal menstruum in their prescriptions is water or simple syrup which is preserved with about 10 per cent. of alcohol or sufficient resorcin or salicylic acid to keep their mixtures from decomposing or deteriorating in their therapeutic value, as will be illustrated in the following prescriptions. Resorcin seems to be in greatest favor as a preservative. A few grains of this remedy added to any mixture will preserve the preparation indefinitely and is one of the best gastric and intestinal antiseptics the physician can select and is always followed with good results in all fermentations and decompositions within the digestive tract. Many times a

concentrated aromatic elixir is added in small quantities to flavor the preparation, extract of licorice is made from the common commercial stick licorice by adding water and heat and condensing the product to a semi-solid mass. This is used to disguise the taste of many of their bitter mixtures. Caramel is the principal coloring matter used where a rich brown color is desired. Simple syrup is made by simply filling the dispensing bottle about one-third full of granulated sugar into which aqua and the other ingredients are added.

In selecting remedies for the road you must bear in mind that you have exclusive chronic diseases to deal with, and the medications required are not such as are always used in the treatment of acute diseases, but incorporate medicines known in therapeutic classification as tonics, alteratives, stimulants, aphrodisiacs, diuretics, restoratives, etc. Of the entire list nux vomica and its alkaloid strychnine, perhaps heads the list and is added to nearly all of their tonic mixtures, however the entire list of "multum in parvo remedies" enter into their prescriptions, that is such remedies as will make large dispensing packages, by the addition of a small amount of the more active remedies or such remedies as the maximum dose is from one to five minums, such as the fluid extracts of nux vomica, hyoscyamus, Cannabis Indica and nitrohydrochloric acid, etc. To illustrate their methods of dispensing, I will briefly outline a case, and also give one of the extemporaneous prescriptions, which entered into the treatment, which was taken from a case book of a traveling specialist.

Mrs. H.—— aged 28, living in a malarious district, been sick for three years, the beginning was ushered in with intermittent fever, which lasted four weeks, from which she never fully regained her health and strength; when consulted the patient was extremely emaciated, and constipated by the use of cathartic pills, her bowels would move every third day, with clay-colored stools, occasional attacks of sick headache, the appetite was poor, the complexion was pale and rather yellow, indicating an impairment of the blood, hepatic and digestive

functions. It was plain to observe that she had a case of chronic malarial toxemia to deal with; the following prescription was one of several which entered into the treatment:

℞

Arsenious acid	4 gr.
Nitrohydrochloric acid	2 dr.
F. E. Nux Vomica	2 dr.
F. E. Iris	½ oz.
Resorcin	½ oz.
Quinine Sulphate	1 oz.
Caramel	½ dr.
Sugar	
Aqua q. s.	16 oz.

Sig. A teaspoonful in a wine-glass two-thirds full of old port wine after each meal.

In compounding this prescription the sixteen-ounce bottle is filled two-thirds full of water, into which the arsenious acid, nitrohydrochloride acid and resorcine is dissolved, the sugar is now added and when partly dissolved the other ingredients added. Shake the bottle until all are thoroughly dissolved. The finished product makes a beautiful brown mixture, which is easily prepared in a minute's time and offers all the advantages of an intestinal antiseptic, antiperiodic gastro-intestinal and hepatic stimulant, and as a general tonic, although iron in the form of Blaud's pills and other adjunct medication was administered, the principal credit in restoring the health of the above patient was given to the above prescription.

It is a well recognized fact that minimum doses of Cascara Sagrada combined with Nux Vomica will often accomplish better results in the treatment of chronic constipation and inactivity of the bowels than the maximum dose of Cascara Sagrada alone. The following prescription is a great favorite for this most common complaint and shows the way licorice may be used to partially disguise the bitter taste of the other ingredients.

℞

Resorcine	2 dr.
F. E. Nux Vomica	2 dr.
F. E. Cascara Sagrada	2 oz.
Extract of Licorice	2 oz.
Simple Syrup .....q. s.	16 oz.

Dropsy is a frequent complication of chronic diseases of the heart, liver and kidneys. The following mixture is a great favorite as an adjunct treatment for the relief of this condition:

℞

F. E. Digitalis	3 dr.
F. E. Scilla	3 dr.
Tincture Apocynum (Lloyd's)	4 dr.
Resorcin	4 dr.
Potassium acetate	2 oz.
Simple Syrup .....q. s.	16 oz.

Sig. A teaspoonful every three hours.

There are hundreds of similar formulæs which could be given, but the above examples will be sufficient to give the reader an idea in which some of their mixtures are compounded in a few moments' time in the parlors they occupy at the hotel where they are temporarily domiciled.

THE LOCAL ADVERTISING SPECIALIST

This man advertises either under his own name or under the name of a Medical Institute, or both. His business methods are conducted very much like those of the itinerant. Many of these specialists advertise to treat all diseases in general; others confine their advertising to eye and ear, throat, nose and lungs, catarrh and catarrhal deafness, hemorrhoids, hernia, etc., but the advertisement most frequently seen in the daily papers is one concerning the disease of the sexual system.

I once asked a physician, who had a large experience in advertising and treating all general diseases, why he finally confined his advertising to treatment of diseases of the sexual organs. He replied that in his experience he has found that people would pay more money for the treatment of diseases in that part of their anatomy than in any other. He also stated that if he had a patient who was suffering with both consumption and impotency he would be requested to cure him of impotency first.

There is a world of truth in what he said, for people will neglect every other disease longer than they will any disorder of the sexual system. Another reason which makes sexual diseases a profitable specialty is, that most people do not care to consult their family physician in such matters, and, seeing the advertisement of a specialist will drift into his hands.

Many of these specialists endeavor to advertise in a modest way, but the majority are bold and offensive, for the louder they shout the more victims they will secure. Their advertisements are often decidedly misleading, with bold headlines of "Free Until Cured," "One Month's Treatment Free," etc· Such advertisements are, of course, only to decoy the patient to call at the office and the process of landing them is an easy one, for instead of giving them one month treatment free, they tell the patient that they only offer their services free, but they will expect the patient to pay for the medicine for which they will only charge from five to fifty dollars a month. Their medicines are, of course, very expensive (?). They also issue circulars depicting the despairing future of the masturbator. These are illustrated with pictures of a brainless child born of a masturbator, or a half-naked man behind the bars, made insane by self-abuse.

No words can tell the demoralizing influence that such publications have on the half-educated youth who gets hold of them. They are led to believe if they have one or two emissions a month they are afflicted with some incurable disease. It is this state of mind that is desired by the advertisers,

for the more morbidness and despair, the more money in their pockets. This systematized method of attempting to create disease and to fatten on the distress of their victims is the foulest possible prostitution of medicine.

This class of physicians also treat syphilis, gonorrhœa, and other venereal diseases. When business gets a little dull they buy a list of letters from some mail order man who is in the same business, and get a new list of patients. They often exchange names in order that each may work the discarded or discontented patients of the other and thus keep the machinery running. Some of the methods of treatment used by these specialists will be discussed in the chapter on genito-urinary diseases.

THE SPECIAL DISEASE SPECIALIST

We find that these men are of a more refined nature, and generally very skillful in the special branch of medicine or surgery which they are practicing. They are entitled in every sense of the word to be called specialists. They are conscientious and are interested in the welfare of their patients; they believe that their methods of treatment are the best and they demonstrate in many cases that they are. Under this class we find rectal, hernia, diseases of the stomach, cancer and other specialists, many of whom would be shining lights in the medical fraternity if it were not for their advertising, which is devoid, however, of objectionable matter. Whether or not advertising by such men should be allowed by the medical profession I am not in a position to say, but it seems to me that if a man devotes his time in perfecting a treatment for some special disease, which his brother practitioner has failed to cure or recognize as incurable, he should for the sake of humanity let the world know it, and the easiest way is through printer's ink, unless he teaches his method to the profession, the members of which often do not care to spend the time to learn.

This has been illustrated hundreds of times by rectal, hernia, and cancer specialists. I have seen many patients with cancer and hernia cured by these specialists, who were offered little or no encouragement from their family physician.

In the following pages I will give several methods of treatment used by these specialists which are worthy of adopting in your practice, and by making use of them you will receive large financial returns.

THE MAIL-ORDER SPECIALIST

Most physicians have very little conception of the amount of business done by the mail-order specialist. Up to a few years ago, if any one had told you that he could establish a large medical practice through the mail, you would have thought that he was a fit subject for the lunatic asylum; but at the present time there are hundreds of thousands of dollars spent every year in advertising, and many more thousands of dollars received by the advertisers.

There are about one hundred and seventy periodicals published for the sole convenience of the advertisers. These are called Mail Order Journals or Magazines. The rates for advertising in these publications range all the way from ten cents to six dollars a line. A four-line advertisement inserted once in the entire list, would cost $529.20.

This will give you an idea of the enormous amount of money that can be spent in advertising. A four-line advertisement is the smallest space some papers will allow you to take.

A Mail Order Medical Specialist who uses only four inches of space each month is considered rather a small advertiser, although he is paying $6,350.40 each year for his advertising, if he uses the entire list. There are many specialists who appropriate $100,000.00 each year for their advertising.

By advertising in the so-called Mail Order Journals, you reach patients in the most remote parts of the country. You will have no idea from what country you may receive a reply from your advertisement. You may receive letters from Australia, Japan or Iceland, or from a mining or logging camp, which is many miles from the nearest railroad. On the other hand, you may receive a reply from your own or from a distant city. Of all the medical advertising business, the mail order business is the most fascinating, for when one once gets into it, it is hard for him to get out.

The specialists who are following the mail order industry generally confine their practice to one disease or to one remedy and advertise a specific treatment for Kidney complaint, Rheumatism, Catarrh, Obesity, Deafness, Diseases of the Eye, Impotency, Female Complaints, Consumption, Asthma, Epilepsy, etc.

The remedies for the cure of these diseases are generally first furnished to the patient in the way of free samples. If the remedy has any merit, the patient is quite sure to order a supply. In this way he is induced to continue the treatment for several months.

There are two important things to be considered in remedies to be sent through the mail. They should possess a certain degree of merit, and should contain no poisonous ingredients, as poisonous and narcotic drugs are strictly forbidden to be carried by mail, but this rule is not always adhered to, as will be seen by the formulas which are to follow.

The physician who treats all chronic diseases, supplies his patients with question blanks which the patient can fill out and send to the doctor, together with a description of his case in his own language. The physician may then prepare any treatment he deems the case requires. The fees for such treatments are from one to ten or more dollars a month. Mail order specialists generally treat their patients by the month, as do other advertising specialists.

Mail order patients should be treated with the same integrity and respect as local patients, and, under all circum-

stances the specialist should endeavor to hold the esteem and good-will of his patients. If a patient should write a tart, pointed, or impudent letter, it should never be answered by one of the same character, although the specialist may feel justified in doing so. No good can be accomplished from such correspondence, and much harm is often done. If one can succeed in holding the confidence of his patient and the treatment benefits him, he is sure to send other patients, but if the treatment is absolutely worthless, he will not hesitate to denounce it as a fraud. This is oftentimes done very unjustly, for no physician can expect as great a number of cures in a mail order practice as he can in patients who are constantly under his observation.

Although there are several preparations given throughout this book which have or can be used in mail order practice, I will add several more which have come to my notice and which can be used successfully by the general practitioner.

ASTHMA

Remedies for this distressing disease have always found a steady and increasing sale. I know of one gentleman who has made a large fortune through the sale of the following Asthma cure, which is compounded after the formula of Dr. Covert. The formula is a good one and has been published in several Medical Journals:

℞

Iodide of ammonium	2 dr.
Fl. ext. grindelia robusta	4 dr.
Fl. ext. glycyrrhiza	4 dr.
Tinct. lobelia	2 dr.
Tinct. belladonna	2 dr.
Syr. Tolu	q. s. ad. 4 oz.

Dose—Teaspoonful three times a day; extra doses during a paroxysm.

CONSUMPTION CURE

A few years ago the Slocum system of treatment for consumption established quite a reputation, and the company was among the largest of mail order advertisers. I sent for a sample of their preparations, which consist of a bottle of Psychine, Ozomulsion, Coltsfoot Expectorant and Ozojell.

The Ozomulsion was about a twenty per cent. cod liver oil emulsion with the addition of guaiacol. Psychine, the "greatest of all tonics," is a decoction of nux vomica and cinnamon, which is to be taken in a wine-glass full of whiskey before each meal to build up the appetite. The Coltsfoot Expectorant is a preparation very much resembling Ayer's Cherry Pectoral, given on another page. This treatment will cost from five dollars to ten dollars a month.

RHEUMATISM CURE

These are also freely advertised and the patient liberally sampled. A gentleman who had the management of a large mail order Rheumatism Cure Co., said that they only used one drug and that was prepared as follows in large quantities:

℞ Ammonium chloride .....160 gr.
Aromatic elix .....q. s. ad. 1 oz.

Mix.—A teaspoonful from three to six times a day.

Each teaspoonful of the above mixture represents twenty grains of ammonium chloride, and it is often surprising to note the influence which this drug has in controlling muscular rheumatism. The cheapness of the drug makes it a very profitable remedy to handle, and it is a preparation that will establish a reputation upon its own merits, as the thousands of testimonials which this company possesses will attest.

EPILEPSY

"I cure fits," is a headline seen in all mail order publications, and several men have accumulated large estates by

selling remedies for epilepsy. A very convenient and profitable remedy for epilepsy and the neuroses is hydrocyanate of iron. Although this remedy has been used by a few physicians for several years, it has never gained the confidence of the profession which it fully deserves. It will seldom disappoint reasonable expectations and has the advantage for mail order purposes that it can be dispensed in pill form, each pill composed of the following:

℞	Hydrocyanate of iron	1 gr.
	Extract hyoscyamus	½ gr.
	Powdered valerian (English)	2 gr.

Sig. A pill morning and night, gradually increasing.

HEART DISEASE

The frequency of diseases of the heart has created a demand for a "heart cure." The accompanying formula is used by one firm and I am told that they have the tablets manufactured in car-load lots. The formula is an old one and extensively used by the medical profession. Each tablet represents:

℞	Glonoin	1/100 gr.
	Tinct. strophanthus	2 min.
	Tinct. digitalis	2 min.
	Tinct. belladonna	½ min.

STOMACH DISEASES

A physician who has a large local and mail order practice and advertises as a stomach specialist, claims he can cure ninety per cent. of all cases of dyspepsia by confining his patient to a raw or very slightly cooked beef diet. In connection with this diet, his favorite stomach or digestive tablet is as follows:

℞	Pepsin	1 gr.
	Sulphite of soda	2 gr.
	Resorcin	2 gr.
	Charcoal	2 gr.
	Capsicum	¼ gr.
	Nux vomica	1/6 gr.

This treatment is certainly a very successful one and the raw meat diet should never be overlooked in treating stomach diseases, as it has a very soothing influence on the stomach when it is in an irritable or a diseased state.

ENURESIS

A western physician has extensively advertised a cure for "bed wetting," which is put up in tablet form according to this formula:

℞	Atropine	1/120 gr.
	Santonin	¼ gr.
	Rus aromatica	5 gr.

The directions which accompany the treatment instruct children to retain their urine as long as possible during the day and not to drink any liquid for two hours before going to bed.

CANDY CATHARTIC

The following formula makes a preparation very much like Cascarets, which has had a remarkable sale:

℞	Powd. ext. senna	1 oz.
	Powd. ext. cascara sagrada	1 oz.
	Powd. ext. licorice	2 oz.
	Powd. sugar	2 oz.
	Oil anise	2 dr.
	Oil wintergreen	2 dr.
	Aqua	q. s.

Mix the first six remedies and add sufficient water to make a paste, then divide into tablets of thirty grains each.

OBESITY

Pills for reducing weight have found a great demand. These pills are made from the active principles of the phytolacca berry and bladder wrack, and put on the market under different names.

SELLING RECIPES

Every mail order journal contains advertisements for selling recipes; this is particularly so with toilet articles, household preparations, etc. These recipes are sold at prices ranging from twenty-five cents to ten or more dollars. I give the following as illustrations of this class, the former representing a $1.00 hair restorative recipe and the latter recipe for making artificial maple syrup, which has been sold many times to manufacturers from $10.00 up:

GRAY HAIR MADE DARK

℞	Tannate quinia	1¼ dr.
	Lavendar flowers	4 dr.
	Rosemary leaves	6 dr.
	Bay laurel leaves	2 dr.
	Oil myrbane	20 min.
	Oil citronella	20 min.

Put one pint of boiling water on the above, and set it aside to cool for one hour. Then strain through a cloth and add one ounce of glycerine and two ounces of alcohol (or bay rum). It is then ready for use.

If your hair is naturally oily, you may omit the glycerine.

DIRECTIONS FOR USING

After shaking the bottle, pour a few spoonfuls into a vessel. Take a sponge, moisten with compound, and rub the scalp thoroughly. Do this every other morning and evening until the hair has resumed its natural color, and then apply once a week thereafter. It will not stain the scalp, and contains no poisons.

HARMLESS BLACK OR BROWN HAIR DYE

℞	Pyrogallic acid	4 dr.
	Sulphite sodium	30 gr.
	Alcohol	1 oz.
	Soft water	3 oz.

Dissolve the Pyrogallic Acid in the Alcohol, and the Sulphite Soda in the water. Mix the two (2) solutions together, and then it is ready to use.

DIRECTIONS FOR USING

Before using, the hair should be thoroughly washed with soap and water. It can be so applied as to color the hair either black or the lighter shade of brown. If black is the color desired, the preparation should be applied while the hair is moist, and for brown it should not be used till the hair is perfectly dry. To apply, dip the points of a fine tooth comb into the compound, and gently draw the comb through the hair, commencing at the roots, till the dye has perceptibly taken effect. When the hair is entirely dry, oil and brush it as usual.

I send two recipes—The first is my own original recipe, and the one I recommend. The second one is given because of its easy use, and combining both black and brown according to the way applied. It is excellent for dyeing the whiskers. Ingredients for the first recipe (except Alcohol and Glycerine) sent post-paid for twenty-five cents. Ingredients for the Harmless Dye (except Alcohol and Water) sent post-paid for thirty-five cents.

NOTE.—It will be noticed that their object is not only to sell the recipes but also to supply the ingredients.

ARTIFICIAL MAPLE SYRUP

Although this formula is a deviation from the theme of this publication, the product is a useful household article, and the process of manufacture is so simple and valued so highly, that I feel justified in giving it, as much of the maple syrup

bought at stores is made by this or a similar process and produces an article which is hard to detect from the genuine. The simple process of manufacture is as follows: Crack two quarts of hickory nut shells, remove the meat; tie the shells in cheese cloth and boil for about one-half hour in one gallon of water. When the solution becomes brown, add sufficient sugar to make the syrup the right consistency, and strain while hot.

THE PREMIUM TRUST SCHEME

Another way of introducing proprietary medicines is to advertise for agents and give premiums. The applicant answering the advertisement is at once forwarded fifteen packages of headache powders which he sells at ten cents a package. He remits the full amount, $1.50, and receives, as a remuneration for his services, jewelry and other articles. This is a very successful scheme and rather an honorable way of introducing remedies. If the remedy has merit the medical company receives many orders, as their address is printed on each package.

THE FREE PRESCRIPTION C. O. D. SCHEME

This scheme has formerly been used by the "Lost Manhood" fakirs, and consists of advertising a free prescription for lost vitality. The prescription is sent to the applicant as ordered, in due time, and contains the fictitious names of many remedies. The patient also receives a flowery letter stating that these remedies are imported from Central Africa, South America or some other foreign country, and thinking perhaps, their local druggists might not carry them in stock, they decide to send them one complete month's treatment, by express C. O. D., $6.00. If the prospective patient is slow in accepting the package, he is frequently written to by what is known as the "follow up system," which consists of a series of letters extolling the valuable properties of the treatment. The price of the treatment is also gradually reduced during

the correspondence from $6.00 to $1.50; in the meantime the express company is notified if the package is not accepted, it can be destroyed, as its value is less than the express charges to return it. This has proven to be a very successful scheme, as fully three-fourths of the packages are accepted. There were no less than twelve of these medical companies in operation at one time. The postoffice authorities have refused them the use of the mail, however, and they have closed out their business.

THE OBSERVING SPECIALIST

DIAGNOSING DISEASES WITHOUT ASKING ANY QUESTIONS

This is a new feature which is being practiced by many advertising specialists, and, although this method cannot be applied to all cases, it is surprising to note how often they will hit the nail on the head.

I had occasion to visit one of those physicians for the purpose of learning his secret if possible, and was somewhat surprised at the accuracy in which he would often describe symptoms, and the weight it had in gaining the confidence of the patients, which is a very important feature from a financial standpoint. People generally think that if a physician can tell their ailments without asking any questions he must be a healer of wonderful skill and ability.

This physician had charge of one of the largest medical and surgical institutes in our country, which afforded him an opportunity to examine from twenty to seventy-five patients a day, and after watching him take cases, I am thoroughly convinced that the face will map out many diseases and the physician who is the least observing and familiar with the symptoms of disease, can tell many of them by studying the physiognomy of his patients.

The expression and the color of the face, temperament, the carriage of the body, conversation, breathing, eye, the pulse, tongue, and the occupation, are the principal things upon which these "physiognomy diagnostitions" locate disease.

There are only three questions which are asked the patient, namely: To see the tongue, his age, and his occupation.

During my stay with this physician I watched him take many interesting cases, and I think it will be of sufficient interest to outline the ones which are quite familiar to every physician.

The first patient was a gentleman, forty-six years old, who entered the consulting room rather slowly and took a seat. There was an expression of melancholy on his face; he looked sad and friendless; the skin and complexion was slightly yellow, but not decidedly noticeable; the doctor looked at his tongue, which had a brown coat, and told him he had disease of the liver; a feeling of fullness in the right side, laying his hand on the right hypochondriac region; he also told him that he had a pain under the right shoulder blade; at times would feel drowsy; had no ambition; the urine at times was scanty and high-colored; was troubled with indigestion. He also mentioned other symptoms which are generally associated with diseases of the liver. In this case you will see that his diagnosis was founded upon the color of the skin, the general torpidness of the body and the coating of the tongue.

The next case was still less difficult. A young lady, eighteen years old, whose face at once would explain her symptoms, for she had a pronounced case of anaemia. The doctor immediately told her her disease was due to lack of red blood corpuscles in the blood; that her menstrual periods were scanty and irregular; that her heart would palpitate on the least exertion; that she would get dizzy when rising from a recumbent position, etc.

The next patient was a lady thirty-seven years old, mother of four children; was nearly as pale and anaemic as the former

patient. The doctor examined her carefully and told her that she was suffering with female troubles; that her menses were too profuse and appeared oftener than they should; that this excessive loss of blood would not allow her body the proper nourishment, and at times she was extremely nervous and irritable; and also that her digestive organs were feeble, due to lack of nourishment from the excessive loss of blood, and that like the former anaemic patient, she had palpitation of the heart, faintness, etc., all of which she admitted to be true.

After the patient was dismissed, I asked the doctor why he should diagnose her disease as originating in the female organs. He discussed the temperament of the patient; the tissues of the body were sleazy in texture and would readily yield to the congestion in the parts during the menstruation, and owing to this excessive loss of blood would naturally bring other organs into sympathetic suffering.

The next patient was a man, fifty-one years old, who apparently seemed to be enjoying the best of health, but, after examining the tongue, he was immediately told that he had dyspepsia. The tongue had a heavy white coat, which indicated that an excessive amount of acid was being secreted by the stomach and that he would have sour eructations, heartburn, occasionally, pain in the pit of the stomach and soreness on pressure, etc.

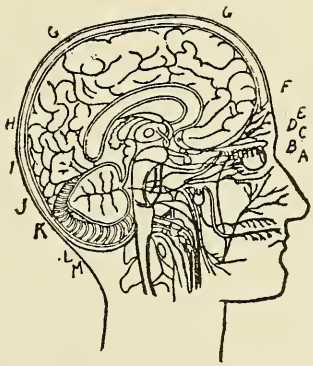
In this case it was plain to see that the tongue told the story.

The next case was a man sixty-one years old, with rather a plethoric temperament. After the doctor felt of his pulse, he at once advised him that he had a valvular disease of the heart. He called my attention to the receding pulse which was particularly characteristic with its forcible impulse, which rapidly declined; the so-called "water-hammer" pulse. The blood vessels throughout the body would pulsate so that they were visible to the eye. The use of the stethoscope showed plainly that the patient was suffering from aortic regurgitation.

The above only illustrate a small number of cases met with and, although he made many failures, he was reasonably

successful in the majority of cases. I have seen him locate diseased organs by finding a sore spot on the spinal column, and relieve pain by making pressure on this spot and desensitizing the nerve supply, which is the method used by the osteopaths. He would locate rectal diseases by the position which the patient sits in the chair. Kidney troubles can also be located by the condition of the eye, and the desire of the patient to press the small of his back upon some hard substance. The color of the skin will point out diseases of the blood and liver; the character of a cough will locate disease of the throat, bronchial tubes or lungs by its volume.

Acna rosacea is not always due to the use of alcohol, but is frequently associated with disease of the stomach and bowels. Falling out of hair is also connected with diseases of the kidneys. Dark circles and discolorations under the eyes are associated with disturbances within the pelvic cavity, female diseases, etc. Masturbators and those who indulge in sexual excesses can often be identified by the sheepish expression of their faces. Notched teeth are often a symptom of hereditary syphilis, etc.



Pain in the form of reflex headaches is one of the most frequent symptoms referred to. The accompanying diagram given by the late Dr. Nicholas Senn, will illustrate the methods

in which many diseases of the internal organs are located through this reflex neurosis.

A—Ache around eyes and nose, indicates trouble with stomach, eyes and nose.

B—Ache in center of forehead above nose, indicates constipation, decayed teeth, errors of refraction.

C—Ache in center of forehead above "B" indicates trouble with nose and intestines.

D—Ache over each eye, indicates stomach trouble.

E—Ache or tight bandline sensation all around head above eyes, indicates an anaemic or bloodless condition.

F—Ache in upper region center of forehead indicates nasal catarrh and nasal trouble.

G—Ache over entire top of head indicates uterine trouble, debility, anaemia, stomach and bladder origin.

H—Ache side of head over ear, indicates anaemia or poor blood.

I—Ache near center of back of head level with top of ear, indicates diseases of the eye.

J—Ache just below "I" indicates constipated condition of colon.

K—Ache just back of ear, indicates mastoid complication.

L—Ache back of neck at base of brain, indicates nervousness and spinal irritation.

M—Ache a little to one side and below "L" indicates derangement of stomach and irritation of spine.

The late Dr. J. K. Scudder, of Cincinnati, was among the first to call attention to the different coatings of the tongue and their relation to diseases of the stomach, bowels and blood. The doctor says, "If the tongue is heavily coated at its base with a yellowish white fur, we know that there are morbid accumulations in the stomach. If the tongue is uniformly coated from base to tip with a yellowish fur, rather full, and moist, we have the history of atony of the small intestines. If the tongue is elongated and pointed, red at tip and edges,

papillæ elongated and red, we have evidence of irritations of the stomach with deterioration of the blood.

"Again, we have a tongue that might be designated as 'slick.'" It is variously colored, but it looks as if a fly should light on it he would slip up and break his neck. It is evidence of a want of functional power, not only of the stomach and the bowels, but of all parts supplied by the sympathetic nerves.

"The tongue tells us of acidity and alkalinity of the blood in language so plain that it cannot be mistaken. The pallid tongue with white fur is an index of acidity of the stomach and blood and it is surprising to note how rapidly these conditions can be cured by the use of sulphite of soda. A deep red tongue indicates alkalinity and is readily cured by the employment of an acid.

"Impoverishment of the blood (sepsis) is indicated by a dirty dark colored fur, and requires a treatment that will antagonize this septic process."

You will notice that this "unruly member" alone tells us a good deal and by careful study might tell us more. It is with these objective and semi-objective symptoms, together with the sense of touch, that these specialists become familiar and use as a foundation for their diagnosis. Although I have only given you a rough sketch of the subject and present this article only as good material for thought, hoping that it may prove of some assistance to you in locating diseases by observation.

THE ETHICAL SPECIALIST

We find that medical men, even of this description, often like to see their names in print, which will react to a financial advantage on their part, but these men differ from the regular advertisers inasmuch as they do not pay for their advertising. There is hardly an edition of a local paper that does not contain an account of the discovery of some physician or the dexterity of some surgeon in a certain operation.

The detailed copy was, no doubt, handed to the editor by the physician himself, with a request that it should be printed. This, of course, is profitable advertising for the practitioner, but the editor is led to believe that the article was written for the advancement of science.

This is well illustrated in the world-wide advertising which Professors Koch and Brown-Sequard have received out of their consumption lymph and the "elixir of life." Although they were only scientific bubbles, the advertising these gentlemen received has had much to do in bringing their names before the public.

In smaller towns local items of births, fractures, etc., are handed to the editor with the name of the doctor attached as being the attending physician. This is a very judicious way of advertising.

I remember once meeting a young physician, who had just located in a small city, who was called to adjust a fracture. The papers wished to encourage the young man and devoted a half column to praising his success. He afterwards told me that the editorial was instrumental in placing several cases of fracture in his hands that year.

Accoucheurs have also established a large obstetric practice by having their names published in connection with births. The mention of a physician's name in connection with any case, medical or surgical, will be of more or less advantage to the physician and is considered legitimate advertising.

Perhaps the most dangerous member of the Medical Profession is the ethical medical hypocrite. We can have some respect for the bold-faced advertiser, as he makes no pretentions other than what he is, but the tricks practiced by many physicians under the cloak of ethics, would make many advertising physicians hang their heads in shame.

I once employed a stenographer who formerly was in the employ of a surgeon who was the shining light of the community. From this source I learned many of his business tactics, which will outstrip the methods of the lowest forms of quackery. This surgeon's principle object was money mak-

ing, and it made no difference from what source. A lady wrote to him that she was afflicted with uterine cancer; he advised her that he could cure her by undergoing an operation and removing the organs. The fee asked was $200.00; she replied the only possessions she had in the world to secure money was to sell her cow and piano, which she was advised to do. She finally secured $90.00 and her hospital fees; she entered the hospital with the understanding that she was to have her uterus and ovaries removed, but instead the surgeon simply curetted the ulcerated surface. She left the hospital at the end of a week, thinking she had departed with her diseased organs. She continued to menstruate, which created much suspicion. She finally consulted another physician, who told her she was still in possession of both her organs and disease. The patient finally died. But the brother still preserves the organs, pending legal action against the surgeon for mistrust.

Another well-to-do patient write this surgeon regarding her case and the cost of an operation. He replied, "The price of the operation will be $400.00; if you are a pauper I will charge you only $100.00." It was a question in this case whether or not one could admit being a pauper for $300.00. I do not wish to be understood as entertaining pessimistic ideas regarding the ethical surgeon or specialist, for as a general rule they are noble, conscientious and charitable practi tioners, but occasionally we find one whose trickiness surpasses that of the regular advertiser, still he is protected under the wings of ethics. Of all the specialties, those which incorporate surgery in its different branches are the most compensative. The shrewd and unscrupulous physician realizes this after he has been in practice but few years and never allows an opportunity to pass where an operation can be justly (or perhaps, unjustly), performed. You will observe that as a rule specialists who have the largest income are classed as surgeons, or are practicing some specialty involving some of its branches. This often has a tendency to produce a narrower type of medical men by exaggerating the minute and advising

operations when unnecessary. When you hear of a physician repeatedly saying, "he just arrived in time to save her life," or an "operation will be absolutely necessary," he can generally be regarded as a medical or surgical "grafter."

THE OFFICE SPECIALIST

I fully realize that most physicians do not care to advertise, and as I have previously stated, I do not wish to be understood as advocating the practice, but owing to the purpose of this book I thought it would not be out of place to briefly outline some of the methods of medical advertising which are in use at the present day. With justice to all and malice toward none, we have now come to the point where we can consider one of the most greatly neglected features of a general practitioner's work—office practice and office specialties.

Of all the professions, the Medical Profession is the most overcrowded, and still our 155 Medical Colleges are turning out Physicians at the rate of about 6,000 a year.

Referring to Polk's directory, we find there are over 135,000 physicians in the United States, which, according to the population, makes one physician to every 655 inhabitants, with an average income of about $1,000.00 a year, or $2.73 a day, which is about equal to ordinary skilled labor. There are thousands of learned and skillful physicians in the United States who scarcely make a living and there is no profession in the world which has so many side issues as medicine, and the general practitioner finds as competitors all kinds of speculative medical philosophers. When we stop to think that there are over one million Christian Scientists, to say nothing of the various healers, hypnotists, mind curers, self-inspired medical pretenders, patent medicines, etc., on the illegitimate side, while in legitimate medicine our cities are crowded with free clinics, dispensaries, hospitals, etc., which are visited by many people, who are perfectly able to pay for their medical services.

It is rather discouraging for the young physician who has

spent four years in medical college and several hundred dollars, to confront the world with a laborious profession, which does not offer him a yearly income much greater than ordinary labor. The question arises, what can be done to make the practice of medicine remunerative in proportion to the amount of skill required, capital and time expended in obtaining the knowledge? It has been said that this is the age of specialists, which is quite true, and with this we find the general practitioner leaning towards a tendency to become sort of a general advisor and distributing agent, we find him sending his surgical patients to the surgeon, female patients to the gynaecologist, eye patients to the occulist, ear patients to the aurist, and throat and nose patients to the laryngologist, etc. While this is often advisable in many cases they could often receive as effective treatment in his hands if he would provide himself with the proper instruments and equipment to treat them and thus receive the credit of curing them. If there is any credit or glory in the practice of medicine he will keep it within his bounds. The physician who walks the street with his office in his hat and depends upon writing prescriptions and visiting the bedside of the sick for one dollar a visit, is generally a physician who is always financially embarrassed; while on the other hand, we find the physician who has a well-equipped and regulated office, with a working library and endeavoring to keep abreast with the times by subscribing for the leading medical journals and providing himself with suitable instruments, we find a physician who is progressive and prosperous and who no doubt is receiving the cream of the medical practice, which he justly deserves, for he is better able to combat with disease, as he has every modern appliance at hand for the benefit of his patients. This brings us up to the point of what may be considered a properly equipped office and what is the best way to make the practice of medicine remunerative in a legitimate ethical way. This depends upon two things, a reasonable amount of tact and skill and a proper office equipment, and utilizing office specialties which has formerly been monopolized by other specialists.

In the following chapters, we will endeavor to give the details of several specialties, many of which have made fame and fortune for their promoters, and can be as successfully used today as ever before, but in order to successfully conduct that much neglected part of the general practitioner's work—office practice—requires the expenditure of a small sum of money for equipment, the more extensive the equipment, the greater his success and income.

Office Equipment

One of the most important things to be considered in adopting the office specialties, is a convenient suite of office rooms and their equipment. The work-shop of the physician is of as great, or even greater importance than the one of other vocations in life, and a well located and finely equipped office, not only allows the physician to combat with disease to a better advantage, but also reacts, in both a professional and financial way, by what may be termed silent ethical advertising. Physicians do not realize the impression it leaves upon their patients' minds to witness all the modern, therapeutic appliances and apparatus in operation; an impression of prosperity and success, and that you are abreast with the times in all modern and scientific methods of treatment, which is true; this alone, will give you a professional standing, which can only be duplicated by other physicians who follow in your wake.

In former years many physicians have been accustomed to a few text books, a few surgical instruments, and access to drug store supplies of deteriorated tinctures, extracts and elixirs; these, together with a medicine case, filled with the products borrowed from the drug store, and an office in their hats, constituted the equipment of fully one-half the physicians in the United States. Today the progressive physician considers his office, livery, and other equipments his professional assets, and his skill in utilizing them his liabilities; and to maintain a successful balance depends upon his executive qualifications. The old adage that "fine feathers make fine birds" is perhaps more true in a physician's life than in any other profession. A pleasing personality and personal magnetism establish a feeling of friendliness between physician

and patient; a well-appointed office, with a thoroughly scientific equipment, is among the most valuable of a physician's assets. Just as the personality of some men is attractive, and that of others repulsive, so are the personal environments of some physicians' offices attractive, while in others they are repellant. Although a physician may pride himself upon being punctual in attendance at office hours, he is frequently detained on some important case, which will not allow him to meet his appointments. What is there that can be more discouraging to the patient who is in ill-health and naturally nervous and restless, than to be required to wait in a bare, dismal, cheerless room; destitute of pictures, with a few magazines dated several years back, and often uncomfortable chairs? A physician's business, like all others, should have the modern tendency toward comfort and even luxury in its surroundings, and his reception room should be the first to receive careful consideration. Let the walls be decorated with appropriate pictures, incident to a physician's life, and those which appeal to the imagination and the sense of beauty; arrange the bric-a-brac, curios and other decorations so they will excite the interest of the beholder. Allow your chairs to be the most comfortable obtainable. An open fireplace is a luxury in any room, as the glow of the fire offers cheerfulness, and the solace of the grate has a therapeutic influence upon many patients. Your reception room table should be loaded with the latest periodicals from both the literary and cosmopolitan press; in fact the room, in general, should be furnished in as luxurious and attractive ways as possible. Such evidence of good taste and refinement has much to do in reinforcing the personal qualities and the professional skill of the physician. If you have an office attendant, be sure to avoid the pessimistic, gossiping crank; select one whose cheerfulness predominates, and the corners of her mouth turn upwards, always remembering the value of a smile:

"The thing that goes the farthest
Towards making life worth while;

That costs the least, and does
The most, is just a pleasant smile.
The smile that bubbles from the
Heart that loves its fellowmen
Will drive away the clouds of
Gloom and let the sunshine in.
'Tis full of worth and goodness too,
With genial kindness blent;
'Tis worth a million dollars, and
It doesn't cost a cent.

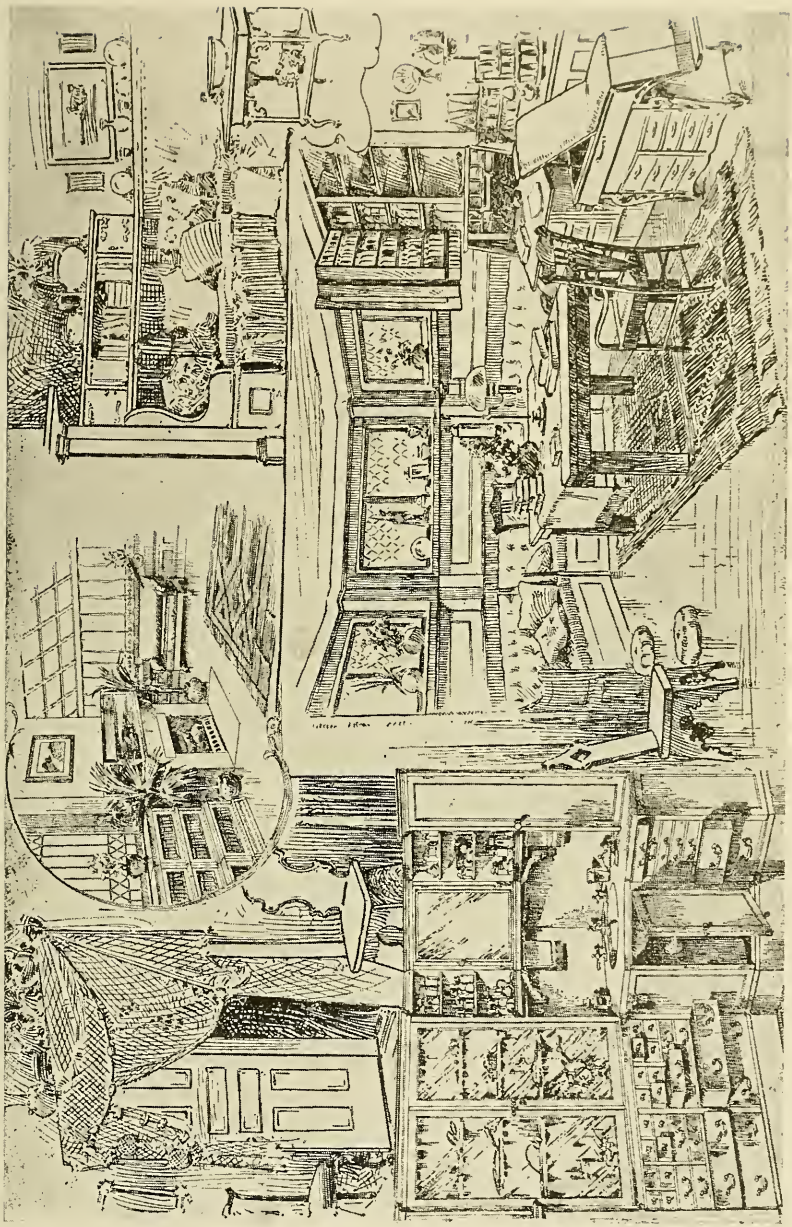
The presiding princess of your office should not only be a good entertainer, and exercise every effort to retain patients during your absence, but she should possess qualifications sufficient to allow her to assist you with your operations, etc.

The next important room to be considered is your consultation apartment; this room should be furnished to conform with the reception room, in taste of arrangement, etc., and may also be used as a general operating and treatment room, as it generally is by most physicians who have limited space. In this room may be placed the electric machines and appliances, the therapeutic lamp, electric vibrator, surgical chair, atomizers, nebulizers, etc., although many physicians prefer to treat the throat, nose and lungs in a separate room, owing to the disagreeable odor from the medications. They, therefore, use another room, which they call the "inhalitorium"; the walls are either tiled or papered with polished bathroom paper, which can be washed and kept antiseptic for surgical work. It is also a great advantage to have an additional room, equipped in the same way. If baths are incorporated in your armamentorium, you will require more space; one or two rooms for giving the baths proper, and at least two rest rooms, where patients can undress and dress, and also rest after the baths, until their bodies have become acclimated to the prevailing out-door temperature. The subject of baths will be more thoroughly discussed in another chapter.

In order that the reader may form some conception of the arrangement of the offices in question he is referred to the accompanying illustrations. Similar offices could be arranged in any city where the erection of buildings is constantly going on; you will always find the landlord willing to give you a long lease, and arrange the rooms to suit your taste. It is a great advantage to locate your offices on a corner, owing to the light in all the rooms from the side, and not through skylight. Many physicians prefer to occupy an entire house and conduct a cottage sanitarium. This will also be found a profitable enterprise, if the location is such that you are assured of a reasonable patronage. The cottage sanitarium has a great advantage over the offices outlined in the foregoing paragraph, inasmuch as you can have your patients constantly under your observation. This is very desirable in many cases, especially where surgery, the alcohol and drug habit, cancer and other similar diseases are placed under your care for treatment.

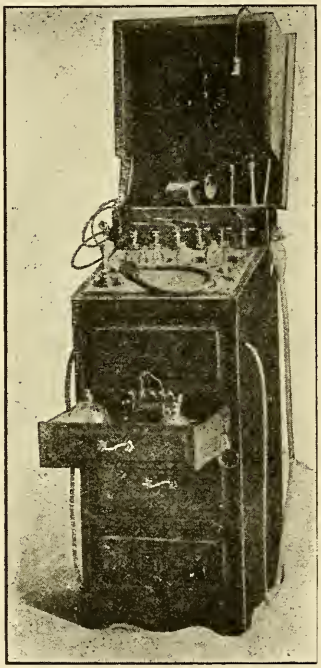
In taking under consideration such an enterprise the first question a physician will ask is: Will I be sufficiently remunerated for the extra outlay of money to justify me in scientifically arranging such offices? This brings us to the point of what equipment we will install, and the cost of same.

Modern inventive genius has made great advancements within the last few years, and today the physician can install scientific appliances and apparatus at almost any price that will fit his purse. This is illustrated in the two cuts, given on another page, of nebulizers; one is sold for $12.50 complete, while the other is valued at $50.00. One machine will do as good work as the other; although the cheap machine is not as convenient for the physician, nor as attractive to the patient, the therapeutic value is upon an equal basis, and such is the case with nearly all other mechanical aids. Physicians can also make as large a display with their apparatus as they



SUGGESTIONS FOR A PHYSICIAN'S OFFICE.

desire or have it condensed in as small a space as they wish. This is exemplified by one of the latest creations which is known as the Siebert-Welch apparatus (see cut). This wonderful little piece of condensed mechanism only occupies a space fifteen inches square by forty-five inches high, and weighs not to exceed one hundred pounds; yet within its walls are contained a complete atomizing and nebulizing outfit, hot

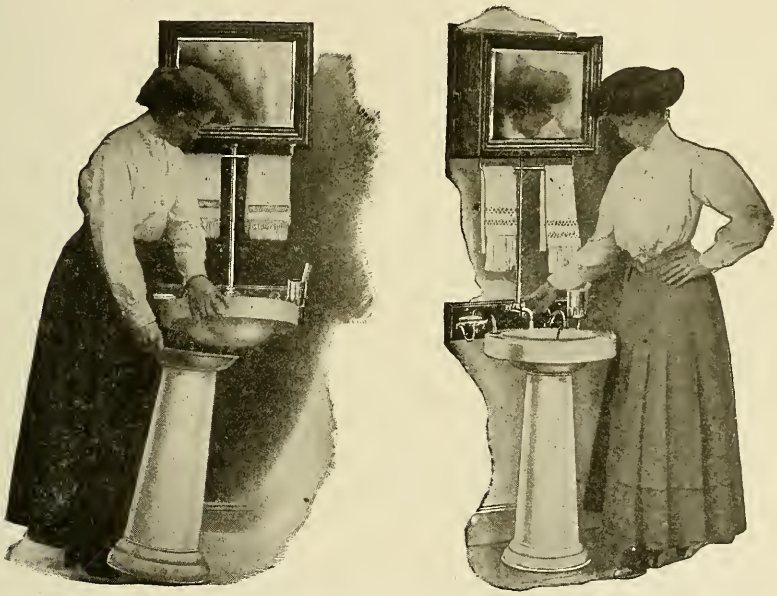


SIEBERT-WELCH APPARATUS.

air douch, vacuum apparatus for conducting Bier's hyperemic treatment, tankless compressed air, complete vibratory massage outfit, superheated air and vacuum combined. Galvanic electricity and a combination of vibration, dilation, contraction and massage are possible of administration at one time, known as the Intro-gymnastic treatment. This equip-

ment may not be as attractive as the different instruments stretched along the walls where they will make a better display, but such an apparatus will be exceedingly convenient for the physician with small office space. What is true with the technical outfitting is also true with toilet requisites and other office furniture, as is illustrated in the accompanying cuts.

In selecting scientific equipment for the advanced therapeutics will depend largely upon the amount of space you expect to occupy, and the amount of capital you wish to expend.



Physician's Supply Co.'s portable lavatory can be installed in any office without city water supply in five minutes.

In order that I may give the reader some idea of such an equipment, I will briefly outline some of the accessories required, and the minimum and maximum cost of same.

	Minimum		Maximum
Operating chair or table	$12.50	to	$100.00
Atomizing and Nebulizing outfit.....	12.50	"	50.00

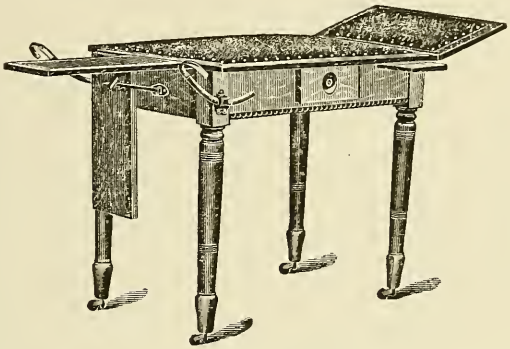
Vibratory outfit	15.00 "	75.00
Galvanic and Faradic Electric Cabinet	22.50 "	75.00
Static Machine and accessories	150.00 "	300.00
Therapeutic Lamp outfit	30.00 "	100.00
Bath equipment	100.00 "	300.00
Optical Case for fitting glasses	....	60.00
Ozone outfit	30.00 "	200.00

While the above are the essential requirements for a thorough scientific equipment, some may be omitted and others added, depending upon the location of offices, the demand of the public and the desire of the physician. To fulfill these by the above estimates it will be seen that a completely furnished office, including all furniture, mechanical apparatus, etc., may be secured at prices ranging from five hundred to fifteen hundred dollars. I have always deemed it a good policy, however, to secure the best, not only because "a thing of beauty is a joy forever," but because the better grade of apparatus will not become impaired from constant use, but can always be depended upon when desired. The next question the physician may consider is: will the extra expenditure of capital justify him in establishing such an enterprise and where will he locate?

For the last ten years I have been a very close observer of this method of conducting a medical practice, and I have never known of a single instance where a physician has made a failure. On the other hand, nearly every practitioner has informed me that he has increased his yearly income over one hundred per cent. Most physicians conduct their business under their own names, while others prefer the name of sanitarium, hospital, institute, etc. This is particularly so where a residence is occupied for offices; thus we find the Red Cross Sanitarium, Doctor Brown's Medical Institute, Doctor Hay's Electro-Medical Institute, Doctor Covert's Inhalitarium, Doctor Ball's Gold Cure Institute or Retreat, Dr. Clark's Cancer Hospital, and others located throughout the country. Where a single specialty is practiced, as cancer, or alcohol and the

drug habits, it is generally in the name, as above; but inasmuch as the treatment of these specialties has been robbed of its mysteries, it has ceased to be a "trick." Any physician can treat these pathological conditions by following the instructions given in the following pages. There is no reason why they should not be incorporated in every physician's practice.

The erroneous opinion has prevailed among physicians that such an office or institution should be located in a city, but such is not the case, as medical competition is fairly well equalized

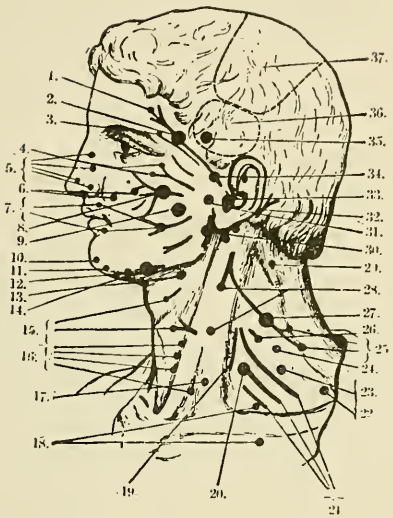


The above cut illustrates the Physician's Supply Co.'s Improved Operating Table. This table is made of oak, highly polished, and fills all the requirements of a physician's operating Table or chair. Both ends can be raised or lowered independently, at any desired angle. It is provided with an extension, sliding out from either side, convenient for holding the arm or instruments during an operation. It has two stirrups, which can be adjusted to any length and concealed when not in use. As an economical (Price $10.00) and desirable piece of office furniture it is doubtful if the table can be excelled.

throughout the country. I have known physicians who have established these offices in hamlets of less than five hundred population, that have patients visit them from the city, and other places hundreds of miles distant. In selecting a new location, however, I would advise a physician to choose a city which contains a population from five thousand upwards. In the following pages I will outline many specialties which may be used to great advantage in office practice. These aids I have divided into the physiologic methods of treatment, and medical and surgical specialties.

Physiotherapy

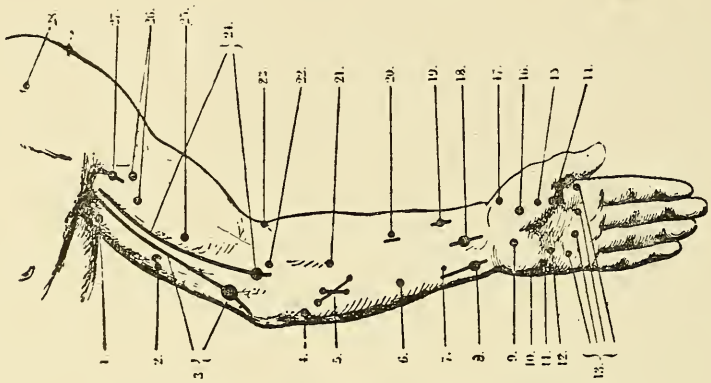
Under the above caption may be described all the physical or so-called "physiologic methods" of treatment which have entered largely into the therapeutic field within the last half and quarter century. In the broad sense of the term they incorporate nearly all methods of healing other than medicine itself; it is, therefore, the drugless method and the natural method of treating disease. Many of these methods are the oldest known to man; but only within recent years have they been harnessed by science, and recognized and utilized by the medical profession as a scientific means of treating disease. It was nearly a half century ago that Dr. Oliver Wendell Holmes made the classical remark, "If all the drugs were cast into the sea it would be well for man, but bad for the fishes." There is no doubt that this veteran in American medicine was far-seeing in his predictions, and realized that medicine alone was a deficient means of treating the sick and alleviating suffering in all diseases, and the future physicians would utilize accessories and adjunct means to restore health to the afflicted. It was in the year 1858 that Dr. Rudolph Virchow delivered his first lectures on "Cellular Pathology," advancing the theory of cell life and the nature of all vital processes. This was the first step forward to evolve and demand the application of electricity, manual and vibratory massage, light and other means to promote, stimulate and restore new cell life. It is only within recent years that Koch's researches in bacteriology and the discovery of the tubercle bacillus which has made his name immortal. When this scientist announced that the bacillus of the "Great White Plague" could not exist when exposed to the sun's rays he revolutionized all previous methods of treatment. Although in the past this disease has



MOTOR POINTS OF FACE AND NECK.

1. Frontalis.
2. Facial nerve (super.).
3. Corrugator supercil.
4. Orbicularis palp.
5. Nasal muscles.
6. Zygomatici.
7. Orbicularis oris.
8. Facial nerve (med.).
9. Masseter.
10. Levator menti.
11. Quadratus menti.
12. Triangularis menti.
13. Hypoglossal nerve.
14. Facial nerve (infer.).
15. Platysma myoides.
16. Hyoid muscles.
17. Omohyoideus
18. Ext. ant. thoracic nerve (pectoralis major).
19. Phrenic nerve.
20. Fifth and Sixth cerv. nerves (deltoideus, biceps, brachialis, supin. longus).
21. Brachial plexus.
22. Long thoracic nerve (serratus magnus).
23. Circumflex nerve.
24. Dorsalis scapulae nerve (rhomboidei).
25. Trapezius.
26. Levator anguli scapulae.
27. Spinal accessory nerve.
28. Sterno-mastoideus.
29. Splenius.
30. Facial nerve (inf. branch).
31. Facial nerve (med. branch).
32. Post. auricular nerve.
33. Facial nerve (trunk).
34. Facial nerve (sup. branch).
35. Temporalis.
36. Third frontal convol. and insula (centre of speech).
37. Ascend. front and pariet. convol. (motor area).

cause more deaths than all the wars of the nations, these sufferers can now look heavenward and behold two of the greatest healing agencies nature has ever given to man—the sun and the pure air enriched with oxygen. It is largely the researches of modern physiology, physiological chemistry and bacteri-



MOTOR POINTS OF INNER ASPECT OF LEFT ARM.

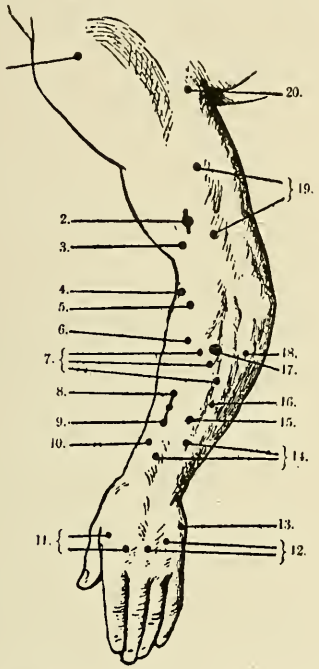
1. Triceps (cap. long.).
2. Triceps (cap. intern.).
3. Ulnar nerve.
4. Flex. carpi ulnaris.
5. Flex. dig. com. prof.
6. Flex. dig. (II et III) subl.
7. Flex. dig. (ind. et min.) subl.
8. Ulnar nerve.
9. Palmaris brevis.
10. Abductor dig. min.
11. Flexor dig. min
12. Opponens dig. min.
13. Lumbricales.
14. Adductor poll. brev.
15. Flex. poll. brev.
16. Opponens pollicis.
17. Abductor pollicis.
18. Median nerve.
19. Flex. poll. longus.
20. Flex. subl. digit.
21. Flex. carpi radialis.
22. Pronator radii teres.
23. Supinator longus.
24. Median nerve.
25. Brachialis anticus.
26. Biceps
27. Musculo-cutan. nerve.
28. Deltoideus (ant. port.).

ology which have demanded the abandoning of drugs in the treatment of many diseases; and although drugs will always bear their respective influence in the treatment of disease, they are not capable of mastering all pathological conditions alone, and the "physiologic methods" are rapidly and legitimately winning their way into favor in modern therapeutics.

In order that the reader may form a clear conception of the nature of physiotherapy I quote the following from an editorial in the *American Journal of Physiologic Therapeutics:*

"The modern conception of disease regards it no longer as a concrete entity to be forcibly driven out nor as the objective clash of contending elements across the passive arena of the patient's body; but as the interplay of action and reaction

MOTOR POINTS OF OUTER ASPECT OF LEFT ARM.

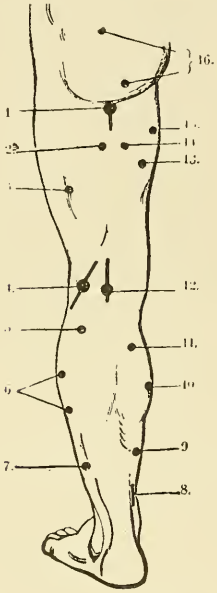


1. Deltoideus.
2. Musculo-Spiral nerve.
3. Brachialis anticus.
4. Supinator longus.
5. Extens. carp. rad. long.
6. Extens. carp. rad. brev.
7. Extens. comm. digit.
8. Extens. indicis.
9. Ext. oss. metac. poll.
10. Ext. prim. intern. poll.
11. Interossei dorsal.
12. Interossei dorsal.
13. Abduct. min. digitl
14. Ext. sec. intern. poll.
15. Extens. indlcis.
16. Extens. min. digiti.
17. Supinator brevis.
18. Extens. carpl. ulnar.
19. Triceps.
20. Triceps.

between the whole organism and its environment—a dynamic affair of perverted reaction to stimulus. Under this conception of disease, it is inevitable that our conception of therapeutics should become similarly dynamic and reactionary. Rational therapy no longer aims to force action, whether of drugs or of anything else, upon the organism, but to arouse proper reaction within it, in which the whole organism must participate. This is Physiologic Therapeutics in its broadest and profoundest sense. And it calls forth, as its materia medica, every means and agency which experience has shown certain, or reason renders likely, to bring about such desired and adequate reaction.

It is not denied that drugs may, and in many instances do, come within the range of this conception of therapeutics. Certainly there is no intention of suggesting that therapeutics

MOTOR POINTS OF POSTERIOR ASPECT OF LEFT THIGH AND LEG

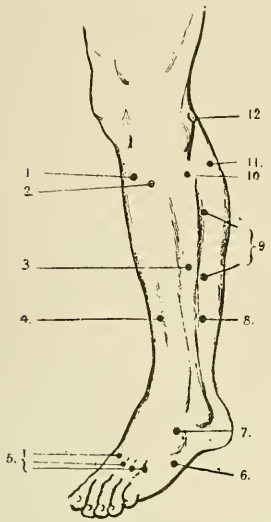


1. Sciatic nerve.
2. Biceps femoris (cap. long.).
3. Biceps femoris (cap. brev.).
4. Peroneal nerve.
5. Gastrocnemius (cap. ext.).
6. Soleus.
7. Flexor hallucis long.
8. Tibial nerve.
9. Flexor digit. comm. long.
10. Soleus.
11. Gastrocnemius (cap. int.).
12. Posterior tibial nerve.
13. Semi-mebranosus.
14. Semi-tendinosus.
15. Adductor magnus.
16. Gluteus maximus.

can dispense with drugs—not in our lifetime, at all events. But there are several reasons why drugs do not most fitly represent, or most readily identify themselves with dynamic therapeutics. For one thing, we have used them so long for their pharmacological effect that practically all of our drug therapeutics must be learned over again to adapt it to dynamic therapy. For another, our control of drug action, while it is much more accurate than it used to be, is still, and must in the nature of things continue to be, too uncertain to compete, in physiologic results, with the drugless modes. But of far deeper import yet is the fact that drug therapy does not represent the same degree of proximate principle in therapeutics that these other modes do. That is to say, the latter constitute a group of therapeutic agents "existing ready formed"

(as we say of chemical proximate principles) and available for application by means which do not alter or destroy their complex unit of potentiality.

The whole future of therapeutics is without doubt a question of body defense—in which are to be included, not



MOTOR POINTS OF OUTER ASPECT OF LEFT LEG.

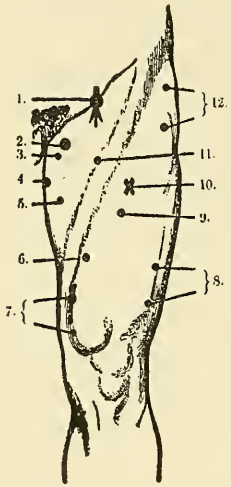
1. Tibialis anticus.
2. Extens. digit. longus.
3. Peroneus brevis.
4. Extens. hallucis longus.
5. Interossei dorsales.
6. Abductor min. digiti.
7. Extens. digit. brevis.
8. Flex. hallucis long.
9. Soleus.
10. Peroneus longus.
11. Gastrocnemius.
12. Peroneal nerve.

alone the phagocytic defenses of the blood, as exemplified in the sera and vaccines, but all the natural or acquired processes of functional reaction by which the organism, or any part of it, defends itself against disease and death. This is Physiologic Therapeutics, in its broad intent. It is not a mere arbitrary fad in medicine that has created a new class of materia medica and labeled the "physiologic methods," in distinction from drug remedies; not a passing vogue that has given these methods accuracy. It is, that in the unfolding of the new dynamic concept of disease and the consequent search for a corresponding system of therapy, medicine has been obliged to transcend the realm of drugs and to cultivate a field of therapeutics which afforded, as stated, a more proximate principle of dynamic reaction. And this field constitutes the class of so-called drugless or physiological remedies.

We do not belittle the place of drugs in medicine. It is

probable that they will play an important role in therapeutics. But we unhesitatingly predict that the principle of Physiologic Therapeutics, as we have briefly tried to expound it, will dominate the spirit and practice of medicine of the future—even of the near future."

Taking from this the basic principle of physiologic therapeutics as a "defense against disease," we find the physical methods far superior to drugs in many diseases. Where can we find a drug in the Materia Medica that will produce the reaction upon muscular and nerve fiber to compare with elec-



MOTOR POINTS OF INNER ASPECT OF LEFT THIGH.

1. Crural nerve.
2. Obturator nerve.
3. Pectineus.
4. Abductor magnus.
   Abductor longus.
6. Cruralis.
7. Vastus internus.
8. Vastus externus.
9. Rectus femoris.
10. Quardiceps.
11. Sartorius.
12. Tensor vag. femoris.

tricity? Where is there a drug that will compete with light and heat, relative to its influence upon the skin and bacteria, and so on through the entire chain of physical methods of defending the body from the invading enemy—disease?

These methods have been classified under different names and systems, incorporating electricity, hydrotherapy, phototherapy, mechano-therapy, thermotherapy, vibrotherapy, osteopathy, massage, physical training and all the kindred sciences. Many of these systems are so closely allied as to involve many of the fundamental principles; each has its independent therapeutic action, however, inasmuch as the vaso-motor centers of the body enter largely into the basic principles of this

field of practice. I have inserted among the foregoing pages illustrations outlining these centers, which are of the greatest value to the physiotherapeutist.

It is an easy matter to locate these centers when you are in a dissecting room where the map portraying the geography of the body is before you, but when this is covered by the integument, these landmarks are more obscure. I have also tried to illustrate the following chapters with drawings that each chapter will be easily comprehended.

In conclusion, I will add, if there is any one cause to create harmony among the sectarian schools of medicine and promote a united medical profession, it is physiologic therapeutics.

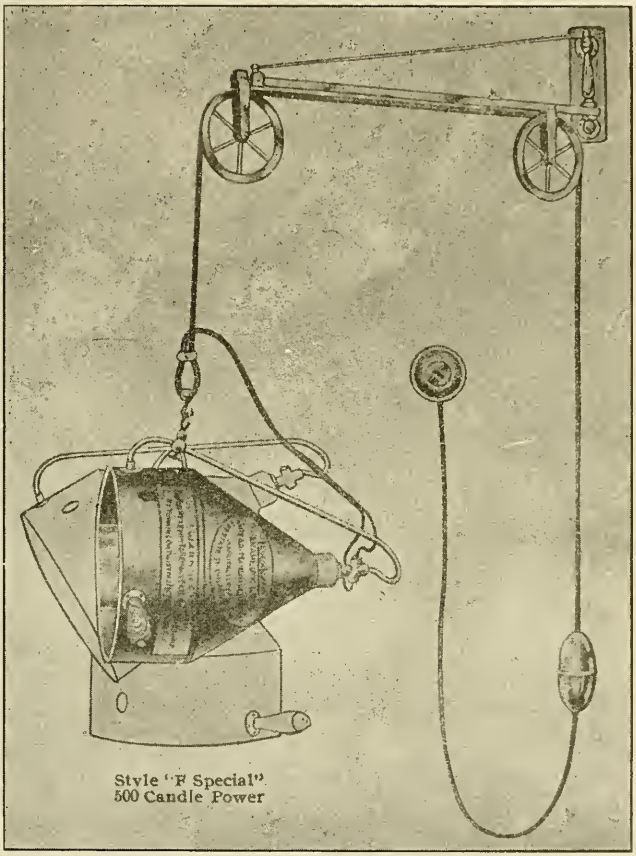
The allopathic physician will cease to pseudonym the homeopath a "dispenser of imagination" and the homeopath and eclectic will not refer to the allopath as a member of the "dominant school of medicine," but all will unite in one tenet, and

"Live for those who love you,
And those who know you true;
For the heaven that smiles above you,
And the good that you can do."

Therapeutics of Light

Ever since the sun's rays have been shining upon the face of the earth we have been in possession of the oldest and one of the greatest natural healing agencies, and although all animal life has recognized the influence of light and heat from instinct, as a therapeutic measure, it has only been within the last few years that the scientific principles of the therapeutics of light have been investigated and utilized to any great extent by the medical profession. It was in the year 1895 that Rœntgen announced the results of his investigation of the X-ray, and, in the same year, Finsen treated and cured his first case of lupus by the ultra-violet rays. If we would visit the grounds of the All-Denmark Hospital in Copenhagen, we would see erected a national monument to the memory of Nils Finsen, whose investigation into the effect of light upon the human body has brought hope and relief to thousands of suffering humanity. His discovery has marked a definite step forward in medical science, and in this beautiful memorial (see cut) entitled "Towards the Light" is produced three figures straining toward the light to regain their health.

Finsen's investigations were followed by Arloing d'Arsonval DuBoise, Geisler, Graber, Bert and others; today the utility of light is recognized as one of the indispensable physiologic means of treating and curing disease.



LEUCODESCENT THERAPEUTIC LAMP.

THERAPEUTIC LIGHT APPARATUS

One of the most important requisites to conduct light treatments, is a well-constructed lamp. The Finsen light which is so well and favorably known is too elaborate and

expensive for the general practitioner; we will, therefore, only consider the incandescent and arc lights, which are easy to operate and uncomplicated in their technique. The lamp for all general purposes should be capable of producing light energy, which will be equivalent to from 300 to 500 candle-power, and ninety per cent. of the lamps in use are of the stronger light power. The volume of light and heat should be easily regulated to suit the requirements for different diseases, and also economize in the operation of your lamp. The lamp should also be capable of adjustment to any angle that the patient may receive treatments in either the sitting or recumbent position. Colored screens should also be provided for those who desire to test some of the claims made for colored light in therapeutic work; with these few considerations you will have a light to conduct your work which will be satisfactory at all times. I am personally impartial to all lamps, but my experience has been confined to the leucodescent lamp, manufactured by Spear-Marshall Co., Chicago, and the solar therapeutic arc lamp, manufactured by the Good Health Publishing Co., Battle Creek, Mich.

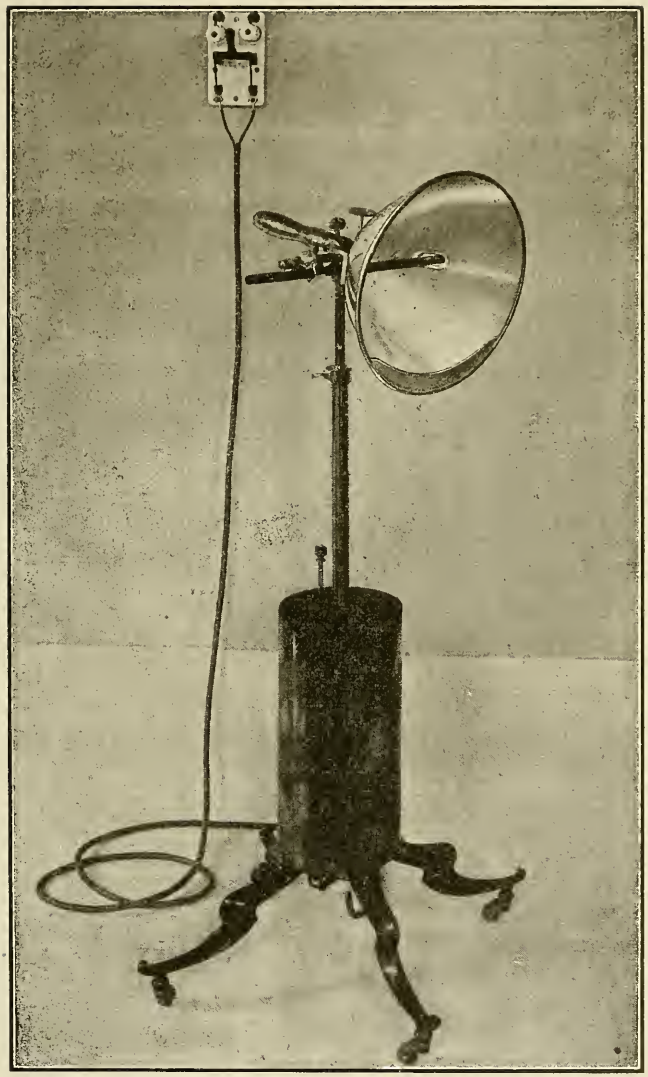
CLASSIFICATION OF LIGHT RAYS AS USED IN THERAPEUTICS

If we would observe the colors of the rainbow, or take a prism (cut diamond) and bring its reflection against a screen, we would see the seven primary colors which constitute the spectrum—red, orange, yellow, green, blue, indigo and violet —although in reality there are an enormous if not an indefinite number of colors in the spectrum but for convenience of classification and therapeutic purposes they have been divided and subdivided into the following classes:

Thermic or Heat Rays.—Red and infra-red.

Luminous Rays.—Orange, yellow and green.

Chemical or Actinic Rays.—Blue, indigo, violet and ultra-violet.



THE SOLAR THERAPEUTIC ARC LAMP.

It will thus be seen that all the rays of light except the infra-red and ultra-violet are within the visible spectrum.

Finsen's original theory was that the curative value of light was greatest at the ultra-violet end of the spectrum; although he did not entirely ignore the value of the remaining rays in certain indications. The Finsen apparatus for light treatment, however, is designed with a view of producing light with the greatest possible number of ultra-violet rays, and the elimination, largely, of the remaining rays of the spectrum; this is the reason the blue, indigo, violet and ultra-violet rays are often referred to as the Finsen rays.

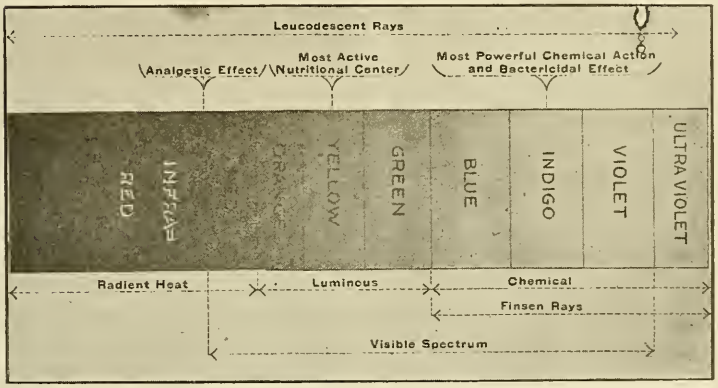
The chemical or actinic rays the luminous and thermic or heat rays, each, apparently, have their individual therapeutic action but their value is not destroyed when used as a unity. In classifying the therapeutic value of the light rays there has been some diversity of opinion.

Freund has gone so far as to exclude the thermic rays from the therapeutic field, which is a great omission, as heat combined with light is indispensable in the treatment of many conditions; that each color of the spectrum bears an important therapeutic value is beyond question and has the endorsement of the most constant observers.

In resuming the utility of light as a healing agent, the light rays have been classified as follows:

Chemical or Actinic Rays find their greatest field of usefulness in the destruction of bacteria and their antiseptic effect; when used alone they are superficial in effect, and will not penetrate below the skin's surface, hence various devices have been used to increase their penetration. The blood in the tissues absorbs the penetrating power, and when this is forced out by pressure, and other means, their influence is more active; these rays are depended upon for their bacteriacidal influence in all forms of superficial septic and suppurative diseases; lupus, acne vulgaris, eczema, epitheloma and kindred affections, and when combined with other light rays, reinforces their action in the treatment of more deeply seated diseases.

The Luminous Rays bear their greatest influence upon nutritional centers, increasing the number of red blood corpuscles; they also increase the percentage of nerve force, valuable in all diseases where there is a wasting of tissue. The central rays of the spectrum are sedative to nerve tissues.



RAYS OF THE SPECTRUM.

Dr. Schlanger has demonstrated that green and blue light would quiet maniacs when other means would fail; he therefore provided a room with green and blue windows for this sedative effect. Anæmia chlorosis and other deficiencies of the blood and tissues are greatly benefited by the luminous rays.

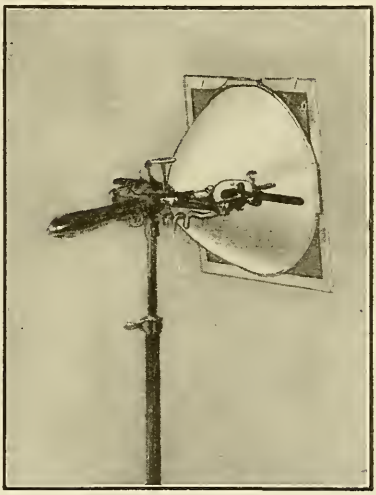
The Thermic or Heat Rays.—It is the penetrating qualities of the vibratory energy of the red and infra-red rays, used in conjunction with other rays that assist their therapeutic action in deep-seated affections, if combined with heat, and the unity of the other rays of the spectrum with the therapeutic lamp. Radiant heat rays' greatest influence is as an anodyne and analgesic and to obtund pain it is therefore the therapeutic agent used.

EFFECTS OF LIGHT UPON ANIMAL TISSUES

Light and heat have always been symbolical of life, while cold and darkness have been emblematic of decay and death; we find the highest forms of animal and vegetable life thriving under the influence of heat and light and, usually, the lowest forms existing in cold and darkness. The effect of light, therefore, seems to vitalize all tissues and functions of the body; nearly all observers agree that the following histological changes occur in the tissues exposed to the light, viz., it increases the activity of all tissue cells, and produces a pronounced dilatation of the superficial and deep cutaneous blood vessels; the migration of the leucocytes and swelling of collagen hyperplasia of the epidermis and thickening of the rete mucosum. The influence of light upon blood vessels and circulation tends to increase the circulation and remove effete material, and bears the same relation as a mustard plaster or hot fomentation and chemical irritants. The cutaneous glands are stimulated and profuse perspiration ensues, likewise encouraging the eliminative process. That combined light and heat is more active than heat alone is exemplified in the electric light bath, which is nearly twice as active in producing perspiration, although the electric light cabinet may be at a lower temperature than the hot air or vapor bath cabinet.

Metabolism is also greatly stimulated by the effect of light rays impinging upon the nerve endings of the skin, oxidation is greatly increased through the influence of light and the hemoglobin of the red cells is enriched by its absorption. When we realize the rapidity in which the blood circulates and the comparatively short time required for the entire volume of blood to pass through a given surface, exposed by a therapeutic lamp, we can appreciate the value of light in destroying phagocytic bacteria and the elimination of waste and diseased material.

The chemical rays of lights are more germicidal in their action than many drugs. They will destroy tetanus germs more rapidly than a one to one thousand bichloride of mercury solution. Koch and Kitasato have proven that tubercle and plague bacillus perish on exposure to the sun and the same is true regarding the destruction of bacillus of other diseases. There is a difference of opinion as to how the bacteria is destroyed; some claim it is due to the changes in the tissues, caused by the light, and others that it is the direct influence of the ultra-violet rays.



COLOR SCREEN ATTACHED TO ARC LAMP.

LIGHT AS A THERAPEUTIC AGENT

In the application of light as a therapeutic agent, it is absolutely necessary that the rays of light should be applied directly to the bare skin, as any covering, however thin it may be, will retard the influence of the light rays. Any surrounding surface not requiring the influence of light should be covered with dark cloth. After adjusting the lamp so that the

rays will fall directly upon the surface to be treated, the current is increased to reach the degree of light desired, and each treatment timed to meet the requirements of individual cases. Blondes are more susceptible to the influence of light than brunettes, owing to the lack of pigment in their skin, and it is well to explain to all new patients that erythema will be a possible consequence. The first few applications should therefore, be of short duration; from two to five minutes will generally produce a slight reddening of the skin. As each patient progresses the duration of the seance may be prolonged until from fifteen to thirty minutes is required to produce the desired effect; there will be sufficient pigment matter formed to protect the tissues and prevent injury. For all general purposes the full unmodified rays of light are employed, as we thus receive the derivative effect of all the rays, if we wish to eliminate the chemical rays and increase the thermic rays the red screen is used and likewise the blue screen is used to somewhat eliminate the thermic rays, and increase the chemical rays.

The principal and most active qualities of light as a therapeutic agent may be found in its influence upon the blood and circulation, its tonic and vitalizing powers and its destruction of many pathogenic germs. If we would resume the diseased conditions in which this form of treatment is applicable, we would appreciate the large field of usefulness this agent is destined to fill in the treatment of disease. All superficial diseases are more rapidly influenced, owing to the direct action of this agent. Deep-seated disease often can only be influenced indirectly, or by reflex action. Pain and nerve pressure are relieved by inducing activity of the circulation, through the congested areas; therefore, all superficial inflammation and suppuration are greatly benefited. This has been demonstrated through the benefits and cures derived in long-standing cases of acne vulgaris, scrofulous, abscesses, and ulcerating lupus. By exposing these diseases to the influence of the powerful ultra-violet rays, as close as possible to the diseased surface, for a definite period, we will observe that

the influence of this agent will diminish, and in time, remove the inflammatory process by improving the circulation and destroying the suppurating process, through its chemical action and bacteriacidal power.

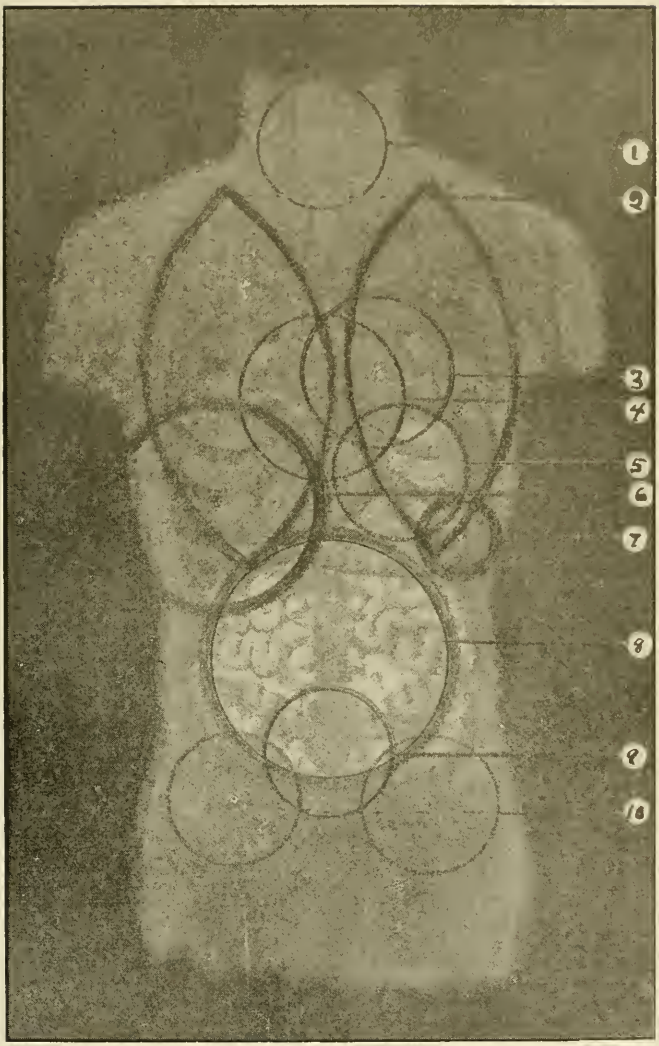
Axmann states that fresh and suppurating wounds behave under the influence of the actinic rays as if they had been bathed with a solution of peroxide of hydrogen. It will thus be seen what a large field of usefulness light has in the treatment of cutaneous and all ulcerative affections alone, although its usefulness is not limited to the skin, as the influence of light upon the deeper structures is almost unlimited. Its power to relieve high blood pressure exercises its potency in a variety of painful affections,—rheumatism, neuralgia, neuritis, pleurisy and allied diseases are treated with excellent results.

While superficial affections depend upon the direct rays of light for their therapeutic value, the deeply seated organs are influenced, in a remote way, through terminal nerve action, and the influence of the blood and the circulation. If we produce an erythema of the entire surface of the body, as we would by exposing the entire body to a sun, electric light, or full hot water bath, we are capable of drawing to the cutaneous surface one-half to two-thirds of all the blood in the body; we are, therefore, temporarily removing the blood supply and pressure from the internal organs, which will readily be seen to have its influence in eliminating inflammatory conditions of the liver, spleen, kidneys, lungs and other internal organs. This may be done more rapidly by the hot water bath, but the continued influence of the light and heat received by the electric light or sun bath treatments are most lasting in their results; to illustrate, we may relax a convulsion caused by a congested spine or brain more rapidly by placing the patient in a hot water bath, as this is an acute affection, but in an old, chronic affection of these organs, permanent relief could only be obtained by long exposure, resulting in actinic or solar erythema. On the other hand, we find certain surfaces of the

skin are related to the blood supply of certain internal organs, and by applying light to these surfaces, we influence more directly the internal organs; in much the same way as the manipulation of the nerve centers in the spinal column bears its influence in treating internal organs by osteopathy and vibratory massage. For instance, the skin covering the loins is, collaterally related to the kidneys, through the renal branches of the lumbar arteries; therefore, by producing hyperemia of the skin, at this surface, we are inducing a collateral anæmia and relieving blood pressure upon the kidneys. The entire surface of the body is likewise collaterally related to different organs, and the relationship between the integument and internal organs is of the greatest importance in the therapeutics of light and are the landmarks used by the light therapeutist in the treatment of disease.

As a rule the skin covering the internal organs is reflexly related to the organs it covers, both anterially and posterially, although there are many exceptions to this rule. To illustrate: the soles of the feet have a reflex action upon the brain, genito-urinary organs and bowels, while the dorsal area of the feet has a reaction upon the pelvic organs, brain and intestines, and the light area of the hands is directly related to the brain and lungs. This has been demonstrated by removing headache, also congestion of the brain and lungs, by applying hot applications to the hands and feet, by hot water baths, etc.

By referring to the accompanying translucent illustrations, it will be seen where the application of light, by the use of the therapeutic lamp, is applied to establish its direct influence, and collateral reflex action through the circulatory and nervous systems. The skin and spinal centers are used as a means of conveying therapeutic impressions through the direct and peripheral nerves, and controlling circulation by its influence upon the blood vessels. Every area of the cutaneous surface, and each nerve center in the spinal column is in special reflex relation with some internal organ. The following are the most important of these reflex relationships.



ANTERIOR LIGHT AREAS.

EXPLANATION OF ANTERIOR VIEW.

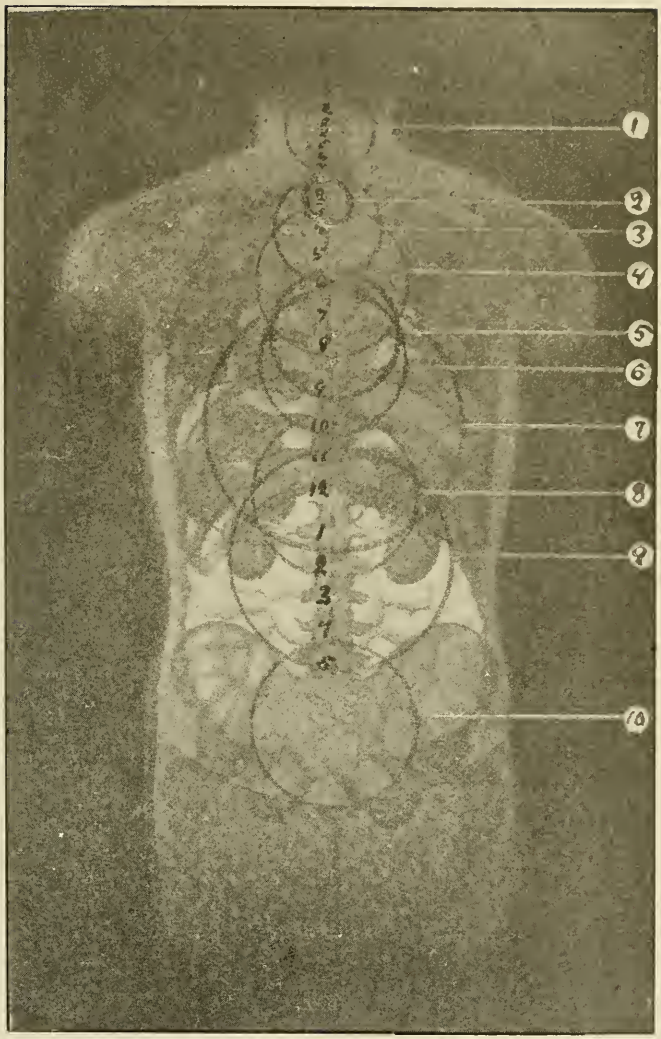
This illustration, showing the anterior view of the body, points out the cutaneous areas when the application of light is utilized to have its most direct influence upon the internal organs. The line or circle outlining and incorporating these areas is the surface in which the rays from the therapeutic lamp should exert their greatest therapeutic value; (1) Larynx and Pharynx, (2) The Lungs, (3) the Heart, (4) the Stomach, (6) the Liver, (7) the Spleen, (8) the Intestines and Abdominal Viscera, (9) Bladder, Uterus and Ovaries, (10) Genito-Urinary Organs.

The circumscribed areas in these illustrations are the ones associated reflexly with the deep seated organs, and also illustrate the focusing surface, which the light could cover by its reflection of the direct rays; the intensity of the light may be either increased or decreased as desired, either by moving the reflector to or from the surface, or the more economical way of regulating the current by the rheostat.

In making application to the chest there are two particular precautions which should be observed to protect the eyes from the powerful rays, by the use of colored glasses, or a dark cloth shield around them, and in very feeble patients, where the heart is affected, the entire surface of the heart should be covered with a damp, dark cloth, or other protection.

The application of light to the chest and abdominal surface is indispensable in a large number of diseases. All forms of pain will find relief; intercostal neuralgia, pleurisy, acute bronchitis and pneumonia will be greatly benefited by these applications, which should be of short duration but rather intense in character. In all chronic diseases the treatment should be prolonged for a greater period with a view of producing erythema. What is applicable to the chest is also useful in treating the epigastric, hepatic, and lower abdominal regions. Application of light varying from five to fifteen minutes will relieve pain and inflammation in the stomach, liver and bowels and by maintaining a continued hyperemia of the skin is one of the most beneficial factors in the treatment of all chronic affections of the diseased thoracic and abdominal organs.

Application of light to the spine, and spinal centers acts in both a direct and indirect way. It will bring relief to diseases within the cord or vertebrae, neuritis or Pott's disease or reflex pains from the internal organs. Gastritis, gall bladder disease, and the so-called preferred pains of the other viscera. A continued hyperemia of the areas given in the accompanying illustrations is one of the most effectual means of pain inhibition in the therapeutic field. These special



POSTERIO LIGHT AREAS.

EXPLANATION OF POSTERIOR VIEW.

This illustration gives the cutaneous areas and spinal centers through which the application of light exerts its greatest therapeutic influence, through the nerve centers.

(1) The Brain, Larynx and Pharynx, (2 and 3) the Heart, (4) the Lungs, (5) the Stomach, (6) the Liver, (7) the Spleen, (8) the intestines and Abdominal Viscera, (9) the Bladder, Uterus and Ovaries, (10) Genito-Urinary Organs.

organs can be specifically treated by the following brief technique:

The Brain—The skin covering the entire scalp and face, and the back of neck, also the feet and hands are the areas used in treating this organ.

The Larynx and Pharynx are reflexly influenced by the skin in the front and back of the neck and upper cervical nerve centers in the spinal column.

The Lungs—The skin in front and back of these organs and the vertebral area from the first to the sixth dorsal vertebrae and also the skin on the inner surface of the thighs have special reflex relation with the lungs.

The Heart—The skin and area of the chest wall covering the heart in front and behind and also the first, second and third dorsal vertebrae are the centers influencing the heart.

The Liver—The integument lying over the organ and the area from the seventh to the tenth dorsal vertebrae.

The Stomach—Direct application of light to the skin covering the stomach and also the vaso-motor centers from the sixth to the ninth of the dorsal vertebrae.

The Spleen—The skin on the left side of the lower chest, and the nerve centers from the third to the eighth dorsal vertebrae are associated with this organ.

The Intestines are reflexly related to the skin which covers them and the vertebral area from the seventh dorsal to the first lumbar vertebrae.

The Kidneys—The skin at the lower part of the sternum and the area involved from the tenth dorsal to the second lumbar vertebrae.

Bladder, Uterus and Ovaries—The skin covering these organs and also the groins is directly related to the above organs in the female, and also to the prostate testis and epidermis of the male; their spinal centers are from the eleventh dorsal to the fifth lumbar vertebrae, inclusive.

REGIONAL APPLICATION OF LIGHT

Regional application of light and heat can be brought in direct contact to every given area by means of the incandescent or arc lamp, and these are the means used when a greater degree of intensity is desired.

In treating local or internal diseases by reflex action, after adjusting the lamp so the parallel rays will fall directly upon the diseased surface, the intensity of the light may be regulated, either by regulating the current, or the distance at which the lamp is placed from the patient. When a very small area is desired to be treated, such as lupus or small skin lesions, the lamp can also be focused in such a way as to concentrate the rays to a very small area or diameter. The first indication that we are receiving the benefits of the treatment is a very decided sensation of heat; this is followed, in a few minutes, by a reddening of the skin, and the beginning of perspiration, which indicates that the full benefit of the application has been secured. If the patient complains of the intense heat, the surface may be sponged with tepid water, alcohol or other liquids.

Solar erythema or light burn is a condition which occurs after continued use of the light treatments, and is due to the actinic rays of light, and denotes a complete dilatation of the cutaneous blood vessels; no great harm can be done with this treatment, as with X-ray, because the effect is only superficial. Continued treatments produce a discoloration of the pigmentary layer of the skin, which is analogous to sunburn and the tanning process from the sun's rays. This extreme light force is a condition frequently desired in the treatment of many deep-seated and obstinate cutaneous diseases; in gall stones, sclerosis of the liver and chronic gastric catarrh, appendicitis, all internal congestion and painful joint affections, sciatica, chronic acne, eczema, psoriasis, etc.

APPLICATION OF LIGHT TO NERVE TRUNKS

This is one of the most effectual means of obtunding pain in all diseases involving the sciatic and other nerve trunks; it

is, therefore, indispensable in the treatment of sciatic rheumatism, neuritis, locomotor ataxia, etc.

APPLICATION OF LIGHT TO JOINTS

This affords a very potent means of treating joint affections, whether due to injury or disease; sprained ankle, rheumatic joint affections, articular rheumatism, etc., yield very readily to this form of treatment.

APPLICATION OF LIGHT TO THE EPIGASTRIC REGION

Will prove valuable in the treatment of all chronic diseases of the stomach, gastralgia, dyspepsia, chronic gastric catarrh, duodenitis, cholangitis, etc. To produce marked results in these diseases, the epigastrum should be kept in a continued state of hyperemia of the skin.

APPLICATION OF LIGHT TO THE HEPATIC REGION

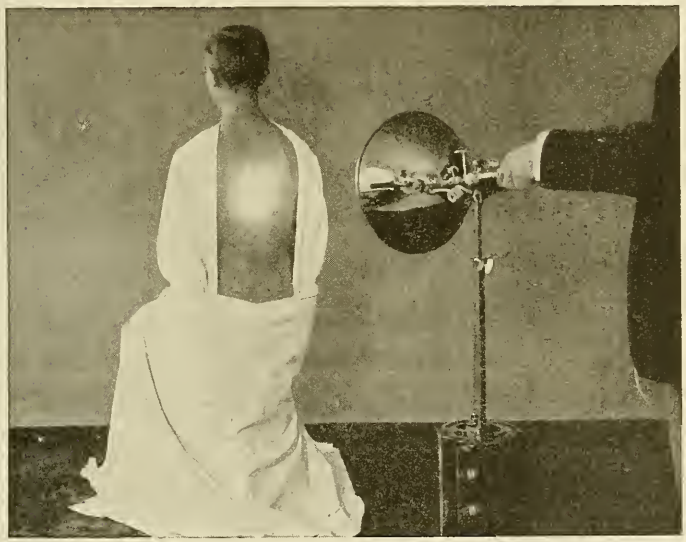
This is one of the treatments par excellence in many long-standing diseases of the liver; the treatment should be continued until a permanent hyperemia exists, covering the entire surface of the liver, which will render valuable service in the treatment of gall stone disease, chronic congestion, jaundice, and cirrhosis of the organ. It creates activity of the portal circulation and induces the flow of bile.

APPLICATION OF LIGHT TO THE ABDOMINAL REGION

The application of light to this region greatly influences nearly all diseases occurring within the abdominal cavity; relieves pain in intestinal colic, chronic colitis, chronic appendicitis, visceral neuralgia, and all inflammatory and non-inflammatory and painful conditions.

APPLICATION OF LIGHT TO THE RENAL REGIONS

By applying light directly to the renal region in the back, we derive a most direct influence upon the kidneys, and increase their activity and eliminative functions; this is, also, a very effective and therapeutic measure in the treatment of all acute and chronic diseases of these organs. Their attachment is so closely related to the external surface and spinal centers that the most active influence is derived from light in this region.



APPLICATION OF LIGHT TO SPINAL AREAS.

APPLICATION OF LIGHT TO THE LOINS

It is surprising to note the rapidity in which light treatments will remove "kinks" in the back; backache and lumbago will often disappear like magic with this treatment. Its reflex action, through the nerve trunks in this location, has a wide field of usefulness in the treatment of a variety of diseases, incorporating nearly all the abdominal and pelvic organs, and also diseases within the spinal cord; spinal

cirrhosis, chronic myelitis, etc. It is also the region in which the greatest results are obtained in genito-urinary diseases, neuralgia, acute inflammation of the bladder; also neurasthenia in both sexes, amenorrhea, ovarian neuralgia, salpingitis, chronic metritis, and dysmenorrhœa and other pelvic and abdominal pains are generally relieved by this treatment.

GENERAL LIGHT TREATMENT

Electric Light Bath

Of all the different forms of photo and thermotheraphy, which have been devised, the electric light bath has the greatest field of usefulness, and no physician conducting an office practice or sanatarium armamentorium would be complete without an electric light bath cabinet, for this is the one means of giving the entire body the benefit of light and heat in its most potent, convenient and beneficial form. This bath was introduced by Dr. Kellogg, of the Battle Creek Sanitarium, about twenty years ago, and its general approval and scope of usefulness is apparently increasing every day, while extensive investigations have been conducted to obtain the physiologic effects of the procedure. This bath, as a rule, is not conducted with a view of treating any special organ, but for its general tonic and eliminative influence; in this, it has no superior. Its stimulative action upon the skin is nearly double that of the Turkish or Russian bath, as free perspiration will take place in three and one-half minutes, at a temperature of 80 degrees F., while it requires about six minutes in the Turkish and Russian bath at a temperature from 102 degrees F., to 128 degrees F. Another advantage over other baths is that the heat may be retained at any desired degree, by simply controlling the lights. The greatest value of this treatment is the easy way in which it induces perspiration as an eliminative process. Brain workers and confined office attendants are the ones who most need the best influences derived from both heat and light, as exemplified in the electric light bath. The influence of this treatment in the elimination of marked

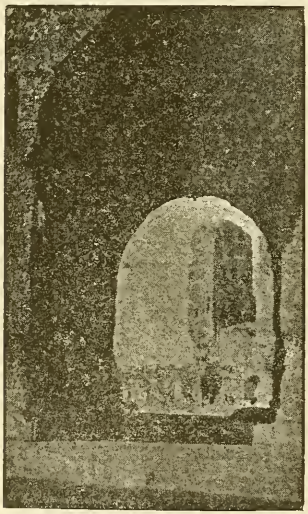
toxic accumulations far excels any other means, and will not only be found useful as a hygienic luxury, but a therapeutic necessity in treating many conditions. It is by far the best eliminative means of removing toxic influences from alcohol and the drug habit, and the toxemia of chronic dyspepsia,

ELECTRIC LIGHT BATH CABINET.

malarial cachexia, rheumatism, syphilis and other diseases of a kindred nature; while the light, combined with heat, reinforces its influence upon cell growth, and establishes new activity in the blood and circulatory system. It is the most potent therapeutic agent known to promote activity of the skin in the elimination of waste products.

Hydrotherapeutics

Other than light baths, constitute one of the most ancient of therapeutic measures, and the healing properties of water could be traced back to the most remote ages of antiquity. The ancient Romans not only utilized baths as a panacea for all ills, but as a means of invigorating and strengthening their armies, and wherever their subjects were stationed, elaborate bath accommodations were installed. The gigantic magnitude of these establishments is well illustrated in the ruins of the baths of Caracella, which are still in existence. Similar baths were located in its most distant possessions.



RUINS OF THE BATHS OF CARACELLA.

In the ancient city of Bath, England, there was a Roman bath establishment restored only six years ago, A. D. 1909, as it existed during the time of Cæsar. The baths of Rome and Roman possessions finally lost their significance, and for many centuries the art of bathing, as formerly practiced, fell out of existence; and only within the last sixty years has the therapeutic value of baths evolved into a scientific system of hydrotherapy.

The scientific technique of hydrotherapy, as it is practiced today, supplemented by the use of all modern bath apparatus, places hydrotherapy among the leading healing adjuncts to medicine. A knowledge of the value of hydro-

therapy and balneotherapy is indispensable to any physician; this is especially true where a fully equipped office or a small sanitarium is conducted. A public bath establishment is a remunerative proposition in any locality with a population from two thousand upwards, and will not only reimburse the physician's income several hundred dollars a year from the baths alone, but will be the means of having your bath patrons become acquainted with your other scientific therapeutic apparatus, and establishing your medical and surgical business. With this object in view your bath apartment should be open to the general public, other than invalids; this can be certain days in the week, or certain hours of the day, as preferred, depending upon the extent of patronage. Most physicians, who are conducting these establishments with limited space, have ladies call at certain hours or days and gentlemen at other hours or days; for instance, the ladies' days would be Monday, Wednesday and Friday, while the gentlemen's days would be Tuesday, Thursday and Saturday. On the other hand ladies can visit your institution in the forenoon and the gentlemen in the afternoons and evenings. Of course this could be arranged to suit the demands of individual cases, etc.

You will require the services of both a male and female attendant, and it is the physician's duty to instruct these attendants in the technique of giving the different baths, massage, alcohol rubbing, etc.

It is advisable when establishing a bath institution to incorporate as many different forms of baths as possible and establish a schedule of prices ranging from 25 cents up. The following prices are those generally adopted at bath establishments:

Plain tub bath, hot or cold, without attendant.....	25c
Plain tub bath, hot or cold, with attendant, and alcohol rub	50c
Turkish bath, without attendant	50c

Turkish bath, with attendant, and alcohol rub	75c
Russian bath, without attendant	50c
Russian bath, with attendant, and alcohol rub.....	75c
Super-heated air bath (Betz bath) with alcohol rub....	$1.00
Electric light bath	$1.50

Of course these prices could be changed to suit individual requirements.

The physician who has not given this phase of the subject special attention, may think it an exaggeration when I state that the patronage from baths alone will be the means of increasing his yearly income from one to two thousand dollars a year, even with limited equipments, and at the same time, will be the means of reinforcing his professional business to fully this amount. Of course your success will depend, somewhat, upon the amount of energy expended in making a bath institution popular. Nearly all physicians, conducting bath establishments in connection with their practice, issue bath tickets, from which they make a small reduction where a course of baths is given. To illustrate the common, hot, or cold baths, with alcohol rub, which are listed at fifty cents for a single bath, a bath ticket is issued giving a course of twelve baths for five dollars. Bath attendants usually expect to make a fair salary from the 'tips'' they receive, and they can conduct the baths for you on either a salary or commission.

Baths have been defined as the process of complete or partial immersion of the body in some element or substance other than that to which it is normally accustomed; thus we may have hot or cold water baths, hot air, vapor, or medicated vapor baths, sand, mud or sun baths, electric or electric light baths, etc. These baths may be given for pleasure and cleanliness, as surf bathing in the ocean, or for therapeutic purposes, for their effects upon elimination, stimulation, metabolism, etc. The temperature of baths varies, generally, from forty to four hundred degrees F., depending upon the substance used and the method of application. The following temperatures are the standard in general use:

Cold baths	45	to	65	degrees	F.
Cool baths	65	"	75	"	F.
Tepid baths	85	"	95	"	F.
Warm baths	95	"	100	"	F.
Hot baths	100	"	110	"	F.
Very hot baths	110	"	120	"	F.
Vapor baths	100	"	140	"	F.
Hot air baths	110	"	180	"	F.
Hot air blanket baths	200	"	400	"	F.

BATH THERMOMETER.

To determine the temperature of baths the physician should provide himself with a bath thermometer. This is a very important instrument especially when you are keeping a record of bath patients.

THE EFFECTS OF HOT, COLD AND MEDICATED BATHS

It is the universal opinion that heat and cold, applied to the external surfaces of the body will be conveyed to, or abstracted from, the deeper tissues; while this is true to a certain extent, the process of penetration, or depletion of heat or cold is very much overestimated. Various tests have been made by inserting a thermometer in the orifices of the body, the mouth, vagina and rectum, and the most accurate observers have noted only a fall of temperature in typhoid fever from two to four degrees by the use of Brand baths and their modifications, while a rise of temperature to an equal number of degrees has been observed by the use of hot baths in cholera. One of the most important objects of hot and cold baths is the regulation of circulation, when we consider the fact that the skin is capable of retaining one-half of the blood in the body; and by immersing the body in either superheated water, air

or vapor will relieve blood pressure upon the internal organs. Every physician is familiar with this effect in convulsions of children and even adults. What is true in relieving the blood pressure in the cerebro-spinal axis, is also true with the portal system and other congested areas.

Therefore, the physician should exercise much judgment in adjusting the temperature for a bath for certain people and not aggravate any state of the system that cannot tolerate such influence. The principal things to note are the conditions of the heart and blood vessels in either too cold or too hot baths, bearing in mind that cold baths contract the capillaries to some little distance below the skin and drive the blood pressure inward, requiring forced cardiac pressure, while hot baths weaken the cardiac action by drawing the blood from the internal circulatory organs.

From time immemorial, the laity have been taught that the only way to derive benefit from baths is to emigrate their anatomy to some fashionable mineral springs or bath resort, where the waters have an obnoxious odor, or nature has provided water at an increased degree of temperature. This is illustrated by the patronage of the three principal bath resorts in this country. Mt. Clemens, Michigan, is noted the world over for its mineral baths, while the Hot Springs of Arkansas and Virginia are famous for their super-heated waters. One great advantage regarding these resorts is that nature has provided surrounding scenery which is attractive to the invalid, and produces a degree of tranquility to the nervous system which could not be obtained at home.

The therapeutic value of the minerals contained in bath water is very much overestimated. This has been proven conclusively by many authenticated clinical tests. While there are many medicinal products which are capable of being absorbed by inunction, Dr. R. Winternitz has found it impossible to induce the direct entrance of these substances into the skin from watery solutions.

Dr. Rohrig experimented with iodine, and after remaining in a strong iodine solution for three-quarters of an hour, failed

to discover any iodine in the urine. Dr. Stas made similar experiments upon himself, using sodium arsenate. Although he occupied the full bath for prolonged periods no indication of absorption was observed.

Strong mercurial full baths have also been experienced with the view of producing salivation, and only negative results have occurred, which, from a clinical point of view, have demonstrated the inertness of medicinal substances in bath mediums. These unsettled facts of long-cherished ideas, among medical men, that in order to receive the full benefit of baths, certain minerals should be incorporated in the bath waters, are now regarded as pseudo therapeutic measures.

If we were to compare the bath records from the mineral baths of Mt. Clemens, Mich., and Hot Springs, Ark., with the records from the Battle Creek, Mich., and other sanitariums, we would find the therapeutic value of hydrotherapy equal in every way to balneotherapy.

The question naturally arises: then what advantage does the mineral bath have over the ordinary bath? First of all, it is more cleansing; this is especially so where the waters yield an alkaline reaction and an elevated temperature. They have a more stimulating action upon the sweat and sebaceous glands and also allow a freer desquamation of old skin, and contact of the water with the body proper. There is a stimulating effect upon the skin, produced by the chemicals, which aids materially in the eliminative process, while saline or gaseous baths also affect the circulatory and nervous systems in a reflex manner. The same is true with the hot or cold baths, and the greater the departure from the normal temperature of the body, the greater will be the effects upon the reflexes through the central nervous system. Dr. Wood has pointed out, with much method, that heat and cold are conditions of the same force, and depend upon the caloric intensity above or below the normal temperature of the body.

Modern chemistry has served the noble purpose of giving us the exact chemical constituents of nearly every mineral water in the country, and has also provided us with a means

whereby nearly all mineral baths can be procured in any locality if so desired. In order that the reader may become familiar with the technique and therapeutic value of baths as used at these sanitariums and watering places throughout the country, I will outline the methods of giving these baths as used in modern hydro-therapy independent of the chemical constituents of the waters.

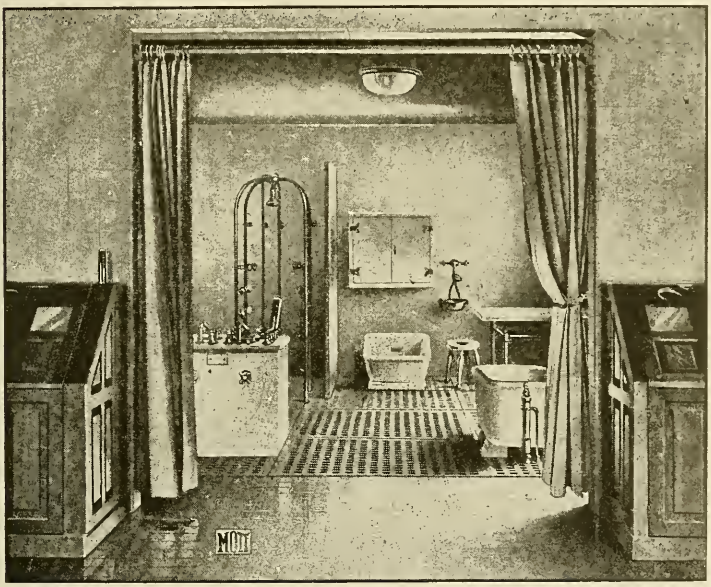
BATH EQUIPMENT

There are two essential things required to conduct hydrotherapy in connection with a medical practice: first, a good quality of water, and second, the proper apparatus with which to utilize the water.

If you are living near a natural spring, or can obtain an artesian well in the locality of your sanitarium or office, so much the better, as water from this source is usually of good quality, and is held in greater esteem by the general public. For the purpose of elevating this water to a sufficient height to secure pressure throughout your offices, a hydraulic pump or windmill is often installed. Of course where water is used from the city waterworks this is not necessary. Your bath equipment can be as limited or extensive as you desire, but the maxim, "the best is none too good," is always the best policy to follow. I, therefore, refer the reader to the accompanying illustration, which outlines the arrangement and equipment of a modern bath apartment. These are stationary fixtures; portable apparatus can be added to administer baths at the bedside of the sick when desired, or these elaborate fixtures may be duplicated by less expensive ones, with perhaps the same therapeutic results. This picture illustrates nearly every modern apparatus required to conduct hydrotherapy in a scientific manner, the details of which will be found in the following pages:

The fixtures comprise the following: 1. Hydratic control table for regulating the force and temperature of the

water. 2. Rose spray or needle bath. 3. Attachment for rain or shower bath. 4. Sheet blanket and towel warmer. 5. Sitz bath with wave spray. 6. Tilting basin with mixing valve and shampoo. 7. Perineal douch and stool. 8. Massage table. 9. Full bath tub. 10 and 11, in the foreground, are the electric light, Turkish and Russian bath cabinets.



MODERN BATH EQUIPMENT.

TEPID, WARM AND HOT BATHS

These baths are alway found the most agreeable to patients, and the variations of temperature have been classified as follows: Tepid bath from 85 degrees F. to 95 degrees F. Warm baths from 95 degrees F. to 100 degrees F. Hot baths from 100 degrees F. to 110 degrees F.

In giving all baths we must take the normal temperature of the body as a standard, and any deviation from this temperature will have the depressive or stimulating reaction.

Tepid and warm baths are generally employed for simple cleanliness, and as the heat balance is nearly equal, they are often referred to as natural baths, which are used after other bathing processes.

Hot baths have a wide range of usefulness. They consume oxygen and have a marked influence upon metabolism. They eliminate carbon dioxide and increase oxidation.

These baths are used to maintain the normal temperature of the body in depressive diseases, as cholera, and to relieve congestion and inflammation of internal organs by drawing the blood pressure to the surface.

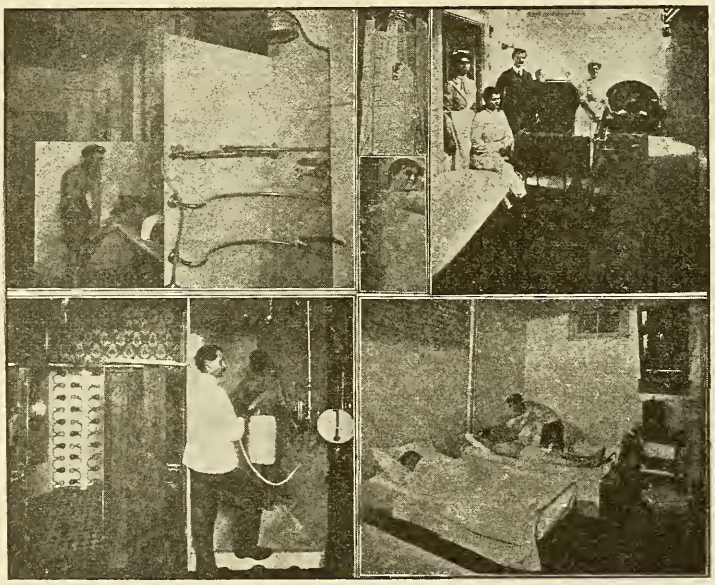
COOL AND COLD BATHS

One of the seeming paradoxes in hydrotherapy is that hot or cold baths produce nearly the same physiologic results and if a pathological condition does not react to the hot bath, in many instances it will to the cold and vice-versa. The stimulating effect of the thermic irritants, when briefly applied, excites the peripheral sensory nerve terminals and thus produces stimulation. Cold baths have always been used by athletes as a hardening process and are applied, in present therapeutics, as a process of reducing temperature in fevers.

In the year 1861, Dr. Brand, of Stettin, wrote his first paper on cold baths as a process of reducing the temperature of fevers; although his method of giving baths has many modifications, this process of bathing has always maintained the name of "Brand bath." The technique of giving this bath, as modified by Dr. James Tyson, and used in the treatment of typhoid fever, at the hospital of the University of Pennsylvania, is as follows: The folding or portable bath tub is placed by the bedside of the patient, containing water at a temperature of about 70 degrees F. Compresses of ice water, or the ice cap is applied to the head, which is allowed to rest upon

an inflated rubber cushion during the bath. The patient is gently lifted into the water and during the immersion which lasts from ten to fifteen minutes, the patient is constantly rubbed to maintain good circulation. At the end of the bath the patient is lifted into bed, where he is rubbed dry and placed between blankets. At the end of about fifteen minutes the patient will cease to shiver; the temperature is then taken and the patient allowed to rest for three hours, when the temperature is again taken, and if it is found to exceed 102.2 degrees F., or above, the bath is repeated. If the temperature is found 102 degrees F., or below, or over 101 degrees F., the bath is repeated in four hours from the last immersion. If below 101 degrees F., or above 100 degrees F., repeat the bath in five hours. If below 100 degrees F., repeat the bath in six hours. If, at any time the temperature should reach 102.2 degrees F., the baths are repeated every three hours, and as many as six or eight baths may be given during twenty-four hours. As many as 175 baths have been given during a course of treatment by Dr. Kinnicutt. While the principal object of the bath is to reduce and control the temperature, other benefits are obtained of equal importance. The intellect becomes clear, and muscular twitching disappears, and there is a general tonic influence upon the nervous, circulatory and respiratory systems, producing sleep and a general tranquility of the bodily functions. There are several counter indications for cold baths. They should not be employed with too young or aged patients with weak vitality. After the cold bath there is always a reaction; the skin, which was shrunken and pale from the cold, in ten or fifteen minutes takes on a glow of red and warmth, showing that the blood has again occupied the capillaries of the integument. This is the most important feature of the bath; it is through this reaction that all baths derive their greatest therapeutic value, and where patients fail to receive this reaction, cold baths should be duplicated with tepid or warm baths to develop the reaction power. Careful statistics have been recorded at different hospitals in this country relative to the value of baths in typhoid fever. Dr.

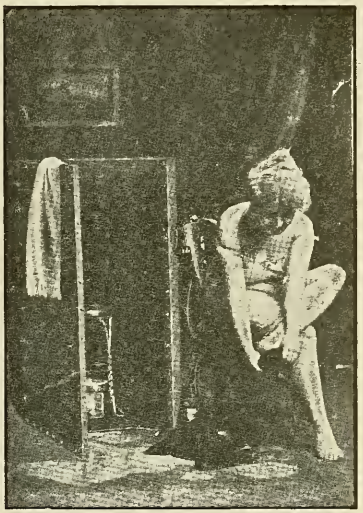
Gilman Thompson states that the mortality from this disease has been reduced from 16 to 6 per cent. in New York hospitals since the introduction of the Brand bath. Dr. H. P. Loomis reports a reduction of 50 per cent. since the introduction of this bath, and, comparing the number of deaths in former years, it is estimated that fully one thousand lives have been saved each year in New York city alone from the use of these baths. There are many other substitutes for the Brand bath, principal of which are the graduated bath, cold pack and ice



1. Massage Table, Shower and Needle Bath.
2. Superheated Air Bath Apparatus.
3. Electric Light Bath Cabinet and Douch Room.
4. Rest and Massage Room.

rubbing. The graduated bath is obtained by placing the patient in a tub of water, at about the normal temperature of the body, which is gradually cooled until it reaches 80 or 90 degrees F., constantly rubbing the patient during the bath; while this bath is not as stimulating as the cold bath, it is a good substitute.

The cold or cooling wet pack is another good substitute for the Brand bath, and has the advantage that it can be applied in localities remote from bathing equipments. The bed is covered with oil cloth, and the patient is wrapped in a sheet saturated with water at 70 degrees F.; as the sheet warms, a



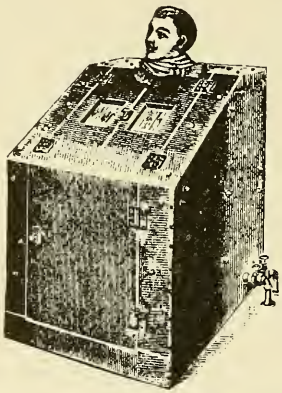
PORTABLE BATH CABINET.

new one is to be applied until, during the course of ten or fifteen minutes, five or six applications have been made. In preference to changing the sheets the crescent bath douch, or the gardener's sprinkling can is used to keep the surface cold.

The ice rub or ice ironing and ice poultices are also often substituted for the Brand bath. The ice rub is produced by a flat piece of ice, wrapped in gauze with which the body and limbs are thoroughly rubbed. The ice poultice is made by mixing finely pounded pieces of ice with either bran, corn meal or sawdust. These may be used either by immersing the entire body or applied locally as poultices.

THE TURKISH BATH

For the universal use of the Turkish, or superheated air bath, we are, perhaps, indebted to David Urquhart, an English representative at the Court of Constantinople some sixty years ago. Mr. Urquhart had a sunstroke while living in that city, and his recovery was credited to the use of the superheated air baths, which for many years have been in vogue among the people of Turkey. On his return to England, he expounded the therapeutic value of these treatments for different dis-



STATIONARY BATH CABINET.

eases, with the results that they were promptly adopted in many cities in Europe and America, and today no hospital or sanitarium is considered completely equipped without this valuable curative agent. Its effects are refreshing, cleansing and decidedly stimulating to the circulation, and it is one of our very best means of eliminating toxic influences from our bodies.

The principal object of this bath is to produce profuse perspiration. The original Turkish bath consisted of placing the naked body in a room with dry hot air, at a temperature of 110 degrees F. to 130 degrees F., where he is allowed to remain for ten to fifteen minutes until free perspiration is

established. He then enters another room with still higher temperature, from 150 degrees F. to 200 degrees F., for a few minutes until the diaphoretic action is very profuse; he is then placed upon a marble slab and given a thorough rubbing with the bare hands. This is followed with a soap shampoo with a loofah or Egyptian sponge. Of late years there have been many improvements in the technique of giving these baths and various bath cabinets have been invented, which produce the same therapeutic results, and are more agreeable to the patient. All these cabinets are arranged so the head may protrude, thus allowing the patient to breathe pure, fresh air, instead of the oppressive atmosphere of the Turkish bath room. The technique of giving these Turkish cabinet baths is as follows: The patient is supplied with a clean sheet with which to wrap his body, and placed in either a wood or oil cloth cabinet or bath chair (see cut) which can be heated from either a steam or hot air furnace, or an alcohol heater. After adjusting the cabinet about the patient, a towel should be wrapped around the patient's neck to retain the heat in the cabinet and a cold cloth applied about the head; allow the patient to drink all the water he may desire, which assists in producing the diaphoretic results and the eliminative effects of the bath. After the patient has remained in the cabinet from fifteen to thirty or more minutes he is then placed in the warm full bath, and thoroughly rubbed for a few minutes during this bath; he is now wrapped in a blanket and retires to the rest room, where the perspiration will continue for about a half hour or hour. During this time the patient will feel inclined to sleep, and the body will resume its normal condition; then the patient is allowed to take a final shower bath, with a soap shampoo, and rub his skin dry with a rough towel, and dress. The foregoing is the general procedure of the Turkish bath, as given at the present time, at most bathing institutions, and is one of the most important procedures in hydrotherapy. This bath has been largely succeeded, however, by the electric light bath, given in the foregoing chapter; the technique of the bath is just the same in both baths, only electric lights are

used to produce the heat. This method is much more effective and also combines the therapeutic influence of light.

THE RUSSIAN BATH

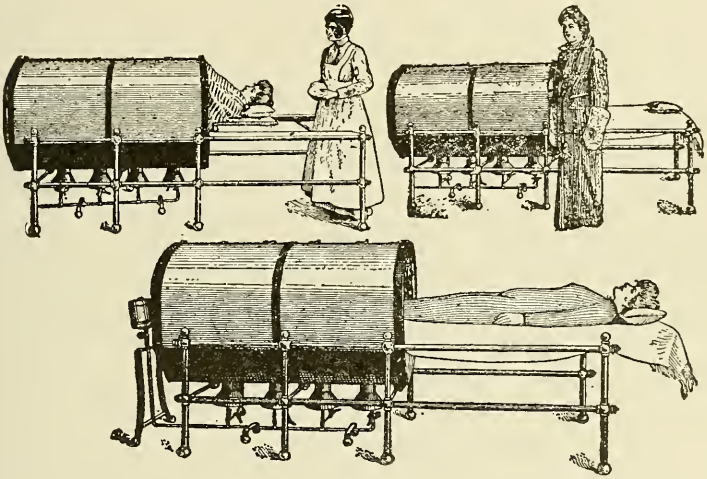
This bath is also adopted for its diaphoretic influence, and is conducted the same as the Turkish bath, only using steam instead of hot air for heating the cabinet. The temperature of this bath is considerable lower than the Turkish bath, as the steam renders the higher temperature unbearable. The bather remains in this cabinet ten or twenty minutes, and the same procedure, and after treatment is carried out as with the Turkish bath.

HOT AIR BLANKET BATH

This bath is also called the superheated air bath, and often referred to as the Betz bath, inasmuch as this gentleman has devised extensive apparatus for conducting the bath. This bath is really a combination of the Turkish and Russian baths. The superheated air is supplied by artificial means and the steam from the body of the bather. To conduct this bath the patient is wrapped in several thicknesses of blankets, and then placed in an "oven," where the temperature is from 200 degrees F. to 400 degrees F., and allowed to remain from twenty minutes to one-half hour, or longer, until free perspiration is established. He is then removed to the rest room, and allowed to steam for ten or twenty minutes, when the steaming blankets are removed, and the body wrapped in dry blankets; after a rest of about one hour, the same after treatment is conducted as in the foregoing baths. This is one of the most effectual baths in hydrotherapy, and is especially adopted in the treatment of inflammatory rheumatism, when the patient is helpless. These baths can also be conducted to local parts by the use of special cabinets, in the treatment of inflamed joints to obtund pain, etc.

A WORD OF CAUTION

Before adopting any of the superheated baths, the patient should be thoroughly examined to ascertain the condition of his heart, and during the bath the patient should be allowed all the cold water he desires. This increases the diaphoretic effects of the bath. The head should also be kept cool by the application of cold cloths, and the opening through which the head protrudes in the cabinet should also be tightly closed,



SUPRA HEATED AIR APPARATUS.

by wrapping cloths around the neck to prevent the escape of heat or steam.

The question often arises: Which cabinet will be the best to install for an office or small sanitarium? My answer would be: The electric light cabinet, by all means, as it is the safest, cleanest and quickest in action of all bath cabinets, and avoids the danger of accidents from breaking pipes, etc. There are also well founded conclusions that the physical properties of the two agents light and heat far excel any other process in producing the diaphoretic effects desired, and the penetrating power of the two agents, which are so closely related in phys-

ical properties to sunlight, penetrate the deeper structures and stimulate the metabolic processes and bodily activities.

Where another cabinet is added, a combination of heated air or steam is best for all medicated vapor baths, etc.

The Turkish, Russian, Electric light, and the Super-heated air blanket bath are among the most indispensable of bath equipments, in the treatment of many diseases. Their principal therapeutic effect is elimination through the cutaneous surface; they are, therefore, used in the treatment of alcohol and the drug habits, kidney diseases, rheumatism, joint and kindred affections, where the rapid elimination of toxic influence is desired.

ALCOHOL, SALT AND ICE RUB

The above substances are largely used at bathing institutes as an adjunct to hydrotherapy. Alcohol is usually employed as a finishing means. Only pure, grain alcohol should be used, either slightly diluted or pure. From two to four ounces will be sufficient for each bath. This is poured into the hand and applied to the different sections of the skin, until the entire body has been thoroughly covered. This method adds tone to the skin, improves circulation, and prevents the patient from taking cold after bathing.

MEDICATED, VAPOR AND TUB BATHS

Medicated vapor baths may be taken in the cabinet by the use of the vapor pan, a special apparatus to supply the medicated vapor, which is placed under the bath stool. The medicated solution is placed in the pan, and the heat underneath produces the vapor; by medicating any solution, the fumes given off in steam will produce its medical influence upon the body.

Sulphur Baths

May be obtained by either vapor or in the tub by the following solution, which is known by several names: Sulpholine, liquid sulphur, Sulphol, etc.

℞

Lime	1 oz.
Sulphur	2 oz.
Water	1 qt.

Boil in an enamel or porcelain vessel until dissolved, and add from two to four or more ounces, to thirty gallons of

VAPOR PAN AND HEATER.

bath water for a tub bath, or dilute and use in vapor bath pan. This bath is hightly esteemed by many in the treatment of several skin diseases.

Another preparation used in sulphur baths is as follows:

℞

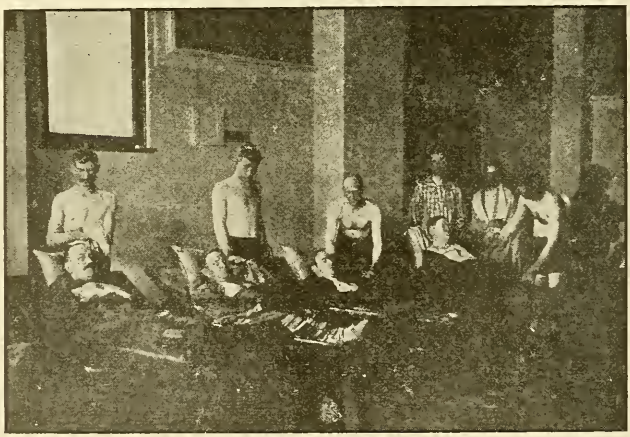
Precipitated sulphur	2 oz.
Sodium hyposulphite	1 oz.
Dilute sulphuric acid	½ oz.
Water	1 pt.

The above can be used to 30 gallons of bath water, or used as a vapor in cabinet baths.

Many bath establishments prefer to give sulphur baths with some one of the sulphides, the sulphide of sodium being preferable, owing to its solubility in water; this gives all the characteristic obnoxious aroma found around sulphur springs, and is used when they wish to imitate these fashionable resorts.

PINE NEEDLE BATH

One ounce of Oleum pini sylvestris (pine needle oil) is placed in the vapor pan, with several ounces of water, and the patient is steamed for thirty minutes in the bath cabinet. The after treatment is the same as in other vapor baths; this is also useful in the treatment of many skin diseases. Acid, alkaline and other baths may also be given in the same way, but the two mentioned above are by far the most useful.



MUDLAVA BATHS.

MUD, LAVA, FANGO, PEAT AND SAND BATHS

(Antiphlogistic Baths.)

These baths are very highly esteemed in many parts of Europe, and have become quite popular in this country at a little health resort in Northwestern Indiana (Kramer, Ind.),

where has been coined the names of Mudlava, Moor-Baths, etc. In the volcanic district of Italy the lava is used for this purpose under the name of Fango baths; the color of this substance is a grayish brown, and about the consistency of butter. The Fango is applied about the body, at a temperature approximating 110 degrees F., and a gentle massage of the body is given during and after the pack or bath, which lasts about one-half hour.

In several places in this country a good quality of blue clay, which has been thoroughly ground, is substituted for Fango, with nearly equal therapeutic results. These baths are especially beneficial in the treatment of stiff and painful joints, arthritis, sub acute rheumatism, sprains, neuritis and all injuries of the ankle, etc.

SITZ OR HIP BATHS

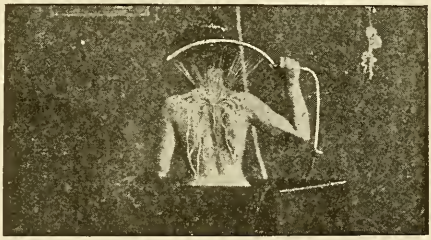
These baths are generally given in a tub, designed for the purpose (see bath equipment illustration), and may be either hot or cold, according to the effect desired. During the bath the rest of the body should be wrapped in blankets, and the feet also placed in a pail of warm water. Sitz baths are given for their local effect in the treatment of diseases of the abdominal and pelvic organs. Hot baths divert blood from these organs, and cold baths congest them. The hot Sitz bath has always been an important treatment in many menstrual disorders; amenorrhoea, dysmenorrhoea, neuralgia, and pain within the pelvic and abdominal cavities. Cold baths are given for their tonic effects, in the treatment of paralysis and intestinal atony, impotency and sexual debility of the male; also hemorrhagic states of the bladder, intestines and uterus, hemorrhoids, etc.

SHOWER AND NEEDLE BATHS

The shower or rain bath was first adopted by the Germans, and is one of the most convenient and cleansing of bathing methods. It has many advantages over the tub bath, inasmuch as it requires only about one-tenth the amount of water and

the time required for bathing is much less. There is also economy in space for apparatus, and avoids the danger of communicating diseases in public places.

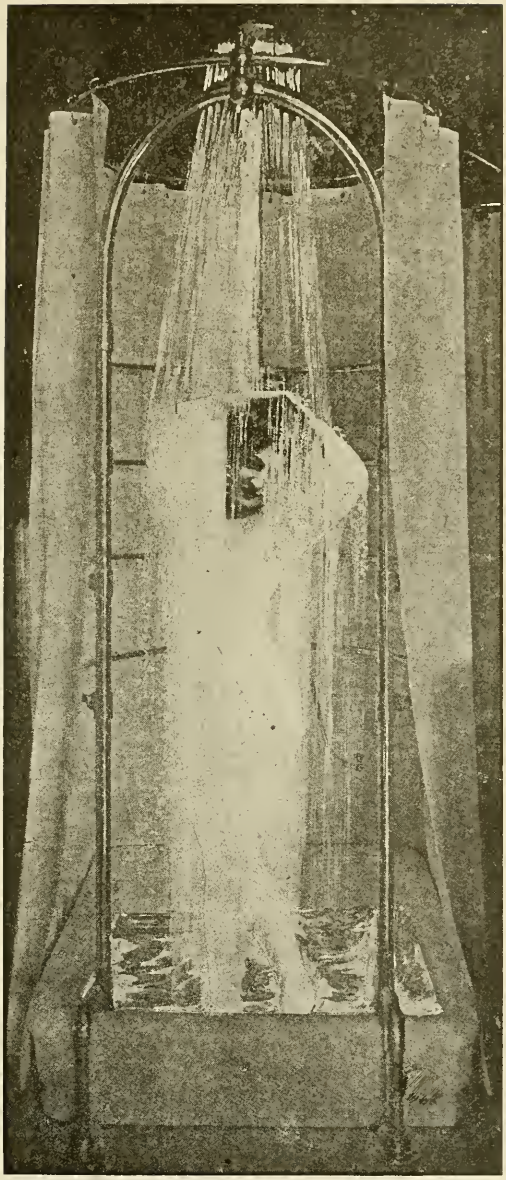
Shower baths are given with a view of imitating rain by a special device which hangs above the head. The spray can be regulated in force or temperature as desired. This bath has of late years been given in connection with the needle bath or douch, which consists of another device enveloping the body on the sides, whereby minute streams of water are thrown upon the body from all sides, giving the body a sensation as though needles were pricking it. The sharp stimulus these small streams produce upon the skin is very invigorating. The needle and shower bath can be operated independently, or hot and cold showers may be given as desired. A very stimulating effect is produced by alternating the hot and cold sprays; these two bath processes are generally used as an after bath, or as a cleansing process following the Electric light, Turkish and other cabinet baths, being the simplest and best way to tone the skin before leaving bathing establishments. The patient will withstand the prevailing temperature without taking cold.



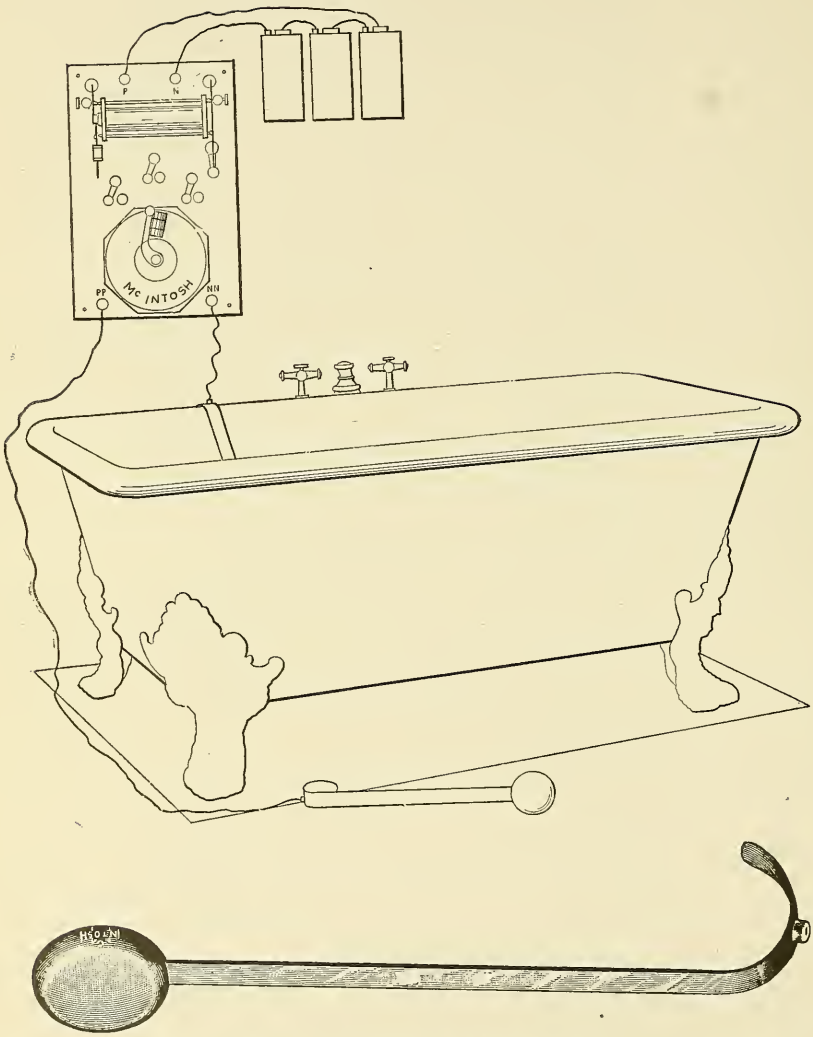
CRESCENT BATH DOUCH.

THE HOT AND COLD DOUCHES

These douches consist of a single stream of water, coming from a nozzle of a ¼ or ½ inch in diameter, at a distance of 8 to 10 feet from the patient, and may be regulated from intense cold to warm, as the treatment demands.



THE SHOWER BATH.



ELECTRIC TUB BATH APPARATUS.

Dr. Charcot was among the first to adopt this hydrotherapeutic measure and treated many cases of hysteria with marked benefit, by applying a cold douch to the spine, at a temperature from 40 degrees to 60 degrees F.

Cold douches are also used in chronic constipation and general auto-intoxication, insomnia, anæmia and other conditions, for their tonic and reactive influences. Hot and cold douches are also used, known as the Scotch douch. This douch is produced by two streams of water, one hot and the other cold, varying in temperature from 55 degrees F. to 110 degrees F. These douches are applied to the spine and posterior thorax and sides; also to the abdomen and lower extremities, but not to the anterior chest. The alternating of hot and cold is very invigorating and the tonic effects are used in many forms of paralysis and low forms of vitality.

GALVANIC AND FARADIC TUB BATHS

These baths are given for their stimulating effect upon the body, and can be utilized for any purpose where these electric currents are indicated in general, and is a most excellent means for supplying the current to the entire body by placing one electrode at the head of the bath tub and the other at the foot or to stimulate the primea viae. The patient may sit in the center of the tub with the water up to or above the waist line and the electrode placed upon each side of the tub, and any style of portable battery may be used or a special apparatus devised as is illustrated in the accompanying diagram.

SALT RUB OR GLOW

The salt rub or glow, as it is frequently called, is another means of producing a tonic effect to the skin, and is a substitute for sea bathing. This procedure is conducted in a tub of salt water, at a temperature of 104 degrees F. Five pounds of salt to forty gallons of water is the bath solution. During the bath the patient is constantly rubbed by the attendant,

taking a small handful of salt and rubbing different parts of the body vigorously. After the body has been thoroughly covered by this process, the patient is generally given a final shower bath and rest.

The ice rub, or ironing, is also used to produce reaction of the skin and other organs. It is used largely in sunstroke. A flat piece of ice or a sack filled with ice is rubbed over the body for its reflex influence.

In conclusion, will say that Hydrotherapy is fast winning the confidence of the medical profession as a remedy, and water, like many other things provided in nature, is one of the natural means of restoring health. Dr. Winternitz, of Vienna, and Dr. Baruch, of New York, have been striving for years to make hydrotherapy the common property of the medical profession, and to this end have endeavored to extol its virtues as it justly merits and avert the empirics who are springing up in every direction as water-cure doctors. This is one of the adjuncts of medicine, which belongs to the physician and by adopting Hydrotherapy in connection with an office or Sanitarium practice, your efforts will be doubly rewarded, by the success you will obtain.

MEDICATIONS FOR BATHS

The following formulæ for the more commonly employed medicated baths used in diseases of the skin, etc., are as follows:

THE ACID BATH

℞	Acid nitric fort	1½	oz.
	Acid hydrochloric fort	1	oz.
	Aqua	30	gal.

These baths are employed in pruritus urticaria and papular eczema.

THE ALKALINE BATH

℞ Soda carb .....3 oz.
Potassium carb .....4 oz.
Borax pulv .....2 oz.

Use one of these powders for 30 gallons of bath water, with one-half pound of starch employed in acute eczema ichthyosis psoriasis erythema and urticaria.

THE CREOSOTE BATH

℞ Creosote ..... 2 dr.
Glycerine ..... 2 oz.
Aqua .....30 gal.

MERCURY BATH

℞ Hydrag. Chlor. corrosive .....45 gr.
Ammonium chloride ..... 2½ dr.
Aqua ..... 2½ oz.

This solution is to be poured into 30 gallons of bath water, is used in pruritus parasitic skin diseases and syphilis. Great care should be taken in this bath and avoid the water from coming in contact with the eyes or mouth.

TAN AND TAR BATHS

Tar baths are employed by rubbing the diseased patches with tar, and then removing the tar by the ordinary bath. This bath was much employed by the late Professor Hebra in psoriasis. Tan baths contain a handful of fresh tan bark in each bath. This has been recommended for purpura.

ARTIFICIAL SULPHUR BATHS

are generally obtained by adding one or two ounces of sulphurated potassa in forty gallons of water. The following, however, is the one used at this institution:

℞	Sulphurated potassa or soda	½ oz.
	Sodium bicarbonate	1 oz.
	Sodium chloride	60 gr.
	Castile soap shavings	30 gr.
	Alum	30 gr.
	Calcium carbonate	30 gr.
	Water	1 gal.

Mix and boil, stirring with a wooden rod until thoroughly dissolved. This gives off an odor of sulphurated hydrogen, which has the characteristic odor of most sulphur mineral waters. This solution is added to forty gallons of water for the bath.

SULPHO-LAVA BATH

This bath is a mixture of the above solution with blue clay and an addition of sufficient water to make the mud the consistency of plastering mortar. The patient is placed upon a massage table with elevated edges, and completely covered (except the head) with this mixture. During the bath the patient is constantly massaged by kneading and rotating the muscles from head to foot, and is very curative in its effects in many cases.

SAND BATHS

are given in a similar way to the mud baths, by completely covering the body with the sand. There is no place in the world in which sand baths are taken in the natural state so extensively as at Atlantic City. You can stroll along the "Board Walk" for miles and see people burying their anatomy in sand. Most of the bathers take these baths for pleasure,

while others claim they derive much benefit from the practice. On a recent visit to this resort I counted no less than one hundred and fifty, fat and lean, rich and poor, awkward and indifferent, isolated in a place back of the "Board Walk" not over eight rods square.

MINERAL WATERS

If physicians were to accept the testimony of the proprietors of the various mineral water resorts, they would be led to believe that mineral water was a panacea for all ills. The fact of the matter is mineral waters are very much overestimated therapeutic agents. Although the water is the commercial drawing feature for many health resorts, the invalid who visits these places receives more benefit from the change of scene and the freedom of cares, business worry and the rigid dietetic and hygienic restrictions instituted at these watering places than they do from the medicinal properties of the water.

I am located only a few miles from Mt. Clemens, which has a world-wide reputation for its "wonder working water." I venture to say if the thousands of invalids who visit this city seeking for health, depended only upon drinking this water, many of them would be doomed to disappointment, but the use of water in connection with baths and massage eliminate many poisonous elements independent of any mineral the water may contain. I believe invalids can receive equally as effectual treatment with appropriate medication and the use of ordinary pure water.

The chemical and medicinal constituents of all mineral waters are well known, and if we decide they are the remedies required for an individual case, apply the medication in its regular commercial form, or they can be given in the way of artificial mineral water if preferred.

Although this country supplies mineral waters equal in medicinal value to the imported waters, distance seems to lend enchantment and more value is placed on the foreign products.

It has been stated that much of the imported water bottled and sold in this country as the genuine, is made from artificial salts, according to the following formulæ:

HUNYADI JANOS WATER

The following makes an excellent imitation:

℞ Potassium sulphate ..... 6 gr.
Calcium sulphate .....60 gr.
Sodium sulphate ..... 3½ oz.
Magnesium sulphate ..... 4½ oz.
Water enough to make ..... 1 gal.

Mix, dissolve and filter.

CARLSBAD WATER
(Sprudel Springs)

℞ Sulphate of potassium ..... 2 gr.
Chloride of sodium .....18 gr.
Bicarbonate of sodium .....36 gr.
Sulphate of sodium, dried .....44 gr.

Triturate the ingredients, previously well dried, to a fine uniform powder. A solution of about sixteen grains of the above with six fluid ounces of water, represents an equal volume of Carlsbad water in its essential constituents.

KISSINGEN WATER
(Rakoczi Springs)

℞ Chloride of potassium ..... 17 gr.
Chloride of Sodium .....357 gr.
Sulphate of Magnesium, anhydrous ..... 59 gr.
Bicarbonate of soda .....107 gr.

Triturate the ingredients, previously well dried, to a fine uniform powder. A solution of about twenty-four grains of this preparation in six fluid ounces of water, represents an equal volume of Kissingen water in its essential constituents.

VICHY WATER
(Grande Grille Springs)

℞ Bicarbonate of sodium .....352 gr.
Carbonate of potassium ..... 16 gr.
Sulphate of magnesium, anhydrous ..... 16 gr.
Chloride of sodium ..... 32 gr.

Triturate the ingredients, previously well dried, to a fine uniform powder. A solution of about 14 grains of this preparation, in six fluid ounces of water, represents an equal volume of Vichy water in its essential constituents.

CONGRESS WATER

℞ Potassium bicarbonate ..... ¾ oz.
Sodium bicarbonate ..... 5½ oz.
Magnesium sulphate ..... 3¾ oz.
Sodium chloride (pure) ..... 2¾ oz.
Calcium chloride (anhydrous) ..... 3½ oz.
Water .....10 gal.

Mix, dissolve and filter.

FRIEDRICHSHALL WATER

℞ Sodium bicarbonate .....384 gr.
Sodium sulphate crys. ..... 1¼ oz.
Potassium sulphate .....165 gr.
Magnesium sulphate ..... 20 oz.
Sodium chloride (pure) ..... 10¼ oz.
Calcium chloride (anhydrous) ..... 1 oz.
Water ..... 10 gal.

Mix, dissolve and filter.

Swedish Massage and Osteopathy

The evolution of massage as practiced in Sweden, at the present day, has a long chain of ancestry. The Chinese were known to use certain manipulations three thousand years before the Christian era. The ancient Egyptians and Hindoo priests acquired a knowledge of manipulation, which was supposed to be invented by the gods; the Persians used several forms of manipulations for different affections, which were followed in practice by the Greeks and Romans.

In the sixteenth century an effort was made to combine massage and movements of the body with medicine for the treatment of disease.

At an early period in the nineteenth century, P. H. Ling, of Sweden, founded the first scientific system of massage, and body movements. His work was succeeded by Dr. Mezgar and arranged into a system, which is now extensively used, not only in Sweden, but throughout the entire world. According to Dr. Mezgar's teachings, the scientific application of massage is based upon a thorough knowledge of the anatomy and physiology of the body, and each movement or manipulation is conducted for the specific purpose of producing a normal equilibrium of the functions of the body. All manipulations are passive, and applied to the nude skin, without the patient's assistance or resistance, and arranged systematically, so as to act upon the different tissues and organs of the body.

Dr. Mezgar has divided the massage treatment into four principal manipulations namely: effleurage, frictions, petrissage and tapotement.

Effleurage consists of stroking a given part towards the body or heart; this may be accomplished by using the fingers and thumb, or the palms of one or both hands, or by the thumb or fingers separately.

Frictions are firm, circular, deep-seated movements, applied with the thumb or tips of the fingers, towards the body or heart, generally over a certain group of muscles at a time.

Petrissage, or the kneading of muscles or organs is accomplished with two thumbs, or the thumbs and fingers of both hands for the purpose of raising or loosening the muscles from their attachment, in the treatment of rheumatism or stiffened muscles, etc. This is also conducted by rolling the muscles on the bone, and clapping the muscles to revive new activity.

Tapotement is the tapping or percussing either with the tips of the fingers, where light pressure is desired, as on the surface of the face, or hacking with the ulnar border of the hands; this is used around nerve centers, and upon muscles where heavier pressure is desired. Beating is also practiced with the closed fist over deep muscles and large nerve trunks, as the sciatic.

What constitutes an efficiency of massage is to be determined by the force and frequency of the manipulations, and the length of time during which they are employed. A good manipulator will accomplish more in fifteen minutes than a poor one will in one hour, and it is an art which requires much experience to handle successfully. The directions of most of the Swedish massage movements are the same as vibratory massage, from the extremities to the trunk, from the insertion of a muscle to its origin, and in the direction of the returning currents of the blood, and lymphatic system. With this object in view, special attention should be given to the inside surfaces of the extremities in the axillæ and groin, to unload the lymphatics and expel diseased particles and effete matter.

While Swedish massage will always hold a respected position in the manual treatment of disease, physicians of the occident, as a rule, are, apparently, too indolent to put the system into active practice to any great extent, and until vi-

bratory massage was introduced, in which the technique is very closely allied, massage was very little used in this country; the technique of the different manipulations, as they have been substituted by vibratory massage will be discussed in the succeeding chapter.

Osteopathy was founded by Dr. Andrew Taylor Still, a regular practitioner of medicine and army surgeon, who, nearly half a century ago, conceived the idea that medicine did not incorporate all the benefits of the healing art; that the body is an organic machine, and may become impaired or its parts misplaced, which require adjusting, the same as any other piece of mechanism. After silently carrying on his experimental work in this field, he was finally crowned with success. In the year 1887 he began to teach his sons this new art of healing, and later established the American School of Osteopathy, which is turning out graduates broadcast; working side by side with physicians, and contributing their share of success in relieving the sick and suffering. Osteopathy, like nearly every other new branch of healing art, was very much criticized and ridiculed in its infancy, but physicians and the laity have been compelled to accept the truth, and today osteopathy has passed its experimental stages and holds a respected position as one of the noblest causes which man is called upon to officiate—restoring health.

Osteopathy is like Swedish massage, inasmuch as it is purely a manual treatment for disease; it is also analogous to vibratory massage, as the technique of the treatment often has a striking resemblance. The only difference, in many of the manipulations, is that nature gave the osteopath his instruments to work with—his fingers and arms—while mechanical genius has supplied us with the various forms of vibrators. It will, therefore, be seen that osteopathy has a great advantage over vibratory massage in emergency cases, as the operator always has his instruments with him, and can always treat his patients, either at the bedside or in emergencies, without the delay of time in securing a vibrator, and oftentimes, the operator cannot be supplied with the motive power,

in places where he wishes to treat his patient. This is particularly so in the country, where he does not have access to the electric currents. We, therefore, find that while vibratory massage can be used to excellent advantage in office practice, osteopathy can be applied on all occasions, and at all places. To illustrate: the writer was once making a social call on an old patient and found the daughter suffering intensely with dysmenorrhœa. Under ordinary circumstances, if I had my medicine case with me, I would have given an analgesic, or might, in this case, have depended upon a hypodermic of morphine; but my only alternative was osteopathic manipulations. I therefore applied sufficient pressure to inhibit the nerve centers of the lumbar region, especially the tender areas of the third, fourth and fifth lumbar centers. I also gave the entire spinal column a general treatment; in less than five minutes the pain had entirely disappeared, and the patient enjoyed a very restful night. This is only one case in hundreds where a knowledge of osteopathy can render the physician better service than drugs, and if the practitioner will acquire a knowledge of osteopathy to the extent of relieving pain alone, his time would be well spent.

To understand many of the fundamental principles of osteopathy, which are so analogous in many ways, to the technique given in vibratory massage, the reader is referred to the accompanying chapter for the local areas and landmarks, which are incorporated largely by osteopathic manipulations.

Osteopathy, Swedish and vibratory massage, and all drugless methods of treatment, are directed in the same course; to stimulate or inhibit through reflex action, the centers controlling the functions and organs of the body, thus assisting nature in dispelling disease, and to obtain and maintain a healthy equilibrium.

Dr. Goetz maintains that when all obstructions to the natural direction of life forming and healing energies that are resident within the body are removed, and all chemical changes preparatory to nutrition are corrected, as they may

be without medicine, then nature swiftly and surely regains her normal equilibrium of health and strength. It will, therefore, be seen that Swedish massage and osteopathy have many things in common with the technique of vibratory massage; the only difference being the mode of application, the former being applied by the hands and the latter with an instrument or vibrator. It would be only a repetition to discuss the technique of each, separately. This is particularly so with many of the treatments of the spinal column. We may obtund pain in certain localities by desensitizing the nerve force, either by direct pressure or manipulation with the cushioned ends of the fingers or by the "Tapotement" of massage, or the mechanical vibrator; the effect will be the same.

Of course there are several features favoring osteopathy, in the treatment of many diseases, which osteopathy will reach, where vibratory massage cannot be utilized. This is particularly so in luxations of the bones and muscles, ligaments, etc., and their impingement of nerves.

Most of the diseases of the body are reached through the nerves of the spinal column. These nerves control motion, sensation, nutrition, and other functions of the body; therefore, manipulation of the spinal nerves bears the same relation to the osteopath and vibratory therapeutist as the keyboard of a piano does to a pianist, the mechanism proper is on the inside of the piano, but is controlled from the keyboard. Likewise, many diseases of the body can be controlled from the spinal nerve centers by manipulating with the cushioned tips of the fingers or a vibrator, and inasmuch as Swedish massage, osteopathy and vibratory massage are so closely related, we will discuss the technique more thoroughly in the succeeding chapters.

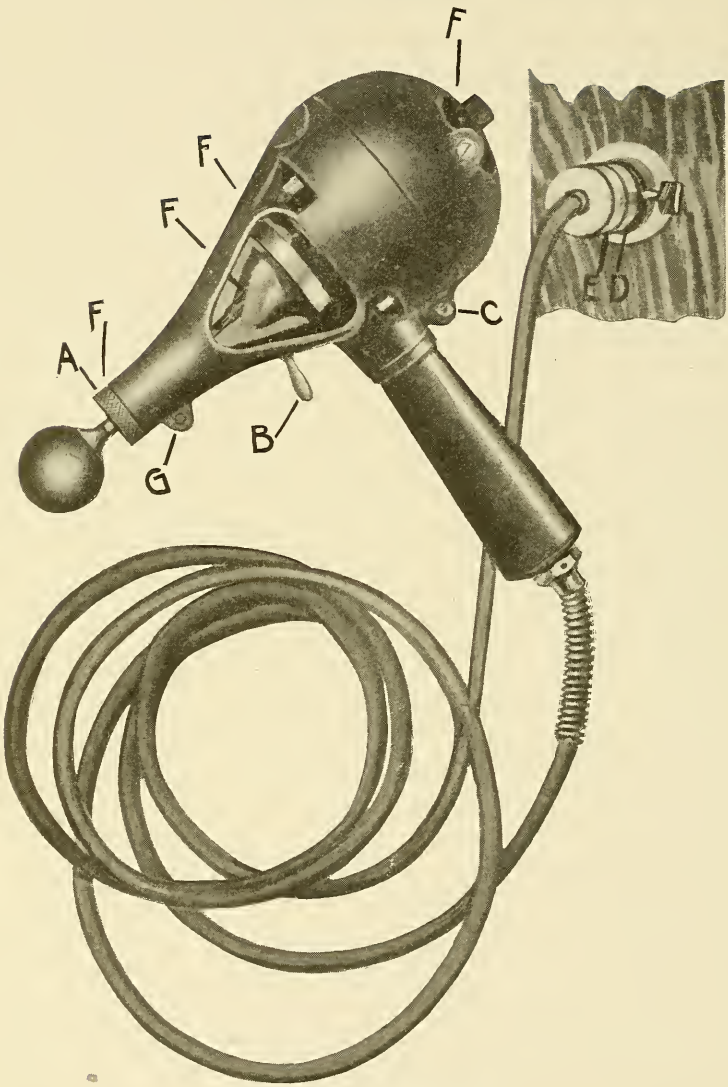
Vibrotherapy

Physicians, as a rule, never take very kindly to the manual methods of massage, which are outlined in the foregoing chapter. One possible reason may be that it involves too much labor, but when some mechanical genius invented the Vibrator a few years ago, it was immediately recognized by the medical profession, and received as hearty welcome from the physicians as the sulky plow did from the farmer: "It's the easy way."

One of the most important things to be considered in adopting Vibratory therapeutics in office practice is the selection of a vibrator. There are many types, with varying degrees of efficiency. Therefore, in selecting a vibrator the following point should be considered: The instrument should have sufficient motive power to deliver long, penetrating strokes, as well as medium and light ones, in order to receive the degree of stimulation or inhibition desired; it should also be capable of changing from a heavy to a light stroke, and vice versa, without any delay. It should have a well localized stroke and also a rotary and lateral stroke, for treating cavities.

A well constructed vibrator should never give any vibration to the operator's hand; by observing these points we really have a scientific instrument with which excellent results can be obtained.

Physicians have long recognized the value of stimulation, and for many years have depended upon electricity and Swedish massage for this purpose. We must give Dr. Still credit, however, for revolutionizing the older methods of massage and placing the subject purely upon a scientific basis, by complying with the anatomical structures of the body and physiological laws of nature. Vibratory massage is, there-

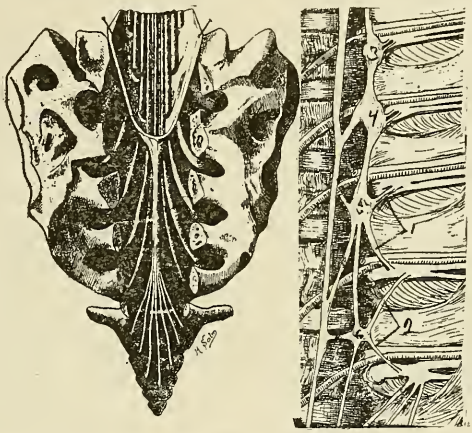


THE SHELTON VIBRATOR.

A—Switch to turn electric current on or off. B—Lever to regulate the length of the stroke. C—Sliding sleeve that holds applicator shaft. D—Separate from E to avoid twisting of cord. E—To be connected with D. D and E form what is called a separable plug. F—Oil holes. Oil once or twice a week for ordinary use.

fore, a means of conducting many osteopathic and Swedish massage treatments by a more convenient and less laborious method; the regional technique and vaso-motor areas are the same, and the only distinction is the manner of conducting the same influence by different means.

The most important field of operation of both osteopathy and vibratory massage is located between the transverse processes of the spinal vertebrae. At these points we find the



At left distribution of spinal nerves in sacrum and coccyx.
At right (1 and 2)rami communicanties 3, 4, 5, and 6 spinal ganglia.

main nerve trunks, conveying and imparting impressions to and from the brain, recognizing two great systems of nerve force in the body: the cerebro-spinal nervous system controlling sensations and motion, and the sympathetic nervous system, superintending the functions of the internal organs, which govern secretions, excretions, circulation, digestion, etc.

Many of the internal organs receive nerves from both systems; by referring to our anatomy we will find a double chain of ganglia of the sympathetic nerves on the anterior surface of the spinal column, extending from the base of the skull to the end of the coccyx. These ganglia have communicating branches, which connect with the cerebro-spinal nervous system, called rami communicanties. We, therefore, find

that treating the nerve centers of the spinal column, as they emerge through the brain and spinal cord, has the power of conveying impulses to and from the periphery. These are called efferent and afferent nerves; the former convey impulses from the brain to the various peripheral organs; these nerves control muscular activity and conduct impulses to the glands and excite secretions. They also control the vasomotor impulses to the walls of the blood vessels, which regulate the caliber of the blood vessels and circulation of the blood, and also conduct impulses which will stimulate or inhibit the activity of any organ.

The afferent nerves carry the impulses from the peripheral organs to the brain; thus we find the special sense nerves of the eye, ear, nose, mouth and skin, which give rise in the brain to conscious sensations.

We also find special reflex nerves which conduct impulses to the nerve centers, to be reflected out through the efferent nerves to muscles, glands, blood vessels, etc.

In treating diseases by vibratory means we have three degrees of therapeutic application, depending upon the length of the stroke and the amount of pressure used.

DEGREES OF VIBRATION

Stimulation is produced by a short stroke and light pressure.

Sedation is produced by a medium stroke and pressure, used as a sedative to quiet excitability and promote sleep.

Inhibition is produced by a long stroke and heavy pressure. This is used to desensitize nerve centers, and will mitigate pain, slow the action of the heart, check peristaltis, stop hiccough, etc. Always bear in mind that all deep nerve trunks or centers, as a rule, require a long stroke and heavy pressure; while the superficial nerves require only the short strokes and more gentle pressure. In order to obtain the different degrees of strokes and pressure, the operator should see that the vibrator is supplied with a variety of vibratodes or appli-

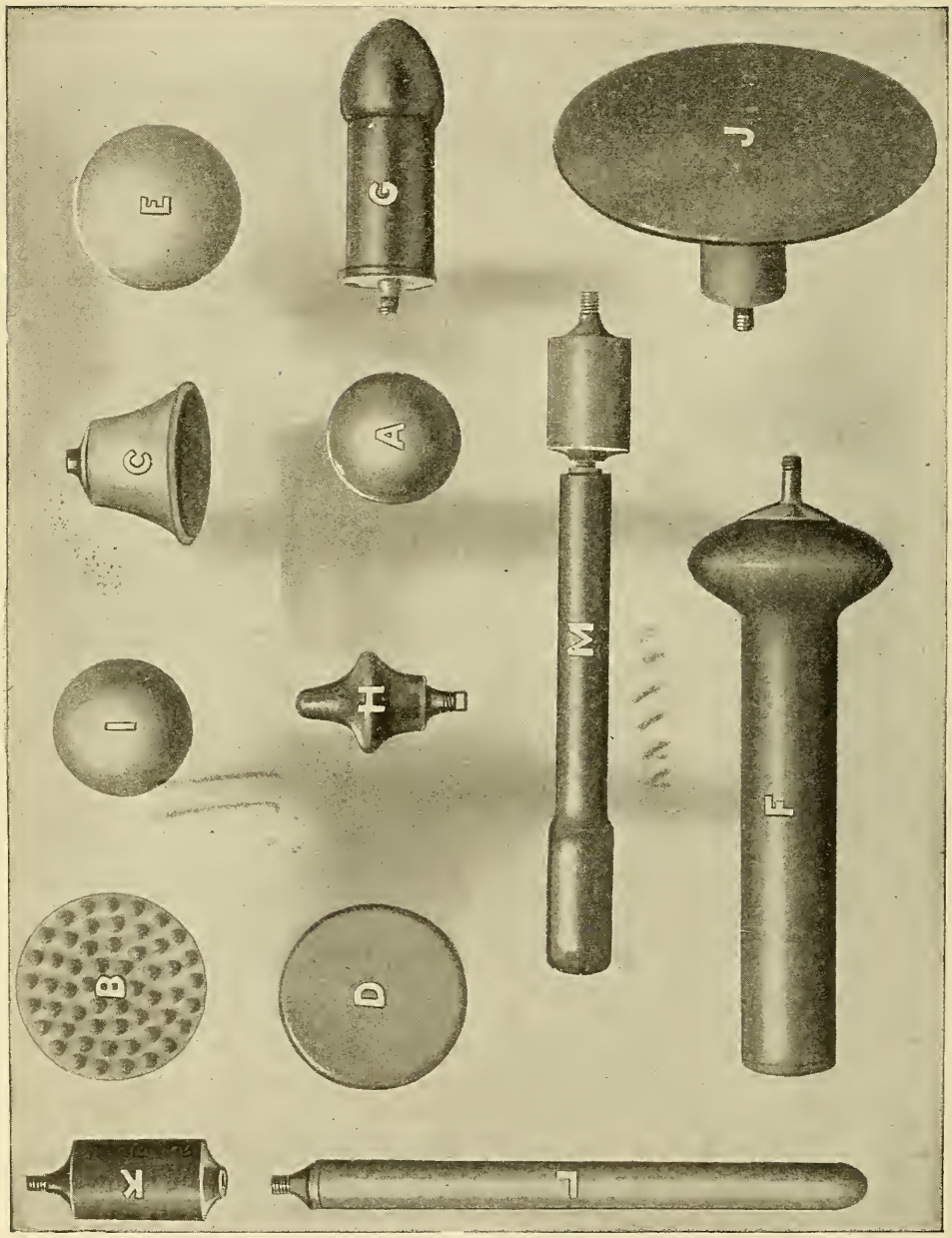
cators, which can easily be attached to the vibrator, for treating the different areas and cavities of the body. The accompanying cuts illustrate the modern portable vibrator, with all the applicators required for general use.

The selection of a vibratode for a given area, will depend upon the results you expect to obtain; the following is the general rule: A., represents the hard rubber ball applicator, which is used in treating intra-spineous spaces when stimulation or inhibition is desired. B., is a soft rubber applicator often referred to as the "brush"; this is used over sensitive areas, as the face, abdomen, etc., where sedation or inhibition is desired. C., is a soft rubber cup applicator; this is used over surfaces of the body for its sedative effect. D., is also used for the same purpose as C. E., is a soft rubber applicator for the eye and ear. F., is a soft rubber vaginal applicator. G., a hard rubber rectal applicator. H., hard rubber external rectal applicator. I., solid soft rubber ball, used same as "A" over sensitive areas. J., large disc for treating the surfaces of the body. K., is a soft rubber attachment for giving an intermediate stroke with other applicators. L., soft rubber rectal or vaginal applicator. M., hard rubber prostatic applicator. O., is a soft rubber intestinal applicator. P., hard rubber cone rectal applicator. Q., hard rubber oval disc applicator. R., hard rubber half-ball applicator. S., soft rubber cup applicator. T., soft rubber disc applicator. U., soft rubber vacuum half-ball applicator. W., large two and one-half inch soft rubber cup applicator.

PHYSIOLOGICAL BASIS

The fundamental principles upon which vibratory massage is based, may be compared somewhat to electricity, although the current waves from electricity are more rapid in their stimulating effect upon metabolism.

Vibratory massage may be used at a slower and stronger rate without being as disagreeable to the patient. In many instances most pathological conditions are due to stasis, and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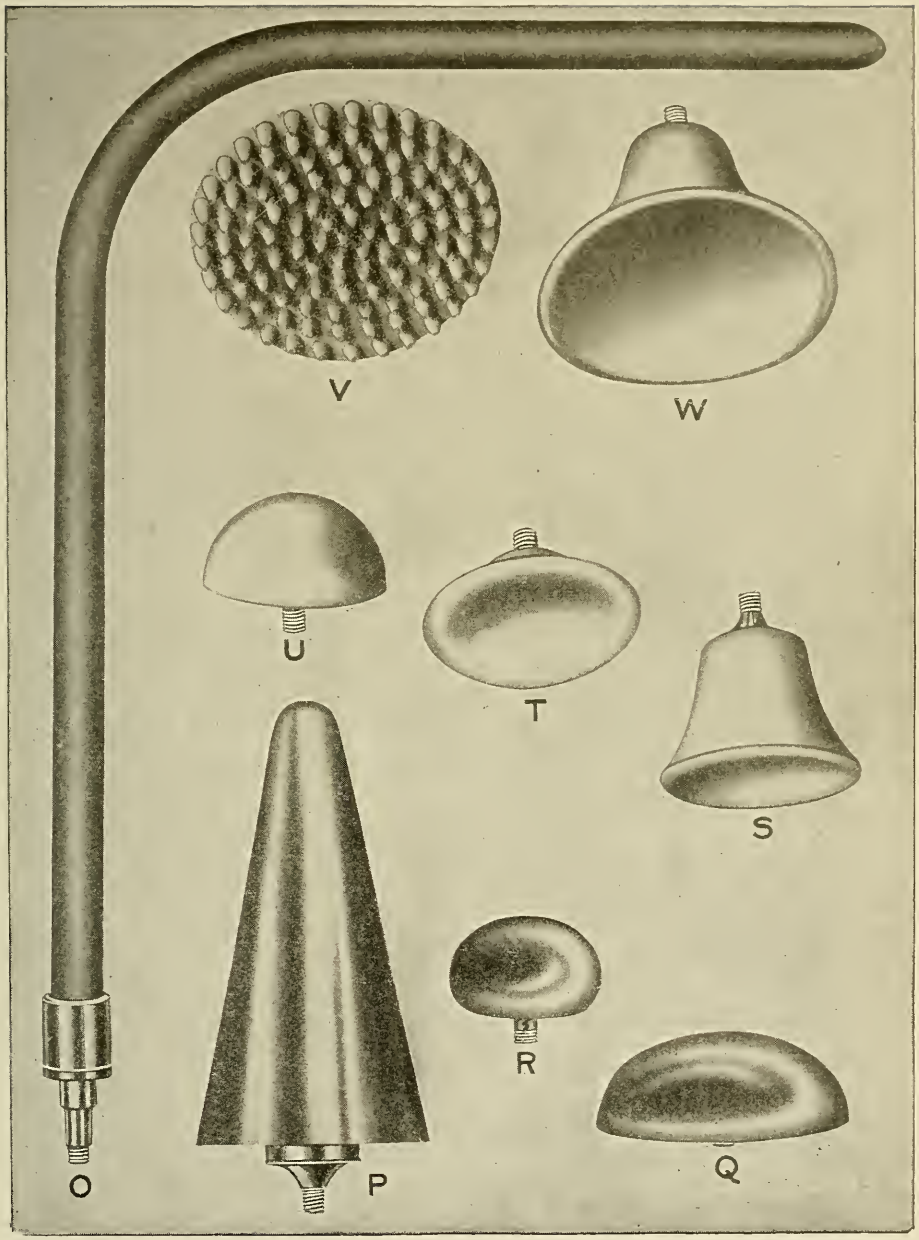
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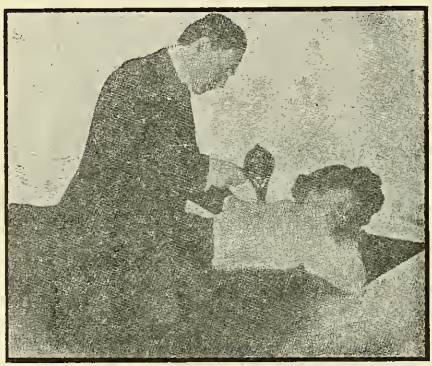
by stimulating the nerves which control the circulation of the part, and by opening up the lymphatic drainage system, to carry away waste material, we have accomplished by vibratory massage what cannot be accomplished by any other means. As a rule, vibration is best applied as near a nerve



POSITION FOR TREATING THE BACK.

center as possible, and by treating the cerebro-spinal nerves as they emerge from the spinal column, better results will be obtained in less than half the time it would take if we treated the nerves farther out on their course. Nerve centers seem to have a certain amount of intelligence, enough at least, to adjust any abnormal condition within the reach of their jurisdiction. We therefore find that vibratory massage has its therapeutic effects in both a direct and indirect way; to illustrate: if we were to treat an inflamed joint, we would recognize that we have a condition of stasis to deal with, and to relieve the congestion or inflammation, our only means would be to treat the lypmhatics, that drainage may take place from the joint, and open the avenues of elimination; at the same time, our attention would be called to stimulating the nerve centers, which would produce new nourishment to the part. The joint proper may not be treated at all.

GENERAL AND REGIONAL TECHNIQUE

Patients who are to be treated by vibratory massage should wear as little clothing as possible, over areas treated. If the patient is a lady she should remove her corset and other outer clothing down to the under vest. A light kimono may be worn, if desired, but the less clothing worn by either man or woman the better. In treating the spinal centers, the patient should be placed upon the table, face downward, and it is often a good plan to place a large pillow under the abdomen; this convexes the spinal column and allows better access to the spinal nerves.

The hard rubber applicator should be used in treating the spinal centers, and when the degree of the desired stroke is decided upon, the applicator should be pressed well in the sides of the inter-spinous openings of the transverse vertebras, on both sides of the spinal column.

Dr. Head was among the first to point out the vaso-motor centers and pain areas of the spinal column, which are illustrated in the accompanying diagram. Although this cut may have the appearance of a Chinese puzzle, it represents, and outlines the vaso-motor centers on the left side, and the visceral afferent floors of the spinal ganglia, or the pain areas, which call for treatment on the right side. To illustrate: If we wish to treat the stomach, the apex of the triangle points to the word "stomach," on both sides of the spinal column. The left side, the base of the triangle, is from the second dorsal to the ninth dorsal inclusive, which locates the vaso-motor centers. On the right side, the apex of the triangle points to the word "stomach," and the base of the triangle formed from the sixth to the ninth dorsal inclusive. This locates the points where pain or tenderness can be found by palpation, which requires either osteopathic or vibratory treatment. These areas are recognized by both the osteopathic and vibratory therapeutist; the only difference is in the method by which the treatment is applied. The osteopath utilizes his fingers, and the physician the vibrator; equal results can be obtained

in many cases by either means. The osteopath has the advantage, however, as his instruments (his fingers) are always with him and he does not have to depend upon electric motive force.

In treating the spinal nerve centers, the seventh cervical vertebra, known as vertebra prominens, is always used as a "landmark" to count from. When locating special areas, the left hand can trace the vertebra while the right hand can apply the vibration. In treating the different areas and organs of the body, the following table is the generally accepted technique:

Head and Neck.—For pain in these locations, vibration should be applied from the third cervical to the fifth dorsal, inclusive.

Arms.—Vibrate from the third to the seventh dorsal inclusive.

Heart.—Vibrate from the third cervical to the fifth dorsal, inclusive, and tender spots may be located at the first, second and third dorsal.

Lungs.—Vibrate from the third to the seventh dorsal; tenderness may be located from the first to the fifth dorsal, inclusive.

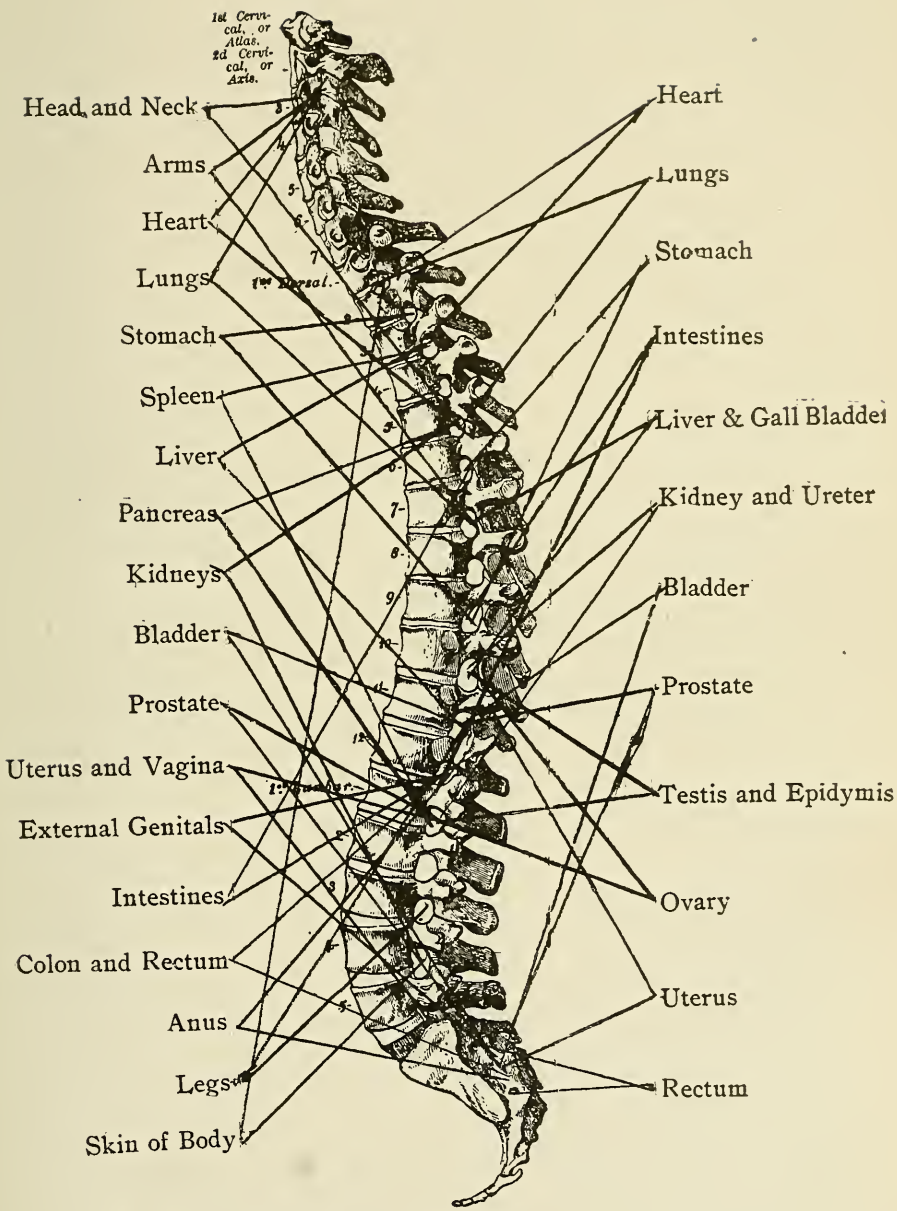
Stomach.—Vibrate from the second to the ninth dorsal; tenderness from the sixth to the ninth dorsal.

Spleen.—Vibrate from the third dorsal to the first lumbar, inclusive, especially the fifth, sixth, seventh, eighth and ninth dorsal on the left side sensitiveness will be detected on the left side from the fifth to the ninth dorsal vertebra.

Liver.—Vibrate from the third to the eleventh dorsal, especially from the fifth to the ninth on the right side. Tenderness will be found from the seventh to the tenth on the right side.

Pancreas.—Vibrate from the fifth dorsal to the first lumbar, inclusive.

Kidney and Ureters.—Vibrate from the fourth dorsal to the fourth lumbar. Tenderness will be located from the tenth dorsal to the first lumbar, inclusive.


1st Cervical, or Atlas.
2d Cervical, or Axis.
Head and Neck
Arms
Heart
Lungs
Stomach
Spleen
Liver
Pancreas
Kidneys
Bladder
Prostate
Uterus and Vagina
External Genitals
Intestines
Colon and Rectum
Anus
Legs
Skin of Body
Heart
Lungs
Stomach
Intestines
Liver & Gall Bladder
Kidney and Ureter
Bladder
Prostate
Testis and Epidymis
Ovary
Uterus
Rectum

Bladder.—Vibrate from the eleventh dorsal to the fourth sacral, inclusive, and look for tenderness over this area.

Prostate.—Vibrate from the first lumbar to the fifth sacral; look for tenderness from the tenth dorsal to the third sacral.

Uterus and Vagina.—Vibrate the lumbar nerves and also look for pain or tenderness at this region.

External Genitals.—Vibrate from the twelfth dorsal to the fourth sacral; tenderness over the same region.

Intestines.—Vibrate from the sixth dorsal to the first lumbar, inclusive; tenderness from the ninth to the twelfth dorsal.

Colon and Rectum.—Vibrate the sacral nerves and look for tenderness at the second, third and fourth vertebra.

Anus.—Vibrate from the twelfth dorsal to the fourth sacral; tenderness over same area.

Legs.—Vibrate from the eleventh dorsal to the third lumbar, inclusive.

Skin of the Body.—Vibrate from the first dorsal to the fourth lumbar, inclusive.

Testis Epidymis and Ovary.—Vibrate from the eighth dorsal to the fourth sacral; tenderness will be found from the tenth dorsal to the first lumbar.

In maintaining the normal functions of the body, in which health may be considered the standard, we have four principal factors, which are of the greatest importance; the nerve and blood supply, absorption and elimination. These organs and functions are especially favorably influenced by vibratory massage, often requiring treatment in both a direct and indirect way; that is, we can control these functions in what may be considered an indirect or reflex way, through the nerve centers of the spinal column, and can assist elimination by vibrating directly over the part. To illustrate: the most obstinate cases of constipation can be relieved by either of three methods, or better still, the three combined. First, by stimulating the nerve centers in the spinal column, from the sixth dorsal to the twelfth, inclusive, and the third, fourth and

fifth lumbar, and the first, second and third sacral. It is always a good plan, however, to vibrate from the fifth dorsal down to the coccyx, on both sides of the spinal column, pressing the ball applicator firmly in at the side of the spinous processes. Great care should be exercised not to vibrate too long, or to make too heavy pressure; the percussion stroke is used from eight to ten seconds. An important thing to remember is that too long and heavy stroking will inhibit and produce constipation, while the short strokes repeated frequently over the same areas, during the treatment period, will produce stimulation, which is the result desired.

The patient is now changed from the abdominal to the dorsal position, with his knees drawn up, to relax the abdominal muscles; this is the preferable position in abdominal and thoracic treatments. Direct stimulation may now be applied over the liver, to increase the activity of that organ; the brush or flat applicator is preferable, with a lateral or rotary stroke.

The colon is the next organ or occupy our attention, starting at the cecum, and following the course of the ascending transverse and descending bowel, dwelling only a few seconds at each point, and continuing the course of the vibrator in a spiral or rotary movement, (see illustration). This course should be followed several times during each treatment, which is more effectual than one treatment applied at length. The patient should now be placed in the Sim's position, for direct vibration to rectum and lower bowel. For this purpose the vibratodes G. and O. may be used and the medium rotary or lateral stroke is to be employed (the percussion stroke is absolutely of no value) by making firm pressure against the anus for thirty or sixty or more seconds. At the termination of the treatment the patient will usually experience a desire to evacuate the bowels, which, of course, he should be allowed to do. The value of vibratory massage may be summarized as follows:

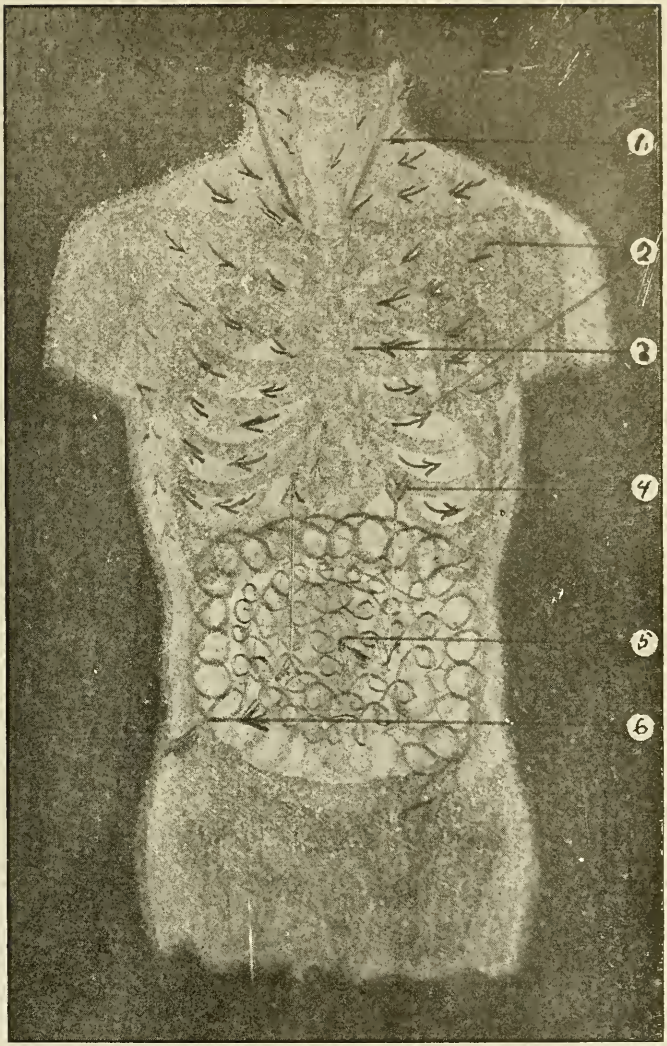
The Blood, which in all instances may be considered the first, and to the injured, a very important element, as it is through this vital fluid that all processes of healing take place,

and by controlling and equalizing circulation, we generally maintain health. Wherever obstruction of circulation is observed, we find congestion, inflammation or perhaps abscesses. Obstruction to the veinous circulation is the most frequently met with, and nearly always present in many forms of heart, lung, liver and kidney diseases; as an adjunct to other therapeutic measures vibratory massage is indispensable.

The Lymphatics perhaps hold the second place of the important organs to which vibratory therapeutics are successfully applied. These glands are divided into two sets, the superficial and deep-seated; the former lie just beneath the skin, in the loose connective tissue, and are found in the neck, axillae, front of elbows, groin, popliteal space, etc., the latter follows the course of the large blood vessels and are found on both curvatures of the stomach, in the mesentery, liver, spleen, kidneys, uterus, bladder, etc. These glands are often referred to as the scavengers of our body.

When disease attacks any special area of the body these glands become at once involved, often obstructing their functions. It is plain to see the importance of vibratory stimulation, as an adjunct therapeutic measure to open up this drainage outlet, and unload the system of toxic material, through the eliminative process. A very important thing to remember is that all vibratory movements pertaining to the circulatory system should be made towards the center; that is, the blood vessels should be vibrated towards the heart and the lymphatics should be vibrated in the direction of the lymph flow. The vibratode simply acts like a pump, by forcing the blood and lymph onward in their natural course, which not only relieves the system of toxic influences, but stimulates the organs to new life and activity.

The Nerves.—Having previously discussed the technique of vibratory massage upon the spinal nerve centers, we find it often necessary to apply direct vibration to nerve trunks, in many pathological conditions. The pneumogastric nerve emerges from the cranium at the jugular formum and passes down the neck in the sheath of the carotid artery and is best



VIBRATORY AREAS OF CHEST AND ABDOMEN.

1. Pneumogastric Nerve. 2. Chest. 3. Sternum. 4. Solar Plexus. 5. Small Intestines. 6. Colon.

reached along the inner border of the sterno-cleido-mastoid muscle (see illustration). It should be borne in mind that prolonged stimulation of this nerve slows the action of the heart, even to the stage of fainting, and such treatment should not last over ten or twenty seconds. The sciatic nerve can be reached along its course on the posterior thigh, and also back of the great trochanter (see vaso-motor centers). The solar-plexus is best reached and influenced by vibrating upwards and downwards about two and one-half inches, on both sides of the umbilicus; commence just below the umbilicus and vibrate upward to the rib line, and downward from this point. Headache and neuralgia are nearly always relieved by prolonged vibrating directly over the painful area: frontal headache is best relieved by vibrating over the super orbital notches.

ABDOMINAL VIBRATION

We have already described the method of vibrating the colon. The small intestines may be stimulated to activity by commencing at the umbilicus, and following a circular course to the cecum. It is well to follow this course, previous to vibrating the colon, for stomach disorders and inactivity of the bowels.

Vibrating the Chest.—In vibrating the chest the patient should be placed upon his back, and his hands clasped back of his head. The brush applicator is preferable, for these movements commence from the inferior maxillary, and stroke downward to the clavical; the inter-costal spaces of the sixth upper ribs should be treated towards the sternum and the spaces below. (The short arrows on the accompanying cut will illustrate the course to pursue.) The sternum itself can be stroked either up or down.

Electro-Therapeutics

When Benjamin Franklin was conducting his experiments with electricity, with a kite and key, the people would ask: "Of what use is it, anyway?" "Never mind," retorted the old philosopher, "It's only a baby now; it might grow to be a man some day." The present generation is living in an age to witness his prediction come true, and electricity has not only grown to be a man, but a giant, in both the commercial world and as a therapeutic measure. Ever since Galvani's experience, related on another page, electricity has been steadily growing in favor as a means of treating diseases and alleviating suffering. Electricity, like many other things introduced in medicine, has in former years been but little understood, and therefore too much has been expected from this influence. As science progresses, however, and we learn more of the nature of this element, we are able to utilize it in therapeutics to a better advantage. It is not what electricity has accomplished, it is what it has not accomplished that has made some practitioners depreciate its value. Like all other things of a physical nature utilized in treating diseases it has its special sphere of operation, and the better we learn to identify its sphere and utilize its application in practical ways, the more competent we are to use this agent in the treatment of disease.

One of the most confusing things regarding the use of electricity is: there seems to be no absolute standard or set laws for its use. One operator will accomplish results by one method of application, and another will accomplish the same results by another, so when stereotyped rules are laid down for manipulating the currents, the amateur electrotherapeutist is at once confronted by the perplexity of technique. Differ-

ence of opinion, however, is the spice of argument, and if each observer did not air his views, the entire practice of medicine would be a one sided affair. We would have no more idea of reaching the facts than preachers have of piloting sinners to heaven through the different denomination routes.

I fully realize that electrotherapy offers too broad a scope to be completely discussed in a publication of this kind; yet the fundamental principles may be sufficiently outlined to induce the reader to delve more thoroughly into the subject, as no office practitioner could possibly think of successfully conducting an office practice, without including this valuable agent with his armorment against diseases. Perhaps the only word of caution I should give, is not to accept this agent as a panacea for all ills, a mistake made by many over-enthusiastic practitioners.

Electricity, like the other physiologic methods in the preceding chapters, has its circumscribed field of operation, and outside of this it is of little or no value and often does more harm than good, when not properly understood; therefore, to be an electrotherapeutist does not simply mean to be the possessor of an elaborate outfit of electrical machines or apparatus to display for commercial purposes, as does the charlatan with the buzzing from his Faradic battery, but to understand the construction, mechanism and generative forces they possess, to manufacture and to supply this force, known as electricity, and, after this force is harnessed by special apparatus, to dispense it in the different forms or currents, where it can be utilized to the best advantage in the treatment of disease.

The first question a student, contemplating the study of electricity would ask: What is electricity? The word electricity is derived from the Greek word Electron, meaning amber; as the ancient sailors discovered, by the friction of amber and similar substances various attractions, repulsions, sparklings and other phenomena were manifested. Most scientific men hold the view that electricity is ether itself, which is the

elastic incompressible medium pervading all space; conveying luminous and other vibrations, and that the phenomena of positive and negative electrifications are due to displacement of the ether at the surface of bodies.

The researches of Hertz, who, by direct experiments, verified Maxwell's brilliant theory that electrical action is propagated through space by wave motion of the ether, differing only in respect of wave length and period from the vibrations which constitute light, have been of the utmost value in helping to arrive at a solution of the problem.

Investigations into the phenomena of electric discharges in high vacua, followed by the discovery of the X-Rays, have also thrown much light on the subject. The general conclusion is, that ether is electricity in an invisible or passive state, and the only way to convert it into energy is to destroy its equilibrium, as is demonstrated in various ways, from the simple ruffling of the fur on a cat's back, to the friction of clouds, during a thunder storm.

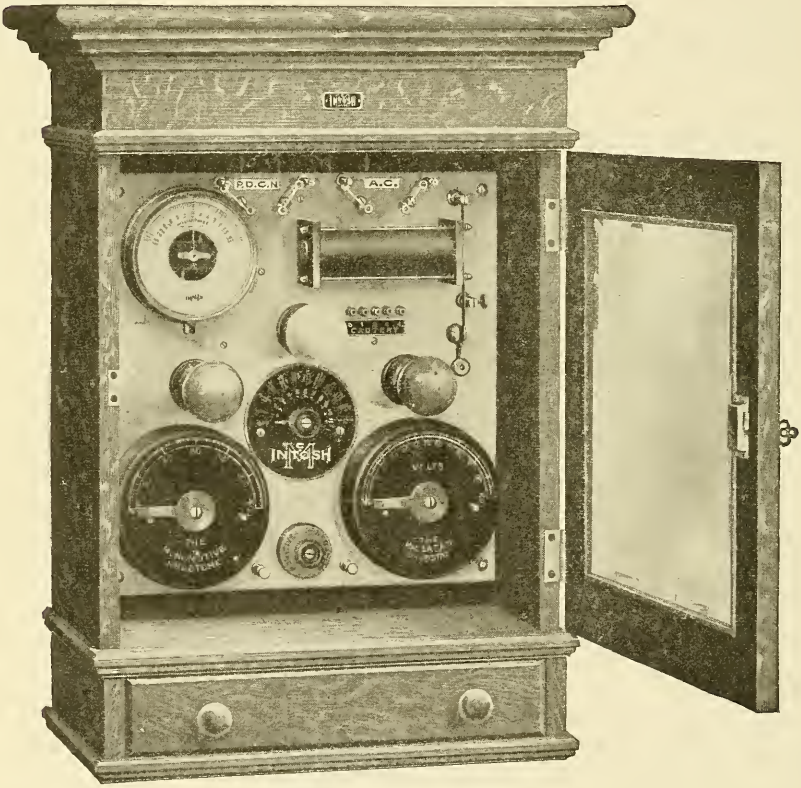
For therapeutic purposes, this energy is generated by chemical decomposition and other means, and is conducted and controlled by different electrical apparatus and machines, which are known and referred to as batteries.

A complete analysis of electro-physics and technique is too exhaustive to fall within the scope of this publication, and it is generally understood that most physicians are familiar with these subjects; we will therefore devote only a few pages to a brief discussion of electric currents, etc., and give the technique of their use in the diseases as these are specified.

The language of electricity, the same as any other science, is the first to become familiar in investigating the science. The nomenclature of electrotherapeutics, like any other science, undergoes certain changes from time to time, as the science progresses, and in order to comprehend the meaning of these terms, we must learn what they incorporate. Many of the terms used in electricity were named after the men who established their principles.

GALVANIC ELECTRICITY

Was founded by Galvani, the Italian anatomist, about 132 years ago. This form of electricity is also referred to as the direct, or continuous current, and is one of the most simple means of converting chemical decomposition into electrical energy.



MODERN WALL CABINET.

A galvanic cell consists of a plate of carbon, and a plate of zinc, immersed in an exciting fluid. There are several chemicals or combinations of chemicals used for this purpose, of which the following is one:

Bichromate of potassium	2¼ oz.
Sulphuric acid	3 oz.
Mercury bisulphate	120 gr.
Water	16 oz.

By connecting two or more of these cells together, we obtain sufficient electro-motive force for all therapeutic purposes, and this forms the type of battery most suitable for the physician living in the country, where he does not have access to the public lighting systems of the city. The most convenient way, however, is to utilize the 110-volt direct current from the city lighting system, providing this current is furnished; most cities, however, have only the alternating current, and in such circumstances, a small rectifier (see cut) is used to transfer the current from an alternating to a direct current. This form of electricity is one of the most valuable in electro-therapeutics, as it has the greatest field of usefulness in electrolysis and cataphoresis.

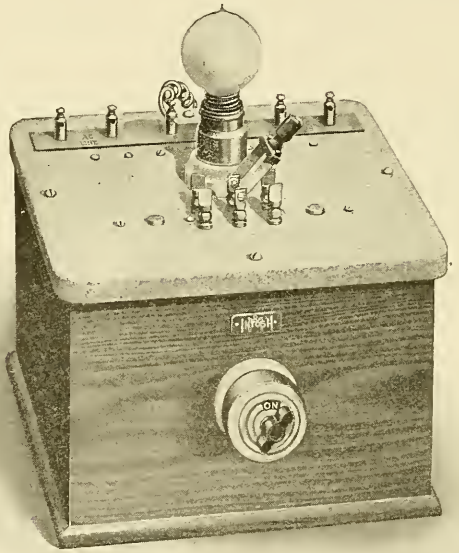
DIFFERENCE IN POLAR EFFECTS

The galvanic current is generated by chemical decomposition in the galvanic cells which takes place at the surface of the zinc plate, and is therefore, the positive element within the cell, as the current flows towards the carbon plate, which makes this the negative element, outside of the cell. It is just the opposite, the carbon terminal is called the positive pole, and the zinc terminal the negative pole. These two poles, used for therapeutic purposes, are decidedly different in their effects.

The positive pole is often spoken of as the acid pole, and has a caustic effect which hardens tissues with unyielding cicatricial tissue; is a vaso-constructor and will stop bleeding and is sedative in its effects.

The negative pole is often referred to as the alkaline pole, and acts as an alkaline caustic. It softens, disintegrates and liquefies tissues, with very little resultant cicatricial tissue, which is more soft and pliable. It is a vaso-dilator and like-

wise increases bleeding and produces hypersensitiveness. Their polar effects, which are decidedly opposite, are among the first things to be understood in handling electric currents, and we can readily see why the old doctors, who would advise "If one current don't do the business, try the other," were so erroneous in their methods and disappointed in their efforts; nowadays the physician's reputation is at stake in selecting the right pole for the condition in which it is indicated.



ALTERNATING CURRENT RECTIFIER.

ELECTROLYSIS AND CATAPHORESIS

Both these functions are derived from the galvanic current, and constitute two of the most important methods of utilizing this form of electricity.

Electrolysis is the process of separating or decomposing elements by electricity, and we have at our disposal an alkaline or acid radical, which may be used as the case demands, by using the different poles of the currents. For electrolytic

work, however, the negative pole is always used, because it acts as an alkaline caustic, and leaves the tissues soft and pliable while the positive pole hardens the tissues and may result in unsightly scars; therefore, the negative pole is preferable in the removal of superfluous hair, warts, moles, navi, etc.

Cataphoresis is the process of conveying medicines into the tissues of the body by means of the continuous current; thus, thiosinamine is used to dissolve scar tissue. Potassium iodide is used to excellent advantage to reduce glandular enlargements, particularly in goiter; local anæsthesia may be induced by the use of cocaine, etc. These solutions are always used on the negative pole and will be referred to later.

FARADIC ELECTRICITY

(Magnetism)

Was first devised by Michael Farady, of England, in the year 1831, from whom it takes it name; but at the present time is more frequently referred to as the induced or interrupted current. There are three ways of supplying this electric force. The first is the lodestone or natural magnet and the second by means of wrapping a coil or coils of insulated wire around a cone of very soft iron and charging the wire with an electric current. The third, or static induced current, is taken from the outside coating of Leyden jars, attached to a static machine.

This form of electricity is used for its general tonic effect upon tissues, by causing the muscles to contract, the blood to circulate more freely, and as a general stimulant to metabolism.

Dr. Homer E. Bennett, briefly states the physics, physiology and therapy of the induced current as follows:

The primary faradic current is really an interrupted galvanic current with the added magnetic properties imparted to it, from its immersion in the electro-magnetic field of the core, which gives it more potential. The primary has but little power of penetration and, therefore, the effects are

superficial and its usefulness limited, but, when a paralyzed nerve is superficial, it may be stimulated by the primary current.

On account of the amperage or current strength of the primary, it will cause powerful contractions of the superficial muscles. This current is more stimulating and irritating than is the secondary, hence it will increase the capillary circulation in the skin and is used to good advantage in this way as a tonic stimulant in conjunction with the electro-vapor bath. The primary current is uni-directional, but is interrupted with the frequency corresponding to the "make" and "break" of the vibrator. Coming from the primary cells, it has feeble galvanic properties, being both electrolytic and phoric to a slight degree, but its chief action upon the living organism is as an excitant to contractile tissue and a stimulant to sensory nerves, by reason of the interruptions, which cause sudden variations of the potential. The very suddenness of this change in the electro-motive force makes this current a powerful stimulant for exciting muscular contractions and arousing the action of the sensory nerves and the promotion of tissue metabolism.

The secondary induced current differs radically from the primary in every way, both in production and effects. The secondary coil current is the purely induced current and has no available amperage or current strength, and, therefore, no electrolytic (chemical) or any phoric effects. Through the process of induction the voltage is enormously increased, so that it has great power of penetration, and will influence deep-seated conditions.

On account of the rapid hysteresis in the primary field, there is produced a fluctuation in the secondary potential, which imparts to the secondary coil current to-and-fro or alternating character. Therefore, the secondary current has no fixed polarity, but there is a difference in the rise and fall of this potential, which gives to it a slight polar effect, but which is entirely mechanical.

The current induced by the "make" is slower than the reverse current induced by the "break," in the primary.

The electro-motive force is varied by the rapidity of the interruptions and by the size and length of the wire on the secondary coil. If the interruptions are very rapid and the coil composed of many turns of fine wire, the resulting current, though interrupted, begin to resemble, in physical properties, the sinusoidal modality. The approach to and departure from the highest and lowest potential, in each period, is, by this construction, made more gradual, and the physiological effects are as stimulants and not irritants, therefore it is a tonic and sedative to both motor and sensory nerves.

This current is what constitutes the so-called "high tension" current, which has a decided analgesic or anæsthetic effect, and will relieve pain.

The secondary current will contract muscles, the interruptions being so rapid that the muscles do not have time to relax between the interruptions, therefore, the muscles will remain in a state of clonic spasm as long as the current flows. There being no chemical effect to the secondary current on account of the absence of amperage, the pain is relieved in an irritated nerve through a process of tetanization of the nerve.

The current from a short, coarse secondary coil is rough, harsh, and irritating, and, therefore, painful, and when ignorantly or carelessly applied is often injurious. The cheap batteries, commonly found in the stores and sold to the laity for self-treatment, are usually of this character, and by them many have been "shocked" till they are fearful of all kinds.

In some cases of paralysis, where it is desired to get powerful stimulation, this current is indicated. Likewise in cases of narcosis, drowning, asphyxia, poisoning, etc., this current may be used to advantage to induce and keep up artificial respiration.

The best induction coil for the general practitioner or electro-therapeutist is one in which the strength of the primary can be changed and in which the number of the primary interruptions may be regulated, by means of both slow and rapid vibrators, and in which the secondary contains at least

3,000 feet of No. 36 wire and with another thousand or fifteen hundred feet more, which may be added when desired, for the sedative effect. The primary coil should have about 200 feet of No. 20 wire.

The primary currents are useful in producing superficial stimulation, equalizing capillary circulation, and in giving general tonic treatments.

The coarse secondary coil currents are indicated for powerful stimulation, such as for massage effects in atrophy, paralysis, perversion of cutaneous sensibility, and in relaxed and sluggish states of the bowels, and glandular systems, narcosis, etc.

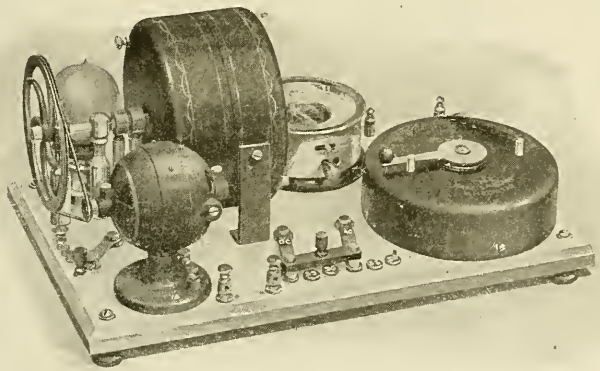
The high tension or long, fine wire coil currents are indicated in deep-seated nervous and painful conditions, as ovaritis, neuralgia, and sub-acute and chronic engorgements, due to vaso-motor paralysis, and in depraved states where there is need of stimulation of tissue metabolism and retrograde metamorphosis.

THE SINUSOIDAL CURRENT

The Sinusoidal current is one of the three forms of induced currents used in medicine, and differs from the faradic and static induced, inasmuch as the alternations produced are smooth and even, instead of rough and irregular in character. Of the three alternating currents the Faradic is the most unsatisfactory, as it produces muscular contraction with such force as to be painful with many delicate subjects. The static induced current will produce muscular contraction, with less pain, but is more difficult to control. The Sinusoidal current will accomplish the same results as the two former currents, and produce powerful muscular contractions, with but little or no discomfort to the patient, and when compared with the other interrupted currents, is like the calm rolling tide of the ocean, after a storm, and is particularly indicated in atonic

visceral conditions. We have no more effectual agent than the Sinusoidal current. Its peculiar properties of exciting contraction, both of striated and nonstriated muscular tissue painlessly, makes it invaluable in the treatment of Chronic Gastro-Intestinal disorders. It will relieve the most obstinate cases of constipation which have repeatedly failed to be more than temporarily benefited by other methods.

In Chronic Cystitis, especially those cases associated with enlarged Prostate, the results are particularly gratifying, and when used alternately with the constant current, the final result will be more than satisfactory, to both physician and patient.



POLYSINE GENERATOR.

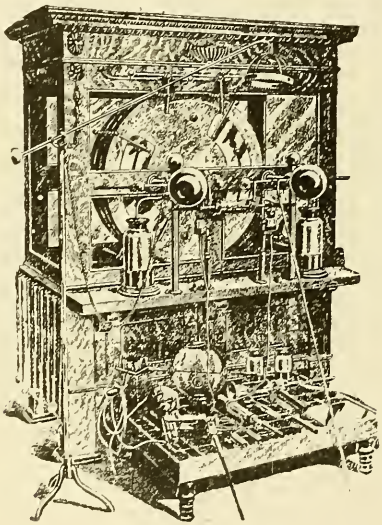
Seminal Vesiculitis, Prostatitis, Varicocele, Atrophied Testicles, in fact any condition where there is loss of tone, or nutrition is impaired, the Sinusoidal is the current par excellence.

All forms of Neuritis, whether acute or chronic, and many Neuralgias, are cured, where the use of other currents has proven unavailing.

The remarkable properties, tonic, stimulant, and sedative, produced by this current, together with its profound effect on nutrition, make it an almost indispensable addition to the armamentarium of the physician.

STATIC ELECTRICITY

With static electricity we have a form of electric energy which consists of nearly all voltage, and very little or no amperage, and while the body of the patient is required to come in contact with both poles of the continuous or induced currents in this form of electric procedure, the electric charge may be forced in local areas with one pole, and conducted through the body to the other pole, through the ground or air, at a long distance; therefore, we may administer the local

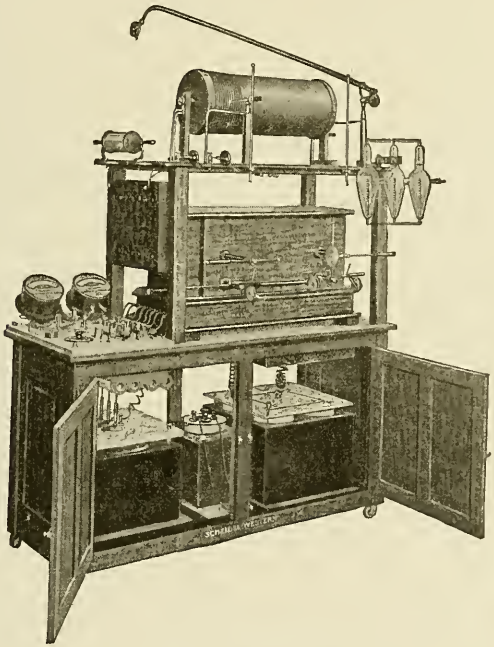


STATIC MACHINE.

effects of electric currents to circumscribed areas, by the use of special constructed electrodes, while the entire body is being charged with a high potential current, which is extensively used for its tonic effect, and a process of increasing cell metabolism, in the treatment of many organic and functional diseases.

One of the most popular forms of treatment with static electricity, is called the breeze treatment, or the static bath, which is given to the patient on an isolated platform, connected with one of the static jars, while the other jar is con-

nected with a crown electrode above the head. The influence of this current is very soothing to many patients, as it gives the sensation of a gentle breeze to the head, and acts as a sedative, and often relieves headache and induces sleep; in brief, it tranquilizes and equalizes the nerve forces, dilates the cutaneous vessels and hastens the elimination of waste products, carbon dioxide, urea, etc.



X-RAY GENERATOR.

ROENTGEN OR X-RAYS

It was in the year 1895, W. C. Roentgen announced to the world the discovery of invisible, nonrefractible rays, eminating from the surface of an electrically excited vacuum tube, opposite the cathode electrode, having the power of permeating objects impervious to light or heat rays, and affecting photographic plates in a manner similar to light rays. Not

being certain as to the nature of these rays, he provisionally termed them "X-Rays," and although seventeen years have elapsed since their discovery, we are still ignorant of their true nature. The X-Ray has not only served the surgeon as a valuable means of locating foreign bodies, dislocations and fractures, but is one of the most valuable means we have for the treatment of certain cutaneous conditions and cancer; recent investigations have proven such remarkable results that the most radical claims may not be impossible of realization.

HIGH FREQUENCY CURRENTS

This form of electric currents was introduced by Nikola Tesla, in the year 1900, and is referred to, synonymously, as the "high frequency" or "Tesla currents" which is an oscillating current, in which the frequency is beyond the point of producing muscular contractions. Muscular contractions cease with 10,000 oscillations, which has been taken as the dividing line between medium and high frequency currents. Many of the high frequency apparatus are estimated to develop over a million oscillations. This current may be developed from a static machine with the addition of an Oudin resonator, or by securing a special high frequency coil, of which there are many elaborate outfits on the market.

Ozone Therapy

Ozone is another product of nature which is fast gaining the confidence of the Medical Profession as a natural therapeutic agent, and while nearly all Sanitariums utilize this adjunct, many office specialists do not consider their equipment complete without the addition of an Ozone generator. Van Marum was, perhaps, the first to identify this gas; although Professor Schoenbein was the first to give it its present name, and christen this agent for therapeutic purposes, in the year 1845, but owing to a deficient means of generating this gas, very little was done to advance its therapeutic value until within recent years; but at the present time, the manufacturers of ozone-producing machines are keeping pace with other inventive skill, and we have offered us many reliable mechanical devices which the physician can utilize to supply ozone to the class of disease in which it is indicated.

All electric currents produce ozone to a certain extent, but in order to generate it in sufficient quantities to be dispensed for its specific influence, it is well to understand the process of liberating this gas. Whenever an electric spark passes through the air, ozone is liberated, and at the same time, nitrous gases and oxides are produced, which are injurious to inhale. It has been demonstrated that the less perceptible spark accompanying the production of ozone, the less amount of these objectionable gases it will contain.

The static machine was formerly used for the purpose of producing ozone, but owing to the poisonous by-products mentioned above, this means of generating ozone has been abandoned for the modern ozone generator where these poisonous gases are eliminated by filtering the ozone through balsamic oils, which not only adds to the agreeableness of the

treatment, but also to the curative effect of the ozone itself. The following is a favorite formula for the filtering oils:

Oil of pine .....2 parts
Oil of eucalyptus .....1 part

These oils, after being in use sometime, to purify the ozone, are used in the treatment of many skin diseases and indolent ulcers, for which they make a very valuable dressing. Some advertising physicians have attempted to promote their sale under the name of "Ozone Oils," etc.

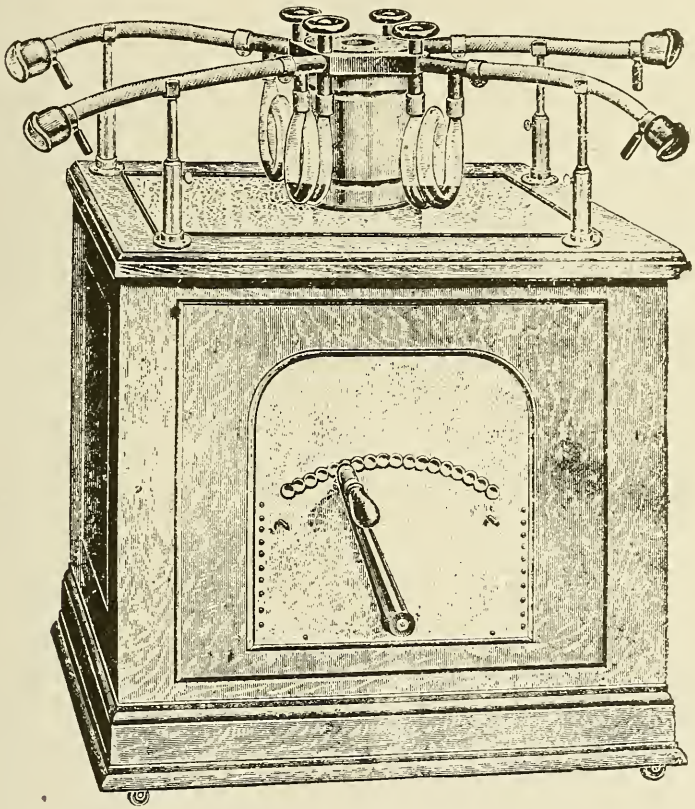
Ozone may be administered to the patient by direct inhalation through rubber tubes, from the ozone generator; or, many physicians equip a small room in their offices or Sanitariums, which they call "The Inhalatorium," and allow their patients to occupy this room certain hours of the day, and many sleeping rooms in Sanitariums are impregnated with ozone through the night; thus providing the "mountain air" in any locality which, in my opinion, is the best way to supply this therapeutic agent.

Where patients visit the office and inhale ozone direct from the generator, there can be no stated time allowed for each treatment, as some cases may require longer inhalations than others; therefore the direct inhalation is the best means of treating acute attacks of bronchitis, asthma, etc., but the continuous supply of ozone in the inhalatorium or sleeping room, is the best means of treating chronic diseases of the air passages, and especially consumption, where the continuous influence of this agent may be obtained.

Ozone is an allotropic form of oxygen, and is frequently referred to as a purified, or a highly energized form of oxygen. It will readily be seen what a large field of influence such an agent will have on animal life, in oxygenizing the blood and tissues of the body. As a blood builder and reconstructive it has no equal. Its bacteriacidal properties have long been recognized, and many public places use ozone to purify the air and water, as ozone will rapidly destroy the most objectionable odors. The germs in sewers have been reported destroyed

to the extent that the filtered water is suitable for drinking purposes.

Ozone can never be recognized as a specific cure for any disease, but like many other things in physio-therapy it has its special sphere of usefulness, and when employed in con-



OZONE GENERATOR.

junction with other therapeutic measures, it aids the natural processes by restoring health. In other words, it is one of the reinforcements to other therapeutics in their battle against disease. It might be stated that ozone is indicated in all dis-

eases, for pure air is essential in restoring all forms of low vitality. Its special sphere, however, is in the class of diseases which can be treated through the absorbent processes of the air passages. By inhaling ozone we sterilize the air passages, fortify the lungs against invading bacteria; hence, its usefulness in tuberculosis and infectious diseases of the air passages. Its oxidizing effect upon the blood makes it of the greatest value in the treatment of anæmia and chlorosis; also other forms of impaired nutrition, whooping cough, asthma, hay fever, and bronchitis are always greatly benefited by inhalation of ozone. Syphilis and other morbid conditions of the blood and tissues, rapidly improve under the influence of this therapeutic agent, and although its sphere of remedial value is more pronounced in some diseases than others, it has a universal usefulness in all forms of animal life.

Medical and Surgical Specialties

In considering the Medical and Surgical specialties which are suitable for an office practice, it is generally understood that the physician in charge has ceased to be a free bureau for general advice and distributing agent for invalids, as was the former custom of many general practitioners, who would dispose of their cancer patients to some cancer specialist or hospital; would allow their hernia patients to drift into the hands of some advertising "Rupture Specialists"; would send their throat and nose patients to some "Laryngologist," etc., while there are many learned and esteemed specialists throughout the country at this age of modern therapeutics, appliances and apparatus which are accessible to every physician, and the most excellent text books on all subjects of medicine and surgery are at his disposal, and by becoming familiar with the manipulation of one, and the tehnique given by the other, any physician of ordinary skill can, within a comparatively short time, cope with many diseases and conditions which it was formerly thought, should be treated by the "city physicians." Of all the physicians in the world the country general practitioner is the most resourceful, and has in the past years been compelled to adapt himself to circumstances and conditions; now that mechanical ingenuity has placed these modern therapeutic agencies within his reach at a reasonable outlay of money, and medical writers have given him the best of their knowledge and experience, there is no reason why every physician should not incorporate the treatment of many diseases in his practice that was formerly sent to the specialists, and receive the financial returns to which he is justly entitled.

In adopting the office specialties, his first step is to become familiar with the physiologic apparatus outlined in the foregoing chapters, and the technique of their use; he should next endeavor to utilize them to the best of his ability, in connection with all the Medical and Surgical specialties which he can successfully master, and it is hoped, some of the minor specialties given in the following pages may render him some assistance in this field of labor.

There are two ways of specializing in medicine: one is to master the disease of one or two organs, or groups of organs, and the other is to master all the diseases possible, irrespective of their organs.

There are very few physicians who have not entertained the idea that some time they would specialize, but could not decide on any particular specialty, thinking each field overcrowded; this is quite true in many respects, for our cities contain nearly as many specialists as they do general practitioners; therefore, "he who hesitates is lost."

In choosing specialties such as this publication is endeavoring to present, we would naturally select such diseases as are the most prevalent and frequently met with in office consultations. Very few physicians would care to specialize in the treatment of disease of the spleen, because he would be better remunerated for his services if he successfully treated the diseases peculiar to women, as this field is rich in clinical materials. It has been stated that every woman has some form of female weakness, therefore our fashionable gyneacologists are among the best salaried physicians in the country, and we often wonder why the late Dr. W. Todd Helmuth was inspired to write the following verse:

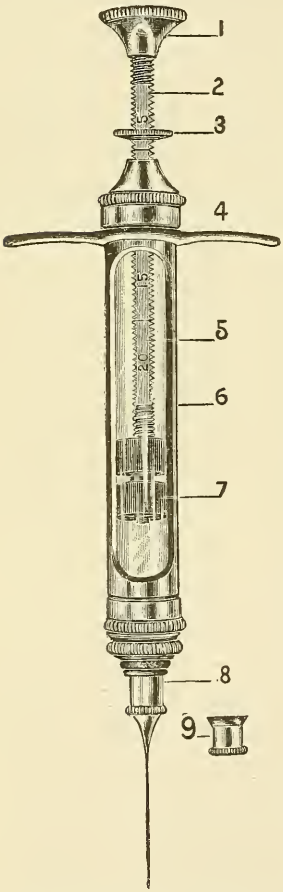
"But 'mid these varied callings all,
The man that heads the list
Is the gentle-fingered ge-ni-us,
The Gy-ne-col-o-gist.
He is such a charming fellow,
So clever in his way;

He always thrives in cities,
We meet him every day.
His rooms are over-crowded
With ladies, quite a host;
And, if he has a wife, they trust
She'll soon give up the ghost."

In selecting the profitable office specialties we naturally select the diseases which are the most common. The social evils offer a large scope, therefore, genito-urinary and venereal diseases make a profitable specialty. Statistics show that every eleventh man and every eighth woman, over forty years of age, have cancer. Every tenth adult person has some form of rectal disease; every twelfth man past thirty-five years of age is ruptured. Visit any public place and observe the number of deformities and blemishes of the face which should be corrected or removed; review the number of alcohol and drug habitues, living in your immediate vicinity, that could be encouraged to abandon their habits through the treatment you could administer. These, together with the long list of chronic ailments, rheumatism, catarrh, and all throat, nose and lung. Diseases of the prima vitae and nervous system, are the class of diseases which can be successfully incorporated in an office practice, and with a very few exceptions, these ailments can be as successfully treated by the office practitioner as they may be by many self-styled "specialists" who boast of their superior skill in the treatment of various diseases.

Hypodermic Medication

Of all operations which come within the domain of surgery, the use of the hypodermic syringe is perhaps the most insignificant, yet if we watch many practitioners use this valuable little instrument, we hang our heads in shame for their absolute neglect in observing the antiseptic principles with which this instrument should be used. Many surgeons are pronounced cranks regarding surgical cleanliness of their knives and other instruments, but they evidently think the hypodermic needle is too minute to be considered to any great extent; an adder's fangs are small, yet when they deposit poison under the skin, its toxic influence is realized, and the same is true with any other instrument, which penetrates the integument. Inasmuch as this little instrument renders important services for the office specialist, we will briefly outline some of the principles involved in its construction and use.



I always prefer the old style of glass cylinder syringe (given in the accompanying illustration) which embodies the following parts: 1. large, flat, piston head that the thumb may make heavy pressure; 2. graduated piston stem, which divides the contents of the barrel into minims. It is well to remember that in speaking of "minims" in the following pages, we mean "minims," as registered on the piston stem, and not drops as they are ejected from the end of the needle; light fluids contain several drops,

thus counted, to the actual graduated minim. This is illustrated in the following medicines. Although they are not used in hypodermic medications the principle is the same:

Number of Drops in 20 Minims of these Important Medications.

Acetic acid	40	drops in 20 minims
Hydrocyanic acid, dilute	15	" " " "
Muriatic acid	18	" " " "
Nitric acid	28	" " " "
Nitric acid, dilute	17	" " " "
Sulphuric acid	30	" " " "
Sulphuric acid, dilute	17	" " " "
Ether	50	" " " "
Fowler's solution	19	" " " "
Oils, essential	40	" " " "
Tinctures	40	" " " "
Vinegars	26	" " " "
Water distilled	15	" " " "
Ammonia	18	" " " "
Wine antimony	24	" " " "
Wine colchicum	25	" " " "
Wine opium	26	" " " "

This may be taken as a fair average, as dropped from a given vessel, but the drops will be found to vary according to the vessel from which they are dropped, owing to the size and contour of the flange or edge.

A little study of the table above may reveal why one sometimes fails to get the effect expected from a given dose, or why one cannot get constant results from a given drug.

3. Is the nut, set to regulate the number of minimums used; these exact measurements are absolutely necessary in hernia and other delicate operations.

4. The cross bar should be broad and strong, so that continued use will not make the fingers sore.

5. I always prefer the glass cylinder to the solid metal, as this style always allows you to view the contents of the liquid

you are using, and gives you absolute control over the medication.

6. Is the metal framework which supports the glass cylinder; this should be open on both sides.

7. The plunger should always be provided with an oil cup to prevent the syringe from drying up, when not in use.

8. The needle is the cutting portion of the instrument, and should always be surgically clean, and when not in use, a wire, previously dipped in carbolated oil, inserted into its caliber will prevent the needle from rusting.

9. Is the cap which should be applied when the syringe is not in use.

Before using a syringe it should always be rinsed out with a good antiseptic solution, followed by sterile water, and the needle closely watched, to avoid the accumulation of any corrosive substance. To fill the syringe the needle may remain intact, but when filled it should be pointed upwards, and sufficient pressure made to expel all air. Where graduated doses of the solution are required, as in hernia, the set screw of the piston stem should be adjusted for the amount of medicated liquid required. By observing these few rules, hypodermic medication will never be followed with any disastrous results.

Local Anaesthesia

Other than averting death, the noblest calling of the physician is to mitigate pain, and the reputation of the modern operator hinges largely upon three qualifications, his kind and gentle manners, his skill and his ability to relieve suffering, especially during surgical procedure; by cultivating the former, and acquiring the technique of the latter, he will be amply rewarded in the practice of his profession, for that dreadful word, "pain," is despised more by suffering humanity than the money trust is by the Populist party.

Modern chemistry has provided the physician with many valuable products for the purpose of producing local anaesthesia; the following are of the greatest value, viz.: Cocaine, novocain and quinine and urea hydrochloride.

COCAINE

When the Spanish conquerors landed upon the Peruvian coast, they found that the inhabitants greatly esteemed the cocoa-leaf, which they regarded with suspicious awe, and ascribed to it supernatural powers; only the priests, nobility, and inhabitants high in station were allowed to chew the sacred leaves, which are now represented in their national coat-of-arms, and universally used by the populace, in much the same way as we use tea, coffee and tobacco.

Niemann finally identified the alkaloid contained in the leaves, in the year 1859, and gave cocaine to the chemical world; for nearly twenty-five years the medical world remained ignorant of the most remarkable properties of this chemical to produce local anaesthesia. It was in the year 1884 that Dr. Koller published the results of his experiments with

this substance as a local anaesthetic. After this, cocaine became generally known, and universally used, as a local anaesthetic. One of the principal points of argument against the use of cocaine has been its toxic influence, but my experience with this chemical product does not coincide with the observations and statements made by others, regarding its toxic effects; and I believe you will agree with me, that my experience has not been limited when I state that I have used cocaine to produce local anaesthesia in over twenty thousand operations, and only in one instance have I ever seen a pronounced case of cocaine poisoning.

In the early part of my medical career I was associated with a dentist, and "acquired the habit" of extracting teeth; this was about the time the medical journals were filled with discussions regarding the toxic effects from cocaine. I continued its use, however, expecting every day I might meet my "Waterloo," and was finally rewarded (?) in my expectations. Previous to this, I had seen only slight symptoms of its toxic effects in its continuous use for nearly three years, in the removal of several thousand teeth, until the case referred to above was presented. This gentleman was about 26 years of age, six feet tall and proportionately built, excepting his head, which would fit about a 6⅞ hat. I noticed, however, that his head was, apparently, too small for his body. He wished fourteen teeth extracted; I, therefore, prepared them by injecting a three per cent. cocaine solution in sections of three teeth at each treatment, which was my usual method. After I had prepared the three sections, I noticed that the patient was becoming pallid and perspiration was standing upon his forehead, denoting collapse. I at once gave him about three ounces of brandy, which seemed to have a decided reaction. In a few minutes he left the office like a wild man, and ran through the streets to his home, about a mile distant; when I reached the house he was lying on the couch; his respiration was rapid, and his pulse about 140, and he was pouring forth an incoherent vocabulary, which he must have reincarnated from the prehistoric gods. I gave him hypnotics,

and in a few hours, he regained his normal self; a few days later he had the balance of his teeth extracted by the same method. I extracted only one tooth at a time, however, and waited as long as possible between each operation, which terminated like other normal cases. He was made to believe that it was the brandy and not the anæsthetic that was the element which affected him in his former operation; (we physicians are a deceptive lot).

It was plain to see that in this case an idiosyncrasy existed, and I wished to use the same anaesthetic to determine, if possible, if cocaine, used in moderate quantities, could be successfully used in this class of cases. During the second seance, one tooth was extracted at a time, and the time occupied was about one hour, but other than the patient's desire to talk freely, which showed there was a slight intoxication, there was no marked difference from any normal case.

I have frequently had patients evince an inclination to talk freely, which is one of the first symptoms of cocaine intoxication, and bears the same physiological relation to this drug as three or four good drinks of whiskey would to the "tippler." If we go beyond this stage, we increase the physiological effect, and excite the brain to temporary insanity, the same as we can induce delirium tremens by an over amount of alcohol; hence, the adage that it is the "abuse and not the use" of a drug which makes people condemn it. After the above experience I was intensely interested in obtaining the truth regarding the physiological action and toxic effect of this drug; I therefore commenced to investigate the reports of death caused from cocaine and although I communicated with many physicians and dentists, where these reports were derived, I have never been able to trace a single death to cocaine. My investigations included two cases of attempted suicide, where twenty-three and thirty-two grains had been taken, without producing fatal results; also the report of the late William H. Hammond, made when he took eighteen grains, at intervals, during one hour, and survived his experience which I think will be of sufficient interest to quote in full,

for it fully explains the true physiological action of the drug better than any article ever written, to my knowledge. The doctor said:

"About two years ago I undertook a series of experiments with this agent on myself, with the object of obtaining more satisfactory information relative to its action than it seemed possible for me to get otherwise. I began by injecting a grain of the substance under the skin of the forearm, the operation being performed at 8 o'clock p. m.

"The first effect ensued in about five minutes, and consisted of a pleasant thrill which seemed to pass through my whole body. This lasted about ten minutes and shortly after its appearance, was accompanied by a sensation of fullness in the head and heat of the face. There was also noticed a decided acceleration of the pulse with increase of force. This latter symptoms was probably, judging from subsequent experiments, the very first to ensue, but my attention being otherwise engaged, it was overlooked. On feeling the pulse five minutes after making the injection, it was found to be ninety-four, while immediately before the operation it was only eighty-two.

"With these physical phenomena there was a sense of exhilaration and an increase of mental activity that were well marked, and not unlike in character those that ordinarily follow a glass or two of champagne. I was writing at the time, and I found that my thoughts flowed with increased freedom, and were unusually well expressed. The influence was felt for two hours, when it gradually began to fade. At 12 o'clock, four hours after the injection, I went to bed, feeling, however, no disposition to sleep. I lay awake till daylight my mind actively going over all the events of the previous day. When I at last fell asleep, it was only for two or three hours, and then I awoke with a severe frontal headache. This passed off after breakfast.

"On the second night following, at 7 o'clock, I injected two grains of the hydrochlorate of cocaine into the skin of the forearm. At that time the pulse was eighty-four, full and

soft. In four minutes and a half it had increased to ninety-two, was decidedly stronger than before, and somewhat irregular in rhythm. The peculiar thrill previously mentioned was again experienced. All the phenomena attendant on the first experiment were present in this, and to an increased degree. In addition there was twitching of the muscles of the face, and a slight tremor of the hands, noticed especially in writing. In regard to the mental manifestations there was a similar exhilaration as in the last experiment, but much more intense in character. I felt a great desire to write, and did so with a freedom and apparent clearness that astonished me. I was quite sure, however, at the time that on the following morning, when I came to read it over, I would find my lucubrations to be of no value; I was therefore greatly disappointed when I came to peruse it, after the effects of the drug had passed off, that it was entirely coherent, logical and as good, if not better, in character than anything I had previously written.

"The effects of this dose did not disappear till the middle of the next day, nor until I had drank two or three cups of strong coffee. I slept little or none at all, the night being passed in tossing from side to side of the bed, and in thinking of the most preposterous subjects. I was, however, at no time unconscious, but it seemed as though my mind was, to some extent, prevented from its usual course of action. The heat of the head was greatest at about 12 o'clock, and at that time my pulse was 112, the highest point reached. I had no headache until after rising, and the pain disappeared in the course of the morning.

"Four nights subsequently I injected four grains of the hydrochlorate of cocaine into the skin of the left forearm. The effects were similar in almost every respect with those of the other experiments except that they were much more intense. The mental activity was exceedingly great, and in writing, my thoughts, as before, appeared to be lucidly and logically expressed. I wrote page after page, throwing the sheets on the floor without stopping to gather them together.

When, however, I came to look them over the following morning, I found that I had written a series of high-flown sentences altogether different from my usual style, and bearing upon matters in which I was not in the least interested. The result was very striking as showing the difference between a large and excessive dose of the drug, and yet it appeared to me at the time that what I was writing consisted of ideas of a very superior character, and expressed with a beauty of diction of which I was, in my normal condition, altogether incapable.

"The disturbance of the action of the heart was also exceedingly well marked, and may be described best by the word "tumultuous." At times beginning within three minutes after the injection and continuing with more or less intensity all through the night, the heart beat so rapidly that its pulsations could not be counted; and then its action would suddenly fall to a rate not exceeding 60 in a minute, every now and then dropping a beat. This irregularity was accompanied by a disturbance of respiration of a similar character, and by a sense of oppression in the chest which added greatly to my discomfort.

"On subsequent nights I took six, eight, ten and twelve grains of the cocaine at a dose, but I will not detain the society with a detailed account of the effects produced. It will be sufficient to say that they were similar in general characteristics, though of gradually increasing intensity in accordance with the dose taken, to that in which four grains were injected.

"In all there was great mental excitement, increased fluency of thought, and exaggerated disposition to write: the matter written being disconnected and at times almost incoherent, though it appeared to me at the moment to be wonderfully logical and profound. In one, that in which twelve grains were taken, I was conscious of a tendency to talk, and as far as my recollection extends, I believe I did make a long speech on some subject of which I had no remembrance the next day. In all the action of the heart was increased, was irregular in rhythm and force to such an extent that I was

apprehensive of serious results. Insomnia was a marked characteristic, and there was invariably a headache the following morning.

"In all cases the effects passed off about midday, and by evening I was as well as ever.

"Up to this time I certainly had not taken a poisonous dose of cocaine, or one that had produced inconvenience. My experience had satisfied me that a much larger dose than any I had up to that time injected might, in my case at least, be taken with impunity. A consideration of the phenomena observed appeared to show that the effects produced by twelve grains were not very much more pronounced than those following six grains. I determined therefore to make one more experiment, and to inject eighteen grains. I knew that in a case of attempted suicide twenty-three grains had been taken into the stomach without seemingly injurious effect, and that in another case thirty-two grains were taken within the space of three hours without symptoms following of greater intensity than those I had experienced.

"I had taken the dose of eight, ten and twelve grains in divided quantities, and this dose of eighteen grains I took in four portions, within five minutes of each other. At once an effect was produced upon the heart, and before I had taken the last injection the pulsations were 140 to the minute and characteristically irregular. In all the former experiments, although there was great mental exaltation, amounting at times almost to delirium, it was nevertheless distinctly under my control, and I am sure that at any time under the influence of a sufficiently powerful incentive I could have obtained entire mastery over myself, and have acted after my normal manner. But in this instance, within five minutes after taking the last injection, I felt that my mind was passing beyond my control, and that I was becoming an irresponsible agent. I did not feel exactly in a reckless mood, but I was in such a frame of mind as to be utterly regardless of any calamity or danger that might be impending over me. I do not think I was in a particularly combative condition, but I was elated

and possessed of a feeling as though exempt from the operation of deleterious influences. I do not know how long this state of mind continued, for I lost consciousness of all my acts within, I think, half an hour after finishing the administration of the dose. Probably, however, other moods supervened, for the next day when I came down stairs three hours after my usual time, I found the floor of my library strewn with encyclopedias, dictionaries and other books of reference, and one or two chairs overturned. I certainly was possessed of the power of mental and physical action in accordance with the ideas by which I was governed, for I had turned out the gas in the room and gone up stairs to my bed chamber and lighted the gas, and put the match used in a safe place, and undressed, laying my clothes in their usual place, had cleaned my teeth and gone to bed. Doubtless these acts were all automatic, for I had done them all in pretty much the same way for a number of years. During the night the condition which existed, was judging from the previous experiments, certainly not sleep, and yet I remained entirely unconscious until 9 o'clock the following morning, when I found myself in bed with a splitting headache and a good deal of cardiac and respiratory disturbance. For several days afterwards I felt the effects of this extreme dose in a certain degree of languor and indisposition to mental or physical exertion; there was also a difficulty in concentrating the attention, but I slept soundly every night without any notable disturbance from dreams.

"Certainly in this instance I came very near taking a fatal dose, and I would not advise anybody to repeat the experiment. I suppose if I had taken the whole quantity in one single injection, instead of in four, over a period of twenty minutes the result might have been disastrous. Eighteen grains of cocaine are equivalent to about 3,630 grains of coca leaves, and of course, owing to its concentration, capable of acting with very much greater intensity.

"I am not aware that a fatal dose of cocaine has yet been indicated by actual fact. Probably eighteen grains would kill some people, and perhaps very smaller quantities might, with

certain individuals, be fatal. But these are inferences and not facts; but so far as I know, there is not an instance on record of a person dying from the administration of cocaine. So far as my experiments extend (and I think it will be admitted that they have gone as far as is safe), I am inclined to think that a dose sufficient to produce death would do so by action on the heart. Certainly it was there that, in my case, the most dangerous symptoms were perceived. The rapidity, force, and marked irregularity of the pulse all showed that the innervation of the heart was seriously affected.

"It is surprising that no marked influence appeared to be exercised upon the spinal cord, or upon the ganglia at the base of the brain. Thus there were no disturbances of sensibility (no anæsthesia, no hyperasthesia) and no interference with motility, except that some of the muscles, especially those of the face, were subjected to slight twitchings. In regard to sight and hearing, I noticed that both were affected, but that while the sharpness of vision were decidedly lessened, the hearing was increased in acuteness. At no time were there any hallucinations."

Cocaine is eliminated by the kidneys, and may be detected in the urine; the excretion takes place in a few hours and hence, any effect it has on the organism is not persistent. An impression has prevailed that it is especially hurtful, but this conception of its character has developed out of a misconception, and unless an idiosyncrasy exists (which is easily detected), the proper use of cocaine seems to be not incompatible with a normal degree of bodily and mental vigor.

In formulating a local anaesthetic to be used in dental or minor surgery, there are several objects to be obtained, viz.: First, to have one that will be safe at all times; second, one that can be used in all pathological conditions of the body; third, one that will have no bad after effects; fourth, one that will not decompose, within a reasonable length of time.

In the following formulæ I think we have overcome most of these obstacles and have an anaesthetic that is safe and can

be used in all pathological conditions without any bad after effects, if used with antiseptic precautions and ordinary skill. And I believe, after twenty-five years of continuous use I am justified in making this statement.

OBTUNDENT FORMULAE

No. 1.

℞	Cocaine hydrochlor	20 gr.
	Sodium chloride	5 gr.
	Atropine sulphate	3/10 gr.
	Chloral hydrate	10 gr.
	Phenoresorcine	¼ dr.
	Oil of cinnamon	6 min.
	Aqua dis q. s.	4 oz.

No. 2.

℞	Cocaine hydrochlor	40 gr.
	Sodium chloride	5 gr.
	Atropine sulphate	3/10 gr.
	Chloral hydrate	10 gr.
	Phenoresorcine	¼ dr.
	Oil of cinnamon	6 min.
	Aqua dis q. s.	4 oz.

No. 3.

℞	Cocaine hydrochlor	1 dr.
	Sodium chloride	5 gr.
	Atropine sulphate	3/10 gr.
	Chloral hydrate	10 gr.
	Phenoresorcine	¼ dr.
	Oil of cinnamon	6 min.
	Aqua dis q. s.	4 oz.

No. 4

℞	Cocaine hydrochlor	80 gr.
	Sodium chloride	5 gr.
	Atropine sulphate	3/10 gr.

Chloral hydrate		10 gr.
Phenoresorcine		¼ dr.
Oil of cinnamon		6 min.
Aqua dis	q. s.	4 oz.

Mix and filter through absorbent cotton until clear.

The above formulæ represents approximately a one, two, three and four per cent. solution. For all general purposes, I use formula No. 3. In having these formulæ compounded you should be sure and have it done by some one who is careful and competent and will see that the drugs are fresh and pure, and from a reputable house, of which Merck's is preferable. The question naturally arises, why the above formulæ have any advantage over a common cocaine solution?

Atropine given in small doses, as in this formula, is a cardiac, respiratory and spinal stimulant, and tends to counteract the effects of the cocaine more than any other remedy we possess. By the term phenoresorcine is meant by Riverdine, a mixture of carbolic acid and resorcine, sixty-seven parts of the former and thirty-three of the latter. This mixture crystallizes on cooling and by the addition of ten per cent. of water (which is always used in the above formulæ as follows):

℞	Carbolic acid	67 parts
	Resorcine	33 parts
	Aqua	10 parts

The above formula mixes with water in all proportions, combining the virtues of both remedies.

Phenoresorcine is not only an efficient and valuable antiseptic and local anæsthetic, but is indispensable in localizing the anæsthesia, and preventing its constitutional absorption, it was also discovered by laryngologists if used in conjunction with cocaine, it alleviated the nausea which sometimes follows the use of that drug. Phenoresorcine is also one of the most valuable remedies we could select to preserve the preparation. While a common cocaine solution is almost worthless at the

end of a week, this preserves the preparations for months. Chloral hydrate, like phenoresorcine, has a marked antiseptic and local anæsthetic effect, and also assists the other remedies in localizing the anæsthesia and prevents its absorption into the general circulation. Oil of cinnamon as used in these formulæ is composed as follows:

℞ Oil of cinnamon .....6 drops
Glycerine .....1 dr.
Aqua distilled .....4 oz.
Mix and filter through absorbent cotton until clear.

This makes an aromatic solution which disguises the odor of the phenoresorcine. It also assists in preserving the preparation.

Since the introduction of cocaine as a local anæsthetic, there have been many other chemicals introduced from time to time, for the purpose of producing local anæsthesia. Tropacocaine was first obtained from the Java coca leaves and was afterward made synthetically. The hydrochloride is reputed as being less toxic than cocaine, more rapid in action, but of shorter duration. Eucaine -a- and Eucaine -b-, are proprietary, artificial, alkaloids which are claimed to be less toxic than cocaine and almost as efficient. As a local anæsthetic the latter preparation is always preferred; their principal advantage being that solutions of these chemicals may be boiled without decomposition and require no preservatives.

Orthoform is a patented product, which has no chemical relation to cocaine. It is non-toxic and somewhat antiseptic; its insolubility precludes its use by hypodermic injection. Its local anæesthetic effect is best used in dusting powders to abraded surfaces, and internally, for ulcers and cancer of the stomach.

Holocaine is another proprietary synthetic product, prepared by the interaction of phenacetin and paraphenetidin. It is too toxic for hypodermic use, and is used only in operations upon the eye, where it produces complete anæsthesia,

without dilating the pupil, or affecting the blood vessels. Thus we find alypin, stovaine, chloretone salt solution, atoin, nirvanin, and even as simple a thing as plain sterile water, advocated from time to time as local anæsthetics for all minor operations. The principal endeavor has been directed toward obtaining an anæsthetic of equal efficiency, but less dangerous than cocaine; finally we have presented to us novocain and quinine and urea hydrochloride.

NOVOCAIN

Novocain has established itself as an ideal local anæsthetic through the classical researches of Braun, and although novocain is not as easily absorbed as cocain, when applied to the mucus surfaces, when injected hypodermically it has an equal anæsthetizing power to cocain, and is considered at least seven times less toxic than cocain. It also has the advantages that it can be boiled in solution to render it sterile and is non-habit-forming, although it does come under the Harrison drug act. This product is without an exception the best substitute for cocain in our possession for hypodermic local anæsthesia, and a very favorite formula for all minor operations is the following:

℞ Novocain .....10 gr.
Quinine and urea hydrochloride ..... 5 gr.
Normal salt solution .....q. s..... 1 oz.

QUININE AND UREA HYDROCHLORIDE

In the year 1896, Dr. V. M. Griswold, of Fredonia, N. Y., first called attention to the value of quinine, used hypodermically, to produce local anæsthesia. Later, quinine and urea hydrochloride was used by several southern practitioners, as it was a very soluble salt, and could be used hypodermically in the treatment of malaria. It was discovered that the area

or site of the injection would remain "numb," or anæsthetized, for sometime after the injection. No important notice was taken of this, however, until Dr. Henry Thibault, of Scotts, Ark., publishel an article on "A New Local Anæsthetic," in the *Journal of the Arkansas Medical Society*, for September, 1907. This report, naturally, created wide interest, and favorable comments were being heralded from all parts of the country. In October, 1909, Hertzler, Brewster and Rogers, of Kansas City, Mo., published a report of their investigations regarding the new anæsthesia, and found that, while the one per cent. solution, recommended by Dr. Thibault, produced a perfect local anæsthesia of longer duration than cocaine, disturbances of skin union were frequently observed, but there was no pus formation and the thickening appeared to be due to cellular infiltration.

Hertzler thereupon undertook to determine experimentally the cause of the induration. Experiments performed on rabbits showed that the thickening was not due to cellular infiltration at all, as was supposed on clinical grounds, but was due to a pure fibrinous exudate free from cells. This exudate was proved to be fibrin by Mallory's and Weigert's stain. The reaction appears, therefore, to be purely chemical in nature. The exudation of the fibrin begins to appear within a few minutes. In a general way it was determined that the amount of exudation depended on the strength of the solution used; the attempt was made, therefore, to determine a strength of solution which would not cause this exudation of fibrin. With ½ per cent. solution the exudate is less than with the 1 per cent. and with ¼ per cent. solution only traces can be discovered. To what extent this fibrinous exudate is subsequently converted into fibrous tissue has not yet been definitely determined, but apparently nearly all is absorbed.

In order to determine the subjective sensations of the injection and to determine the question of a possible zone of hyperesthesia about the anæsthetized zone, Hertzler studied the effect by injection in the skin of his own leg. Injections of 1 per cent., ½ per cent., ¼ per cent. and 1/6 per cent. solu-

tions, and an injection of plain water for control, were used in each series. The 1 per cent. and ½ per cent. solutions gave immediate and complete anæsthesia without a particle of pain during its introduction. Within a few minutes there was a distinct induration. With the ½ per cent. solution anæsthesia was not complete for a few minutes, but was then as complete as after the use of the stronger solution. The 1/6 per cent. solution gave delayed anæsthesia, but after a few minutes was complete. In neither of these weaker solutions was induration noted on palpation. The water control caused intense pain on injection, and the anæsthesia, at no time perfect, lasted only a few minutes. There was a zone of hyperesthesia one or two inches in width about the area injected. Curiously enough, the hyperesthesia seemed to be for touch and not for pain.

The duration of the anæsthesia in the 1 per cent. and ½ per cent. solutions was perfect for four or five days, and sensation in the ½ per cent. strength was not restored to any great extent for ten days, and in the 1 per cent. solution sensation was not completely restored after two weeks. At no time was there the least pain, though the introduction of the 1 per cent. and ½ per cent. solutions was yet marked at one and two weeks respectively. Quinine anæsthesia, it will be seen, can be used for any operation where the use of local anæsthesia is indicated. It has three very decided advantages over any other local anæsthetic:

1. It is non-toxic, and can be given in unlimited dosage. Brewster has used 100 grains intravenously inside of six hours in a patient suffering from pernicious malaria.

2. The prolonged anæsthetic effect. In many cases post-operative anæsthesia has lasted from four to five hours to as many days and longer.

3. Where a solution containing 1 per cent. or over is used, the hemostatic effect produced by the deposition of fibrinous exudate is of extreme value in preventing post-operative oozing.

"The exudate being fibrin in the strict chemical sense, the

usual natural processes of hemostasis are anticipated. The coagulum occurs, it is true, about and not in the vessels, and their occlusion, therefore, results from pressure from without. The important point, however, is that the effect lasts from seven to fourteen days, a time abundantly sufficient to allow healing by granulation to become well advanced. This is in marked contrast to the ephemeral influence of cocaine and adrenalin, which act only by causing a contraction of the muscular walls of the blood vessel."

Quinine and urea hydrochloride is a double salt of quinine and urea, made by dissolving quinine hydrochloride in hydrochloric acid, adding pure urea, and filtering the mixture through glass wool and allowing it to crystallize. It is soluble in its own weight of water, and in alcohol, it has the action of quinine and is non-irritating when injected hypodermically and produces local anæsthesia, lasting in some instances, several days, depending upon the strength of the solution.

Comparing the true therapeutic value of cocaine and quinine and urea hydrochloride, they may be summed up as follows:

COCAINE	QUININE AND UREA HYDROCHLORIDE
1. It is soluble in water,	1. It is also very soluble in water,
2. It cannot be sterilized when in solution,	2. It can be sterilized,
3. Produces toxic effects when used in large quantities,	3. It is absolutely non-toxic,
4. Does not have any hæmostatic action, unless used with adrenalin,	4. Has a very pronounced hæmostatic action,
5. Anæsthetic action is of short duration,	5. Post operative anæsthesia lasts from several hours to days,
6. Is conducive to the rapid healing of wounds.	6. The healing process is somewhat detained by its action.

In selecting from the above, a local anæsthetic for surgical purposes, will depend upon the field of operation and the results you desire to obtain. In all cosmetic operations upon the face, where you wish close union of the skin, and rapid healing, I always prefer cocaine, as I believe I have been rewarded with better results than from any other local anæsthetic. I also prefer this in all dental and oral operations; used either in the foregoing formula or combined with adrenalin for its hæmostatic effect. Quinine and urea hydrochloride is always the anæsthetic of my choice for the removal of tumors, other than on the face, and to anæsthetize large sur-

faces. It is also preferable in many rectal, anal, genito-urinary and gynecological operations, where one of the greatest influences, other than its use as anæsthetic, is to obtund post-operative pain, until the healing process is sufficiently well advanced to require no farther use of an anodyne. The technique of the use of local anæsthetics will be given when discussing the diseases in which they are used.

GENERAL ANÆSTHESIA

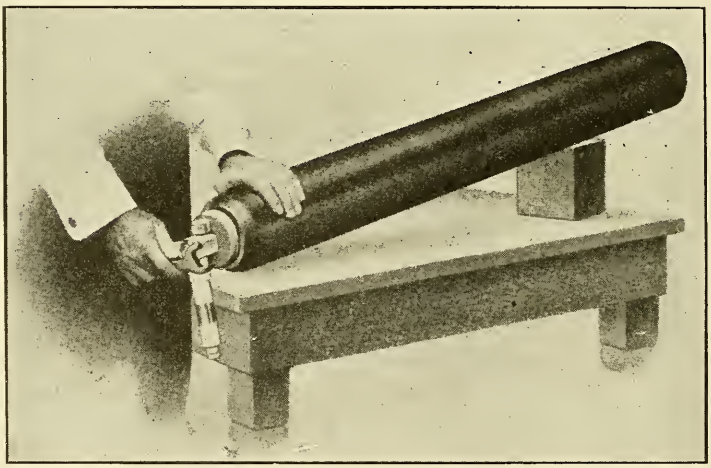
General anæsthesia is seldom required for most of the minor operations in an office practice; however, we occasionally find cases where they wish their consciousness to drift in the waters of forgetfulness. Although the methods of producing general anæsthesia are well known by every physician. I illustrate here a little instrument, that was devised for obstetrical practice, which has rendered me valuable service on many occasion for lancing felons, opening abscesses, etc. In obstetrical practice it is indispensable, as the patient can administer her own anæsthetic, which not only acts as a source of amusement, to occupy her mind during the ordeal, but also diminishes the pain of labor. The reservoir of this instrument is provided with a small piece of absorbent cotton or gauze, which is saturated with chloroform. By placing the inhalation tubes in each nostril, she is allowed to inhale the anæsthetic until she involuntarily drops the instrument. The distal end of the instrument is provided with a cap, which, having two rows of perforations, by this means the anæsthesia can be regulated, by allowing more or less air as is desired. This is an exceptionally convenient means of having the patient administer her own anæsthesia, and no harm can be done, because she cannot hold the inhaler long enough at a time to receive too much of the anæsthetic, and has the double advantage of occupying her mind and relieving pain. There are many cases presented in office practice in which this means of producing anæsthesia is commendable.

Solidified Carbon Dioxide and Liquid Air

It was during the International Congress of Dermatologists, in 1908, that the use of liquid air was publicly announced as a valuable agent in the treatment of certain malignant and cutaneous affections; this created widespread interest with the medical profession. However, the general introduction of liquid air, for therapeutic purposes, is impracticable, because it has so many disadvantages connected with its use and manufacture. It is not a medium in great demand for commercial and industrial purposes, and it is, therefore, difficult to obtain the product without securing special apparatus for its manufacture. For this reason, carbon dioxide snow has superseded liquid air; although there is some difference in their physical properties, it belongs to the same therapeutic family, and their analogy was first fully demonstrated by Drs. Dade and Whitehouse. The process of manufacture and supply is so simple with carbon dioxide, compared with liquid air, that the latter product has been nearly abandoned in therapeutics.

The temperature of liquid air is, approximately, 310 degrees F. below zero, while carbon dioxide is only 110 degrees F. below zero. With this great difference in degrees of temperature, one would naturally think their physical properties would be correspondingly changed, but such is not the case. Carbon dioxide seems to possess just a sufficient amount of cold to accomplish the results desired, and the process of freezing is sufficiently low to act as a positive destroyer of tissue, without being so rapid as to prevent an intelligent ob-

servation of the progress of freezing. In fact, it has been found that carbon dioxide, in loose crystals, produces a more rapid freezing action than the solidly compressed carbon dioxide ice; therefore, in most cases the solidified carbon dioxide, or carbon dioxide ice (as it is more frequently called) is often preferable to the snow or liquid air, as we have better control of its action. The two factors which determine the results to be achieved are the degree of pressure, and the duration of the application.



METHOD OF FILLING THE CRAYON.

The method of preparing solidified carbon dioxide for therapeutic purposes is rather an easy matter. Carbon dioxide gas is supplied, for commercial purposes, to all soda water counters, and may be found at almost any drug store for the purpose of supplying carbonated beverages. These receptacles are furnished to the trade in 20 and 50-pound tanks, under a pressure of about 1,000 pounds to the square inch. On opening the tap of the cylinder the liquid carbonic gas escapes, and evaporates so rapidly that intense cold is produced which freezes the liquid into a soft snow. There have been several special apparatus devised for the purpose of accumulating this

snow; of these, the Goosmann apparatus is perhaps the most popular and convenient, for all general use. This outfit consists of a specially constructed crayon, which will fit any gas cylinder. To fill the crayon with ice it is attached to the nipple of the cylinder, and as the gas escapes, the ice is formed and molded into suitable shapes for clinical use, (see accompanying illustration).

A very simple way of preparing a stick of carbonic acid ice, is to roll a huckaback towel around a cylindrical wooden stick, about one inch in diameter; remove the wooden stick so as to form a cone, into which the ice crayon may be formed. Close one end of the towel cone, with a loosely fitting cork; the gas cylinder is placed upon the table, as illustrated above, with the delivery pipe pointed downward, and the foot of the tank raised about six inches, so as to allow the liquid contents to flow toward the tap. The open end of the towel cone is placed over the tap and the cylinder valve is opened, gently; as the carbonic acid gas escapes and evaporates into the cone, it will pass through the escaping channel, and the snow will be formed in about thirty or forty seconds. The cylinder valve may be closed and the snow molded in shape for clinical use.

TECHNIQUE OF APPLICATION

After securing the solidified carbon dioxide by the foregoing processes, its application to diseased surfaces is simplicity itself. The carbon dioxide is suitably shaped, at the point, in the form of a pointed or blunt crayon, to correspond with the size of the diseased surface. In small surfaces, as warts and moles, the contact surface would be smaller than it would be for treating an epithelioma, one inch or more in diameter. The solidified carbon dioxide is applied to the disease by firm pressure. This was formerly done in one operation, which lasted twenty or more seconds, but as we have become acquainted with the destructive influence of this element, most operators prefer shorter freezing periods, fre-

quently repeated. To illustrate: If we had a surface, four inches in diameter, to be covered, this could be divided in areas of one inch in dimension and instead of attempting to treat the entire surface with one application, prolonged to thirty or forty seconds, we would treat each division of the areas about five seconds; after each section had been thor-

METHOD OF APPLICATION.

oughly covered, we would commence at the first and repeat the treatment, until the areas had been treated from six to eight times, or until the required destruction of tissue was completed.

This method always allows a better observation of the freezing process, and the gradual development of the inflammatory progress, and is always the method to pursue in treating large areas. Small surfaces, like warts and moles, may be treated with one or two applications as desired. It is always well to cover slightly more than the defective area, especially in warts, moles and cancerous growths.

In order that we may be sure of destroying every rem-

nant of the disease when the solidified carbon dioxide ice is applied to living tissue it will be found that the treated area is, at first, more pliable, and in a few seconds, becomes firm and dense; when the crayon is removed, the area treated will be found depressed, white and hard, showing that the freezing process has been complete.

The physiological effects of the frozen area will depend upon the length of time of the exposure, which may result in a simple erythema from a short application, to necrosis from a prolonged treatment. Raw surfaces respond with free exudation. Upon removing the crayon, the surface rapidly thaws out, and returns to its normal state, and sets up an inflammatory reaction, which is accompanied by considerable swelling; a wheel and vesicle follow, usually within a short time. The vesicle may be opened to allow the escape of fluids; within a few days, the frozen surface will form into a crust, which should be allowed to remain until it exfoliates spontaneously. Any simple dressing may be applied, but it is better to keep dry and exposed to the air. The crust will desquamate, in from ten days to two weeks, and the underlying surface will be found smooth, and of delicate pink color, which gradually, resumes nearly the normal color of the surrounding skin, in a short time, providing the destruction of tissue has not been too deep.

The cosmetic effect of this method, as a rule, is superior to any other manner of treatment, when used as a destructive agent, and by its careful use, the resultant scar tissue is so slight as to be almost unnoticeable. The treatment is nearly painless, and only the most nervous patients will complain of suffering any inconvenience at all. A slight tingling sensation will be felt for about ten minutes after the application; this rapidly disappears, and the little pain and discomfort is so slight from this treatment, compared to other destructive agents that the results are more than gratifyinng to both the patient and operator.

THE THERAPEUTIC USE OF SOLIDIFIED CARBON DIOXIDE

There has not been a therapeutic agent introduced in medicine, within the last ten years, which has a broader scope of usefulness than solidified carbon dioxide. As a destructive agent, it stands in a class alone, and has no equal competition, when its superior qualities are considered. Its rapidity and certainty in action with the minimum amount of pain are the three redeeming features, which place this agent at the highest pinnacle of merit, and when we survey the field in which this agent is applicable, we can better appreciate its value; there is hardly a cutaneous lesion in which this agent may not be used to a good advantage, while there are many neoplasms within the cavities of the body, which may be reached and removed by this therapeutic measure. It is one of the best means of treating skin cancers, and will accomplish, in a few seconds, the same results which require several hours of continuous suffering by plaster, and other means. It is the treatment, par excellence, for navi, lupus, rodent, and tuberculous ulcers, and may be successfully used in the treatment of superficial and deep-seated epithelioma, warts, moles, indurated eczema, X-ray burns, pigmentary and hypertrophic congenital deformities, papilloma, skin tumors, and tattoo marks. Many diseases and growths may be reached through the orifices of the body, which involve the uterus, rectum and nasal canal. In fact, there are many conditions, too numerous to mention, which will yield to this treatment. These conditions will be further discussed in the following pages.

A SUBSTITUTE OF SOLIDIFIED CARBON DIOXIDE

Whenever we have well founded facts regarding any therapeutic agent, there is someone to present a substitute, and carbon dioxide snow has met with the same fate. Dr. G. Knauer has introduced Trichloracetic acid for superficial

cauterization, as equally as efficient, and much less expensive, and simpler in technique than the carbon dioxide treatment, but great care should be exercised that none of the acid touches the healthy skin; it is, therefore, always best to paint a zone of collodion around the affected area. The acid should first be liquefied with one or more drops of water, then applied with a glass rod, of which various sizes are kept on hand.

The cauterization is always very superficial, unless the acid is actually rubbed into the tissues. A second application is rarely necessary, and should be postponed until the scab has fallen off. The cauterized tissue will appear white as snow, and the surrounding area will show only a moderate hypermia. Vesicles never form, and the cauterized area will turn brown after several hours. After eight or ten days, the scab can generally be loosened. The cosmetic results are excellent and the scars appear like those after the carbon dioxide snow treatment, and are much sightlier than those after cauterization, while there is hardly any pain during the application.

Trichloracetic acid is indicated wherever carbon dioxide snow may be used; except, that the latter is more convenient to use when large areas are to be cauterized. This is a most excellent means of removing warts, small birth-marks, etc., and its convenience in application should recommend it for a large class of conditions.

Painless, Bloodless, Sutureless and Scarless Surgery

The above caption may appear as an exaggeration or perhaps a prevarication of facts regarding modern surgical methods; yet these means of operating may be accomplished or nearly perfected by adopting the following procedures:

BLOODLESS SURGERY

It is not only a great advantage to the surgeon, while operating, to cause the loss of as little blood as possible, for this continuous oozing of blood is a source of annoyance during operative procedure, but it is also an advantage to the patient; not that the loss of blood will always be great, but many patients would withstand operations much better if it were not for the sight of blood. It is, therefore, always best to have all operations as devoid of blood as possible. When the operative field is upon the extremities, we have absolute control of bleeding by the use of an Esmarch Hæmostatic Bandage, but when we have the flat surface of the balance of the body, it is a different proposition. We do, however, have a decided control of hemorrhage, on superficial surfaces, by the use of adrenaline solutions of various strength; these solutions may be incorporated with the selected local anæsthetic or used independently as desired. The adrenalin, added to, or used in conjunction with, cocaine, novocain or quinine and urea hydrochloride, adds to the anæsthetic value, in making the anæsthesia more profound, and also avoids the depressive effects of the anæsthetic, as adrenaline is a pronounced heart

stimulant. My experience has convinced me that the addition of adrenaline chloride, in the solution of 1:1,000 to 1:20,0000 has a distinct value in all minor operative surgery.

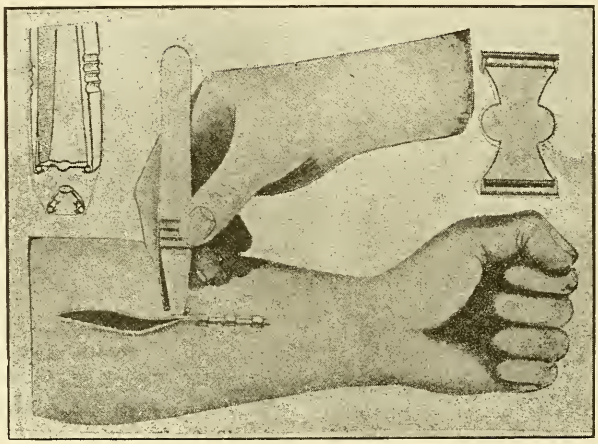
The strength of the adrenalin solution will depend upon the size of the surface to be operated upon; the smaller the surface, the stronger the solution. As a rule I frequently add to the three per cent. cocaine solution, given in the preceding chapter, three to five minims to a syringeful of a 1:1,000 adrenalin solution, and the results are most satisfactory; however, if larger surfaces are anæsthetized, I alternate the injection of quinine and urea hydrochloride with an adrenalin solution, from 1:2,000 or even 1:5,000, and obtain equal results.

SUTURELESS SURGERY

With a view of uniting cutaneous surfaces to avoid the formation of as little cicatricial tissue as possible, has introduced into surgery a new method of uniting wounds, without the use of sutures. Every surgeon is familiar with the fact that the penetration and tension of ordinary sutures are followed by minute indentures, which are filled with cicatricial tissue, after the removal of the suture, and to avoid these unsightly stitch holes, which are often more objectionable to the patient than the line of incision itself, wound clips are used. These clips are made of solid silver, which may be thoroughly sterilized by boiling, and offer many advantages over the ordinary sutures, viz.:

If care is exercised, they will unite wounds with the greatest degree of accuracy in the apposition of the cutaneous edges, and thus reduce the formation of resulting scar, since there are none of the cross marks made by the thread passing from one needle hole to another, and no perceptible trace of their contact with the skin, as they do not puncture the cuticle deep enough to leave a scar. They are much more easily and quickly applied, as the four fangs of each clip will accomplish the results of two stitches in one-half the time it

takes to use the older method. Also, they leave a flat surface, thus facilitating the application of bandages and dressings. Perfect asepsis is assured, since germs find no opportunity of following the suture tract into the depths, and therefore, there is no oozing around stitches, which are invariably filled with



APPLICATION OF WOUND CLIPS.

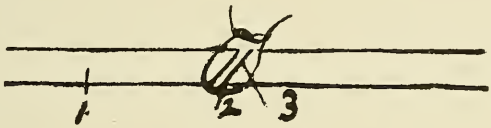
cicatricial tissue after operations. The application of these clips is practically painless, and never requires an anæsthetic to close a wound.

SCARLESS SURGERY

Surgeons, like all other fine mechanics, endeavor to have their work appear as if it were accomplished by a master hand; and in manipulating the human mechanism, to unite cutaneous surfaces, has given them an opportunity of displaying their skill; therefore, the scarless surgeon is in as great demand as the painless operator.

This method of reducing scar tissue to the minimum is said to have originated with a Japanese surgeon. The usual way of incising the skin has always been at a right angle, but

such incisions are always followed by a lineal scar, which is difficult to entirely obliterate; but, making the incision in a slanting position (see illustration) at an angle of about forty-five or more degrees, will give a better contact, and although the process of healing is the same, the fibrous and scar tissues is hidden from observation. If this method is carefully conducted, the resultant cicatricial tissue is reduced to a minimum. This is always the method used upon the face and other parts of the body, where scar tissue is objectionable. Of course it is impossible to entirely avoid the formation of some scar tissue, but after reducing its formation, by this means, to the smallest possible amount, the balance may generally be obliterated, after healing, by what is known as the



1. Skin. 2. Ligature. 3. Line of incision.

blending process. This consists of pinching a fold of skin, containing the scar, between the thumb and finger until the skin is tense and rubbing the scar violently, almost to the point of drawing blood, with the forefinger of the other hand, using any suitable massage cream for the purpose. This keeps the skin somewhat irritated, and by repeating the treatment a number of times, the scar tissue will gradually fade away, although it may take several weeks or months to accomplish the desired results. You may also use Thiosinamin by Cataphoresis as described on another page.

ILLUSTRATIVE CASE

In order that I may illustrate the success obtained by the foregoing methods I will cite the following case: Mr. H.—— applied to me to have a lipoma removed on his neck, directly back of the ear. This tumor had been developing for about

two years and had obtained about the size of a small hen's egg. I injected the surrounding tissue with the following solution:

Cocaine .....½ gr.
Quinine and urea hydrochloride ..... 2 gr.
Adrenalin (1:1000 solution) .....13 min.
Aqua dis. .....q. s..... 2 dr.

This solution was injected along the median line of the incision, and at several points around the tumor until the pricking of the knife would cause no pain. The two central incisions were made at an angle of about 45 degrees in the same direction, leaving about one-half inch space of skin in the center intact, so that when uniting the wound there would be no superfluous skin. The tumor was now carefully dissected away without rupturing the sac and the edges of the cutaneous surface placed in as close apposition as possible, and united with the wound clips. The operative procedure and final results were almost perfect. The patient did not complain of any pain during the operation. The adrenalin solution reduced the hemorrhage to the minimum. The skin healed with only a trace of cicatricial tissue and there was absolutely no trace of scar tissue where the wound clips had been applied, and represent surgery in what I consider its most perfected form.

Neoplastic Surgery

The Use of Paraffin

The introduction of paraffin into the domain of surgery has added another term to the nomenclature of the science, under the name of "Neoplastic Surgery," which was, perhaps, to identify the use of paraffin for scientific purposes, and differentiate and mystify its purpose, from its more common use in candles and chewing gum.

Paraffin has quite an extensive field of surgical usefulness, and every physician should become familiar with the technique of manipulating this neutral substance.

Paraffin injections are used for two principal purposes: to make cosmetic improvements, and as a support for functional derangements; therefore, we find its use indispensable in "saddle back" nose, and to fill out other hollow places, to add to the contour of organs and expressions; its supportive influence is used in hernia, insufficiency of vesicle and anal sphincters, prolapsus of the uterus, paralysis of the soft palate; it has also been used to prevent ankylosis, after resection and filling, in brain defects, and a variety of other conditions.

PREPARATION OF PARAFFIN

Paraffin was discovered by Reichenbach, in 1830, who derived its name from parum, too little affinis, or affined, because the product was not attacked in its cold state by concentrated sulphuric and nitric acids. The product may be obtained in large quantities from the dry distillation of peat, turf, coal, etc., rich in hydrogen. There are a large number of products which belong to the paraffin groups, many of which have been trade-marked under the names of vaselin, cosmolin, albolene, etc. These are all practically graduations

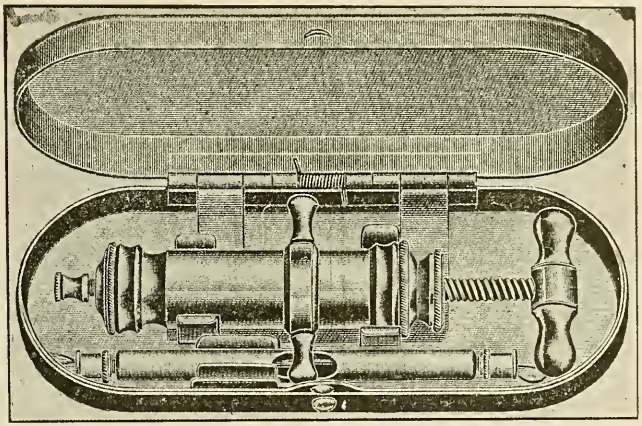
of the same body in a different consistency. They are all absolutely non-irritants, and neutral as water, the alkalies and acids have no action upon them and therefore, when injected into living tissues, they have only slight, or perhaps, no reaction with the tissues of the body, and only act as a bland foreign substance. Therefore, it is particularly adapted for the special purpose it is used.

If we would study the different chemical products of the paraffin groups, from Hexadecane to Dimyricyl, we would find their melting points varying from 64 degrees F., in the former, to 215 degrees F. in the latter. Hard paraffin (paraffinum durum) has a melting point from 110 degrees F., up to 166 degrees F., and there is no possible way of identifying the melting point of any paraffin unless it is tested, and the only way to obtain the product at the melting point desired for any purpose, is to blend the hard paraffin with the liquid paraffin (paraffinum liquidum), frequently called liquid petroleum or albolene. By combining these two, we may obtain any degree of consistency we may desire. The melting point required for most operations upon the body will vary from 107 degrees F. to 115 degrees F., according to the resistance of the tissue, and several other conditions which may be presented.

It is, therefore, always well to have paraffin of several degrees of melting points on hand, for different operations.

I generally have paraffin prepared at two standard melting points: one at 107 degrees F., and one at 115 degrees F., and by mixing the two, in the right proportions, I can approximately determine the melting point I desire between the two. To obtain these two melting points, a small piece of hard paraffin is placed in a vessel of water containing a thermometer; this is very slowly heated and by watching the thermometer at the time we reach the melting point, we can determine the melting point of the hard paraffin, and by mixing this with the liquid paraffin we may obtain the exact melting point desired. This is rather a tedious process, and those who do not care to spend the time to prepare the paraf-

fin, may obtain the preparation from surgical supply houses, but I have always deemed it a good policy to become familiar with the "tools of our profession," and prefer to make my own paraffin preparations.



PARAFFIN SYRINGE.

The next important thing to be considered in paraffin operations, is a suitable syringe, with which to inject and place the paraffin. There have been several syringes devised for this purpose, but the one illustrated here, has given me the best service. Under no consideration attempt to use paraffine with the ordinary hypodermic syringe, where direct pressure upon the piston is required to force the paraffin through the needle, for such procedures are always followed by disappointment. Paraffin, in a semi-solid state, is a very treacherous substance to inject into subcutaneous tissues, as the needle will invariably become clogged with the solid paraffin before the contents of the barrel is used, and when sufficient pressure is applied to force the opening through the needle, it will take a sudden spurt, and the contents of the syringe will be placed in almost any part other than where it is desired; therefore, with the special syringe with a strong screw piston stem, we can force the paraffin into the tissues as slowly or rapidly as is desired, and always have the most accurate

control of the distribution of the paraffin, and place it at exactly the points desired.

TECHNIQUE OF USE

In ninety per cent of all paraffin operations the melting point of the paraffin has been from 110 to 115 degrees F. This, having been previously prepared, is now placed in a glass receptacle and boiled in a water bath for ten minutes; the syringe has also been sterilized by boiling, and the surface of the operation, and the hands of the operator, are prepared with the same care as for any other surgical procedure.

To fill the syringe, the cap is removed, and the barrel filled from a medicine dropper, by taking the paraffin from the center of the boiling solution. This avoids the scum and other floating particles, which are sure to be found upon the surface of boiling paraffin. After filling the barrel of the syringe, the cap is screwed on tightly, and the needle is pointed upwards, and sufficient pressure made upon the piston to force the paraffin through the needle. The paraffin is now encased in a hermetically sealed receptacle, and is ready for use at the present, or may be used several days afterwards, by simply placing the syringe in warm water, to partially melt the paraffin, so that it may be ejected through the needle.

I always prefer to use paraffin when it has cooled to a semi-solid state, as I have always found it more easy to manipulate and mould when placed within the subcutaneous tissues; it also avoids the danger of using the paraffin when too hot, and thus creating damage to the tissues, a mistake which has been made by many operators. "There is never a day so bright that it may not be marred by clouds of darkness," and this is true with the use of paraffin, which, if properly used, will give the most excellent results; but, if used injudiciously, will be the means of doing much damage.

It is, therefore, well to become familiar with some of the

detrimental influences which may take place by the use of this preparation.

Injections of paraffin of too high temperature may create inflammation which would result in sloughing; likewise, sloughing may be induced from infection, or by creating too much pressure upon a given part, and interfering with the blood supply by an over amount of the paraffin.

Wassermann reported a sad experience of necrosis, due to this cause, in a case of saddle back nose, which was only restored by skin grafting.

Deformities from over injections have frequently been reported, and it is always well to bear in mind that after the injection of paraffin there is more or less swelling and when the reaction subsides, it will leave the tissues somewhat thickened; this should always be allowed for, and just sufficient paraffin used to not quite fill the cavity or depression and the formation of the post-operative tissue allowed for. It is, therefore better to complete the operation with another injection than to dissect the paraffin away after it has been placed.

Embolus and Thrombosis are also conditions which may follow the injection of paraffin. While there have been quite a number of cases reported, the percentage is very low, considering the extensive use of this preparation, and in almost all cases, the cause was attributed to using the paraffin at a too low melting point.

DISPOSITION OF PARAFFIN

When paraffin is injected into living tissue, the question naturally arises: in what way is this foreign substance treated, and what changes take place? There has been much controversy regarding this point. Gersury states: "A few hours after injection the conditions are entirely changed; a small celled infiltration sets in, and the paraffin, like any foreign body, is encapsulated, and new tissue fibers grow through the mass, so that a specimen, taken from the injected area, resembles an inflammed lipoma." Jakuff says: "The paraffin

globules are grown through like a sponge, and are formed into a mesh-work."

Morton states: "New connective tissue and new blood vessels permeate the mass of paraffin. The fact is, these physicians were, no doubt, honest in their convictions, but erroneous in their conclusions, for when paraffin is injected into the tissues it is not left in one mass to be intersected later by any form of tissue, but the force of the syringe will cause the paraffin to follow the channels which offer the least resistance; in this way it is dispersed in such a manner that specimens examined some days later gives it the appearance as though the paraffin has been intersected by tissue, with an attempt to reorganize; but specimens removed a few minutes after being injected will have the same appearance, which proves conclusively, that the intersection takes place at once; therefore, we find the paraffin deposited in minute channels, and also globules, of greater and lesser size, where tissue has been ruptured in mass and allowed such deposits. Nature takes care of this, as it would any inert, foreign substance; but during the process of reorganizing, there is some inflammation, which, upon subsiding, will cause the tissues to hypertrophy (which should always be allowed for) and the greatest caution should always be exercised in injecting paraffin as stated above. It will follow the course which offers the least resistance, and in this way will often start in exactly the opposite direction in which you are aiming. It is for this reason, which will require in most instances, the services of a reliable assistant, to make pressure with his two hands upon surfaces you are trying to protect.

There will be much said regarding the use and technique of manipulating paraffin, in the following chapters, when the details will be more fully explained, but the foregoing are the fundamental principles upon which the therapeutics of paraffin are based, and by carefully observing them any physician will be able to use this valuable agent in surgical procedures, where it is indicated.

Cancers, Tumors and Morbid Growths

If we would consider tumors as a specialty, in relation to the frequency in which they are found upon the human body, we would find this field abundantly supplied with clinical material for the Specialist. It has been conservatively estimated that there are, at least, four abnormal growths, on an average, to every adult person, which comes under the category of tumors, and it is doubtful if there is a single person in the world whose skin or body is entirely free from some blemish which does not come under the classification of tumors, while the percentage of cancerous growths invades our bodies to an appalling extent. Authenticated statistics have proven that every eleventh man and every eighth woman, over forty years of age, is afflicted with cancer.

Cancer is rated as the seventh of deadly diseases, and in England more women die from cancer than from consumption. It will, therefore, be seen what a wonderful field tumors alone offer to the office specialist who acquires a knowledge of their character and can successfully remove these growths by the modern methods of treatment.

CYSTIC TUMORS

Nearly all cystic tumors are circumscribed, smooth, movable, and of slow growth; they are painless and fluctuate upon pressure. The skin is unchanged in color, but translucent, if superficial. Aspiration will determine the presence and character of fluid. Cystic tumors may appear upon the scalp, as

in wens, or the mucous membrane, as in renula, or along the tendons, or in some natural cavity, as in ganglia. Their location has much to do in determining the diagnosis. Unless seated in some internal organ, cystic tumors rarely cause any trouble, except by weight and size; if thoroughly removed, as a rule, they will not return.

CLASSIFICATION AND DIAGNOSIS OF TUMORS

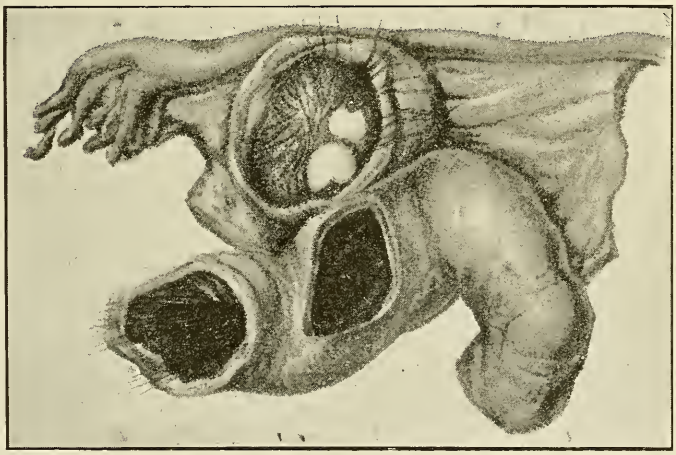
When a patient is afflicted with an abnormal development, the first thing to be determined by the physician, is the character of the growth, and to ascertain if the formation is a benign or malignant development. There are twenty-three well defined types of tumors, of which five are cysts, and the remaining eighteen are solid or semi-solid tumors. Six of the eighteen solid tumors are malignant, and classed as cancers. The use of the microscope is, of course, the only accurate way of determining the exact nature of these growths, which may be developed from a single, or different, cell tissue, in the formation of what may be known as "mixed tumors"; for instance, the lympho-sarcoma, etc., (illustrated on a following page).

The following is the classification and character of cystic tumors:

RETENTION Tumors are formed by the distention of glandular sacs or ducts, with the occlusion of the exit, as sebaceous and mucous cysts. The closure of the ducts, which is always the cause of the formation of these tumors, may be due to the pressure of inflammatory swelling, cicatrization, the inspissation, and concretion of the natural discharges at the mouth of the ducts. The closure of the orifice does not stop the secretion; rather, the irritation increases the action, and a large amount of material collects. The walls consist, at first, simply of the sac, but as the tumor increases in size, a firm, fibrous tissue may be added to it.

EXUDATION Tumors are formed by the accumulation of the contents of pre-existing, closed cavities, as ganglion, hydrocele, ovarian cysts, etc. The cavities out of which these cysts are formed, have naturally, a small amount of fluid, but as the result of inflammatory action, a superabundance of fluid may be poured out, and a tumor is formed. The contents vary according to the natural fluid of the part, and age of the tumor, from a clear, colorless fluid to an almost solid substance.

DERMOID Tumors are formed in cavities, due to arrest of development, and contain no excretory duct; they are con-



DERMOID TUMOR OF OVARY, SHOWING HAIR AND BONE WITH OPENING INTO RECTUM.

genital. The contents are fine hairs, embedded in a thick, tenaceous matter. Sometimes there is found bone, cartilage, teeth and other structures.

NEW FORMATION Tumors are formed by cystic degeneration of the corpuscles of connective tissue; many of the larger cysts of the ovary, kidney and thyroid, as well as cysts in tumors, are probably formed in this way; such cysts often grow with marvelous rapidity.

HYDATID—These tumors contain an entozoon parasite, or vesicular worm, inclosed in a distinct, separate sac. The tumor resembles an ordinary cyst, except for the presence of the little parasite, and occurs more frequently in the liver, ovary and uterus. This tumor is very uncommon in America, but when it does appear, is very short-lived as suppuration of the sac takes place and the contents escape. If this occurs to internal organs, it may produce death by the excitation of inflammation; usually, the sac ruptures, and the contents are discharged through some natural passage. When in the kidney, with the urine; the lungs, with the sputa, and the liver, with the fæces.

TREATMENT OF CYSTIC TUMORS

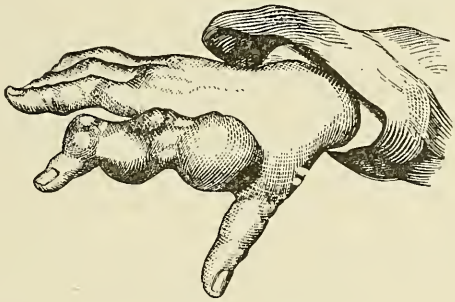
The ordinary retention, dermoid or extravasation cyst is best treated by excision or enucleation. If in close relation with important structures, the cyst may be incised, the contents removed and the surface of the sac thoroughly cauterized or scraped and then left to heal by granulation. Exudation cysts may be treated in various ways; the ganglion, by rupture or subcutaneous puncture, the bursa by puncture and the injection of iodine, the hydrocele by the straight incision, by aspiration or by aspiration and the injection of iodine.

SOLID AND SEMI-SOLID TUMORS

LIPOMA—This tumor is composed of fat, resembling normal adipose tissue, and appears to be spontaneous in origin in most cases, but in some it is clearly traceable to injury, irritation or pressure; the growth is usually slow, many years elapsing before the tumor becomes especially noticeable; may sometimes be multiple, but do not appear simultaneously. The different tumors have no direct relationship to each other, being entirely local. They are more frequently found in the back and shoulders; soft and doughy, semi-elastic and of uniform consistency, with a lobulated surface. When under the

skin, the integument appears dimpled. This tumor is indolent in disposition, painless, with no enlargement of the subcutaneous veins.

FIBROMA—This tumor is composed of tissue, resembling normal fibrous tissue, such as forms tendons or ligaments, and may originate in the connective tissue of any part of the body but occurs most frequently in the testicle, ovary, nerves, mammæ, uterus, and bones of the upper and lower jaw. It



CHONDROMA OF FINGER.

is not peculiar to any age, but occurs most frequently in young adults. The tumor usually grows slowly, but may, eventually, attain a larger size; it commences as a hard, firm nodule, developing slowly; is painless, hard, firm, inelastic, and of uniform consistency. Movable, unless it springs from the periosteum. Its tendency is to increase, to impair function, and, when located in some internal organs, to wear out life by its secondary effects. Does not return if thoroughly removed.

CHONDROMA—These tumors have the composition of tissue, resembling cartilage, and occur most frequently in connection with cartilage or bone. Of cartilaginous origin, the septum nasi and costal cartilage are most frequent. The femur, tibia, clavicle, humerus, bones of the forearm, phalanges and innominate bones produce most of the chondroma which originates from bone. Young persons are more frequently attacked than adults. Nearly all tumors of this class

commence during childhood. The growth is slow, the tumor rarely attaining a large size. It is very prone to ossify, most frequently in the skeleton, as in the metacarpal or phalangeal bones. Firm, solid, destitute of elasticity. Circumscribed, usually lobulated, or marked by irregular prominence and depressions. Painless, usually of slow growth, and cause inconvenience only by weight and pressure. May undergo cystic, fibrous or osseous transformation. Its gravity depends upon the size and location. Does not return, if removed.

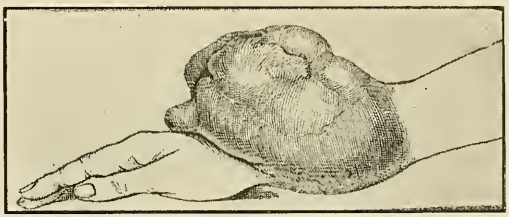
OSTEOMA—The composition of these tumors has a resemblance to either hard or cancellated bone; they grow, almost exclusively from the skeleton, but have been found in the interior of the brain, the eye, the lungs and other unlooked for places. Are usually found at, or about, the junction of the epiphyses with the diaphyses of long bones, when the increase in length of bone is affected, and like the chondroma, are most common in early life. Two varieties are found, the ivory and the cancellated; the former grows, usually, from the flat bones, and the latter from the ends of long bones. There may be one or more tumors; sometimes there is a veritable diathesis, bony tumors being found in every bone of the body. The growth is very slow, the tumor rarely attaining a large size; their favorite location is the thigh bone, orbit of the eye and upper jaw; they are hard, immobile, and present a rounded, nodulated surface, with a broad base, and slow, painless growth; as a rule they do not grow to a large size, unless they interfere with other organs.

LYMPHOMA—This tumor has the composition of tissue, resembling that from which lymphatic glands are formed; they originate in adenoid tissue, separated from the parent tissue by a capsule. Grow slowly and without pain.

The number of tumors which present these characteristics is very small, microscopic investigation, almost invariably, showing the presence of tubercle; they are, therefore, often difficult to distinguish by appearance from tubercular affection of the gland. The enlargement is in the neighborhood of lymphatic glands, but does not depend on tubercle or

syphilis; they are perhaps slow in progress and maintain the original form of the gland. A pure lymphoma will cause little trouble, but the uncertainty which exists, regarding lymphatic enlargement, makes the diagnosis and prognosis doubtful.

MYXOMA is composed of imperfectly formed mucous tissue, and develops in the subcutaneous tissues; in the nose,



MYELOID TUMOR OF RADIUS.

as polypi, in the salivary glands, in the intermuscular tissue, and in the mucous cavities generally. Is found most frequently in adult life, in the shape of distinct, separate tumors. The growth is usually slow, and the vitality low; the diagnosis is often difficult, before extirpation, except when it occupies a mucous canal. The tumor is slow in developing, soft, movable, causes no discoloration of the skin, and does not affect the general health, except by the size; as a rule these growths are innocent but they often exhibit malignant traits which will bear the closest watching.

MYOMA is a tumor composed of muscular tissue, and found most frequently in the uterus, kidney and prostate. As a rule it does not develop until after the middle period of life. In some instances, as in the prostate, it seems to be merely a hypertrophy of the tissue it occupies, while in others, as in the uterus, it may take the form of a polypus, or pronounced tumor. May occur in the œsophagus, stomach, intestines, the heart, the lungs and the voluntary muscles, but its favorite seat is the prostate or uterus. Is tardy in growth, and were it not for the important organs affected, would cause little trouble.

It is almost impossible, at times, to distinguish a myoma from a fibroma. External myomas, as a rule, are so rare and the treatment is the same; the differential diagnosis is unimportant.

ANGIOMA consists of a network of small blood vessels, held together by a minute quantity of alveolar tissue; this tumor is generally a malformation, having its origin in an abnormal dilatation of the blood vessels; ocassionally, it results from injury. Is met with as a congenital affection, being of small size at birth and then growing more or less rapidly. The ordinary locations are the skin and mucous membranes, especially about the head, face, the eyelids, cheeks and tongue. The color varies from bright scarlet of the arterial angioma to the bluish or purple hue of the veinous tumor.

In the arterial form, the convolutions of the vessels may be easily made out through the skin; the smallest pulsates regularly and often with considerable force. The pulsation cannot be controlled by pressure on a single artery. The veinous variety is of a deeper purple color, which has given it the name of "wine mark"; this birthmark will be more thoroughly discussed in another chapter, to which you are referred.

LYMPHANGIOMA—These tumors are analogous to angiomas, only that they consist of a network of lymphatic, instead of blood vessels. They are, also, held together by a minute quantity of alveolar tissue. These tumors are generally congenital, although they may appear at any period of life. They are extremely rare, however, and found in the vessels of the scrotum, or lower extremities in union with elephantiasis.

NEUROMA—This tumor is composed, principally, of nerve substance, and is most frequently found on the ulnar, radial, median, tibial and perineal nerves. The exciting causes are obscure. It may, however, be traced to a bruise or wound. The progress is slow and rarely attains a large size. These tumors are very sensitive to the touch and are attended with sharp, darting pains, increased by atmospheric changes;

they do not affect the general health unless very painful and if thoroughly removed will not return.

PAPILLOMA—These tumors are composed of papillæ, whose structure comprises a basis or central stem of connective tissue, containing usually, a vessel and a covering of epithelium; they seem to be the result of chronic inflammation, or the irritation of long continued discharges. Is sometimes congenital. Occur most frequently in young persons. Develop on surfaces which are naturally papillary and is merely a hypertrophy of the natural papillæ. It may take on different forms, according as it arises from mucous or cutaneous surfaces, or depending upon the predominence of epidermal or papillary growth; they are known by their wart-like appearance and distinguished from superficial sarcomas, and true epithelomas, by slower growth, by the lack of induration of the skin, and the absence of ulcertion. The only fear of warts is the possibility of their developing into an epitheloma; when in the bladder or larnyx, the outlook is more grave.

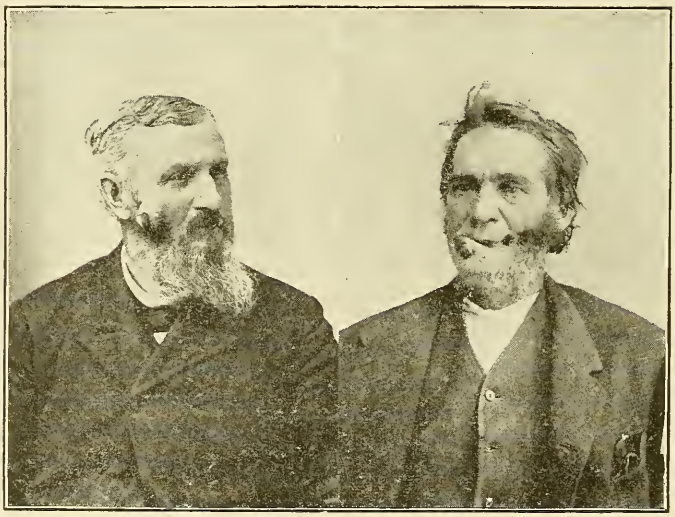
ADENOMA—These tumors are composed of substances resembling a secreting gland; they arise without any assignable cause, and the method of formation is very similar to that of the development of the natural gland. They grow very slowly, and rarely attain a large size. They are elastic and circumscribed and difficult to differentiate from fibroma, except by the use of a microscope. They are most frequently found in the breast and salivary glands and if thoroughly removed will not return.

MALIGNANT TUMORS

Carcinomas Cancers

While the above tumors are, as a rule, considered synonymous, they have been classified differently by different authors. I believe in the advice given by an old cancer specialist, who said: "Never refer to a malignant tumor as a cancer, but discuss the subject, before the patient, as a carcinomatous

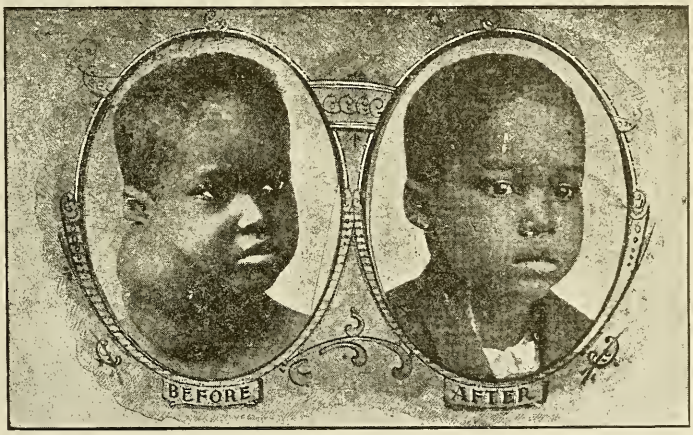
formation." The malignancy of these growths justifies the horror of the name "cancer." All the following cancers are generally classed as carcinomas, as their development takes place in the epithelial cells; there is one exception, however, in the sarcoma, which is composed almost entirely of cells that have their origin in those of the connective tissues, and which are embryonic in character. The following classifications of cancer may render some assistance in identifying the character of malignant growths.



SARCOMAS—Supposed to have their origin in the periostium of the inferior maxillary bone.

SARCOMA—This tumor always has its starting point in the connective tissues. The cell element may exist separately, or in conjunction, in the same tumor. They may be either round, spindle celled, or in large, plate-like forms. The cause of these formations may be traced to local irritation, or external injury but more frequently develops spontaneously from some unknown cause, between the ages of twenty and forty; although they frequently develop in younger persons. The growth commences by one or more nodules and develops rapidly, involving the neighboring glands, which become in-

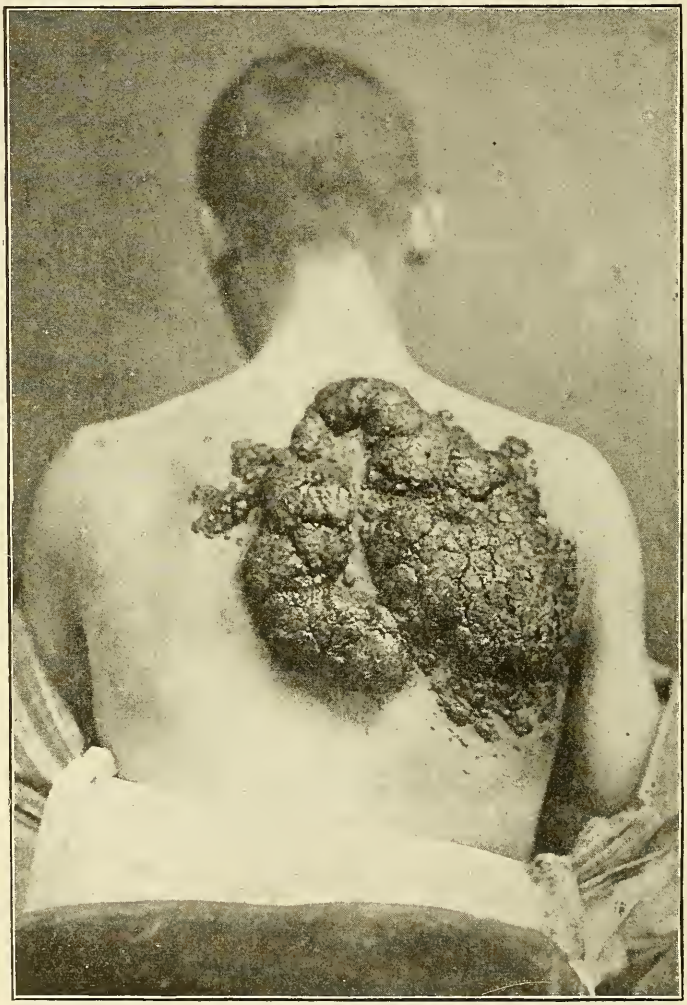
corporated in the seat of disease; finally, the tumor ulcerates, and, with the advent of ulceration, the pain is greatly increased and the system becomes infected, by involving the liver, lungs or other remote organs. The consistency of the tumor may be either hard or soft, depending upon the tissue it develops within. If in the bone or periosteum it is hard, but in other parts of the body is soft and fluctuating; the growth is usually rapid and may attain a large size. Ulceration, as a rule, does not take place until late in the life of the disease. The subcutaneous veins are only slightly enlarged. The microscope shows the composition of the tumor to contain a mass of connective tissues, without alveolar arrangement, and unless thoroughly removed, this tumor will rapidly develop in the same place.



LYMPHO-SARCOMA.

SCIRRHUS—This malignant tumor, which is also known as "stone cancer," and "atrophying cancer," is composed of undeveloped epithelial tissues; although this tumor frequently follows injury and continued irritation from low forms of inflammatory processes, as a rule, it appears spontaneously, from unknown causes. It is more frequently found in the female breast than in any other organ, although the uterus and liver are favorite seats for this growth. It is very rare for this

tumor to make its appearance before the fortieth year of age. When this tumor is found in the breast, it will be noted as a



ENCEPHALO MELANOMA

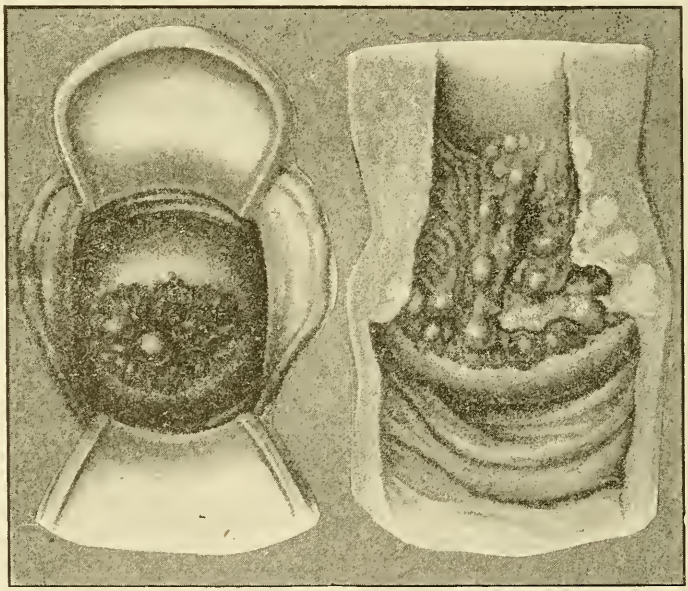
firm, hard, dense, nodule under the skin, firmly anchored to the integument; and, as development progresses, it connects adhesions to the surrounding parts, and becomes firmly fixed,

hence the name "stone cancer." As the growth progresses, the pain increases. The integument becomes infiltrated and livid, and contains numerous blood vessels; if in the breast, the nipple is retracted. The tumor finally ulcerates at the end of about one year, and the discharge is very offensive. The neighboring lymphatic glands become affected early in the disease and the entire body involved in cancerous cachexias. Unless these growths are thoroughly removed at an early stage of their progress, they result in death in from two to four years.

ENCEPHALOMA—This malignant growth is often referred to as the soft cancer, rose cancer, cerebriform cancer and also fungus hematodes. They contain less fibrous tissue, but a greater quality of epithelial cells, than the scirrhus. These growths will appear at any age of life, and are almost the only form of cancer, occurring in childhood. This cancer will attack any part of the body, but is more frequently found in the breast, liver, uterus, testicle, eye, bones and lymphatic glands. These tumors are extremely vascular in structure and therefore develop rapidly, extending their destructive influence over a large surface, in a comparatively short time. They commence by a single nodule, or several nodules may develop at the same time. They are usually soft and fluctuating, easily compressed and infiltrated into the surrounding tissues which it involves. They grow rapidly and attain a large size. The superficial veins are enlarged, the surrounding lymphatics are easily involved; ulcerates readily with their undermined edges. With this event, the pain is greatly increased, which is dull and heavy in character. The constitutional symptoms are pronounced and unless every trace of the growth is removed early in the disease, it will terminate in death in eight months to two years by exhausting the strength of the patient or destroying some important organ.

EPITHELIOMA—This cancerous growth is developed from the squamous epithelium and is of more frequent occurrence than any other form of cancer. As its principal field of development is upon the skin and mucous membranes, or

at the junctions of these tissues, it is often referred to as the "skin cancer," or the "tobacco cancer," owing to its frequency at the junctions of the mucous membranes and skin of the mouth. This tumor is also found in the cervix uteri, tongue, vagina, anus, penis, scrotum, and the entire surface of the face and scalp are favorite seats for the development of this growth. While the skin or mucous membranes, or the



EPITHELIOMA OF CERVEX UTERUS. AT LEFT SPECULUM VIEW, AT RIGHT, SECTIONAL VIEW.

junction of these tissues is the usual commencement of these cancers, their extension in growth will involve any of the structures of the body, either bone, muscle or cartilage. These tumors usually develop after the fortieth year and are due to continuous irritation, as by a pipe, or cigar, in cancers of the lip, or corrosive discharges from the uterus, etc. These ulcerations may start from a simple crack in the lip, or a mole or wart upon the face. When these cracks, incrustations or

tubercles appear, with an indurated base, and do not yield readily to simple means of treatment, they should be viewed suspiciously, as cancerous formations, and removed at the earliest possible opportunity; otherwise ulceration may begin and extend with the progress of the disease, and lymphatic

EPITHELIOMAS OF FACE

EPITHELIOMAS OF LOWER LIP

involvement occurs; the natural development and growth of an epitheloma is not, as a rule, rapid, but a small, indolent abrasion may exist for months before the growth begins to attain a more rapid development, and with the exception of these tumors of the tongue and uterus, many years may elapse before a fatal termination.

COLLOMA—These malignant tumors, which are also often referred to as "Gelatiform cancer," resemble, structurally, the encephaloma, but contain, independent of other tissues, a large quantity of clear colloid material. This tumor is difficult to distinguish from other forms of carcinoma previous to its removal; on dissecting, the growth will reveal the gelatinous substance it contains. These tumors are most frequently found in the stomach, omentum, rectum, ovaries and bones of the extremities, either growing as a pronounced tumor or taking on the shape of the organ in which it is situated; its general history is similar to that of the encephaloma, only it does not develop as rapidly, nor involve the lymphatic glands at an early period.

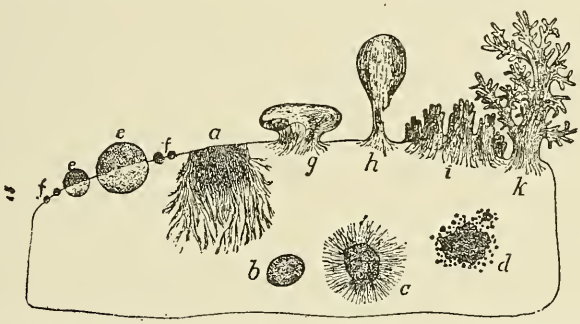
MELANOMA—These are another form of malignant growth, which resemble the encephaloma, but contains a large quantity of black pigment matter, and are therefore, often referred to as the "black cancer." This growth is most frequently found in the skin and eye, or may commence to develop underneath a pigmentary mole, and as it develops, bears every resemblance to the rete mucosum or colored skin; unless thoroughly removed, will terminate in death in a short time, as will all other cancerous formations.

THE FORMATION OF TUMORS

The forms under which tumors may appear are manifold and give us no certain criterion as to their nature. In parenchymatous organs we either find them as sharply circumscribed nodules or as infiltrations. In the nodular form the line between the tumor and the normal tissue is sharp, and we get the impression that the tumor grows as a solid mass, pushing before it and compressing the normal tissues. In the infiltrated form this line is not so sharp, and projections from the tumor seem to penetrate the normal tissue; by their growth the tissue between them is destroyed by pressure or by insufficient nutrition. In this way the central body of the tumor increases in size, and the infiltration continues to ad-

vance. Frequently numerous small nodules will be seen in the neighborhood of a large one. These increase in size and finally meet the parent nodule, minute ones continuing to appear at the periphery. This is called growth by dissemination and is best seen in the formation of the large solitary tubercles of the brain.

Tumors which are seated on the surface of organs, as in the skin and mucous membranes, soon project above the surface, and various names have been given to characterize the form of these projections. If the projection merely took the shape of a rounded elevation, a tuberosity was spoken of.



Scheme showing Forms of Tumors. a, Infiltrated; b, nodular form; c, peripheral growth by infiltration; d, by dissemination; e, tuberous form; f, tuberous form of military size; g, fungus; h, polypus; i, papillary and verrucose; and k, dendrate form.

The name tubercle was given to the smallest of these, though this name was afterward used to designate growths of a fixed histological character. When the tumors projected above the surface in such a way that the summit was broader than the base, and hung over it like a roof, it was called a fungous growth, and a polypus when the main body of the tumor was connected with the surface by a small pedicle. When the tumor was formed by a series of projections, like the papillæ of the skin, it was called papillary, and when these projections were much longer and branched it was called dendrate.

The accompanying illustration outlines the manner of the development of tumors, relative to the tissue in which they grow.

We know but little about the growth of tumors. They have been more studied in their histology as completed structures than in reference to their development and manner of growth.

There are two principal opinions held as to the manner in which tumors grow. One is that the growth takes place from the tumor itself, and the cells of the surrounding tissue play only a passive part; and the other is, that the cells in the neighborhood of the tumor change into cells corresponding to those of the tumor. This last theory has been variously modified. Some observers assert that the cells in the normal tissue in the neighborhood of the tumor, first return to their indifferent or embryonic form, and then differentiate themselves into those of the tumor. Others hold that the change is direct without this intermediate process.

THE CAUSE OF CANCER

If there is any one subject which has offered a rich and inviting field for deep study for the pathologist, it has been in the investigation of the cause of tumors, and especially the development of malignant neoplasms, and yet with all our present knowledge and theories, we are still wrapped in the shroud of darkness. However, clinical experience has taught us that there are certain conditions which seem to predispose to the development of these growths, which we will briefly review.

Investigating the location in which the greatest number of cancers develop, we find them located in organs which are subjected to irritation.

In a record of 9118 deaths from tumors seventy-eight per cent. were seated in the uterus, stomach, mammary glands and intestines; of these, twenty-five per cent were seated in the uterus, which had been lacerated by childbirth. In 219 cases of the so-called tobacco cancer, occurring on the lip, 209 were in men, and ten in women. In cancer of the lip it has also been noted that men from the lower classes, who

smoke pipes, are more susceptible to cancer than those who smoke cigars, which are less irritating to the muco-cutaneous surface.

While these statistics are decidedly in favor of the irritation theory, on the other hand, the face of a man is more subject to irritating influences than that of a woman, from a variety of reasons, among which may be considered shaving, and yet cancer of the face is more common in women than in men.

In 344 cases of cancer at the Berlin Clinic, 42 were attributed to trauma; where special investigations were made, these cases were principally tumors of the female breast.

Several years ago, Dr. Keim advanced the germ theory as the cause of cancer, and today extensive experiments are being conducted along these lines. London leads the world in facilities to study cancer; this city has two cancer hospitals and two research laboratories, with a large corps of able medical scientists.

Mice are used to a large extent for experimental purposes. Mice, like other animals, are subject to cancer; on an average, one mouse in every 3,500 develops cancer spontaneously, and a mouse with a cancer is worth five shillings in London. If bits of cancer the size of a pinhead are taken from a mouse with cancer, and implanted under the skin of one hundred healthy mice, in three weeks about five of them will have cancer; if grafts of cancer be taken from these five inoculated, and planted under the skin of a second hundred healthy mice, in about three weeks ten of these will be cancerous; and, again, if grafts be taken from these ten and planted in the third hundred normal mice, about twenty will be affected with cancer, and these experiments may continue until ninety per cent. will be affected. Cancer has not been communicated from man to mice, or vice-versa, and it has not been successfully proven that it can be transferred from one human being to another. Of course, these experiments cannot be conducted as recklessly in man as they can in mice, but they prove that the disease can be communicated in this way.

Tumors have long been recognized as hereditary, or we might say, there often exists a family predisposition to these formations. Napoleon, his father, brothers and sisters died of cancer. In some families, as well as some races, cancer appears to occur more frequently than in others. Broca has recorded a most interesting case, pointing to a family predisposition to cancer. The mother died of cancer of the uterus, her four daughters died of cancer; two of cancer of the liver and two of the breast. The first daughter's four children died of cancer, the son with cancer of the stomach and the three daughters of mammary carcinoma. The second daughter, from the first generation, had five daughters and two sons; the sons were not affected, but the five daughters all died from carcinoma. Three were of the breast and one of the uterus and one of the liver; all the above subjects lived to be thirty-five years old before cancer developed.

These are only a few instances, from hundreds of others, to prove that there is a predisposition, in certain families, to malignant growths.

Benign tumors, as a rule, develop at an early age, but carcinoma rarely develops until after thirty-five years of age, and more often at a later period in life. This is conclusive evidence that cancer is a disease of middle life or old age; when occurring in younger persons, there is evidence of senile change in their skin and appearance.

THE TREATMENT OF TUMORS

Within the last few years there has been such rapid progress in the therapeutics of tumors that we often wonder what will be the next development in the scientific world for the removal of these unwelcome visitors. The physiologic method of treatment has entered this field with a strong force of valuable accessory measures and exercised a predominating influence in many cases, and the various forms of external growths, which were formerly looked upon as grave neoplasms, are now, apparently, regarded as simple lesions, as

they are so rapidly and conveniently removed by modern therapeutics. In the following pages, we will briefly survey the most important methods of treatment, which are used by the Medical Profession of the present period.

The knife always has been and possibly, always will be, the first means to consider in the removal of tumors, as it can be used to the best advantage in the greatest number of cases, and, in fact, is the only means we have at present of reaching internal growths. The possibilities of surgery are so well and favorably known for removing benign growths of the internal organs, that the subject will not be discussed here, but surgery for the removal of malignant growths of the internal organs bears fruit from another harvest, and still it is the only means with which we have access to these developments.

Pozzi has reported 204 cases of hysterectomy for cancer, and states complete recovery is rare; one of his cases living ten years and another six years after the operation.

Cullen has reported 141 cases of cancer of the cervix, of which only ten were living. Massey has collected reports from 482 cases of cervical cancer, with only two living. Tubingen reports 35 per cent. recovering from cancer of the extremities, and Schmidt gives a report of 28.32 per cent cured from cancer of the breast by surgical means. We therefore, find that the knife does not offer us as much encouragement as we wish it would from master hands, even if the greatest precautions are taken to cut wide and remove every remnant of the growth. While the knife will be the dependent means of removing internal cancer, until the discovery of the much sought for "panacea," which the entire scientific world is striving to obtain, in the form of some serum. The advantages the knife offers, in removing benign superficial tumors, is the rapidity in which they may be removed, and the tendency to leave a less resultant scar. The latter is of especial advantage when these growths occur on the face or other parts of the body, where scar tissue appears to a disadvantage. The

methods of removing these tumors are fully discussed on another page.

The medical caustic treatment for cancer, or better known as the "plaster treatment," in many localities, is perhaps, the second oldest and most universally adopted treatment for cancer in present use, and there are very few caustic remedies in the Materia Medica which have not been used for the removal of tumors and especially skin cancers. These caustic plaster treatments were ushered into the healing art under a cloud of darkness, and as a rule, their originators held their formulas a profound secret, which many of them are attempting to do today, but the "tricks" of the cancer specialists, like many other things in medicine, have ceased to exist, and are the common property of the medical profession.

The first caustic remedy to be successfully used in cancer was chloride of zinc. This remedy was the secret which monopolized all the cancer pastes for over fifty years, and it is my opinion that it stands second in value today. As near as we can trace the history of this remedy, it was used in Dr. Fell's cancer salve, nearly a century ago; the original formula was:

℞ Zinc chloride ..... 1 dr.
Pulv. sanguinariai radicus ..... 1 dr.
Amgli q.s. to form a paste.
Apply on pieces of kid or washed leather.

This formula has been in constant use for over one hundred years in the above, or modified forms, and many of the older practitioners adhere to this treatment today. The writer's father, who was in general practice for fifty years, has recorded forty-eight successful cures by the use of chloride of zinc.

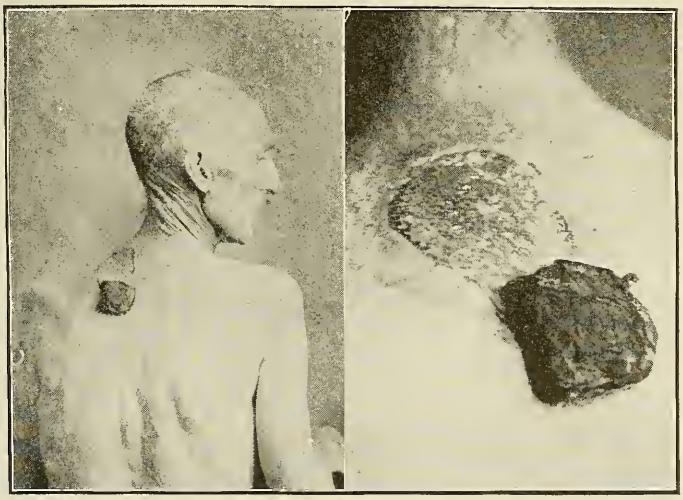
Later, Dr. Marsden, of the London Cancer Hospital, introduced the paste which bears his name, and after his experience in treating over six thousand cases considers arsenic superior to any other known remedy, and his experience has been con-

firmed by thousands of others, until today, arsenic may be recognized as the leading escharotic, for the treatment of cancer.

MARSDEN'S CANCER PASTE

℞ Arsenious acid ..... 2 dr.
Gum acacia ..... 1 dr.
Water ..... q. s.

Mix the arsenious acid and gum acacia, and add sufficient water to form a paste.



The above picture illustrates the action of Marsden's Paste in removing cancers. This growth was removed with two applications of the paste.

The technique of removing cancers with the above paste, or the chloride of zinc paste, if preferred, is as follows: The extent of the tumor should be well outlined, and always remember that this does not include just the surface occupied by the growth, as the cancerous growth extends, at least, from one-quarter to one-half inch beyond the borders. To avoid a reocurrence of the growth, this should be removed enmasse,

after bathing the surface, rubber adhesive plaster or collodion should be placed about the tumor so as to protect the healthy tissues. The outer integument may now be curretted or removed with salicylic acid, as the arsenious acid does not act well upon the unbroken integument and only detains the operation. Previous to the curretting, it is well to thoroughly anæsthetize the surface, with a two to four per cent. quinine and urea hydrochloride solution; the arsenic paste is now spread over the tumor, and a piece of rubber adhesive plaster should be cut large enough to cover the entire surface occupied by the paste, and project over the borders, which protect the healthy tissues to which it is attached. The application is allowed to remain in situ, from eighteen to thirty-six hours or longer, until you are satisfied that the growth has been entirely destroyed; during the application of the plaster, the patient will suffer more or less pain; this can be relieved by hypodermic injections of morphine, but in ordinary cases the local anæsthetic administered for the curretting will obtund the tissues sufficiently to prevent any marked degree of pain. When the plaster is removed, the tumor will present a mass of necrosed black tissue, and the surrounding area will be swollen and inflamed. If the tumor was on the face, the eyes may be swollen shut, and the ears and lips œdematus. These conditions should be explained to the patient before commencing treatment, as they have a tendency to frighten him, if not advised beforehand. The next step is to remove the necrosed mass; this is done with a flax-seed poultice; when the slough separates and comes away, you should observe if all the cancerous tissue has been removed; if you find any remaining traces of the growth left, the paste should be applied again, to remove these remnants. If you are convinced that the cauterization has been complete, the lesion should be dressed, as any open ulcer, and allowed to heal.

This apparently simple procedure is one of the most successful methods of treatment in present use, for the removal of cutaneous carcinoma, and the limit of its application will depend upon our familiarity with its action; it may be used

on a surface from one to four inches in diameter. Larger surfaces can be treated with two or more applications until growths of quite a size are removed.

One of the most frequent questions asked is regarding the constitutional absorption, and poisoning from the arsenic. This has never occurred to my knowledge. Arsenic seems to

The above cancer was removed with Dr. Fell's Cancer Paste, and illustrates before and one month after treatment.

possess, more than any other remedy, just sufficient action to excite inflammation and destroy the diseased tissue, without doing any permanent damage to the healthy structure or organism. Caution should be exercised, however, when the plaster is applied to the lips and near the eye, in order that it will not be swallowed or injure the delicate structures of the eye.

The resulting scar from this treatment is very slight, and when very small surfaces are treated they are hardly noticeable.

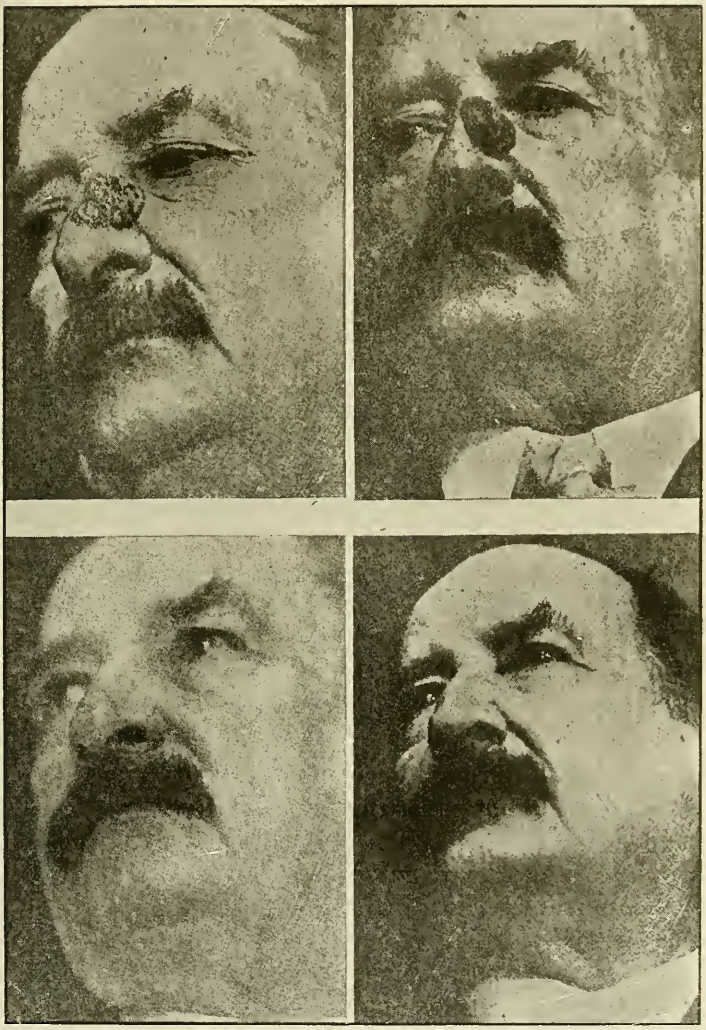
SOLIDIFIED CARBON DIOXIDE

Solidified carbon dioxide offers one of the most practical and painless methods of treatment in present use, for the removal of cutaneous neoplasms, either of a benign or malignant type, and has the following advantages over any other method of treatment: In selected cases the operator always has the action of this chemical under his minute control and can regulate the extent of its action by its brief or prolonged pressure to a given surface. It is the most rapid means in our possession, of destroying these growths, as we can accomplish the same results in a few seconds which requires hours with the plaster; it is also the least painful and most convenient way to destroy these growths, and seems to possess the faculty of permitting epithelium to regenerate and thus reduces the formation of scar tissue to the minimum.

The technique for removing cutaneous neoplasms, whether it be a wart or mole, birth-mark or epitheloma, is the same. The crayon of carbon dioxide, with its contact surface brought to a point, suitable in size to comply with the surface you are treating. If it should be a small mole, the point of the carbon dioxide should be small; if the surface occupies a larger space, the point of the crayon may be as large as you desire.

The action of the carbon dioxide is to freeze the parts, and thus produce a dry form of gangrene, which nature desquamates from the healthy tissues, and leaves a clean, healthy under tissue in its place.

The application of solidified carbon dioxide is very simple; the crayon is pressed against the growth, which almost immediately, takes on the condition of freezing, and turns the cancerous mass into white ice; the crayon is moved about the growth, until the entire surface is covered. Within twenty-four hours after the freezing, the mass forms into a crust, and at the end of from ten days to three or more weeks, the crust will be forced off by nature's process. If the operation has been successful, we will find a healthy-looking, underlying tissue, which, from a cosmetic point of view, is more beautiful



THE RESULTS OF CARBON DIOXIDE SNOW IN THE TREATMENT OF CANCER.

than from any other means of removing these growths, and this is the treatment par excellence for the removal of all small growths, including warts, moles, birth-marks and small tumors of a malignant nature. The patient should be forewarned regarding some swelling of tissue, adjacent to the growth treated, and the pain is so slight, that patients will often not complain at all, or refer to it as a sensation of heat or cold; which, they are not always able to determine.

Dr. Bernstein recently reported fourteen cases in the *Hahnemannian Monthly*, one of which is illustrated here, and demonstrates the value of this indispensable process of removing these growths. The doctor states: "There have been no failures in the hundreds of cases treated; the percentage of cures still remaining one hundred," which is verified by the writer's observations.

Finsen demonstrated before the association of Danish physicians his first case of lupus, cured by the action of light. This was the beginning of a new therapy, by the energy of radiation, in the treatment of neoplasms; this system, founded by Finsen, has also involved the form of energy which is utilized in various ways, and includes, principally, the Finsen light, X-Ray, high frequency currents, radium, etc. These elements have been found, by constant observers, to have their basic effect through their ability to destroy micro-organisms which cannot resist the influence of light, as can the healthy, normal tissue. While the Finsen light is successful to a certain extent, most authorities have abandoned its use for the more powerful forms of radiation, and the Finsen light is almost limited, in the London hospitals, to the milder forms of cutaneous affections, including lupus; the other forms of radio-therapy, as a rule, are utilized for the treatment of cancers proper. While the effects of all these agents are similar, in some respects, in others there is a vast difference, which experience has taught us to differentiate and individualize, with specific indications for each. Whether cancer is due to a micro-organism or not, makes no difference so far as the

treatment is concerned; we do know that these radio-therapeutic measures are capable of stimulating normal cell activity, in their defense against the invading cancer cells, and cause the latter to be absorbed, but just how this is accomplished no one has been able to explain. Our present knowledge in the field of radio-therapy would indicate the following conclusions: 1st. The Finsen light exerts its best influence in superficial cutaneous lesions, including lupus. 2nd. The X-Ray is more effectual in the deeper seated lesions, including epitheloma. 3rd. High frequency currents are one of the best constitutional measures to increase metabolism and nutrition, relieve pain and check the progress of disease. 4th. Radium, when its technique is more thoroughly understood, perhaps will offer us a means of reaching these growths in the deeply seated organs. Any one or all of these methods may be preceded by surgery, the freezing or plaster treatment, to reach the deeper structures, and are frequently utilized to their best advantage in destroying the remaining cancer cells after surgical measures.

The fact remains that solidified carbon dioxide is superior to any other means of treating skin cancers and therefore the technique of radio-therapy will not be discussed here. We will, however, disclose some of the possibilities and new developments regarding radium which promises such a bright future in the treatment of cancer.

THE THERAPEUTICS OF RADIUM

It was the year 1898 that Madam Curie who was assisting her husband in his laboratory in Paris, succeeded in segregating from pitch blende, an oxide of uranium, which comes from a single mine in Bohemia. This substance which glows in the dark and gives off heat without being diminished was radium which was hailed throughout the scientific world of medical research, with a view of obtaining, if possible, its place in therapeutics. Shortly before this Finsen had announced his investigations of light, and it was immediately thought that

radium must bear some allied influence in the treatment of disease, and continued investigation has given this substance a distinct place in therapeutics, and furthermore a place which it seems probable will be gradually extended so as to include many conditions which formerly seemed beyond its scope. The investigation of radium has been confined principally to cutaneous lesions and malignant growths where its action is specific and although allied to the X-Ray, Finsen and others light therapy, the histological changes in the cancer cells, following the application of radium rays, are peculiar to themselves, the beneficial effect is apparently due to its irritating action, producing obliterative endarteritis and fibroid changes.

Dr. Wickham has reported several hundred cases of all forms of birth-marks, from port wine stains to vascular and pulsating angiomas which have been reduced so that the skin is almost a normal color and devoid of cicatricial tissue. With these cases the treatment was prolonged to avoid any destructive influence upon the skin. Many other affections of the skin also respond to the radium treatment. Chronic eczema, lupus, acne rosacea psoriasis and other cutaneous affections have been cured after other means have failed.

Radium has been one of our greatest hopes as a means of treatment for internal tumors. Dr. Abbe was the first to employ this method by introducing tubes containing the radium salts into the center of tumors, by this means he has obtained excellent success, particularly in cases of deep-seated sarcoma. Here we have the only substance to which we have access for reaching deep-seated neoplasms, our only obstacle seems to be a means of conveying the radium to these obscure areas; this has been accomplished to a certain extent through the orifices of the body, but the results were not as satisfactory as desired, for it was difficult to place the radium rays at the point where they would derive their greatest value, and to receive the greatest benefit from this means will require the services of a surgeon, and it is hoped the near future will develop facts in this procedure which will startle the world.

Drs. Aikins and Harrison, of Toronto, have recently reported their "observations on the therapeutic use of radium," in which they report several interesting cases, and in order that the reader may become familiar with the results obtained from this new and promising therapeutic agent I will append their report, quite in full, as I believe such reports have a tendency to point out the most valuable features of any therapeutic agent. The doctors state:

"Of rodent ulcers we have had experience with seventeen. Without exception excellent results have been, or are being, obtained. In ten a record of previous treatment with pastes, X-rays, or leucodescent light, was admitted, but no permanent curative result had followed. It is hardly necessary to go into the minute details of all these cases. After a short application of the radium placque, the small ulcers have almost invariably crusted over in ten to fourteen days, and when this crust detached itself the skin underneath was healed and smooth and of a pinkish tint, which soon faded to the normal color of the skin. These patients should be seen subsequently, as in cases where a slight thickening of the tissues remain, an application of the rays to produce a deeper penetration without an ulcerative effect, is desirable in order to insure a good result.

Where the ulceration is more extensive, longer and more frequent applications are necessary. The treatment in these cases sometimes extends over several months, as it is necessary to feel one's way very cautiously. One such case was as follows:

Miss G., 32, came under observation Aug. 28, 1910. Since birth she had had an ulcerated area in the right temporal region. It increased gradually as a child, and from the age of ten until the present she had been under treatment of various kinds. It has twice been excised, and pastes, X-rays and leucodescent light have been tried. It would improve, but that was all. Among those who have seen this case there is a difference of opinion as to the true condition. The early age at which it began would suggest a lupoid character, but

the appearance in August suggested rather a rodent type. Dr. Louis Wickham saw the case after some radium therapy had been employed, but would not give a definite diagnosis. He expressed the opinion that it was probably of lupoid character to start with, but had taken on the character of the rodent ulcer.

When first seen there was an area of scar tissue on the right temple the shape of an equilateral triangle of one inch and a half to each side. In this area, three-quarters of an inch behind the eye, was an ulcer three-eighths of an inch in diameter punched out with thickened and slightly undermined edges. The floor was covered with pale, unhealthy-looking granulations, and there was a sero-purulent discharge. Behind this ulcer, at the lower angle of the area, was another smaller ulcer of similar appearance, and just at the angle of the eye was a small ulcer, the size of a pin's head.

A strong placque, screened, was used several times, and then the patient went home. She was seen again at the end of September. There had been a good deal of surface reaction and a crust had formed over all the ulcers. No further treatment was given at this time. At the end of October she reported again. The crust was still present, but was easily removed, and underneath the skin was formed slightly thicker than normal and redder, but with absolutely no ulceration. The parts were radiated again, using heavier screens in order to get a deep action and soften up the tissues.

It is, of course, too early to say whether this result will be permanent, but from other cases reported in the French literature we can see no reason why it should not be.

The early result here points to the condition being one of rodent ulcer rather than lupus, as experience has shown that the latter do not react so readily as the former to the action of the radium rays.

To show the result with the common rodent ulcer, the following cases may be given as examples:

Mrs. L., presented a rodent ulcer on the left side of the nose of four years' duration, which had resisted all treatment.

Within one month after a series of radium applications the ulcer healed, and is still so at the time of writing, seven months after she was first seen.

Mr. M. showed four typical rodent ulcers on the left cheek and one on the skin of the upper lip. They had been present for two years. He was given applications of a placque of 500,000 activity, eight hours to each spot, extending over a period of two weeks. At the end of that time the radium crusts had formed.

Under date of Nov. 29th, the patient writes from New Orleans: "It affords me much pleasure to advise you that all trace of the affection has vanished, not even the smallest trace of a scar can be seen."

Mrs. R. had a small nodule on the left side of the nose. It appeared two years ago and had increased in size until it was three-eighths of an inch in diameter. It was not ulcerated. It had begun to pain a short time before. She had had no treatment of any kind. She was given a short application of a strongly active placque and on presenting herself six weeks later the nodule had quite disappeared.

EPITHELIOMA OF THE LIP.—Two cases of superficial epitheliomata of the lip have responded splendidly to treatment. Other epitheliomata have been referred on which prolonged treatment will have to be carried out, and on which we hope to report more fully later. To mention a few:

Mrs. B., epithelioma of the buccal mucous membrane, which had recurred after removal. She was seen six weeks after treatment, and there had been no reappearance; she will, however, have to be kept under observation from time to time.

FUNGATING EPITHELIOMATA.—Fungating cutaneous epitheliomata are particularly suited for radium action, and various techniques can be adopted depending on the individual case under observation. "Cross-fire" action often gives excellent results with the use of different forms of filters. A preliminary curettage and removal of the vegetations is of help in decreasing the time required for cure, but is not absolutely necessary.

T. F. T., æt., 54, presented on Oct. 29th a fungating mass as large as a fifty-cent piece, below and behind the left ear. There had been a small ulcer for about five years, but latterly the growth had been very rapid. The growth was covered with cauliflower excrescences, and projected three-quarters of an inch above the surrounding skin. The edges were hard and everted, and the tissues about were quite hard, as though the growth extended to some depth. There were no enlarged glands to be felt. Under local anaesthetic the vegetations were removed, and the next day radium applications were made. These were repeated for four days, and then the patient returned home. He was seen again in three weeks, at which time all that was observed was a small, healthy ulcer, one-half inch in diameter. The epithelium was growing over it, and it looked as though it should be healed completely in another two weeks. The edges were quite soft, as were all the surrounding tissues. A few more applications were made to stimulate the healing, and he again returned home. On December 16th, he reported it "practically healed, with only a small crust to be detached."

SARCOMATA.—The case described below, together with one other case of cancer of the uterus, forms perhaps the most interesting study we have made.

R. J. B., æt. 53, in February, 1909, he noticed a lump at the angle of the jaw, on the right side. X-rays were used without any apparent effect as the mass kept increasing. In April, 1910, the tumor was removed and showed a small round-celled sarcoma. In June it recurred. Excision was again advised, but as a facial paresis had followed the first operation, the patient would not consider further operative procedures. He was therefore referred for radium treatment.

At first, very thorough radiation was carried out with placques, and some decrease in the size of the mass could be noticed. The cross-fire method was here used, a placque being placed on each side of the tumor.

The beginning of October the mass was two inches in

diameter and elevated three-quarters of an inch above the level of the surrounding skin. It was quite firm and seemed attached to the underlying angle of the jaw. On Oct. 5th, an incision was made into the tumor, and a small silver tube containing one centigram of pure bromide of radium, with an activity of 2,000,000 was inserted deeply into its center. It was left in place 24 hours, and the result was most remarkable. At the end of this time there was a cavity present, into which the finger could be inserted, the growth felt much softer and was more freely movable. From the opening thus made, broken down necrotic tissue was discharged, and the size of the tumor visibly diminished. Twelve days after this first treatment the tube was inserted again, two hours daily for six days, with the placque applied externally to produce the cross-fire action.

The patient then returned home and reported in one month. On inspection no tumor mass could be seen at all. On palpation two small masses, which felt like scar tissue were present, one just in front of the ear, the other behind the angle of the jaw.

We regard this as a most gratifying result, although the patient can in no sense be regarded as cured, and will be required to be watched from time to time. He would be a foolish man indeed who would make any such claim so soon as this, but others report cases of round-celled sarcoma, removed and free from recurrence after five years, and we see no reason why the same result should not be looked for here.

CANCER OF THE UTERUS.—In many cases of cancer of the uterus radium can be of great service. Dr. Wickham has reported cases regarded as inoperable, which were so reduced as to render a later operation possible, while where there had been recurrence in the scar tissues in the vault of the vagina following operation, radium was effectual in removing it. In all cases the most striking effect was the rapidity with which the discharge and pain ceased after a very few applications.

The condition is one that offers itself very readily for treatment, on account of the facility with which the apparatus

can be applied. Radium tubes can be introduced into the body of the uterus, or radium placques can be applied to the cervix. We have ourselves had the opportunity of verifying these beneficial results in the following cases:

A patient, æt, 53, first noticed a bloody uterine discharge in January, 1910. She did not consult a physician until June. The cervix was cauterized, but serious hemorrhage recurred, and in July she underwent an operation at the hands of a leading gynæcologist in Toronto, when the uterus was curetted, and the cervix amputated. This was all that was done, as, in the surgeon's opinion, the left ureter and bladder were involved, and hysterectomy would not be justified. A very grave prognosis was given. On August 15th, in the vault of the vagina, and where the cervix had been removed, was a raw, bleeding, granular surface, about two inches in diameter, extending into the vaginal wall. The left side was more involved than the right, and in order to remove the growth completely, an extensive dissection would have been required, and probably the removal of the left ureter.

The uterus was fixed on the left side, and examination by bi-manual method caused a good deal of pain. The body of the uterus was not enlarged.

In view of the extensive operation which would have been necessary, and the uncertainty of complete removal, radium treatment was advised.

Treatment was accordingly instituted, and from August 15th to October 7th, with two weeks' intermission a strong radium placque was placed against the cervix for twelve hours every night. The discharge ceased after the first few applications. The pain disappeared, and the bladder condition improved. On October 7th, a tube containing one centigram of pure bromide of radium in a catheter was inserted into the uterus for fifteen hours. The patient then returned home. Examinations made from time to time had shown a continuous improvement and lessening of the area of ulceration. On November 30th, she reported, and Dr. Cleland again examined her and reported as follows:

On Nov. 30th, the raw surface was reduced to an area about half an inch in diameter, which showed no tendency to bleed as formerly. The uterus was more movable, but still somewhat fixed on the left side. The patient reported herself as suffering no pain nor discomfort of any kind, and as having gained about 15 pounds in weight. The improvement in the local condition was most marked, and an operation could now be undertaken with more certainty of success. But, owing to the improvement under the radium treatment, it seems advisable to continue it for some time yet.

EXOPHTHALMIC GOITRE.—Dr. Abbe was the first to employ radium in the treatment of this condition. This was effected by making incisions into the thyroid gland, into which radium tubes were inserted. A great decrease in the size of the gland followed, with amelioration of the nervous symptoms, and this result has continued. Dr. Wickham, of Paris, has also successfully treated cases by the placques with "cross-fire."

A case which presented itseif recently has given us an opportunity to observe the action of radium in this condition.

Mrs. M., æt. 31, noticed a small lump at the root of the neck five years ago. Local applications were used, but there was no change one way or the other. One month ago it began to grow, particularly on the right side. The tumor protruded and began to cause distress in breathing, speaking and swallowing. At the same time she began to feel tired, with loss of energy and appetite. Examination showed enlargement of the isthmus and right lobes of the thyroid, the tumor being quite hard in consistency. The circumference of the neck was 15 inches. The pulse rate was slightly increased.

Applications of radium placques have been made, and already within three weeks there has been marked improvement. The tumor has decreased, so that the circumference of the neck is only 13 inches, and the pressure symptoms have quite disappeared. The improvement in this short period of treatment has been so marked that a further decrease in the size of the thyroid can confidently be expected.

POST-OPERATIVE PROPHYLAXIS.—Dr. Wickham, in his latest papers, insists strongly on the association of radium with surgery. He claims that in many cases the radium rays will turn an inoperable case into an operable one, and further, that after operation for malignancy, when, no matter how extensive the dissection, one can never be sure of having removed all the cancerous tissues, radium should be used over the scar, and area of operation, as a prophylactic measure to destroy any stray neoplastic cells.

In three cases we have so applied the treatment, two being sarcomas and one a carcinoma. In the latter case, which affected the breast, the radical operation was performed, and some enlarged glands were present in the axilla, which on microscopical examination were shown to be simply inflammatory. Radium applications were made over the line of suture, ten days after operation. This treatment was repeated in one month. Whether the treatment has had any effect, we will probably never be able to tell, either one way or the other, as, of course, surgical treatment alone is very often effectual in these cases.

The other two cases were sarcomata. One was in a male infant, in which a round-celled sarcoma had developed at the side of the anus. It was removed by surgery, but reappeared in two weeks.

Very thorough radiation was carried out and has been repeated at intervals since, with the result that there has been no recurrence during four months, although all who saw the case regarded it as one in which recurrence would probably occur, and gave a very grave prognosis.

The other occurred in a man of 61, on the suggestion of Dr. Wickham, of Paris. He had had a spindle-celled sarcoma of the tissues on the right side of the neck, which had been removed first in May, 1908, and, owing to a recurrence, again in May, 1910. It soon recurred, however, and a very extensive dissection was done in London, England, in August, 1910. Six days after the operation he went to Paris, where radium applications were made by Dr. Wickham for a period extending

over three weeks. As a prophylactic measure, he was advised to have this treatment repeated at intervals, and in Toronto in October, 1910, was given another thorough radiation over the field of operation and particularly at points where the scar tissue was in excess. By this method we believe any sarcoma cells can at least be held in check, if not actually destroyed.

From the experience we have had with this agent during the past few months abundant opportunity has been given to verify the results obtained by others in its therapeutic use.

Judging from results already obtained, we feel that radium therapy is only in its infancy, and that the future will disclose other pathological conditions in which it can be of great service."

THE INJECTION TREATMENT OF TUMORS

There have been several attempts to inject different medicines into the substance of tumors to change the character of the growth, or to transform or liquefy indurated growths to a sloughing process, where it may be treated as a simple abscess, etc.

In certain forms of tumors this means of treatment has reached a reasonable degree of perfection, while in others it has proven deficient in the results expected; this has been particularly so regarding the aim of scientific medicine to find some serum that will kill or paralyze cancer tissue, without destroying the normal tissue in which it is embedded; it is, therefore, well for the physician to become familiar with the latest facts which have developed in these lines of treatment.

TRYPSIN TREATMENT

Trypsin is one of the digestive products of the pancreatic gland and plays an important part in the digestion of proteids. Dr. Beard, of Edinburgh, advanced the theory that this remedy would digest cancerous growths and convert them into a substance which can be absorbed and eliminated.

Dr. Luther has presented a full discussion of the trypsin treatment of cancer, based upon knowledge gained by a visit to Beard and other workers in Great Britain, as well as upon some observation of his own. Beard's introduction of trypsin as a therapeutic agent in cancer is based upon embryological discoveries which he has made in the course of his studies of this subject. Instead of developing directly from an egg, the course of development of the embryo is extremely indirect. The fertilized egg undergoes karyokinetic division and subdivision to a limited number of mitoses depending upon the species. The result of this is a tissue named variously by Beard as phorozoön, trophoblast, larva, or a sexual generation. This tissue, which composes in reality, partly or wholly, the chorion, is endowed with 'indefinite, unrestricted powers of growth.'' Digestion in these cells is an intracellular, acid, peptic one, as has been proved by Hartog.

The final division of these trophoblastic cells results in a primitive germ cell which again divides and subdivides to a various but definite number of mitoses, depending upon the species under observation. The actual number for man is not known. This division results in a number of primary germ cells, again the number depending upon the number of divisions, this being definitely fixed for every species. For instance, in the skate the primitive germ cell undergoes seven mitoses, resulting in 512 primary germ cells. From one of these primary germ cells the embryo develops. The remaining germ cells form the foundation for the succeeding generation—that is, they develop into the sexual glands of the growing embryo. Beard has observed these cells in various stages of migration into the embryo. In the earliest stages of the skate, while there are still three distinct layers, no germ cells are seen while the outlying blastoderm is crowded. As time advances they are found between the layers, and later still large numbers are seen there. The objective point of these migrating cells is the germinal nidus, and after arriving there they begin to undergo division, and finally, after a limited

number of mitoses, develop into primitive ova if the organ is an ovary, or spermatogenic cells if a testicle.

After the embryo is well formed and the organs mapped out and functionating, the trophoblast is no longer of use and disappears. The cause of this disappearance is purely hypothetical, but Beard believes that it is due to the activity of the pancreatic secretion. Up to this time the cell division has been an intracellular, acid, peptic one, and from this time, which Beard calls "the critical period," the digestion becomes an alkaline, pancreatic one, and as a consequence these cells are digested and absorbed.

This normal course is subject to variations. During the act of migration many of the primary germ cells never reach their objective point—the germinal nidus—but, wandering between the layers of the forming somatic cells, are obstructed in various corners and crevices and forever lost. The usual fate of these vagrant germ cells is degeneration and absorption, but they may become encapsulated and remain. Should any of these encapsulated vagrant cells attempt to go through its life cycle, the result might be a monstrosity such as the Siamese twins; one embryo attached to another; or one embryo, partly or wholly developed, more or less completely embedded in another well-formed one. So we may go down through the scale to the class of tumors known as embryomas, teratomas, or dermoid cysts, which in the ovary would be the result of persistent germ cells.

In the development of a malignant tumor, either the embryonal stage is skipped by these developing vagrant cells, and in proliferating a trophoblast is formed or the cell attempts to go through with its normal cycle—the production of an ovum which in its turn develops into a trophoblast; the embryo failing, there is no "critical period" and no check put upon the "indefinite, unrestricted power of growth" with which these cells are endowed. This is an "irresponsible trophoblast," or malignant tumor.

Beard, having noticed the trophoblast gradually disappear with the development of the pancreas, decided that the

pancreatic ferments caused this disappearance. If this were true, he reasoned that the pancreatic ferments would cause the disappearance of an irresponsible trophoblast or malignant tumor. The theory was confirmed by experimental work. The pancreatic ferment acts upon the cancer albumin and the cancer ferment in an antagonistic manner, as a result of which the tumor gradually diminishes in size and disappears by absorption, or is killed and converted into a benign fibrous mass.

Shaw-Mackenzie had introduced the use of trypsin in the treatment of cancer at about the same time, but was led to its use in an entirely different way.

The treatment consists in the hypodermic injection of a solution of trypsin daily for a period of four weeks, followed by the hypodermic injection of a solution of the diastatic ferment, amylopsin, every other day alternating with the injection of trypsin, the maximum dose of which is maintained. This for four weeks, followed by another period of four weeks or more, during which daily injections of amylopsin alone are given.

The trypsin injection which the author has used is a sterilized glycerin extract of the freshly macerated pancreatic gland, and besides trypsin it contains all the other pancreatic ferments. The amylopsin injection is, he believes, freed from the other ferments. They are both in 60 per cent. glycerin solution and consequently require dilution with two volumes of water or normal salt solution. They are put up in sterile glass ampoules, containing about 20 minims each.

The treatment should be started with a few preliminary injections of 5 or 10 minims before the full dose of one ampoule is given. After this the dose may be gradually increased. Maguire, of London, gives two ampoules, or 40 minims, as the maximum dose, but 75 minims is frequently given without bad effects. The dose of amylopsin should be graduated in the same way.

The injections may be given anywhere except into the tumor, on account of the pain and local inflammation produced. Probably the best place is the loose cellular tissue of the loin.

It should be thrown deep into the cellular tissue, but not into muscle. The greatest care should be exercised to render the syringe and the skin at the seat of the injection sterile. Abscesses are apt to follow failure in this respect. Though the author has given over five hundred injections, not one has caused any more trouble than some soreness and induration, which lasts for a few days.

Trypsin is rendered inert by heat, consequently care must be taken to cool the syringe after boiling before the solution is drawn into the barrel.

In addition to the hypodermic injection, stress is laid upon the oral administration of some pancreatic preparation. The local application, where possible, of a liquid or powdered preparation of trypsin, or pancreatin is also recommended where the cancer can be reached. This undoubtedly is useful, for it does cause a rapid breakdown of the mass.

Some patients after receiving a number of injections show toxic symptoms which Beard attributes to the digestion and absorption of the cancer cells. These symptoms, beginning with nausea and vomiting, pain in the back and drowsiness, develop, but usually clear up promptly under injections of amylopsin, while the trypsin treatment is continued but the dose diminished. Should the trypsin be continued without amylposin in these cases, high arterial tension, albuminuria, rigors followed by rise of temperature, and coma might develop.

The trypsin treatment has been used by various observers in different parts of the world, and of the reported patients five have been pronounced cured, though in not one of them has the microscope corroborated the clinical diagnosis. It is the concensus of opinion of those who have tried the treatment that it does in most cases cause an arrest or shrinkage of the growth; improvement in the general nutrition, in which the appetite improves and the weight is maintained or increased; diminution or cessation of pain, and diminution in the discharge and fetor except in those cases in which sloughing occurs. Large doses are required, and perfection of the treat-

ment will necessitate the finding of methods for obtaining pure and more concentrated solutions of the ferments so that they can be administered in reasonable quantities."

MR. CALOT'S INJECTION TREATMENT FOR TUMORS

What seems to have remained undeveloped, with the trypsin and other treatments, has been successfully perfected by Dr. Calot, of Berck, in the successful treatment of certain benign tumors, especially of the cervical glands. This injection treatment is not only commendable for the most excellent results obtained, but also from the fact that it leaves little or no trace of the operation in the form of a resultant scar, in places on the body where such disfigurement is most noticeable. In referring to the treatment of enlarged cervical glands, Dr. Calot remarks:

"By what mental aberration is it that surgeons puncture cold abscesses in other parts of the body, and operate only in suppurating glands of the neck? In truth ought they not to follow exactly the opposite line of conduct, since the question of a scar is only of importance in respect to the face and neck?"

No doubt the surgeon would reply that this is the price that has to be paid for the cure of the adenitis, that the scar is the unavoidable ransom, and that sanguinary intervention is the sine qua non of perfect recovery.

Yes, but is that really the case? Some twenty years ago I used to say the same thing, with the result that I operated upon large numbers of enlarged glands.

Nowadays, I say nothing of the kind; I no longer hold it to be true; indeed, I am convinced of the contrary. For the last seventeen or eighteen years I have given up operating enlarged glands, yet I have obtained cures more numerous and more satisfactory, and in every respect, more complete than those I used to get.

At the present time thousands of enlarged glands of every degree of severity have been cured in this way without operation, by others as well as by me.

Now this is precisely what practitioners in general are insufficiently aware of, or at any rate, they too willingly lose sight of it in practice. It is therefore, incumbent upon us to repeat as emphatically as may be, viz.:

1. In many cases enlarged cervical glands undergo spontaneous resolution, provided that they be allowed time, and are assisted in so doing.

2. The other cases of enlarged glands, those which do not undergo resolution, will break. A softened gland can nowadays be cured, without scarring, by method of punctures and injections.

Having instituted this comparison, what reason can there be not to discard sanguinary interventions for enlarged glands? A treatment that mutilates and affords no guarantee whatever against a return, indeed which very often seems to pave the way to a return.

Yes, indeed, many and many a case have we seen of this relapse in patients, in spite of the fact that they had been operated by some of the best surgeons in the two hemispheres.

These patients come to Berck for the purpose of escaping further interventions; the only result of the previous one having been to gash them, and in some instances, to leave them rather worse in health than they were before they placed themselves in the surgeon's hands.

Here is a very striking instance of the kind (Figs. 1 to 4): The young man in question was operated upon in London five years ago, for a slightly enlarged cervical gland, by one of the foremost English surgeons, so that we may take it the operation was done skillfully and completely. All the same the mischief recurred. Again he was operated upon and again it recurred. Then the patient betook himself to Switzerland where a third operation was performed, followed by a third recurrence; five months later a fourth operation with a fourth recurrence. The more they operated the more it "grew again.'

More than this, after the fourth intervention, the right side, previously immune, was involved in its turn.

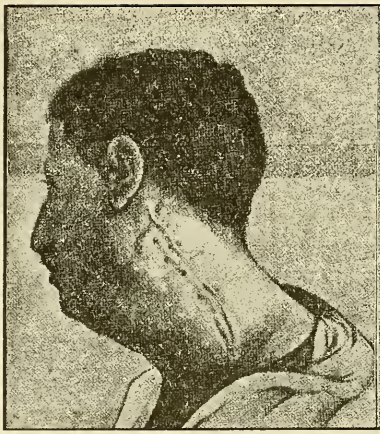


Fig. 1.—Evil results of operations: enlarged glands operated four times in England and Switzerland. Result: a neck frightfully slashed for life, with a return of the adenitis much larger than before the first intervention (see text).

Fig. 2.—The same—a year later—after treatment by dissolvent injections (see text). Complete cure without further scarring; there only remains the previous operative scars.

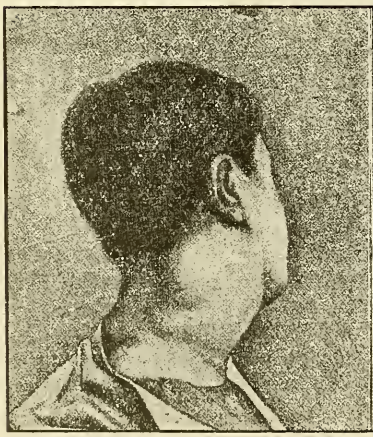


Fig. 3.—The same (right side) on his arrival at Berck, for he had developed an enormous mass of glands on the right, following the fourth operation on the left side (see text).

Fig. 4.—The same, seen from the right side, which fortunately had not yet been operated. Here he is a year after our treatment by injections. Perfect cure without scarring.

It was at this juncture that the patient came to us with a double tumefaction, (Figs. 1 and 3); a tumefaction so enormous and so ugly in appearance that it gave one the impression rather of a lymphadenoma than of a bacillary adenitis.

Now pray examine this same patient a year after he came to Berck, (Figs. 2 and 4). I shall explain, further on, how we treated and cured him without operation. All I ask you to bear in mind with regard to this case, (and I have plenty of others equally convincing) is this: that even the freest ablation of enlarged cervical glands, however accessible they may be, does not afford any reliable assurance of the absence of recurrence, and this is a further argument in favor of our aphorism: "Tuberculosis is not amenable to the scalpel, which rarely cures, often aggravates and surely mutilates."

Dr. Calot's injection treatment consists of two fluids, one of which is used to soften the glands, when he wishes to hasten the dissolution, and the other injection fluid is used where the glands have already become soft, as is the general course of such tumors. These formulas are as follows:

CREOSOTED IODOFORMIC OIL

℞	Olive oil	70 parts
	Ether	30 parts
	Creosote	3 parts
	Guaiacol	1 part
	Iodoform	10 parts

CAMPHORATED NAPHTHOL

℞	Camphorated naphthol	2 parts
	Glycerin	12 parts

The second mixture must be well shaken up for a minute and a half, and injected immediately, as it is very unstable.

These two liquids suffice for all requirements. The indications for their respective use are: as a general rule inject the first, (oil). The second (camphorated naphthol), is to be reserved for cases in which the contents of the abscess cavity

comprise grumous particles, blocking the needle; in such case, two or three injections of camphorated naphthol will soften and liquefy the grumous material, after which we return to the oily liquid.

The quantity to be injected is the same for both liquids, viz., from 2 to 12 grammes, (half to three drachms) according to the age of the subject, and the size of the abscess cavity. If we are dealing with quite a small abscess of less than 20 c.c. capacity, which is nearly always the case here, we inject twice less liquid than withdrawn pus.

Of equal importance is a suitable aspirator, the all-glass syringe, illustrated here, is the usual style, or the metal syringe, either of which can be sterilized by boiling, are the best adapted instruments. In addition to the above, a tube of chloride of ethyl for local anæsthesia, some tincture of iodine to sterilize the skin, and antiseptic dressings are all that is required. Dr. Calot gives the following technique for the operation:

DIRECTIONS FOR THE OPERATION

When should the punctures be commenced? As soon as fluctuation is clearly perceived. In carrying out these operations there are two particular recommendations, viz., to proceed with the utmost cleanliness and only to use very fine needles; be very clean and make sure that your hands as well as the skin of the patient, the instruments, the liquids to be injected, and the final dressing are aseptic. Only use very fine needles, instead of the customary big trocarts, not bigger than 1.5 millimetre external diameter, and always pierce healthy skin at a distance of two or three centimetres from the abscess, so that the two orifices of the skin and the abscess, may be separated by a long oblique canal, and at each puncture pierce the skin in a fresh place.

As to the number of punctures: several will be necessary, (as a rule seven or eight) because a cure is much more certain than with one single puncture. The puncture should be made at intervals of five or six days. After the seventh or eighth

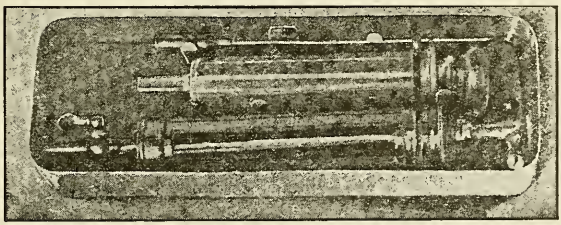
sitting the walls of the abscess cavity are healthy, and refreshed enough to allow of our devoting our attention to the apposition.

With this object in view, at the next sitting, after making a final puncture without injection, pressure is applied to the region with crossed strips of wadding (see illustration) kept in position with one or more crepe bandages.

This dressing is left off on the fifteenth day. The suppurating gland is cured. The duration of the treatment is therefore from 6 to 8 weeks on an average.

Please note that this complete, absolute cure is not the exception, but practically the rule.

As soon as you have become fairly familiar with the details of this method which, although rather minute, presents no actual difficulty, you will find that recovery, without scarring, takes place invariably, or nearly so, that is to say, ninety times in every hundred, and this in cases when surgeons who had been consulted, declared an operation unavoidable.



DR. CALOT'S SYRINGE.

WHERE THE ENLARGED GLAND IS HARD

It has already been stated that the enlarged glands stand a fifty per cent. better chance of undergoing resorption, if we assist matters a little. We therefore imbue the patient with the necessary patience and in the meanwhile provoke, or promote, this resorption by every means at our disposal; residence in the country, and if possible at the seaside, a course of balneological or hydrotherapeutic treatment, the administration of

drugs, known to be used in tuberculosis, X-ray, etc., and adding a few injections of creosoted iodoform oil, taking care not to overlook the aseptisation of the whole of the territory discharging into the affected glands, more particularly the toilette of the mouth and teeth. Under these conditions, you will very often, indeed most often, see these glands disappear in the course of a few months.

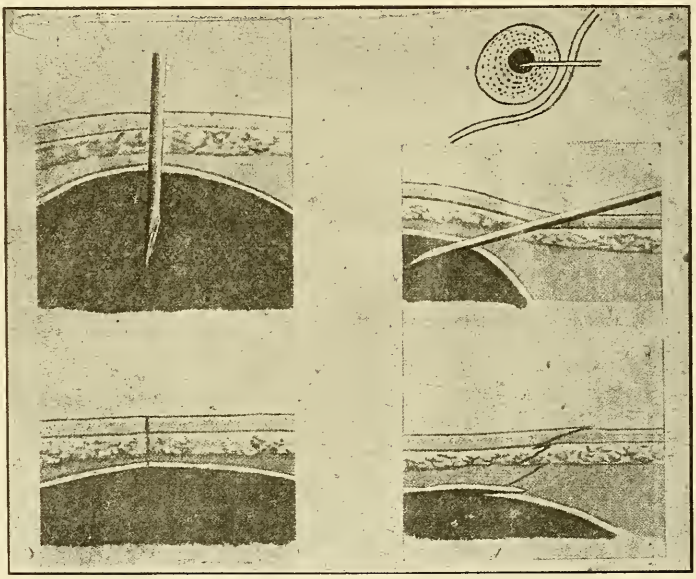


Fig. 1.—How we must not puncture, because if we plunge the needle perpendicularly to the wall, the passage through the tissues will be too short, the edges of the little wound remain opposite each other when the needle is withdrawn, thus opening the door by infection of the abscess by pus that may flow back.

Fig. 2.—How to make the puncture. The puncture is to be very oblique, with a much longer passage (A). Moreover, the retraction of the tissues breaks up the continuity of the passage and converts it into a labyrinth.

If it does not disappear, the enlarged gland will, in the long run, soften, which is after all, a mode of cure.

We will be on the lookout for this softening, in order to intervene at once, before the skin has had time to become damaged. Thereupon by punctures and injections, you will cure your patient without leaving any mark.

I only recognize one really troublesome contingency in practice, and fortunately, this is exceptional, viz.: cases in which the state of the enlarged gland does not change, and shows no tendency in one direction or the other, in spite of our patience; of repeated injections of creosoted iodoformic oil, in which it does not undergo either resorption or softening, cases in which one or more glands remain of pebble-like hardness, suggestive of lymphadenoma, (while on this point you are, no doubt, aware that nearly all the glandular tumors of the neck labeled lymphadenomata are actually cases of tuberculous adenitis).

Here we may appear to be thrown back upon the operation, that is to say, to the inevitable and lifelong cicatrix. Oh, why does this obstinate gland remain hard? Why does it not suppurate? But the gland declines to suppurate. Well, is it not possible to constrain it to suppurate? Can we not oblige this obdurate gland to break? Evidently, if we can do so, we shall be able by puncturing it forthwith, to avoid the operation and the scarring.

This is the problem (of the artificial softening of these local tuberculous masses) which we were the first to raise, to study and finally to solve. This question of general pathology, we may be permitted to remark, was not free from difficulty, because it was necessary to act energetically on the tuberculous gland (since we had to make it pass from the solid to the liquid state) but also with extreme precision, in that the action had to be limited to the gland leaving the skin intact, without ulceration, and without visible trace. In the course of our researches we tried pretty well everything; the local application of all the so-called dissolvent agents; all the internal treatments recommended as likely to provoke the resorption of hard glands; breaking up the gland with needles in order to bring about the softening and ultimate resorption, but all these devices proved unavailing.

Intraglandular injection of every possible substance, including tuberculine, pepsine and pancreatine, in the hope of dissolving or digesting the glandular parenchyma, etc.

Fig. 1.—An enlarged gland, still hard, can be softened by injecting a few drops of camphorated naphthol into its centre.

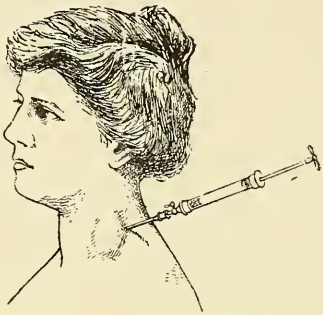


Fig. 2.—First case: Softened gland that has undergone suppuration. It is punctured like a cold abscess.

Fig. 3.—If the skin be already damaged the puncture is made some distance away through healthy skin and nothing is injected after the puncture until the skin has recovered (an injection to be made daily).

Fig. 4.—After the eighth and last puncture compress the region of the abscess in order to bring about adhesion of the walls of the cavity.

Ultimately, what we found most satisfactory and most effectual, a means that realized our ideal, (the melting of the tuberculoma, leaving the skin intact) was to inject into the hard gland, or tuberculoma, from eight to ten drops of our "four fluid dissolvent," which is as follows:

FOUR FLUID DISSOLVENT

℞	Phenol	1 dr.
	Camphorated naphthol	1 dr.
	Sulphoricinated phenol (at 20 per cent.)	1 dr.
	Essence of turpentine	1 dr.

This is how it is used: With a hypodermic syringe, you inject from six to ten drops of this mixture into the center of the gland; after two days, five or six drops again. Two days later (that is to say, four days after the first injection) you will find fluctuation, and you may puncture. The fluid withdrawn in viscid, and of a mahogany color.

You are now confronted by a suppurating gland, which is to be treated in the manner described above; puncture and injections. But thenceforth, do not inject anything but glycerinated, camphorated naphthol, say, once every five or six days. In this way, you will still manage to achieve a cure without scarring.

It is to be noted, as you may have surmised, that this softening of the gland does not take place without a rather sharp local and constitutional reaction, comparable with that of a "hot" abscess, or rather of a tepid abscess, in course of formation. The patients must be forewarned of this reaction, which is desirable, and is deliberately provoked.

For this matter the reaction is "regulatable" easily enough, and will subside as soon as the softening has taken place, especially after the first puncture.

Should there remain some indurated points, they must be dealth with by fresh dissolvent injections, but without pushing matters to the extent of trying to get rid of the

tiniest vestiges. These vestiges may be left, for they will disappear, in the long run, completely or nearly so, by progressive sclerosis.

There is no difficulty when the induration only bears on a single gland, but if the tumor be polyglandular, as in the case of the big young man, (Figs. 1 and 3) this large tumor must be attacked in portions, successively, piece by piece.

In the particular case under consideration, the treatment of each lobe took two months, which make eight months for the entire treatment. You have, however, seen the ultimate result we obtained by our injections, (see figs. 2 and 4).

This case, in itself so instructive, is also interesting from another point of view, as it shows it is not absolutely necessary in order to soften a hard gland to find in its center a focus of caseation, the initial formation of a cavity.

Happily a cicatrix in the neck is vastly easier to prevent than it is to remove. It can always or almost always be avoided by the treatment which I have just described. This treatment no doubt demands a certain minuteness of application, plenty of perseverance, it makes far greater demands on our time than the rapid, brilliant but bloody intervention; yet the latter leaves an indelible mark while our treatment cures without a trace. To cure adenitis without leaving a mark seems to me to be well worth a little extra trouble on our part.

EOSIN AND SELENIUM TREATMENT

While this book is going to press, word comes from Europe that Dr. Wassermann, of Berlin, and Prof. Ehrlich, of Frankfort, who, for a long time have pooled their forces in a search for an inoculative treatment for cancer, have succeeded in curing this disease, in mice, by a series of inoculations with eosin and selenium. The full details of this treatment are at present unavailable, for no doubt, they have not been perfected, and their experiments have only been confined to mice tumors, which bear a close relation to the car-

cinoma of man. The most they will say, thus far, is that it is possible that they will come upon some help for human beings in the course of their research; and the word "possible" from the lips of such men as Ehrlich and Wassermann, comes with weighty significance, and it is hoped that they have developed the long-sought means of destroying these growths, and with that development, advanced another step towards the goal represented in the prophetic saying "the last enemy that shall be destroyed is death."

No doubt this condition, when present, is of great advantage, and much facilitates the complete liquefaction of the gland, under the influence of our dissolvents, but it is not altogether indispensable, and need not, a prior dissuade us from commencing the treatment. It did not exist in this case, yet complete recovery was obtain.

SECRET CANCER REMEDIES

Although we have previously discussed the plaster treatment from time to time, some physician will come forth with a secret cancer remedy, and in order that the reader may become familiar with these treatments, I will append several formulas which have made fame and fortune for the originators. It will be observed that chloride of zinc and arsenious acid are the active drugs in most of these plasters.

DR. LANDOLFI'S CANCER PASTE

This practitioner obtained a wide celebrity throughout Italy by the use of a preparation which he claimed to be a specific cure for cancer, providing that the growth was accessible, and that the system was not already too deeply implicated in the cancerous cachexia. The formula he usually employed, although it differed somewhat in the relative proportion of the ingredients, was the following:

℞ Zinci chloridi ..... 1 dr.
Auri chloridi ..... 1 dr.
Antimonii chloridi ..... 1 dr.
Brominii chloridi ..... 1 dr.
Farinae and acqua..q.s. to separate form a thick paste.

To be applied on small portions of linen to the ulcerated surface.

The essential element he regarded was the chloride of bromine, the quantity of which he often increased to two or three drachms. The chloride of zinc was used chiefly for its hemostatic qualities, and he increased this ingredient when there was a marked tendency to hemorrhage. The pain of the application is considerable, and must be allayed by opiates. The application need not remain on more than twenty hours, and may then be replaced by an emollient cataplasm. About the eighth day the eschar should become detached and leave a healthy granulating surface. If any points remain of less satisfactory appearance, or still presenting cancerous ulcerations, a little of the caustic paste is again to be applied. Dr. Landolfi believed it best, though not in all cases indispensable, to administer the chloride of bromine internally in doses of one-tenth or one-twelfth of a drop, in pill form, twice a day, for three to six months.

BOUGARD'S PASTE

℞ Hydrarg. chlor. cor. ..... 1 part
Acid arseniosi ..... 2 parts
Hydrarg. sulphuret. rub. ..... 10 parts
Ammonium mur. ..... 10 parts
Farini trit. .....120 parts
Amyli .....120 parts
Zinc chlorid, crys. .....120 parts

CERNY AND TRUNECEK'S TREATMENT

℞ Acid arseniosi ..... 1 part
Spts. vini rect. .....75 parts
Aqua dis. .....75 parts

Mix, spread over the parts each day with a brush, until the entire cancer has sloughed off.

COSME'S PASTE

The following is the formula of Cosme's Paste as modified by Herba:

℞ Acid arseniosi ..... 1 part
Hydrarg. sulphuret rub..... 1 part
Ungt. aq. rosae .....40 parts

WHEELER'S PASTE

℞ Acid arsenious ..... 1 part
Morphine sulphate ..... 1 part
Calomel ..... 8 parts
Pulv. acacia .....48 parts

HUE'S TREATMENT

Dr. Hue uses the following formula hypodermically:

℞ Acid arsenous ..... 1 part
Cocaine hydrochlor. ..... 5 parts
Aqua dist. .....500 parts

Mix, inject into the substance of the cancer every few days. This treatment he employed in the treatment of internal cancers, where it seemed impossible to apply the plaster.

DAVISSON'S CANCER REMEDY

For several years a man named Davisson resided near Lake Zurich, Ill., who established quite a reputation as a cancer specialist. The following formula is said to be the correct recipe for his plaster.

℞	Rochelle salts	1 oz.
	Sulphur	1 oz.
	Sulph zinc	1 oz.
	Arsenous acid	1 oz.

KLINE'S PAINLESS CANCER PASTE

℞	White wax	1 oz.
	Fir. balsam	1 oz.
	Chromic acid	1 oz.

Melt the wax and the balsam together, and add the acid slowly, stirring while cooling. Remove the cuticle by blistering if necessary, and apply the plaster, spread upon thin muslin. When a sufficient depth of tissue has been destroyed, slough out with poultices if necessary.

OZONE CANCER PASTE

A physician recently canvassed this country, selling a cancer cure under the above name, for the formula of which he charged from ten dollars up. Out of curiosity, I purchased the formula, which was as follows:

℞	Zinc chloride	½ dr.
	Arsenous acid	1 dr.
	Powdered sanguinaria	1 dr.
	Flour and water	q. s. to make paste

In Southern Illinois a cancer cure has been extensively sold in a similar way, under the name of

THE HOWARD CANCER CLAY

℞ Chloride of zinc ..... 1 dr.
Powdered blood root ..... 1 dr.
Pulv. charcoal ..... 1 dr.
Aqua .....q. s. to make a paste.

While the above formulæ possesses a certain degree of merit it only illustrates "what fools we mortals be," who pay from ten to twenty-five or more dollars for a name and receive formulæ which are the common property of the medical profession.

FUSCHIUS PASTE

℞ Arsenous acid ..... 1 oz.
Vegetable charcoal ..... 1 oz.
Powd. serpentaria ..... 1 oz.

Mix. Make into a thick paste with water and apply.

GUY'S ARCANUM

This formula was held a secret for many years:

℞ Acid arsenous ..... 1 dr.
Powd. sulphur ..... 1 dr.
Peucedanum off. ..... 1 dr.
Ranunculus sylvestris ..... 1 dr.

Mix. Make into paste with water.

ESMARCK'S PASTE

℞ Acid arsenous ..... 1 dr.
Morphine sulphate ..... 1 dr.
Mercurous chloride, mild ..... 1 oz.
Powd. acacia ..... 6 dr.
Aqua .....enough to make paste.

HEBRA'S PASTE

℞ Acid arsenous ..... 1 dr.
Mercuric sulphide, red ..... 3 dr.
Vaseline ..... 3 oz.

SHERMAN'S PASTE

℞ Zinc chloride ..... 5 gr.
Alum ..... 5 gr.
Acid tannic ..... 2 gr.
Persulphate of iron ..... 3 gr.
Glycerine ..... q.s. to make paste.

LASSAR'S PASTE

℞ Acid salicylic .....10 gr.
Powd. starch ..... 2 dr.
Zinc oxide ..... 2 dr.
Lard ..... 4 dr.

DR. LUTTERLOH'S PASTE

℞ Sanguinaria pulv. ..... 1 part
Galangal pulv. .....3 parts
Zinc chloride ..... q. s. to make paste

There are several other formulæ of cancer plasters which could be added, but it would only be a repetition of those already given, somewhat modified, and by publishing them would not offer a means of broadening our knowledge on the subject, as what has been said will allow you to treat cancers as successfully as any specialist who holds his methods a secret.

Cosmetic Therapeutics and Featural Surgery

Under the above caption we have the latest and one of the most profitable of office specialties; this specialty incorporates perhaps more of the apparently insignificant things in medicine than any other specialty; in fact, the cosmetic treatment of the body a few years ago, was considered a too trifling matter for the grave-faced physician, and this neglect on his part has had a serious reaction in actually forcing such patients to consult the "winning ways of the beauty specialists," who are, as a rule, absolutely devoid of any true knowledge of cosmetic therapeutics, other than the use of massage creams and manicuring the finger nails, and it certainly is time that the physician should awaken to the fact that any information or assistance he can give his patients will be greatly appreciated, and, in many instances he will receive more praise for his skill in this special sphere of practice than any other. Always bear in mind that the face is the most conspicuous part of the body, and your work is constantly before the eyes of the public; select some person in your vicinity, who has a broken nose or birthmark, successfully remove or correct this blemish or deformity, and you will then realize the influence it will have in establishing an office practice in cosmetic therapeutics.

There are thousand of dollars waiting, in every vicinity, which would be gratefully paid for skill in this special field of medicine and surgery, as the territory is fertile in clinical material. Visit any public place, and observe the people about you who have some blemish or deformity of the face, which should be removed or corrected, and if we figure from the simple mole to the more noticeable birthmarks, scars and other deformities, you will find that ninety per cent. of the people are thus afflicted.

It has always seemed to be a trait or perhaps an instinct in the nature of the human family to cultivate as perfect a degree of beauty as possible, and if we would visit the deepest jungles of Africa, we would find the Congo belle taking the same pride in endeavoring to outclass her sisters in beauty lines, as the strutting princesses of the fashionable thoroughfares of cities. It is a duty, however, which each individual owes himself to appear at his very best, and no one except the afflicted can realize the disadvantage under which they are laboring, who possess an unsightly scar, birthmark or other deformities of the face. It is only in rare instances that we find people thus afflicted employed in public places; their faces are so repulsive that it is often difficult to find employment at all. It is, therefore, the physician's duty to correct and remove these disfigurements, and thus place these unfortunate people on an equal footing with the rest of the world.

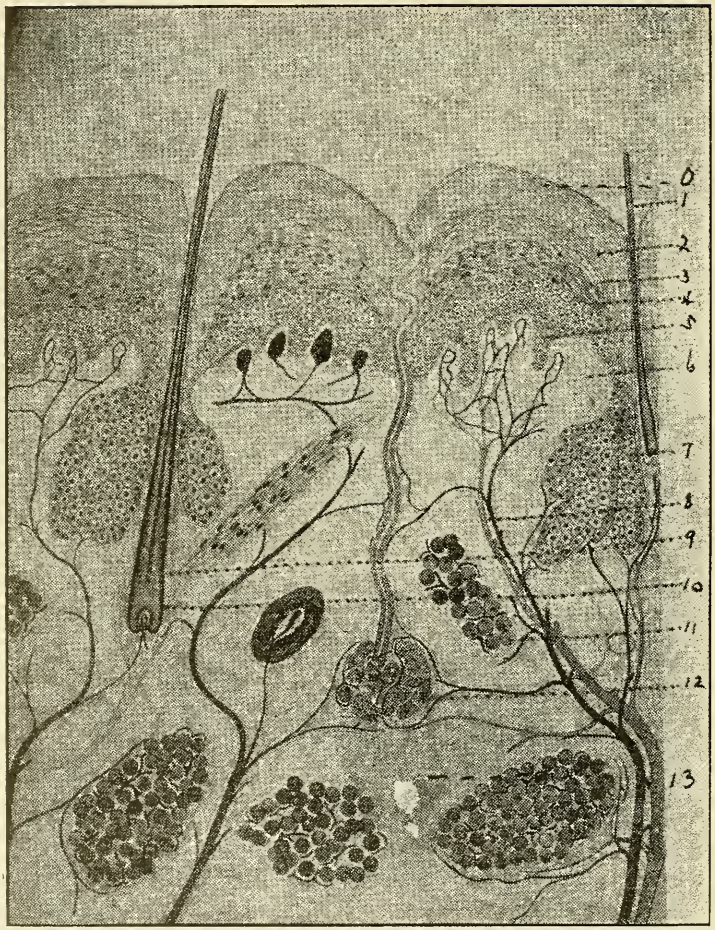
There is an old saying that "beauty is only skin deep"; that saying is a monstrous error, for true beauty is heart-deep, lung deep, stomach deep and liver deep. In fact, to be beautiful will depend upon the healthy and harmonious functions of all the organs of the body, and often how quickly the physician can identify, by a bad complexion, a "lazy liver"; inactivity of the kidneys by puffiness under the eyes, and constipation by a muddy complexion. In cultivating true beauty these are the things which should first occupy our attention. There are many different things that have a tendency to make people attractive, other than complexion, and form; the quick wit and sparkling eye, the vivacity of manner, and sprightliness of carriage have a world to do with personal attractiveness; yet these attainments do not go hand in hand with a torpid liver, dyspepsia and other inharmonious conditions of the body. Therefore, to obtain the translucency of the skin that we may almost look through the outer layers, and observe the blood circulating in the deeper tissues, which gives the rosy cheeks and lips of the ideal complexion of pink and white, the integument cannot be clogged with waste matter, which should be eliminated by other organs. We, therefore, find that cos-

metic therapeutics not only embodies the local application of massage creams, to cover up defects, as is practiced by the "beauty specialist," but often requires eliminative measures to force these toxic influences, which ruin many complexions, through their natural channels; although the skin proper will necessarily require its due attention.

From a theoretical standpoint, it would seem that no other class of diseases furnishes such favorable conditions for an easy and accurate diagnosis and treatment as do the diseases and cosmetic defects of the skin. The morbid phenomena, instead of being concealed in organs remote and hidden from view, are spread out upon the surface, and brought directly under examination of the senses of sight and touch. They actually obtrude themselves upon observation, and the disfigurement they occasion is, oftentimes, the sole reason for consulting a physician; yet, notwithstanding these circumstances, there is no branch in the practice of medicine so little understood by the general practitioner as the diseases and cosmetic defects of the skin.

In the treatment of these diseases and defects, the average physician very frequently experiences uncertainty, vexation and failure; yet in no other class of conditions can a physician earn better fees, or become the recipient of more gratitude, commendation and fame, than to successfully master this branch of his art. In order that I may revive his "forgettory" in the anatomy of this important organ, the skin, I have inserted the accompanying diagrammatic illustration, to assist in a correct understanding of the integument, as the different structures will be frequently referred to in discussing the different diseases and conditions.

There is one principal point which is always to be remembered in treating the skin from a cosmetic point of view, viz.: We can destroy and remove the four outer layers of the epidermis as often as we wish, but as soon as our treatment interferes with the true skin, or arrests its development, we are treading upon forbidden ground, and our treatment will ac-



DIAGRAMMATIC SECTION OF SKIN.

0. Corneum. 1. Lanugo Hair. 2. Lucidum. 3. Granulosum. 4. Rete Mucosum. 5. Papillae. 6. Corium or True Skin. 7. Sebaceous Gland. 8. Blood Supply. 9. Hair Follicle. 10. Hair Bulb. 11. Fat Cells. 12. Cells or Sweat Glands. 13. Sub Cutis.

complish just the opposite of what is desired in the form of cicatricial tissue and resultant scars.

The face, as a rule, is always in close proximity to the hands during all forms of labor; it is, therefore, the second part of our body which is the most susceptible to deformities

and injury from accidents. We therefore find broken and deformed nose cuts, wounds, burns, etc., appearing upon the face nearly as frequently as we do upon the hand. If similar accidents would happen to other parts of the body they would not react to such a disadvantage, as they would be covered from observation by the clothing and not be noticed. The face also seems to be a favorite and unfortunate seat for many destructive diseases, which mutilate the integument. Thus we find the face the "play grounds" for the ravages of smallpox and acne, with their unsightly pittings, while ninety per cent. of all birthmarks are upon the face and neck, where they will appear the most conspicuous and repulsive, and react to a disadvantage in both a social and business way. No one realizes this more than the unfortunate possessor, who is continually subjected to the embarrassing stare of the ignorant, and inquisitive glances from the more refined people they meet on the street and elsewhere. As a lady stated, who had a slight deformity of the nose, "the way people stare at me one would think I was some dime museum curiosity." Other patients have made similar statements, whose faces contained several moles, superfluous hair, etc.; one of the most amusing cases was a young man, nineteen years old, who wished to have his nose reduced in size. He stated that ever since he could remember he had been called "beaky," on account of the length of his nose, and, judging from the size of the organ, he was legitimately entitled to the name.

We have at our disposal many methods of treatment, whereby these conditions can be painlessly and permanently corrected, removed and cured, without leaving any trace, mark or scar, to indicate their former existence. By giving the benefit of your skill in this special field of practice, you will not only receive the everlasting gratitude of your patients, but will be amply remunerated for your services.

COSMETIC SPECIALTIES

Before discussing the different diseases, deformities and blemishes of the face, which require treatment or correction,

we will outline some of the popular methods of treatment used in this class of conditions, as they will be referred to from time to time, in the following pages.

THE ECORCHEMENT TREATMENT

This treatment originated at the St. Louis Hospital, Paris, where cosmetic improvements are treated on an equal basis with disease. Some speculative "Yankee physician" managed to secure the process, and brought it to this country, where he disposed of it, in several cities, to beauty specialists for several thousand dollars. It is estimated that in one year he made over thirty thousand dollars by the sale of these formulas in different cities. The French gave it the name "Ecorchement," but on this side of the water it is often referred to as the rejuvenating treatment, derna vita, desqua dermia and other coined names, bearing upon new life to the skin, and is the banner treatment in all beauty culture establishments. This treatment consists of two parts, one in which the outer skin is killed, and the other where it is sloughed off en mass. The following is the original formula, although it has many variations, without any improvement:

Formula No. 1

℞	Resorcine	80 parts
	Zinc oxide	20 parts
	Salicylic acid	4 parts
	Lard	40 parts
	Olive oil	16 parts

Formula No. 2

℞	White gelatine	8 oz.
	Zinc oxide	4 dr.
	Glycerine	½ dr.
	Boiling water	q. s.

Great care should be exercised in compounding these formulas, and better results will be obtained if they are prepared

fresh each time they are used, and do not attempt to substitute vaseline for lard, in the first formula, unless you wish to meet with failure.

The first formula is applied to the face twice a day, for about four or five days, until the skin becomes brown, dry

Illustrates Method of Peeling Skin with Ecorchement Treatment. Favorite Locations for Birthmarks.

and commences to crack. Then the face is thoroughly washed with soap and water, to remove every particle of ointment, and after thoroughly drying the skin, the second application is used.

The ingredients of formula No. 2 are placed in a water bath, by first adding sufficient boiling water to dissolve the

gelatine; then thoroughly stir in the other ingredients. This should be applied to the face with a small paint brush, and as you cover a surface, a piece of absorbent gauze, the size of the painted surface, should be immediately applied, while the gelatine is still hot; this adheres firmly to the skin, after the entire surface has been thoroughly covered. The same process should be repeated again, until you have several thicknesses of the gelatine and gauze, and a solid mask is formed.

At the end of three or four days, it will be noticed that this mask is breaking loose from the edges, and as soon as the

USING THE ECORCHEMENT TREATMENT ON SIDE OF FACE TO REMOVE BLEMISH.

mask becomes loose, it can be removed, and the face will be found very much the same color as a newly born baby, and is often very sensitive to the touch and air. The face is dressed with any good cold cream, and in a few days, the shade of the skin resumes its normal color, only we have an absolutely new skin, which in many instances, is marvelously beautiful, for the

treatment has removed every mark or discoloration, which the old skin had accumulated in past years, and is properly named "the rejuvenating treatment," as it will add the youthful appearance to any face. This treatment has a large sphere of usefulness, and owing to the large fees (usually one hundred dollars) obtained for this treatment by "Beauty Doctors," it is the backbone, from a financial point of view, of their establishments, and they encourage its use whenever opportunity presents itself; for the bane of a woman's existence

RESULTS OBTAINED FROM ECORCHEMENT TREATMENT FOR SMALLPOX PITS.

is growing old, and this is one of the few means we have of restoring her youthful appearance. It is not believed that physicians will use this treatment for a rejuvenating purpose, but its use in the treatment of many diseases places it within his domain. This treatment is used in acne, acne rosaca, eczema, chloasma, smallpox pits, and many other forms of facial blemishes, which will be pointed out under their respective classifications.

VESICANT TREATMENT

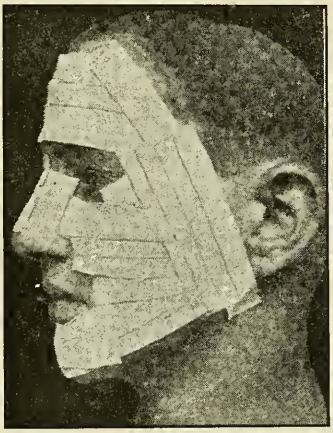
Another very valuable treatment in cosmetic therapeutics is the Cantharides blister; I usually prefer the "Canthos plaster," manufactured by Johnson & Johnson. These blisters

have the same effect as the Ecorchement treatment, and occupy less time to accomplish the same results. The object of both treatments is to remove the outer cuticle, without interfering in any way with the true skin. We therefore find that this process of blistering will occupy only about four hours, while the former treatment requires that many days. Blistering is a more heroic measure, and where a large surface, as the entire face, is to be treated, the Ecorchement treatment is often advisable, but all small surfaces, up to four inches in diameter,

CRUSTOSIS AS RESULT OF VESICANT TREATMENT.

may be successfully treated by this means. If it is deemed advisable to treat the entire face, it should be done in sections. according to the following technique: Apply one plaster, from two to four inches in diameter and allow the blister to form. As soon as this is accomplished, draw off the fluid and apply another blister; commencing at the edge of the already formed vesicle. These vesicles may be continued until the entire face is covered, if desired or required. After you have prepared the surfaces, in which you wish to remove the outer integu-

ment, the fluid is all drawn off by puncturing the under surfaces, but avoiding any abrasion in the loosened skin; antiseptic absorbent gauze is now applied over the surface, and held in position, either with strips of adhesive plaster or the face mask. This is allowed to remain until it is desquamated by nature; if removed too soon the under skin is so sensitive that the patient will not be able to withstand the pain. The old skin forms a dense scab, which can be removed in a few days, leaving a beautiful, new, pink under skin. This process of scabbing is absolutely necessary to obtain the best results,



APPLICATION OF ADHESIVE PLASTERS AFTER ECORCHEMENT VESICANT AND CARBOLIC ACID TREATMENTS.

but the face has a horrible appearance of one continuous scab (see illustration) and unless the patient is advised beforehand, she will think her face is ruined; it is, therefore, often advisable not to allow the patient to see her face until the treatment is completed. I, therefore, keep the face mask in continuous use, until the last remnant of old skin is removed.

There is one more thing I wish to point out, viz.: wherever this treatment is applied and the skin removed, the final effects of the treatment are so perfect, and the new skin so clear and beautiful, that it makes the old, remaining skin look like "the breaking up of a hard winter"; it is, therefore, sometimes

necessary to remove all the skin of the face and neck, with either this or the ecorchement treatment, to give the face a uniform appearance. I often follow this blistering process with the ecorchement or other bleaching treatments, in order to obtain a uniform complexion; this and the ecorchement treatment are among the most highly prized "tricks" of the beauty specialists, and by using these methods singly, or combining the two, we can eradicate many blemishes which were formerly rather puzzling to the physician. You can "lift" any form of discoloration, from cholasma to the more superficial birthmarks; while it is not as pleasing to the eye as the ecorchement treatment, it is more rapid and positive in action, and with due caution, no harm can be obtained from its use.

CARBOLIC ACID TREATMENT

Another still more heroic measure of destroying the outer skin is to apply pure Carbolic Acid; this treatment is used with a small brush, on the surface of the skin, and allowed to penetrate the integument, when a second or third coat is given. After the skin has become dry, the entire surface is covered with adhesive strips (see illustration); this is allowed to remain for three or four days, until the outer skin sloughs, and suppuration takes place. The skin is allowed to remain, however, until nature desquamates the integument. This treatment is frequently resorted to in deep-seated smallpox pittings, and the most favorable reports have been obtained in many cases. Of late, I have been using the rubber adhesive strips, as illustrated above, with the ecorchement treatment, instead of the gelatine compound, as it is more convenient to apply.

THE FACE MASK

This is an appliance which is very much used in beauty culture, and consists of a thin rubber mask, which is supplied in three different sizes, to fit over the face tightly. Its principal utilization is for the purpose of forcing medicine, bleach-

ing agents, etc., into the skin, as by direct pressure over the entire surface, it compels medication to be absorbed, and bears an important part in many treatments the technique of which will be given later.

THE FACE MASK IN POSITION.

VIBRATORY FACIAL MASSAGE

Vibratory massage is a very valuable adjunct for the treatment of many diseases of the face, and is used for the purpose of creating new activity to the circulation, acne, comedones, etc.; its stimulating effects forces out impacted secretions, and assists nature in many ways which are conducive to eliminating disease and restoring the florid complexion.

FACE CREAMS

Face creams are extensively used by at least one-half of the female population of the civilized world, for the purpose of making the skin soft, pliable and smooth, and also for bleaching purposes, and to remove slight blemishes. Prepara-

tions known as "cold creams" are mixtures of solid fats, like wax, spermaceti, petrolatum, lanolin, etc. Such preparations receive their name from the ingredients they contain, either for flavoring or some specific purpose; thus, we may have rose cold cream, when flavored with ottar of roses, cucumber cold cream, when the juice of cucumber is used, etc. These creams are rapidly absorbed by the skin, and have much to do in preserving and beautifying the integument, and also protect the skin from atmospheric and other conditions. A good cream will be rapidly absorbed by the skin without having the appearance of oiliness. The following formula is a well-selected variety for different purposes:

VANISHING CREAM

The above name is given this cream, because by rubbing the face with this mixture, it will, apparently, vanish without leaving the face oily.

℞	Pure stearic acid	1 av.oz.	26 gr.
	Cocoa butter		77 gr.
	Sodium carbonate		308 gr.
	Borax		77 gr.
	Glycerine		405 min.
	Water	13 fl.oz.	252 min.
	Mucilage of tragacanth	3 fl.oz.	183 min.
	Alcohol	1 fl.oz.	7 min.
	Perfume		enough

Place all the ingredients, except the alcohol and perfume, in a capsule, over a water bath, and heat until effervescence ceases. Remove the mixture from the heat, and when it begins to stiffen, add the alcohol containing the perfume, and mix well. Permit the mass to harden, and re-apply heat; beat up vigorously until fluffy and creamy, and place it in tubes.

ALMOND COLD CREAM

℞	Spermaceti	2 oz.
	White wax	2 oz.
	Sweet almond oil	14 oz.
	Distilled water	7 oz.
	Powdered borax	60 gr.
	Coumarin	½ gr.
	Oil of bergamot	24 min.
	Oil of rose	6 min.
	Oil of bitter almond	8 min.
	Tincture of ambergris	5 min.

Melt the spermaceti and wax, add the oils, and incorporate the other ingredients; this, and the other creams may be called rose cold cream, by having the odor of rose predominate, and tinting a rose color by means of a solution of carmine.

BLEACHING CREAMS

are intended to remove discoloration of the skin, such as chloasma or liver spots, tan, freckles, etc., and depend upon bi-chloride of mercury for this purpose, which enters largely into most of the "patent" creams on the market, as in the following:

MELVINA CREAM

℞	Saxoline	265 gr.
	White wax	50 gr.
	Spermaceti	30 gr.
	Bismuth oxychloride	40 gr.
	Mercuric chloride	½ gr.
	Spirit of rose (4 dr. of oil to one pint)	20 min.
	Oil of bitter almonds	⅛ min.

Warm the saxoline, white wax, and spermaceti together until melted; while cooling, incorporate the bismuth oxychlo-

ride and mercuric chloride, this last previously dissolved in a little alcohol, and when nearly cold, stir in the perfume.

DISEASES OF THE COMPLEXION

The above caption may seem misplaced, yet it is under this head that all diseases having a tendency to interfere with the cosmetic appearance of the face may be discussed. We find the face a particularly favorite seat for a certain class of diseases, from which other parts of the body seem nearly immune; thus we find acne, and acne rosacea, comedones, warts, moles, chloasma, freckles, milium, seborrhœa, etc., are in reality diseases of the integument of the face and scalp. We will not attempt to discuss the pathology of these diseases but will point out, as near as possible, a successful means of curing these conditions.

ACNE

Acne is a chronic inflammation of the sebaceous glands, characterized by the development of papules, pustules or tubercles, or a combination of all these lesions, which may also include comedones. When this condition exists in combination, it is usually termed acne vulgaris. The cause of acne, although appearing in patients with apparently robust health, has been attributed to gastro-intestinal disorders, anæmia chlorosis, uterine disorders, etc., and is a frequent disease of puberty. The treatment of acne should consist of both local and constitutional measures. For a continual treatment, the following, in tablet form, has been of more service to me than any other medication. Each tablet contains:

℞	Arsenic	1/40 gr.
	Calcium sulphide	½ gr.
	Hexamethylenamine	2 gr.
	Ferrous carbonate	5 gr.

Sig. A tablet after each meal.

In resuming the therapeutic value of the above formula, we find arsenic the oldest, and one of our most reliable remedies for arresting chronic eruptions of the skin. Calcium sulphide is the first remedy to be thought of, when pus is present, in any condition. Hexamethylenamine is given for its antiseptic influence upon the gastro-intestinal tract, to arrest autointoxication, to which cause a large per cent of acne is

ACNE VULGARIS.

due. Ferrous carbonate is added for its blood building and general tonic effect.

Constipation is present in a large percentage of acne cases, and a suitable treatment should be employed, to relieve this condition at the outset of treatment.

Local medication is also of the greatest importance, and sulphur, in combination with an astringent, in the old "stand-

by'' lotio alba, answers this purpose as well as any remedy, to my knowledge, which I have modified as follows:

℞	Resorcine	½ dr.
	Zinc sulphate	2 dr.
	Potassium sulphuret	2 dr.
	Aqua	4 oz.

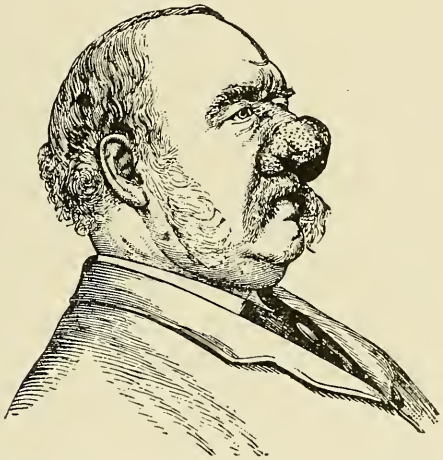
This may be made stronger or weaker as desired, as the different strength is required for different cases.

Ichthyol internally, and locally, is a valuable remedy in many cases. I have also had the most brilliant results with the ecorchement treatment, and have frequently applied this medication to the entire afflicted areas, which has resulted in a rapid and complete disappearance of the acne lesions. Phototherapy is another indispensable treatment, a decided solar erythema should be produced, and when the outer skin is desquamated, the acne will be found greatly improved. Electricity and vibratory massage are also valuable for their stimulating influence upon the skin. In all acne cases the greatest attention should be given to the diet, and every effort exercised to avoid auto-intoxication by keeping the bowels regular, and all the functions of the body in a normal condition.

ACNE ROSACEA

Acne rosacea is a chronic hyperæmia, or inflammatory affection, usually appearing upon the nose, cheeks or chin. This may appear as a simple hyperæmia, or discoloration of the skin in the milder types, to a congestion and enlargement of the blood vessels in the prolonged variety, which has been known to develop into a typical lipoma, as illustrated here. The cause of acne rosacea is the same as other forms of acne, but a large number of cases may be attributed to the excessive use of alcohol, (the tippler's nose) tea, coffee, etc.; whereby the stomach is kept in a continuous state of irritation.

A red nose is generally associated with cold feet and hands, denoting poor circulation. This disease may first appear as a blood stasis in the vessels, producing an undue redness, which, if neglected, will cause the blood vessels to dilate and become hypertrophied, and as a result of the obstruction to circulation, the sebaceous glands become involved and form



LIPOMA DEVELOPED FROM ACNE ROSACEA.

papules and pustules. The treatment of acne rosacea has many things in common with other acne medications.

Special attention should be directed to relieve constipation and keep the gastro-intestinal track aseptic and open. The acne tablets given above, are, in most cases, very serviceable. Equal parts of ichthyol and glycerine painted on the affected surface, at night before going to bed, covered with oiled silk and the face mask. This may be thoroughly washed off in the morning, and lotio alba applied several times during the day will produce excellent results in mild cases.

If the blood vessels are enlarged they should be destroyed by the electric needle, and do not forget that the ecorchement treatment was originally instituted for the purpose of curing acne rosacea, and it is often surprising the rapidity

the action of this treatment has in many cases, while there are total failures in others.

The solar rays may be used, as in other acne lesions, to a good advantage; vibratory massage is also indispensable, to stimulate the skin to new activity.

COMEDONES

This is also a chronic affection of the sebaceous glands, characterized by a retention, in the excretory ducts, of an inspissated secretion, which is visible upon the surface, either as white or yellow, which develops into black pin head elevations, hence the name "black heads"; this coagulated sebum may distend, and obstruct the gland, until a papule or pustule is formed; the duct may contain small hairs, and the microscopic mite demodex folliculorum, which was, at one time, erroneously supposed to be the cause of the disorder.

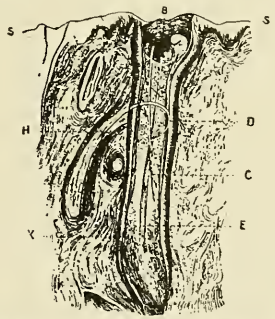
Blackheads appear upon the face, nose, forehead, chin and neck. They occur exclusively in the ducts of the sebaceous glands—see accompanying figure, where SS represents the skin; K, the sebaceous gland with the duct opening on the skin; B, a blackhead plugging up the opening; C and E, are soft hairs growing in the duct. In old age, when hairs grow out on the face, there are no blackheads. Each blackhead consists of a whitish, fatty plug, formed by the secretion of the gland congealing, one end of the plug being visible at, and sometimes extending above, the surface of the skin. The exposed end of each blackhead becomes blackened by diffused pigment deposited within. Sometimes both ends of the plug are discolored by a deposit of pigment.

The predisposing causes of comedones are the same as acne, and the same rules observed regarding the diet, etc. The local treatment should be directed to stimulate the skin to new activity by vibratory massage, electricity, etc. The comedones should be thoroughly removed by pressure between the thumb nails or comedones extractor, see cut, a good astringent lotion should be applied several times a day, for

which the lotio alba will answer the purpose, and the skin kept clean by the use of soap and water. The following ointment has rendered me good service:

℞	Sulphur	1 dr.
	Green soap	1 dr.
	Precipitated chalk	90 gr.
	Zinc ointment	1 oz.

Mix direct to cover the skin well on retiring. Wash thoroughly the next morning with warm water and soap, and most



COMEDONE SHOWING INSPISSATED SECRETION.

of the blackheads will disappear. The application may be repeated at intervals, until all are removed.

MILIUM

This disorder resembles comedones somewhat in appearance, only the sebaceous glands are distended, without an opening, and remain white, while the comedones turn black when exposed to the air. The milia are planted under the epidermis and cannot be removed by pressure unless the skin is punctured. When there are quite a number in one locality, as is often the case under the eye, I remove them en mass, by the use of the ecorchement treatment or blister. This entirely eradicates the difficulty, and leaves a nice, healthy skin underneath.

LENTIGO AND CHLOASMA

Freckles and liver spots, in anatomical structures, are the same, and consist of an increased amount of normal pigment deposited in the mucous layer of the epidermis. Freckles are usually caused by the sun's rays and consist of small, pin-headed deposits, which often disappear during the winter months.

Chloasma or liver spots are of larger size, variously shaped, more or less defined, smooth patches, either yellow, brown or black in color. They may be associated with either pathological changes, as in Addison's disease, or physiological conditions, as during pregnancy, and the menstrual epoch.

The following lotion will generally remove these pigmentary deposits, if applied several times a day:

℞	Corrosive sublimate	5 to 12 gr.
	Dilute acetic acid	2 dr.
	Sodium borate	40 gr.
	Rose water enough to make	4 oz.

It is better to test the sensibility of the skin by the weaker solution, at first, increasing the strength as the point of toleration is learned. The idea is to induce a brany desquamation, and as soon as this appears, to suspend the application until the exfoliation ceases, when it is resumed.

If you should desire a complete and thorough removal, the ecorchement treatment is the process to pursue. Many of our female "Codfish aristocrats" will visit the sea shore, and other watering places, during the summer to obtain the rugged complexion,—tan and freckles,—and, upon returing home, will pay some beauty doctor one hundred dollars to make them a new face, by the use of ecorchement process. Thus we find that "for ways that are dark, and for tricks that are vain," the heathen Chinese is not the only one that is peculiar.

POWDER MARKS

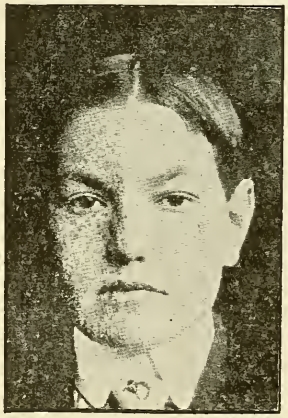
Following each Fourth of July, and the opening of the hunting season, physicians are called upon to remove powder marks as the result of accidents. These patients either consult the physician immediately after the accident, or dress their own wounds, and detain the consultation when they find their faces are permanently disfigured by these unsightly black specks. If the patient is seen immediately after the accident, the process of permanently destroying these marks is rather an easy procedure, but if the skin is allowed to heal over the embedded powder, we have a more difficult condition to deal with. We will, therefore, outline the treatment used in the different stages.

If the patient is seen immediately after the accident, he will, generally, rebel against any interference, stating that the parts are too sore and painful, but by explaining to him that a "stitch in time saves nine," will consent to your advice, and it is usually best to give a general anæsthetic in nervous cases.

When powder is forced under the skin it has provided an open wound and we have direct access to each grain of powder. If the open surface is large, many of the deposits may be scraped out with the point of a knife, but the powder becomes soft when it comes in contact with the tissues, and is difficult to remove; therefore the best, quickest and easiest method to pursue is to thoroughly scrub the entire area involved, with a stiff antiseptic nail or tooth brush, dipped into a full strength solution of peroxide of hydrogen. The minute wounds are somewhat aggravated by the bristles, but in no way deter the process of healing, and to be sure you are removing every remnant possible the skin should be pinched up in folds, between the thumb and finger, that it will open the wounds, and reach the deeper seated particles. This will often by followed by "bubbling" at point of entry of the powder grains; after this has ceased, it will be found that nearly all the powder has been washed out by the bath and effervescent

process. A saturated solution may now be applied to the face with absorbent gauze, and allowed to remain a few hours; the minute wound has, by this time, closed and all dressings may be removed.

As a rule, this procedure will thoroughly remove all powder marks. Should any remain, they may be treated later, by pricking an opening to the stain, and applying the peroxide of hydrogen.



RESULTS OF TREATMENT FOR GUN POWDER MARKS
(Only one side of Face Treated-Illustration used by Featural Specialist.)

The second class of cases are those which were neglected at the time of the accident, and consult you after the openings have healed, containing the embedded powder; here we have a more tedious condition to deal with. Each mark may be opened with the point of a knife, and removed with the peroxide of hydrogen treatment. They may also be removed with the electric needle, as is superfluous hair, or trephined out, with a small dermal punch, about the size of a watch key. A slight rotary motion will remove a "button" of skin, containing the discoloration which is snipped off with scissors. These are all very tiresome precedures and it is here that our ecorchement treatment, and canthos blister serves us once

more. If the discoloration is deep-seated, I prefer the blister; if more superficial, the ecorchement treatment will suffice. Either treatment will, usually, completely eradicate every trace of the marks.

TATTOO MARKS

Tattoo marks are generally embedded deeper in the skin than powder stains, which makes them more difficult to remove. The first treatment used is the Canthos blister. This blister is applied to the entire surface, if not too large, and removed in about four hours. This will be followed by a large vesicle, which may be punctured at its base, and dressed with absorbent gauze, held in place by adhesive plasters. At the end of about a week, the scab will desquamate, taking with it a large proportion of the mark; if there is any remaining, another blister should be applied at once, and continue these treatments until you have "lifted" as much of the mark as possible, and in many cases you will entirely remove these disfigurements. Any remaining traces may be removed by the Ohmann-Dumesnil method, which consists of tattoing the design over again with a bundle of six or ten very fine cambric needles, tightly wound with silk thread, dipped in a glycerine solution of papoid. This is repeated over the entire stain; a local anæsthetic is previously used, to obtund the pain of the surfaces. If of quite large size, it may be treated at one sitting. The rationale of this method is based upon the following principles: the digestive principle of the papoid is disseminated about the deposit of pigment, thus liberating it, a portion is absorbed, in a finely divided state, by the lymphatics; another part, probably, finds it way into the upper layers of the epidermis, and thence to the surface. In this manner we obtain a disappearance of the pigment, by using either of these methods, or, combining the two, little difficulty is experienced in removing these otherwise indelible marks.

SMALLPOX PITS

Smallpox, acne-pustulosa and chickenpox are diseases which often leave the face in a terrible state of repulsive disfigurement, and the physician who can successfully eradicate these ravages of disease can always demand a liberal compensation for his services; it is these methods which are most secretly guarded by the advertising cosmetic specialists. In these conditions, we have cicatricial tissue to deal with; in fact each pit is the result of a minute abscess of the true skin, and connective tissue, and in order to be successful with our treatment, we must remove all the superficial tissue, and dissolve the remaining cicatricial tissue, as far as possible.

The epidermis may, therefore, be removed, either by the ecorchement, blister or phenol method, and as soon as the outer skin has been removed, which takes with it the greater number of pits, fibrolysin is placed over the entire surface, saturated with the solution, and held in place by rubber adhesive bandages and the face mask; or thiosinamine used by catophoric application, as described in treating scars.

WARTS AND MOLES

Warts and moles are the most common of facial blemishes and are also the most easily removed. Of the numerous remedies and methods, the chemical ones should be the first to consider; before removing these growths by this means, the healthy skin, surrounding the growth, should be thoroughly painted with collodion, to protect the healthy skin. I generally do this at the office, and give the patient a small vial of glacial acetic acid, and instruct her to dip a wooden toothpick into the solution, and apply it to the wart or mole several times a day; at the end of this time, the wart or mole will form into a scab, and gradually disappear, leaving very little scar. This is the mildest way; sometimes this may fail, which is very seldom. I then use some of the stronger acids, trichloracetic

acid or nitric acid; they may also be removed by electrolysis or carbon dioxide snow, etc.

WRINKLES

If there is any one thing that a woman utterly despises it is a wrinkle, and as soon as she witnesses these landmarks of age developing she generally seeks the "beauty sharks" for creams, pastes and lotions, that she may maintain perpetual youth; as a rule, they do not seek the advice of the dignified physician; yet any advice the physician may impart will be gratefully received by most women, and the process of arresting the development, and removing these unwelcome visitors is equally divided between medical, mechanical, manual and surgical means. We will briefly discuss the subject before entering the surgical field of cosmetics.

Wrinkles are caused by a relaxed condition of the skin, due to the absorption of the subcutaneous tissues, in some cases, and lack of tonicity of the integument itself, in others. We therefore, find a demand for a variety of treatments, with a view of toning the skin to its youthful activity; manual and mechanical massage has always played an important role. Great care should be exercised with these treatments not to massage with too great a force, as such treatments will invariably do more harm than good; only the cushioned end of the fingers should be used, or the softest kind of rubber; with the bell vibratode, the gentle percussion stroke is preferable to the stroking movement.

One of the best means of applying massage to the face is with the vibro-hand apparatus, see illustration; with this, you can execute the delicate touch with the finger tips, and vibratory movements from this instrument, with little or no exertion from the operator. The effect from this treatment is very exhilarating. We are indebted to Zabludowski for the most scientific system of facial massage, which can be conducted by either manual or mechanical means, or a combina-

tion of the two, as illustrated above. The doctor gives the following:

FACE MASSAGE

For a special massage of the face and neck, which must be continued for several weeks, or even months, to obtain a noticeable result, Zabludowski gives the following directions: "The massage is best performed in the morning, and should last for a quarter of an hour. The parts covered with hair, whether shaved or unshaved, are to be avoided by the fingers. The masseur stands at the side or behind the patient.

1. Stroking and kneading of the forehead.

Kneading is done with the right hand, which moves zigzag-wise across the forehead, beginning at the bridge of the nose and traversing the forehead as far as the margin of the hair; whilst the left hand, with light stroking movement, beginning at the frontal eminences, travels lengthwise over the forehead to the mid-line of the occiput.

2. Kneading of the nose with the balls of the thumbs and index-finger of the right hand.

The zigzag-like vibratile movement proceeds from the tip of the nose to its root, and extends laterally over the alæ nasi. The left hand of the masseur supports the occiput.

3. Kneading of the left cheek, double movement.

The right hand, half closed, moves across the face from within outwards, and vice versa, and at the same times moves upwards, beginning from the lower jaw to the cheek-bone, below the lower eyelids.

4 Kneading the right cheek with both hands half closed in the vertical direction.

Chiefly done by the thumb and index-finger; the latter bent at right angles. The movement extends outward from the lower jaw and right ear over the malar-bone to beneath the right lower lid.

5. Smoothing the lines of the forehead.

Stroking with the index and middle fingers of both hands

across the forehead from the middle line to the temporal region.

6. Vibration of the face.

The digits of both hands, with the exception of the thumbs, are applied to the cheeks, between the malar eminences, and the ascending ramus of the mandible, and execute

VIBRATORY FACIAL MASSAGE.

the shaking movements, whilst the tips of the fingers approach and move away from each other in the quickest possible time. After a number of vibrations on one part of the face, the vibrating fingers are transferred to another part. The thumbs hang free in the air.

7. Stroking the lines under the eyes with both thumbs.

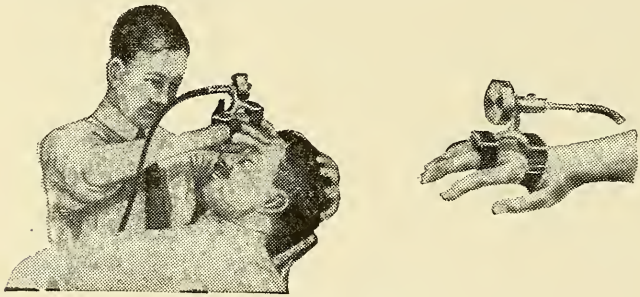
The movement begins on the bridge of the nose at the root, and is continued over the cheek-bones beneath the lower eyelids as far as the temporal region.

8. Stroking the lines between the chin and lower lip.

The movement is executed with both thumbs, beginning close to the lower lip, and is continued to the ascending ramus of the lower jaw. The masseur stands on the right of the patient.

9. Kneading of the neck.

The movement begins close beneath the chin, descending upon the throat, and following the direction of the neck as far as the upper extremity of the sternum.



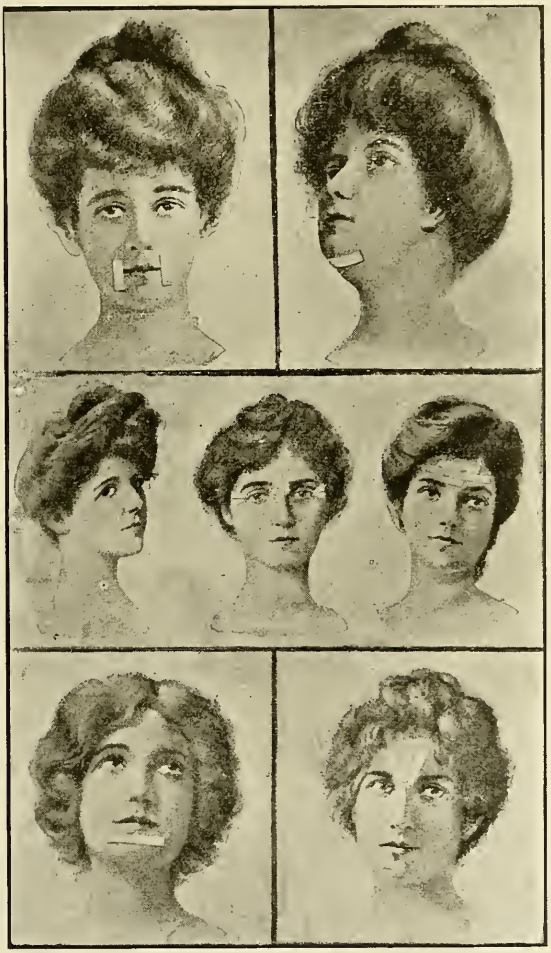
VIBRO HAND VIBRATOR.

10. Stroking and kneading of the right shoulder.

Whilst the right hand, beginning at the upper third of the right arm, makes kneading movements in a transverse direction over the shoulder-joint, the left hand travels with a stroking movement, following the right hand, over the region of the shoulder, upwards upon the neck as far as the level of the ear."

One of the simplest and best methods of facial massage is by means of Bier's suction glasses. These glasses will obtain sufficient suction to maintain the cup in position without support (see illustration). These can be moved about the face in any direction, and will retain the suction, and is one of the most invigorating treatments in our possession.

Another very popular method to remove wrinkles is by the use of the face mask, before applying the mask, the entire skin of the face is stretched backwards and downwards and



APPLICATION OF WRINKLE ERADICATORS.

the mask is adjusted as tightly to the skin of the entire face as possible. This smooths out the wrinkles, and by continuous

use most excellent results may often be obtained. The mask may only be used at night.

Another similar treatment of pressing out wrinkles is known by the alluring name of "Wrinkle Eradicators and Frowners," and are sold in large quantities, by a company in Cleveland, Ohio. These plasters, however, are not to be compared with the common adhesive plaster, which has more body to retain the skin stretched after being applied. These plasters are used at points where wrinkles are found in profusion, as at the corner of the eye, for crow's feet, under the eye, etc. The method of application is illustrated in the accompanying drawings.

METHOD OF APPLYING WRINKLE ERADICATORS.

COMBINATION TREATMENT

One of the most invigorating and effective home treatments for the removal of wrinkles and keeping the face young is by combining several of these methods as follows: the face is first massaged with the hand, with the vanishing face cream; this is followed by the Bier's cup, the adhesive plasters are applied to the deep-seated wrinkles around the eyes, forehead, etc., over which the face mask may be applied. The

only time this treatment is used is just before retiring, as the face during the sleeping hours is placid. All these dressings are removed in the morning, and the face massaged for the day. By following this treatment for sometime, it is often surprising the youthfulness which can be restored to an old face. Many facial specialists precede this treatment with the

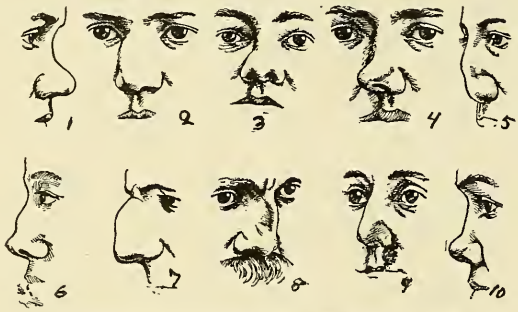
RESULTS OF COMBINATION TREATMENT FOR WRINKLES

ecorchement treatment, which also adds to the beauty of the integument.

The surgical treatment of wrinkles consists, principally, of paraffin injections, to fill in deep crevices, and what is referred to as "wrinkle tucks." Paraffin may be injected under

deep crevices of the face, as the naso-labial line, and the transverse furrows of the forehead, to raise the skin to a level with the rest of the face.

Wrinkle tucks are taken about one-quarter of an inch back from the hair margin in the scalp. The scalp is shaved and various sized pieces of skin are dissected away, and the edges of the wound united. This draws the skin of the face up and back; after this wound has healed the hair is combed back, which covers the wound. These tucks are also sometimes taken below the inferior maxillary bone, to draw the skin down and back. Such operative procedures may seem ridiculous to the conservative physician; yet it is these operations which fatten the purse of many unethical and ethical physicians.

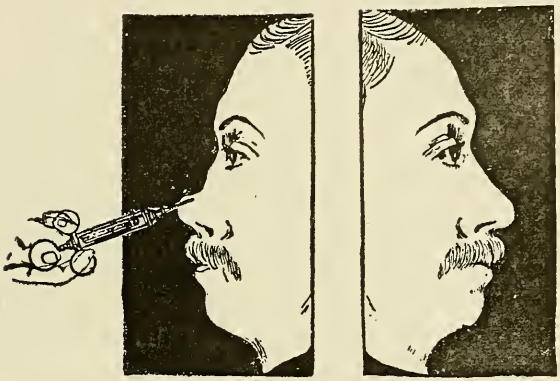


VARIOUS DEFORMITIES OF THE NOSE.

DEFORMITIES OF THE NOSE

The nose is the protruding organ of the face, and is, therefore, the most often injured or deformed by accident or otherwise; it was this part of my anatomy which always seemed to be in the way during pugilistic contests in college days. These deformities are extremely conspicuous, and have been classed as follows: (See cuts 1, 6 and 10) illustrating the different degree of concave, or what is referred to as the saddle back nose. These deformities are often found at birth, but are generally due to a severe blow, completely or partially, breaking the bony frame work or bridge, giving the nose a

very unpleasing appearance. Cuts 2 and 7 represent the humped nose. This deformity is not what is generally called the Roman nose, as the bridge is much broader, and gives the nose a very clumsy and massive appearance, independent of its convex shape. Cut 3 is the broad nose as in found in the negro. Cut 4 represents the lateral tipped nose, which is gen-



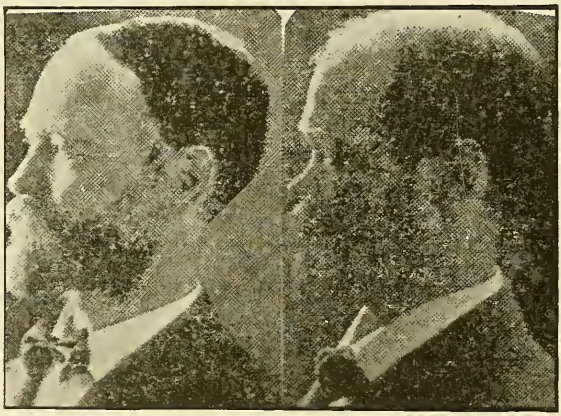
METHOD OF INJECTING PARAFFIN FOR CONCAVE NOSE.

THE CORRECTION OF PUG NOSE.

erally due to accidents of the cartilaginous portion of the nose. Nos. 5 and 8 are the receding nose, which is usually caused by syphilis, scrofula and other destructive diseases of the septum. Cut 9 is the narrow nose which not only gives the face a miserly appearance, but often interferes with respiration. We also have the bulbous nose, the hawk-billed nose,

the split septum, etc. Each deformity representing different characteristic forms of unpleasing conformity which require our personal attention to adjust and restore to a natural and pleasing contour.

Of all the deformities of the nose, the concave or saddle back nose (Figs. 1, 6 and 10) is the most frequently met with and is also the easiest to restore to its normal shape, by the use of paraffin injections as follows: the paraffin is prepared at a melting point, between 110 and 115 degrees F. The nose and instruments are treated antiseptically, the needle of the syringe, containing the paraffin in a semi-solid or half cooled



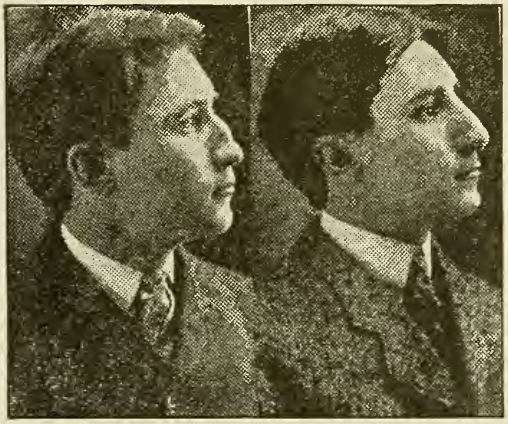
RESULTS OBTAINED FROM NEOPLASINE INJECTION FOR CONCAVE NOSE.

state, is inserted to a point of the greatest depression in the convexity, and while the assistant is making pressure on both sides of the nose to avoid having the paraffin spurt in some open channel, where it is not desired, the screw on the piston stem is gently turned, and after sufficient paraffin has been injected to raise the surface, it is molded into shape either by the assistant or surgeon. Great care should be exercised not to inject too much paraffin, as these injections are followed by inflammation and infiltration, which subsides, leaving the tissues somewhat thickened, and if care is not exercised in this point, we may convert a concave nose into a convex one.

The opening should be sealed with collodion and the nose treated with aseptic dressings.

THE HUMPED AND ROMAN NOSE

This deformity (Figs. 2 and 7) is restored to its normal shape by an oblique incision, to prevent scar tissue. The in-



RESULTS OBTAINED FROM PARAFFIN INJECTION FOR CONVEX NOSE.

RESULTS OBTAINED FROM SUB-CUTANEOUS OPERATION FOR CONVEX NOSE.

cision is made along the median line. The opening is enlarged sufficiently to admit the instruments required, which consist

of bone scissors, rongier forceps, and a slender saw, and such other instruments as may be necessary. After the skin is elevated from the deformed surface, the nasal bone is sawed off, and the edges trimmed smoothly, with a pair of slender bone-clipping forceps, so as to give the nose the exact contour desired. After the parts are thoroughly cleansed and rendered aseptic, the skin is replaced and united in as close apposition as possible, to avoid scar tissue. What scar tissue remains may be removed later by the usual way of removing this tissue.

THE BROAD NOSE

This deformity, (Fig. 3) which resembles the negro nose, is corrected by overcoming the elasticity of the wings, by incisions through the shield cartilages, subcutaneously, with a slender knife, in several places and then holding them in place by an external form until they are firmly fixed in the desired position. In some cases the cartilage is so redundant as to require the excision of a portion of the same.

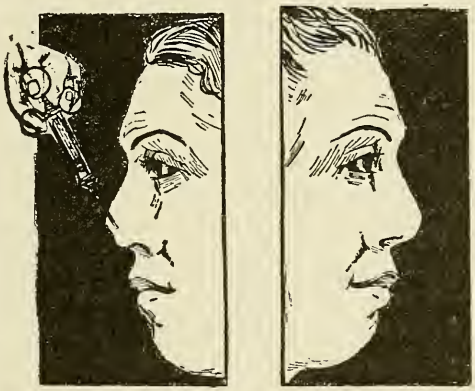
THE CORRECTION OF NARROW NOSE.

THE NARROW NOSE

This deformity (Fig. 9) is corrected by incising the cartilage at its base, and forcing the cartilaginous wings outward from the septum and holding it thereby sutures and mechanical means; by inserting antiseptic "plugs" into each nostril and retaining them there until the cartilaginous tissues are firmly fixed.

THE RECEDING NOSE

This deformity (Figs. 5 and 8) is often one of the most difficult derangements we have to correct, as the septum is often destroyed, either by accident or disease, of which syphilis and scrofula bear their destructive influence. We may build out many of these receding tips with paraffin as is illustrated here, but if the septum is so destroyed that it will not bear



METHOD OF INJECTING A RECEDING NOSE.

support by artificial means, as is the case with all deformities of the nose, there are no two cases exactly alike, and it will depend upon the surgeon's judgment and mechanical genius to find a way of properly adjusting these deformities of the nose. In this class of deformities we may be required to supply a silver or other metallic support, embedded in the tissues, or force support from some other source. The same rule applies to surgery of the nose, as in other parts of the body and if a patient has an abundance of tissue he wishes to dispose of, cut it out, or fill in the deficiencies by any of the means offered in modern surgery.

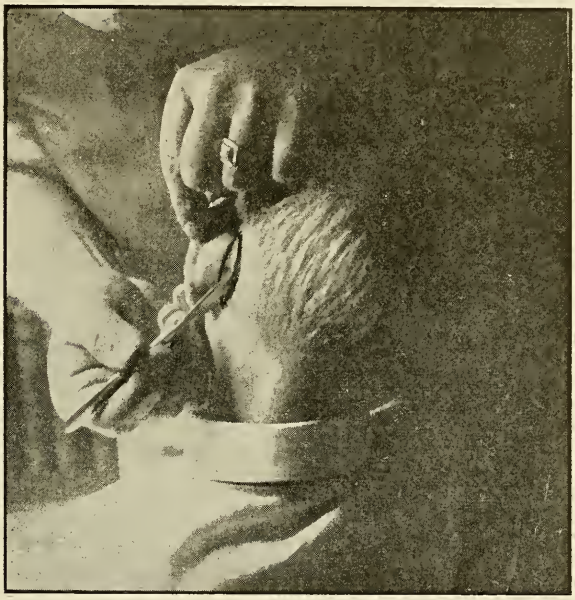
THE TILTED TIP NOSE

To correct this deformity (Fig. 4) a narrow bladed knife is inserted at the margin of the skin and mucous membrane at the middle of the septum, and the point of the knife is directed upwards to the point of bone and septum, or the angle of the tilt. The septum is divided, and the tip of the nose is forced to the opposite side, and a little beyond, and held in this position by mechanical means, with "plugs" within the nostrils, and rubber adhesive strips, passing over the nose, and attached to the cheek, after the septum has been reunited, the dressings may be removed, but if the tip has a tendency to go beyond the median line the adhesive strips should again be applied until the tip of the nose is trained to its normal position.

PROTRUDING EARS

Protruding ears may be either hereditary or acquired. The latter condition is frequently the result of wearing a stocking cap by children. I have had two very interesting cases traced to this cause, which came from Upper Canada. The boys were exposed to the cold much of the time during the winter and would pull their caps over their ears, which trained them to protrude. The same treatment may be used to force them back to their normal position, by the use of the ear truss (as is illustrated here) or a slight operation will rapidly return them to their natural condition. The technique is as follows: The line of incision is marked off, behind the ear, on both the mastoid process and ear, so that the apposition of the skin at the border of the surfaces will meet perfectly; the integument is now removed and the borders of the skin united with sutures and dressed antiseptically. To hold the ear in contact with the mastoid surface, a cloth bandage is placed around the forehead and back of the head and one over the head and under the chin. These bandages are held in place by reinforcing them with adhesive strips; this is the

most popular way of "resetting ears," as it is frequently referred to. Other operations consist of removing parts of the cartilage.



LINE OF INCISION FOR CORRECTING PROTRUDING EARS.

RECEDING CHIN, HOLLOW CHEEKS AND DEPRESSED SCARS

It is these operations in which the use of paraffin reaches its greatest degree of usefulness, and can serve for the noble purpose of restoring contour to unsightly depressions and defects, which cannot be reached by any other means, and in this capacity its usefulness is almost unlimited, grading in degrees of magnitude, from elevating a small pox pit to the complete filling in of cavities, after resection of bone, from the upper and lower jaws, and other parts of the face. The writer had one case of congenital malformation, hemiatrophia

facialis, in which nearly five ounces of paraffin was injected to restore contour to the face, and the result was almost perfect.

The receding chin, small pox pits, depressions from abscesses, the eradication of the naso-labial line, hollow cheeks, and many other deficiencies may be restored to perfect contour by the use of paraffin.

RESULTS OBTAINED FROM NEOPLASINE INJECTION FOR RECEDING CHIN.

RESULTS OBTAINED FROM OPERATION FOR PROTRUDING EARS

It was formerly believed that liquid paraffin would answer the purpose for elevating surfaces upon the face, and leave the tissues soft and pliable but these operations were failures, as the paraffin would become absorbed in a few months' time. There is a great deal of tension when paraffin is injected over bone and the melting point should never be lower than 110 degrees F., and it is still better to use a higher melting point for receding chin.

The technique for the use of paraffin is given elsewhere, which applies, in general, to all paraffin operations; we therefore refer you to the preceding chapter.

SCARS AND BURNS

The removal of cicatricial tissue, as the result from cuts, burns, bruises, abscesses, etc., is one of the most frequent blemishes the physician is requested to remove and the treatment required and the degree of success obtained will depend upon the length and breadth of the scar. In order that I may implant firmly in the reader's memory, I wish to repeat what has already been said in a preceding page, "we may mutilate, cut, bruise or destroy the first four layers of the skin as much as we like, without leaving any cicatricial tissue, but when we go below the epidermis into the true skin, our operations are always marked by the formation of cicatricial tissue.

We may desquamate the outer skin, and draw to the surface cicatricial tissue, from the true skin, by a process of blending and absorption, by continually removing the outer skin. In order that I may demonstrate this process I will cite the following case:

Mr. H. was kicked by a horse when nine years old, resulting in a depressed scar, about three inches long and three-quarters of an inch wide; the wound was united at the time, which was followed with septic infection, with considerable sloughing of tissue, which left a deep depression. The first step to be considered was to dissect away all the cicatricial tissue, and unite the edges of the integument in as close apposition as possible (see scarless surgery); we now have left a slight line of cicatricial tissue, and a deep depression to deal with. The next step was to elevate the depression by an injection of paraffin to a level with the face; this was allowed several weeks, for the reaction to subside and thoroughly heal, and the only trace left was a fine lineal scar where the skin was united. The patient was so well pleased that he wished it to remain as it was, but I encouraged him to completely eradicate every mark possible. I therefore, proceeded to apply a thin strip of Canthos blister plaster, along the entire line of incision; this was applied at five different times, which still reduced the cicatricial tissue, so that it could

not be noticed at six feet distance. The patient was then given a ten per cent. thiosinamine ointment which was applied for some weeks; today it will almost require a magnifying glass to find any trace of scar tissue and the operation may be considered perfect.

Within the last two years I have used the thiosinamine by cataphoresis as suggested by Dr. Nieswanger.

Thiosinamine and its double salt fibrolysin, is used to such an extent in the treatment of many diseases given in this publication that it is well to have a clear conception of the therapeutic value of these two products.

THIOSINAMINE AND FIBROLYSIN

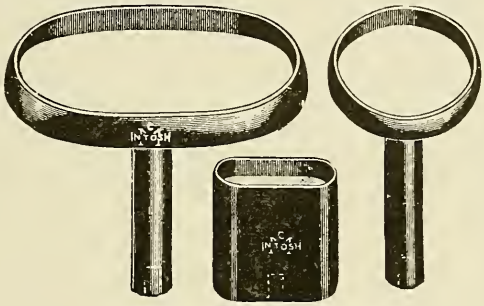
Thiosinamine is a synthetic preparation made from the artificial oil of mustard and appears in clear crystals of faint garlic odor, and bitter taste, and is only slightly soluble in water, but can be made more soluble by the addition of glycerine and aqueous solution. It is very soluble in alcohol and ether but, owing to the pain caused by the hypodermic injection of alcohol, it has been superseded under the coined name of "Fibrolysin," which is a double compound of thiosinamine and sodium salicylate. It was first prepared by Dr. F. Mendel, of Essen-Ruhr, who, by combining two molecules of thiosinamine with one molecule of sodium salicylate produced a white crystalline powder, soluble in both hot and cold water. This he found unirritating when injected.

Fibrolysin has the same indications as thiosinamine; it is a cicatricial and glandular resolvent; but it has the advantage of quicker absorption, and freedom from pain or irritation, upon injection, on account of its solubility and aqueous vehicle.

Most authors agree that thiosinamine alone is ineffectual when given by mouth, while subcutaneous application is unsatisfactory, owing to its slight solubility in water, and the pain which always follows when given in alcoholic solution. On the other hand, when combined with sodium salicylate, in

the form of Fibrolysin, if the usual antiseptic and other precautions are observed injections are painless and irritation at the site of an injection rarely occurs.

We therefore find that the therapeutic application of thiosinamine and fibrolysin may be utilized either internally, in one-half grain doses; by inunction, in a ten to twenty-five per cent. ointment; by hypodermic medication (fibrolysin), and by cataphoric application. With these four methods of medication at our disposal, we are not only able to dissolve cicatricial tissue, as found in scars, structures corneal opacites, etc., but also to reduce hypertrophied glands and superfluous tissues, thiosinamine being preferred for cataphoric purposes in the following formula:



CATAPHORIC ELECTRODES.

℞	Thiosinamine	½ dr.
	Glycerine	1 dr.
	Aqua dis.	1 dr.
	Sodium chlor.	3 gr.

A piece of absorbent lint is cut to cover the surface of the scar tissue, if not too large, and saturated with the above solution. This is placed in a special electrode (see cut) and applied firmly against the scar, using the positive pole of the galvanic battery; the negative pole is placed at any convenient place, and the current turned on, in strength from four to twenty milliamperes. Each sitting should be continued about ten minutes; in three or four days the skin over the

scar will become dead and peel off, when another treatment may be used until the scar tissue entirely disappears.

GOITRE

This same procedure is also used for fibrous degeneration of the thyroid gland, with marked success; the positive electrode being packed with absorbent gauze, and saturated with the thiosinamine solution, can be applied to sections of the goitre, until the entire enlarged surface is treated in different areas. The best place to apply the negative pole for the treatment of this affection, is upon the abdomen; the amount of current tolerated by most patients is from twelve to twenty milliamperes to obtain success. Patients should receive three treatments each week and the duration of each treatment should be about ten minutes. Solutions of iodide of potassium have also been used to a good advantage by cataphoric applications.

PUFFINESS UNDER THE EYES—DOUBLE OR BAGGY CHIN

Puffiness under the eyes has always been associated with Bright's disease and other kidney disorders; although the condition may be a symptom of kidney disorders, we often find that it presents itself spontaneously in perfectly healthy people, and is one of the most damaging disfigurements to the facial appearance, as it produces an expression of sadness, melancholy or ugliness and many faces which otherwise have a fine complexion and contour are ruined by this "bloating" under the eyes.

The double or baggy chin ,which consists of a superfluous amount of flesh hanging from the chin, reacts to a disadvantage in many ways; it not only mars the general contour and expression of the face, but also draws deep lines elsewhere on the face, and it is surprising to note the wonderful improvement which takes place after removing this superfluous flesh. The skin of the face proper becomes more tense and trans-

parent, the deep lines disappear, and the general expression assumes a more youthful appearance. In both of these conditions we have a superfluous amount of flesh to deal with, and it has been the custom of featural surgeons, in the past, to deal with these conditions purely upon a surgical basis, and dissect away this over-amount of redundant tissue. More satisfactory results have been obtained by making compresses of the thiosinamine solution, as used for goitre and scars; to obtain results, a pad of absorbent gauze is saturated with the solution, and applied over the area of superfluous tissue. This

BAGGY CHIN AND PUFFINESS UNDER THE EYES.

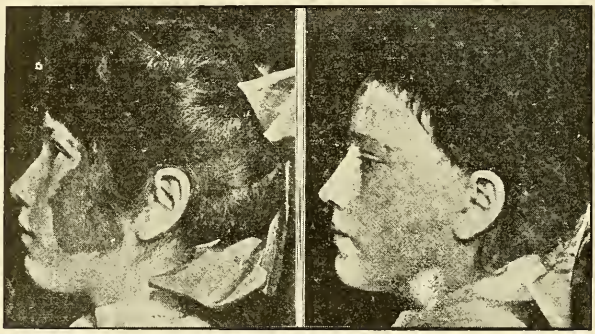
is held in place, so as to make heavy pressure, during the sleeping hours and held in position with adhesive strips under the chin and over the head for a baggy chin and the face mask is used for both the chin and puffy eyelids. This preparation is also used by cataphoresis, as in goitre, and for removing scar tissue.

BIRTH MARKS

Chief among facial blemishes which constitute a sad disfigurement, that renders the possessor a recluse from society, are birthmarks (pigmentary nævi). These marks are generally noticed at birth, hence their name, and come under the classification of tumors by the name of angioma ,to which you

are referred; these tumors consist of a net-work of dilated blood vessels, either arterial or veinous. Until within recent years these marks were not considered removable and their unfortunate possessors were doomed to exist with these "princes of disfigurement," and obstacles, throughout their lives, which were a constant annoyance in both a social and business way.

Modern therapeutics offer many methods in which these marks may be removed. The point aimed at is to destroy or contract these anastomosing dilated vessels. Very superficial marks may often be removed by the blister treatment, but the

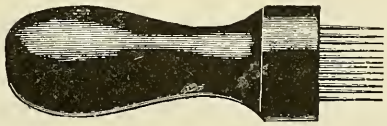


RESULTS OF CARBON DIOXIDE SNOW FOR THE REMOVAL OF BIRTHMARKS.

deeper seated lesions will require a more distructive influence, for which carbon dioxide snow perhaps offers the greatest advantage; the technique for using this, for birthmarks, is the same as for other neoplasms, given elsewhere. It will, therefore. not be necessary to repeat the details here; the accompanying illustration shows the results which may be obtained from this indispensable element and if due caution is exercised not to freeze too deeply, the cosmetic effect is the best at our disposal. Most excellent results have been obtained by the use of trichloracetic acid for this purpose.

Electrolysis offers us a means of cauterizing these minute blood vessels, and obliterating the discoloration and disfigurement they produce. The area is anæsthetized, either by hypo-

dermic injections of quinine and urea hydrochloride or by the cataphoric application of cocaine. A sharp pointed needle attached to the negative pole is entered at the border of the mark, to transfix the growth beneath the skin, in lines of about one-twelfth inch apart; this is followed by the same process in a transverse direction until the growth has been blocked, like a checker-board (see illustration). This thoroughly cauterizes the small blood vessels, and in a few hours the mark will assume a brown appearance, which forms an eschar that desquamates in a few days, taking the mark with it. If any remnant should remain, it may be followed with other treatments until it entirely disappears. Caution should be exercised not to cauterize too long or too deeply, lest an unsightly scar my result. It is the practice, nowadays, to use



ELECTRODE FOR MULTIPLE ELECTROLYSIS.

several needles (see illustration) on one electrode instead of the single needle as it saves time. This process is referred to as multiple electrolysis.

Dr. Nieswanger highly recommends the following where the mark is not elevated:

℞	Antim. tart	1 dr.
	Soap plaster	3 dr.
	Green soap	1 dr.

M. This is applied on adhesive plaster, about one-twelfth inch thick over the entire surface. The healthy border should be painted freely with collodion to protect the normal skin; at the end of from three to five days the full escharotic effects are evident and the plaster removed and the surface dressed with

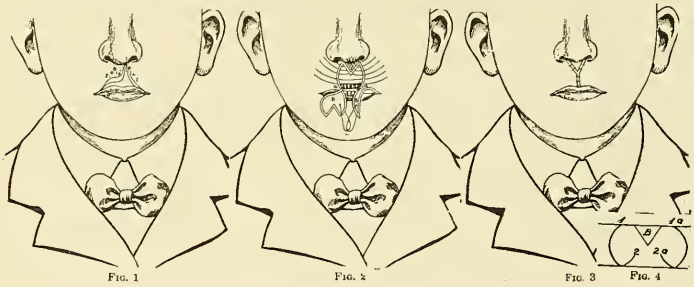
℞ Zinc oxide .....20 gr.
Cold cream ..... 4 dr.

This treatment will produce excellent results in many cases.

HARELIP AND CLEFT PALATE

These two deformities come within the scope of the featural surgeon and it is well to consider the best means for their correction. Dr. D. La Ferte, in a recent article, gives the following technique for the correction of harelip, which will leave only a slight trace of the operative procedure:

In the treatment of harelip the efforts of surgeons for the most part have been directed toward closing the fissure in such a manner as to make the lip of uniform thickness and to avoid leaving a dimple in the vermillion border of the lip at the junction of the two flaps.



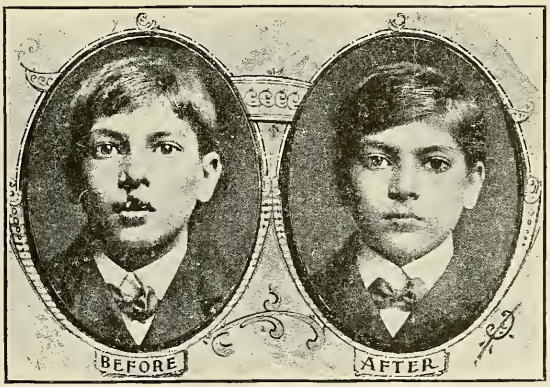
HARE LIP OPERATION.

Little effort has been made, in planning the different operations, to so plan the trimming of the edges that in the male child when he grows up and desires to wear a mustache the part in the mustache may be in the median line and not to one side of the column of the nostril. I venture the assertion that many grown-up individuals whose mustaches part to one side on account of a previous operation for harelip would willingly submit to an operation for remedying that defect if they were cognizant of the fact that such an opera-

tion was practical. Another point that has been sadly neglected is the flattened and depressed nostril that is generally found on one side of the nose.

The late Dr. A. M. Phelps was the first, I believe, to call attention to the desirability of throwing the scar in the median line of the lip. The drawings in this article are largely copied from an article from his pen.

The object of the operator should be to make as artistic a lip as possible and not only to close the fissure in as easy a manner as possible. He should try to have a lip that shows a graceful curve from each corner of the mouth to the median line, where it should terminate in a slight prominence, as seen in Fig. 3. That should be our aim, but it is not always possible to be as successful as we desire.



RESULTS OF OPERATION.

Describing the different steps of the operation should aid in its understanding. First take a loop of silk through each angle of the lip, at 4 right side and at 4 left side (Fig. 1). These are made taut by traction with the left index-finger, which aids to steady the parts, and thereby facilitates the other steps of the operation. By means of scissors or knife the lip, together with the depressed ala of the nose, are dissected from the bone, and if deemed advisable the ala of the

nose may be slightly detached also upon the other side. The upper lip must be sufficiently detached so that it can move freely over the bone. With a tenotomy knife puncture the lip at aa, Fig. 1, the parts being put upon the stretch by making slight traction on the silk loops. The incision should describe a curve, following the dotted line to 2, and from there to 3 (see Fig. 1); then cut from 3 to 4 through the entire thickness of the lip (Fig. 1). The pieces B and B are now turned downward, leaving the V-shaped piece seen in Fig. 2. Now sew the raw edges together (I prefer fine silk for that purpose), when the result will appear as shown in Fig. 3; raise the lip and sew the mucous membrane as high as possible.

We should always allow for a certain amount of retraction. Therefore care must be taken that the pieces B and B shall be longer than is actually necessary. If there is too much redundant tissue, that can be trimmed off at the last stage of the operation. This operation is practicable in all cases of single harelip where one-quarter of the length of the lip remains between the fissure and the corner of the mouth. The punctures at 2, Fig. 1, should be at equal distance from each corner of the mouth and both nostrils should be entered at the same point on each side (3, Fig. 1). The V should be about one-half the normal width of the lip. If the V should be cut too short, the defect can be remedied by making a transverse cut through the whole thickness of the lip around the ala of the nostrils. If the V is left too long, it will cause the middle of the vermillion border of the lip to drop too far down at the median line. These same incisions can be made in cases of double harelip, saving the center from which the V is made (Fig. 4). This figure gives a good illustration of the manner in which the incisions are made in cases of double harelip.

I had occasion lately to put this operation in practice at the Children's Free Hospital for single harelip in a boy fourteen years of age, who said he had been operated on twice for his defect since birth, and whose lip when he came to me was in the condition represented in the accompanying illustration.

My incisions were planned as indicated in Fig. 1, and the flaps brought together as shown in Fig. 3; the result shows an artistic lip with the scar directly under the column of the nostrils (Fig. 6).

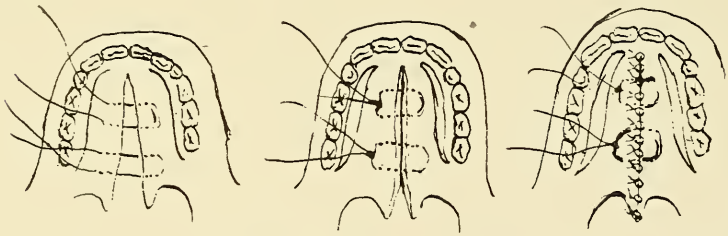
This method of operating I have followed for some time, and I feel pleased with the results.

Where one nostril is depressed and the ala of the nose upon one side spread out upon the face, I dissect the ala of that side from the bone and put in a button suture, penetrating from the depressed and loosened ala through to the fixed ala of the opposite side. In about five days the suture is removed, when the lip will be found to have become attached to the raw surface of the bone underneath and the wing of the nose to have become elevated.

Dr. Dean Smith's operation for cleft palate is performed as follows; The flaps are made in the usual way, cutting the muscles that would interfere with the easy bringing together of the margins. The edges being pared, the mattress sutures are introduced and tied. These are of silkworm gut. In placing them, the needle enters the flap near the end, about midway between the margin and the lateral incision. It passes obliquely through the tissues, and emerges on the under (upper, according to the position of the child) side near the free edge. The needles enter the other flap on the under side, near the margin, and opposite to the point of emergence from the first flap. It passes obliquely upwards, through the tissues, coming out on the free surface, at the same relative position that it entered the first flap. It now retraces its course through the flaps, parallel to the first part of the stitch, and about a quarter of an inch from it. This thread makes the mattress suture and when it is tied it will bring the margins together. Rather, it will bring the lower edges of the margins together, rolling the outer edge out. This will give us the broadest possible coating surface, when the marginal sutures are placed. Two or three mattress sutures will be required to control the whole length of the flap. It is evident that if these stitches are properly placed they will take all

tension off the coapting or marginal sutures. I have seen it stated by one surgeon that he uses silk, instead of silkworm gut, because the latter irritates the tongue. Another surgeon uses the silkworm gut, because it will irritate the tongue, so that the child will keep it away from the flaps. The silkworm gut serves a good purpose. Unless the gut is very fine and pliable, silk should be used in the uvula. I have discussed the treatment of the cleft, involving the palate bones. The mattress stitch is just as important when the cleft is only through the soft palate.

The cleft or clefts, through the maxillary bones, require an entirely independent operation. This operation is done at the same time as the palate operation, or soon after. The proper management of the pre-maxillary bone will help materially in closing the space in the palate that could not be closed with the flaps. It is my practice to break this bone



CLEFT PALATE OPERATION.

loose, if the cleft is wide, and push it back, or downward into apposition with the edge of the maxilla. If the cleft is unilateral and the pre-maxilla cannot be broken and reduced, I cut through the alveolar juncture of the opposite side with bone shears so as to partially free the portion we wish to displace. When the lip is repaired it tends to hold the fragment back so the opening in the palate may entirely close in a year or two.

Before using the mattress suture, it was the exception to have a case hold throughout the entire length of the cleft. We often had to make two and sometimes three operations

before we were satisfied with the result. I may have been less skillful than other operators. I do not wish to boast of inefficiency, but state these facts for the sake of comparison. I know that since using the mattress suture, I expect and usually get complete union the first time.

Of the cases treated with the mattress stitch, one was a failure. The patient was a tiny delicate baby, with an exceedingly wide cleft of both palate and lip. Because of the frail appearance of the child I hurried the operation. The haste was unnecessary for, when the work on the palate was completed, the pulse and respiration were about as good as when we began. We then repaired the lip. The child suffered but little from shock.

The mattress suture will not cause the parts to heal unless the balance of the work is properly done.

In one other case the uvula did not hold. It was this case that led to the suggestion regarding silk sutures in this part of the palate.

All the other cases held throughout the entire length of the cleft.

The Hair

The hair, being an appendage to the skin, comes within the category of cosmetic therapeutics, and the conditions which apparently require the greatest attention are directed in the extreme opposite; therefore, too much, or too little, hair are the two conditions in which the physician is consulted for advice. A luxuriant growth of hair, in the right place is always regarded as particularly beautiful, but when hair grows in the wrong place, it is considered one of the greatest cosmetic evils, and a "mannish woman" is as greatly disliked by the opposite sex as the "ladylike man." It is, therefore, well to discuss the means of correcting and restoring these defects.

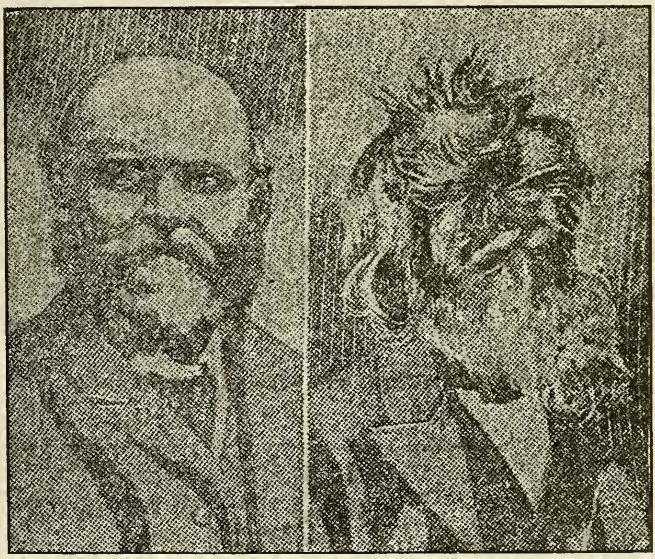
HIRSUTE MONSTROSITIES.

SUPERFLUOUS HAIR

If we were to accept the theory of evolution, our prehistoric ancestors perhaps all possessed a luxuriant growth of hair upon their bodies, but as civilization has advanced, this condition disappeared, evidently, with our simian tail, and now we have only a stubby coccyx and a smooth skin, as

a result of the evolutionary progress. There are many hirsute monstrosities, however, as is illustrated by the bearded lady, and the little girl, whose body and part of her arms were covered with a heavy growth of hair.

Many of us have seen the lion-faced Russian boy, whose entire face was covered with hair, which gave him the appearance of a poodle dog rather than a man. The most remarkable case, however, was that of Giuseppe Mason, who was for many years, sexton of a church in Padua. In 1903, Mason's head



GUISEPPE MASON'S CASE.

became entirely bald, though he did not lose his beard; later, he fell sick with the la grippe and went to a hospital; while he was convalescing from his illness, a soft down began to grow, not only on his head but upon his face and body. This soft silky hair increased in length and thickness until he was completely enveloped with hair, as in the accompanying illustration. This case has puzzled scientists more than any ever presented.

REMOVAL OF SUPERFLUOUS HAIR

We have two ways of destroying superfluous hair; only one of these, however, will give permanent results. All the so-called depilatories on the market depend upon some one of the sulphides for their destructive influence; of these barium, strontium, calcium and sodium are the elements in general use. Of these salts, barium has seemed to be the most popular. I prefer strontium, however, as it is less irritating to the skin.

The stereotyped phraseology of the advertising specialists is to advertise "it is a liquid," and I spent some time and expense to discover that it was sulphide of sodium they were using, as sodium is the only one of these salts which is soluble in water; it is also more irritating to the skin, but I believe the final results are better than those obtained from the other salts.

Dr. Lutje was the first to call our attention to the fact that better results may be obtained by applying the sulphide of barium, strontium and calcium while hot; by this method, the depilatory is less irritating and more effective.

To prepare such mixture 1.5 grams of strontium or an equivalent quantity of barium or calcium sulphide are triturated with 2 grams of starch and 8 grams of water, and the mixture heated to boiling, with continuous stirring; upon cooling, a creamy mixture is obtained which is as efficacious as the mixture prepared in the cold and does not irritate the skin. If this is immediately placed in collapsible tubes and kept hermetically sealed, it will last indefinitely and will produce a better article than most preparations found upon the market. This paste should be applied to the surface of the skin containing the hair, and in two or three minutes the hair will be noticed to shrivel up and apparently become dissolved. The paste containing the hairs may now be scraped away with the back of a knife or other blunt instrument; the face thoroughly washed and cold cream applied; this treatment is not intended to permanently destroy the hair, as most of the hair

will return. I believe, however, that a certain percentage is permanently destroyed. This is verified by a series of experiments I have conducted upon my arm.

There have been several depilatories introduced from time to time for the purpose of removing superfluous hair,

REMOVING SUPERFLUOUS HAIR WITH A DEPILATORY.

which have been sold under "a positive guarantee (?) that the result would be permanent." The commercial end of this business has been well taken care of by the mail order specialist. I have secured several of their preparations, and have never found any agent other than electricity which will ac-

complish this purpose. As a depilatory application for the temporary removal of superfluous hair, barium and strontium sulphide heads the list. I prefer strontium, as it is less toxic, and differs from other depilatory agents in not evolving hydrogen sulphide. My favorite formula is as follows:

℞ Strontium sulphide .....30 gr.
Zinc oxide .....15 gr.
Starch .....15 gr.

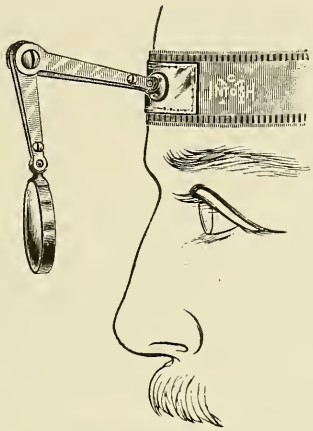
Triturate thoroughly and mix sufficient water to make a paste. This is applied over the surface containing the superfluous hair and allowed to remain five or ten minutes, when it can be removed by scraping the surface with some blunt knife similar to a paper knife, or it may be rubbed off with absorbent cotton; the face should be washed, cleaned and some bland oil applied. This will give excellent results, but will not permanently destroy the hair follicle. The only sure means of removing superfluous hair is by electrolysis.

ELECTROLYSIS

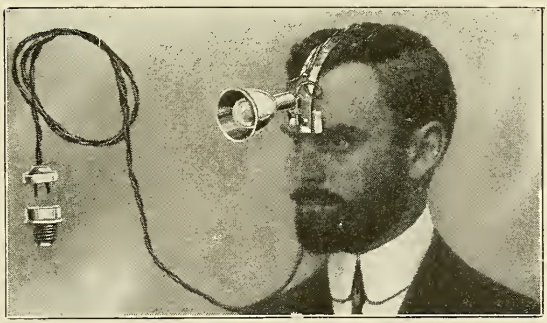
Electrolysis is the only positive and permanent method of removing superfluous hair, and although the galvanic current may be utilized from a public lighting system, I prefer a special fourteen-cell battery, designed for cosmetic purposes (see illustration), as I believe the current is more agreeable to the patient and of sufficient strength for all cosmetic operations.

Before removing superfluous hair with the electric needle, the surface to be operated upon should be treated with a four to ten per cent cocaine solution, by cataphoric application, as is described on a preceding page; using the same electrode as is used for thiosinamine. The operating room should be provided with good light, as these operations are very tiresome to the eye. A magnifying glass, attached to the forehead, as

is illustrated here, is also a great convenience, and if this work is done at night, the electric hand lamp may be used to a great advantage.



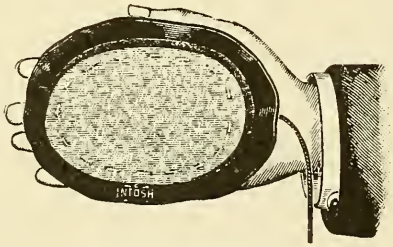
MAGNIFYING GLASS.



ELECTRIC HEAD LIGHT.

The surface operated upon should be thoroughly cleaned and dried, and the spongio-covered electrode connected to the positive pole, should be placed on one of the hands, previously moistened with water, and if your current is weak, or the patient does not press the electrode firmly, this electrode

should be saturated in a salt solution, which gives strength to the current. The needle is attached to the negative pole, and held by a needle holder. The skin containing the hair is now stretched by the thumb and finger of the operator's left hand and the needle is inserted in the hair sheath, parallel with the hair, to the papilla; the patient is requested to press firmly upon the positive electrode in her lap. This completes the current, and if the current is strong enough, froth will be observed where it entered the follicle; if this does not occur, the current is not strong enough and more current should be turned on. Slight traction upon the hair, with the epilation forceps will determine if the operation has been successful. If the hair is not easily removed it indicates that the operation has not been successful and the needle should be applied again. It is well not to remove too many hairs in one



HAND ELECTRODE.

area, as such operations have a tendency to leave more cicatricial tissue than those selected from different parts. After completing the operation, which consists of removing from twenty-five to fifty hairs at each sitting, the surface may be covered with oxide of zinc ointment or cold cream. In a few days, as soon as the skin is devoid of soreness, you may operate again.

ALOPECIA

There has been a diversity of opinions as to the cause of baldness, but it is the general belief of most investigators that it is of microbic origin.

Prof. Unna, in the year 1887, was among the first to publish a paper advancing the theory that dandruff and subsequent baldness were of parasitic origin, and although his theory was not kindly accepted by many at first, his statements were afterwards verified by Morrell, who claimed he succeeded in isolating the dandruff germ—diplococus. Since his report there has been much investigation along that line, which prove that dandruff and premature baldness are of parasitic origin.

It has been noticed by many careful observers that seborrhœa often attacks several members of one family, who

DIPLOCOCUS AS IDENTIFIED BY MORRELL.

used the same hair brush and comb. It has also been demonstrated that mice placed in the combings of hair become bald rapidly and that dandruff rubbed into the hair of a rabbit will cause their hair to come out. I am of the same opinion as Dr. Bernheim, that much contamination originates at the barber shop. The less hair a man has on his head the more frequently he visits the barber shop and exposes others to the same contagion, by coming in contact with his own falling hair and dandruff left upon the comb and brush.

We also notice many men who lead public lives and use public toilet utensils, brushes and combs, in hotels, offices, etc.,

are also encouraging baldness. Another and one of the most convincing proofs that dandruff and falling hair are of parasitic origin is that the only successful treatment is based upon cleanliness, antiseptic and parasitic medications. Among other things which have been attributed to the cause of falling hair and baldness may be mentioned excluding the top of the head from light, air and sunshine, which is nature's greatest hair grower. Did you ever see a bald-headed Indian? Much credit is given as a cause of baldness to wearing too tight hat bands, thereby obstructing the circulation in the top of the head. The loss of hair is also associated with all debilitating diseases, etc.

TREATMENT FOR FALLING HAIR AND BALDNESS

Remedies for the treatment of falling hair and baldness constitute a greater demand than all cosmetic preparations and nearly every woman has some "favorite" hair grower.

Selecting remedies to promote the growth of hair will depend largely upon the condition we have to deal with, whether the scalp is dry or oily; dandruff and "itching" of the scalp are always preceded by premature falling hair, but without going into details regarding the pathology of falling hair, I will give a typical formulæ for these conditions, and state what we may expect to accomplish from such medications, before attempting to stimulate the growth of hair. The scalp should be thoroughly cleansed with tar soap. I prefer Packer's, or an egg shampoo followed by a bath in 1.2000 bichloride of mercury solution. This gives us a clean and aseptic scalp to work upon. Then the following hair tonics may be applied, according to the condition of the scalp:

TONIC FOR DRY SCALP

Seborrhœa Sissa

℞	Resorcine	3 dr.
	Fl. ex. pilocarpus	3 dr.

Tinct. cantharides	4 dr.
Glycerine	4 dr.
Spirit lavender comp.	4 dr.
Castor oil	1 dr.
Bay rum, q. s.	1 pt.

Mix the castor oil with the bay rum, add the other ingredients and apply to the scalp with a tooth brush, before retiring. In resuming the therapeutic action of the above formula, we find resorcine is added to nearly all hair tonics for its antiseptic influence. It is closely allied to carbolic acid, but has the advantage over the latter, as it is odorless, more soluble, and non-irritant. Pilocarpus is added for its stimulating influence upon the glands of the scalp, to encourage their normal secretions; tinct. cantharides is incorporated for its counter-irritant effect to stimulate the circulation and activity of the tissues of the scalp. Castor oil provides a temporary lubricant to the scalp and hair, and is the principal constituent of all "brilliantines," as it makes the hair appear rich and glossy. Glycerine has a similar effect and is also a mild stimulant to the scalp. The spirits of lavender comp. and bay rum form the menstruum. While this is the most excellent tonic for the dry scalp, we have absolutely another condition to deal with in the oily scalp—seborrhœa oleosa—in this condition the scalp secretes an over-abundance of oily matter and instead of attempting to stimulate the glandular secretions of the skin by the use of pilocarpus, our treatment is directed to check them by astringents; thus the formula would be changed as follows:

TONIC FOR OILY SCALP

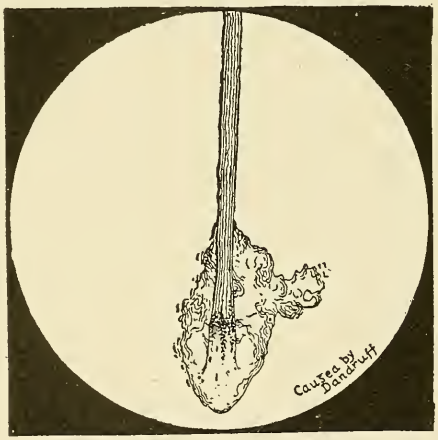
Seborrhœa Oleosa

℞	Resorcine	3 dr.
	Tinct. cantharides	3 dr.
	Lead acetate	1 dr.
	Sulphur precipitated	3 dr.

Glycerine ..... 4 dr.
Bay rum, q. s. ..... 1 pt.

Apply to the scalp with tooth-brush, before retiring. In this formula we have substituted the lead and sulphur for the pilocarpus, because of their astringent and germicidal influence.

In using either of the above tonics, the hair and scalp should be thoroughly shampooed with a beaten egg, which is followed by a thorough bath with Packer's tar soap.



DECOMPOSITION OF HAIR FOLLICLE CAUSED BY DANDRUFF.

The essential requirements to successfully treat dandruff, falling hair and premature haldness, are cleanliness, antiseptics and stimulants, also the untiring patience on the part of the patient and physician. With this object in view there has been hundreds of hair restoratives placed on the market and many devices invented to promote the growth of hair.

In considering the requirements for treatment as enumerated above, the following simple formula is one of the best preparations, to my knowledge, to quickly and thoroughly remove dandruff and is what is known as

PEERLESS SEAFOAM

℞	Aqua ammonia	2 dr.
	Cologne	1 dr.
	Alcohol	8 oz.
	Aqua	8 oz.

Mix. Sig. Apply about a tablespoonful at a time to the hair when dry and rub briskly. This makes a profuse foam which is very refreshing and cleansing to the scalp. After this has been repeated several times, the hair should be washed thoroughly with a good tar soap. Owing to the poor quality of tar soap on the market, it is best to superintend the compounding yourself by using forty parts of beechwood or birchwood tar to sixty parts of castile soap. After using these shampoos the head should be thoroughly rinsed with hot water, gradually cooled. The bath water will contain many hairs, which may give the patient the impression that the treatment is doing more harm than good; you should explain to them that the hairs which have come away are diseased hairs and would have fallen out in a few days of their own accord.

These shampoos should be repeated at least as often as once or twice a week. Some specialists use what they call "scalp food," which is used after the shampoo; these foods are mixtures of olive oil, lanoline, resorcin and mercury bichloride, and can be applied to a good advantage in many cases. It is applied with a tooth brush, rubbed into the scalp in the same way hair tonics are used. The next treatments used are what is popularly known as "hair tonics or restoratives," (see nostrums) and there is no end to the different combination of remedies used for this purpose. The principal thing to be considered is the combination of a mild stimulant, antiseptic, germicide and tonic. The remedies incorporated in these compounds are mercury bichloride and resorcin, for their antiseptic and germicide properties, quinine and nux vomica for their tonic effect, jaborandi or capsicum for their stimulating effect. The following formula will be found an excellent combination for promoting the growth of hair:

℞	Quinine sulphate	20 gr.
	Tinct. nux vomica	2 dr.
	Tinct. cantharides	2 dr.
	F. E. jaborandi	2 dr.
	Resorcine	1 dr.
	Alcohol	2 oz.
	Glycerine	2 oz.
	Bay rum	6 oz.
	Rose water	q. s. 16 oz.

Mix and filter. The best way to apply this and other hair tonics is to part the hair about one-half inch apart, lengthwise the scalp and dip a stiff tooth brush into the solution and rub it into the scalp two or three times a week.

Another form of hair restorative contains a preparation of sulphur and lead. It not only acts as an alleged curative for baldness, but as a coloring agent in dying and deepening the color of the hair.

The following formula is a very popular preparation for this purpose: (The reader is also referred to the formula given in the chapter on the mail order specialist, and others parts of the book for vegetable and other hair dyes.)

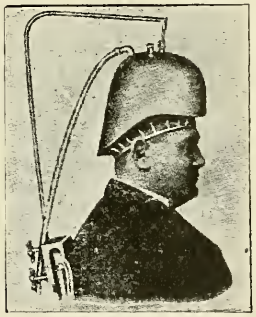
℞	Lead acetate	6 dr.
	Sulphur precipitated	1 oz.
	Tinct. cantharides	4 dr.
	Glycerine	8 oz.
	Alcohol	4 oz.
	Oil of citronella	1 dr.
	Oil of bergamot	½ dr.
	Water enough to make	64 oz.

Dissolve the oils in the alcohol, add the glycerine and tincture of cantharides and mix with the water, then add the sulphur and lead. Preparations containing sulphur and lead, when exposed to the light, form black lead sulphide, therefore,

they should be kept in dark bottles. Patients using sulphur and lead hair restoratives should be cautioned that they are not entirely free from danger.

To recapitulate: The treatment of seborrhœa, alopecia or falling hair, should consist of thorough cleanliness, antiseptics and stimulants, which may be obtained by the first two preparations; the latter formula is not to be used unless you wish to darken the hair.

The secret of success in promoting the growth of hair and treating scalp diseases lies in untiring perseverance. This should be explained to the patient and no case should be admitted for treatment unless he is willing to continue the medication for two or more months.



THE EVANS CAP FOR GIVING THE VACUUM TREATMENT.

ADVANCED ALOPECIA

The treatment of advanced baldness will depend upon the condition of the scalp; if the scalp is shiny and the glands entirely atrophied, there is absolutely no help except to toupee. If there are a few hairs left it offers the specialist a chance for argument and encouragement, and the physician's favorite quotation is often given: "where there is life there is hope."

All treatments for advanced baldness point towards one thing, viz.: to improve the circulation of the scalp. This has

been attempted by blistering, electricity and the vacuum treatment; of these treatments the vacuum treatment is to be preferred, as it has many advantages in its favor. It is not claimed by specialists who use the vacuum treatment that it will create live hairs when there is none, but it provides every possible means of promoting hair growth under the most adverse circumstances; however, in no case will it restore hair to a perfectly bald or shiny scalp when the life of the hair follicle has been extinct. The object of the treatment is to loosen the scalp and improve the circulation, which is of much benefit in all cases of alopecia.

HAIR DYES

It is doubtful if the average man or woman has accepted kindly the familiar "golden text" from the bible, "the hoary head is the crown of glory." I am more inclined to believe that the poet has described our attitude towards hoary hair in the following verse:

> And thou hast come at last,
> Thou baleful issue of the buried years;
> Sad fruitage of the past,
> Root nurtured in a loam of hopes and fears;
> I hail thee, but I hate thee, lurking there
> Thou first gray hair!

In order to practice deception upon Father Time, hair dyes have always figured conspicuously with the most ancient and modern cosmetic requisites. There are two ways in which the hair may be caused to change its color or shade: the first is by simple stains, and the second is by chemical action. One of the simplest and most convenient ways of staining the hair a beautiful brown is to use a strong infusion of black tea in the early stages when the hair is just commencing to turn gray. This offers a most excellent means of maintaining its

youthful appearance, and is the method used at most hair establishments in coloring switches to match natural hair. Sage is used for the same purpose and no doubt enters largely in that much advertised nostrum, "Ozark Herbs." Where stronger stains are required green walnut hulls are used, as in the following:

℞	Green walnut hulls	10 dr.
	Alum	2 dr.
	Resorcin	1 dr.
	Glycerine	2 oz.
	Water, q. s.	1 pt.

Grate the hulls and boil slowly in the pint of water for thirty minutes, strain, and add the other ingredients and sufficient water to make from ten to sixteen ounces, according to the strength desired. This makes, approximately, the same preparation as the much advertised "Walnuta" hair dye. Before using this, or any of the chemical dyes, it is always best to test the shade you desire by the hair combings, and the hair should always be thoroughly washed with soap and water, containing soda, before using any dye to remove all grease. It is best applied with a tooth brush and fine toothed comb, to protect the scalp, parting the hair in sections at the scalp and working the dye to the end of the hair.

Hair dyes proper depend upon their chemical action with the organic substance of the hair; thus peroxide of hydrogen in 10 to 20 per cent. or stronger solutions, removes the pigment matter from the hair, and gives it a golden color. A 10 to 20 per cent. solution of potassium permanganate will give the hair a brown tint. Resorcin will give it the red or "Zaza shade."

PYROGALLIC ACID AND SILVER DYE
Black and Brown

These dyes are prepared in two bottles, numbered 1 and 2. After thoroughly washing and drying the hair, No. 1 is

applied with a tooth brush, taking care not to wet the scalp, which is protected with a fine toothed comb; when partially dry apply No. 2 in the same manner, using another brush. The following are the two formulas used:

No. 1

℞	Pyrogallic acid	1 dr.
	Alcohol	4 dr.
	Water dis.	4 oz.

No. 2

℞	Silver nitrate	1 dr.
	Water distilled	4 dr.
	Ammonia water	q. s.

Dissolve the silver nitrate in the water, and gradually add the ammonia water, stirring constantly until the brown turbidity produced has vanished and the liquid appears colorless. Then add enough distilled water to make one ounce.

A large excess of ammonia tends to produce a brownish dye. Various shades of brown may be obtained by increasing the amount of water in the silver solution. Always remember to thoroughly wash the hair, before dyeing it, with water containing sodium carbonate; well rinsed with clear water and dried, and the dye effect is better if the hair is kept moist as long as possible after being dyed. It may be wrapped in a turban of cloth, or better still, in the rubber bathing cap.

PERMANGANATE OF POTASSIUM DYE

℞	Permanganate of potassium	5½ oz.
	Distilled water	2 qt.

The above combination forms a dark violet solution. When this is brought in contact with any organic substance like the hair, it rapidly discolors it and imparts a brown tint, due to the hydrated oxide of magnesia.

The hair is washed as stated above, and the dilute solution applied with a soft brush. The color is produced at once. According to the degree of dilution, this innocuous preparation can be made to give any desired color from blonde to very dark brown. It is this preparation which has recently been extensively used by ladies in their latest fad of coloring the hair auburn. Of course this preparation and other hair dyes may be used for the beard as well as the hair.

TESIAN AUBURN HAIR DYE

"Zaza Shade"

℞	Dioxide of hydrogen	2 oz.
	Nitric acid	3 min.
	Aqua ammonia	5 min.
	Resorcin	15 gr.

SILVER HAIR DYES

This and similar hair dyes consist of two preparations, preserved in bottles labeled Nos. 1 and 2; the latter, containing the silver solution, should be kept in a dark, amber-colored bottle, as the silver salts are decomposed by light. For use, some of the liquid from bottle No. 1 is poured into a cup and the hair is moistened with it by means of a soft brush. The liquid from bottle No. 2 is now poured into another cup and applied with another brush. These dyes are prepared in different strengths in order to color the hair brown or black.

TO DYE THE HAIR BROWN

No. 1 (in white bottle)

℞	Sulphide of potassium	7 oz.
	Alcohol	1 qt.

No. 2 (in dark bottle)

℞	Silver nitrate	4¼ oz.
	Distilled water	1 qt.

TO DYE THE HAIR BLACK

No. 1 (in white bottle)

℞ Sulphide of potassium ..... ½ lb.
Alcohol .....1 qt.

No. 2 (in dark bottle)

℞ Silver nitrate .....5½ oz.
Distilled water .....1 qt.

The sulphide of potassium appears in fragments of a liver-brown mass which readily dissolves in water. The solution must be filtered before being poured into the bottle as it becomes turbid in the air. Keep in well corked bottles. When the two solutions are brought together, black sulphide of silver results and darkens the hair. After the use of this preparation a disagreeable odor adheres to the hair which may readily removed by washing.

CHRISTADORO'S HAIR DYE

No. 1 contains sixty grains of pyrogallic acid dissolved in 1 dram of alcohol and four ounces of distilled water; No. 2 consists of 1 ounce of nitrate of silver dissolved in 1 ounce of distilled water and 1 ounce of concentrated ammonia, to which is added one-half ounce of gum arabic dissolved in 3 ounces of distilled water.

WALNUT HAIR DYE

℞ Green walnut shells ..... 2 oz.
Alum .....¼ oz.
Olive oil ..... 4 oz.

Heat together in a water bath until the water has been completely expelled, then express, filter and perfume.

TO BLEACH THE HAIR

There are several preparations on the market, under different names, as Goldine, Auricome, Golden Hair Water, etc.

These preparations are nothing but peroxide of hydrogen, perfumed. When this is applied to the hair as a bleaching agent, it should be diluted and the hair deprived of its oil by first washing it with soap and water.

HAIR RESTORATIVES AND GROWERS

Nostrums

The following formulæ will allow you to become familiar with many of the extensively advertised hair preparations:

SEVEN SUTHERLAND SISTERS' HAIR GROWER

℞	Bay rum	7 oz.
	Distilled extract of witch hazel	9 oz.
	Common salt	1 dr.
	Hydrochloride acid (5 per cent.)	1 dr.
	Magnesia	q.s.

Mix the bay rum and distilled extract of witch hazel and shake with a little magnesia; filter and in the filtrate dissolve the salt and add the hydrochloric acid. The agitation with magnesia causes the preparation to assume a yellow color, but by rendering it very slightly acid, with the hydrochloric acid, this color all disappears.—(New Idea.)

ALLEN'S WORLD'S HAIR RESTORER

℞	Sulphur	6 parts
	Acetate of lead	8 parts
	Glycerine	100 parts
	Perfumed water	200 parts

Dissolve the acetate of lead in the water, then add the glycerine and sulphur. Any aromatic water may be used for making the water.—(American Pharmacist.)

HALL'S HAIR RENEWER

℞	Sulphur	1 dr.
	Lead acetate	1 dr.
	Salt	2 dr.
	Glycerine	8 oz.
	Bay rum	2 oz.
	Jamaica rum	4 oz.
	Water	16 oz.

BORDET'S HAIR TONIC

The American Druggist gives the following for this preparation, and it is my opinion that it is much better than the lead and sulphur mixtures:

℞	Carbolic acid	30 min.
	Tincture of cardamon	30 min.
	Tincture of nux vomica	2 dr.
	Compound tincture cinchona	1 dr.
	Cologne water	1 dr.
	Cocoanut oil	q. s. ad 4 oz.

AYER'S HAIR VIGOR

℞	Acetate of lead	3 parts
	Flowers of sulphur	2 parts
	Glycerine	14 parts
	Water	80 parts

—(Formula d'Hygiene Populaire.)

Chiropody

Chiropody bears about the same relation to the medical profession today as dentistry did half a century ago; as it was only a few generations ago that physicians deemed dentistry a minor subject, unworthy of any special attention or surgical skill, other than the extraction of teeth, for the relief of pain; yet dentistry, as a branch of the medical art, has developed into one of the worthy and respected professions. If we would only stop to consider that ills caused from ailments of the feet are quite equal to those of the mouth, as nine people out of every ten are afflicted with some disease or discomfort in this part of their anatomy, we would realize that it is time physicians should give this subject more than a passing notice. Through the neglect of this specialty Chiropody has, unfortunately, fallen into the hands of many unskilled "corn whittlers." who style themselves "Chiropodists." While many of these embryo surgeons possess more than ordinary skill in treating disorders of the feet, the majority of them have little or no knowledge of antiseptics and other surgical dressings, and these operations are often followed with the most serious results.

I, personally, have no use for the physician who considers it beneath his dignity to treat the feet, or any other part of the body if he possesses skill to relieve pain, and alleviate suffering. Chiropody certainly offers him a large field for his usefulness.

However trivial the maladies of the feet may appear, and however they may be sneered at and considered beneath the dignity of medical science, they nevertheless demand careful attention; the physician will be amply repaid for his services or for any information he may contribute to the ease and comfort of mankind.

THE CAUSE OF CORNS

In treating corns, as a rule, we have only the four outer layers of the skin to deal with (the epidermis); the true skin is seldom affected, unless it is involved in the sloughing process of suppuration. Corns and callosities appearing upon the feet are caused either by pressure or friction, usually due to the improper selection of footwear. There are two forms of shoes which should be condemned—the high heels and narrow toes. The erroneous idea many women possess of trying to ape the aristocratic Chinese women, by attempting to make their feet appear small, from the use of these shoes, has offered more labor for the chiropodist than any other cause. These shoes force the feet forward, compelling pressure between the toes to a state of friction and produce corns, both between the toes and upon the top surface of the prominent articulation; while tight, narrow-toed shoes induce corns by pressure. Too loose, and poorly fitting shoes, produce corns and callous hardening by irritation. This is the principal cause of all callosities on the heel and bottom surface of the foot.

There has been much said regarding the pathological formation of corns. Most observers are in accord, however, that the pressure on prominent articular surfaces causes an exudation of lymph which coagulates under the epidermis, and through its inspissations, forms the substances of corns. Corns seldom involve the true skin, but their penetration into the cutis vera, and the pressure upon the nerve filaments of the papillæ, cause the annoying pain connected with these growths. Sir Erasmus Wilson says:

"The new position of the formative organ of the epidermis, namely, the corneum, occasions an alteration in the direction of the strata of the epidermis. The strata formed within the cup assumes, naturally, the cup shape, and as they rise to the surface, present the broken edges of a cup, with a small central mass or nucleus, (the eye of the corn) suggesting the idea of vertical fibres rising to the surface and the suggestion is increased by the broken edge of the epidermis that corre-

sponds with the border of the cup. The fibrous appearance of the center of the clevice has suggested the idea of roots and the central cup-formed mass of hard and condensed cuticle has been regarded as the core or root of the corn.

The use of the word root in the description of corns has implanted the idea that they grow like a vegetable, and in order to eradicate the difficulty, this filament must be destroyed; this is an erroneous conception, which has often led to great disappointment to the sufferer. Corns have no roots and are only embedded in the sensitive structures of the true skin; they will always reappear if their primary cause is not removed, namely, pressure or friction.

CLASSIFICATION OF CORNS

Although most corns are similar in structure they present varieties according to the parts upon which they are formed, or the tissue which becomes involved. We therefore find seven distinct varieties of these growths, namely: hard, soft, festered, nervo-vascular, laminated and fibrous corns, and callosities of these. The hard corns are of the most frequent occurrence. A favorite seat for these corns is on the outer surface of the little toe, and the inner flap of the great toe, although they may occur on any part of the foot where extreme pressure is applied. These corns are deep-seated and very painful.

Soft Corns are somewhat different in nature from hard corns and are always located between the toes, and are supposed to be formed by the perspiration collecting between the toes and the pressure of one toe against the joint of another. They are not deep-seated or as painful as hard corns, the pain being of a stinging character.

Festered Corns are due to pressure, forcing the toes out of their natural position, which frequently occurs in "breaking in" a new pair of shoes. The first indication of this complaint is redness, swelling and inflammation of the afflicted part, which may involve the entire toe. These corns can only be relieved and cured by properly adjusting the footwear, to remove the pressure from the affected surface.

Nervo-Vascular Corns are generally found in delicately skinned persons with fair complexion; their skin being more vesicular than usual, disposes to inflammatory action even after moderate pressure. These corns are also more frequently found in persons advanced in life with weak vitality. In the early stages they are intensely inflamed; this irritation subsides in a few days if the pressure from the shoe is avoided. After the acute inflammation has subsided the corns can be carefully dissected away and an application of nitrate of silver applied.

French Heel Cramp. Hard and Soft Corns. "Knob-Joint" Compound Callouses.

Vascular Corns have somewhat the appearance and character of warts; they are spongy and vascular but do not project much beyond the level of the skin. They contain red and black specks which are surrounded by inflamed and swollen integument; they are very sensitive to the touch and attended with great pain.

Laminated Corns, also frequently referred to as black corns, are due to the formation of a blood clot, or coagulated serum underneath the epidermis. These corns adhere very closely to the skin, and are invariably formed like a shell.

Fibrous Corns are more painful than the other varieties, but fortunately they are less frequently met with and their method of removal is the same as with the other varieties.

Callosities are not of the character of a corn, as there is no change of the integument, other than a thickening of the skin. This may appear on the hands, by sawing, or any other part of the body which is exposed to continuous friction. It is formed on the soles of the feet by the use of too loose shoes. These callosities rarely cause any trouble. If they should become inflamed they can be removed by dissecting, the same as corns.

THE TREATMENT OF CORNS

The treatment for corns consists of both medical and surgical measures. The first and most important step to take is prophylaxis—remove the cause. If the patient is wearing too tight or too loose shoes, he should be advised regarding the proper adjustment of footwear. High heeled and pointed-toed shoes should always be condemned; also a too loosely fitting shoe.

A description of the caustic remedies, used from time to time, for the removal of corns, would occupy the space of this book. Some have been too mild, and others too strong, but after years of experience it has become an established fact that salicylic acid is the one remedy for the removal of corns. Salicylic acid is the happy medium; it is neither too strong nor too mild. Its escharotic properties are strong enough to disintegrate the corn tissue, imbedded in the epidermis, without affecting the true skin. All the multitudinous corn cures on the market contain this remedy, in various per cents., as the active ingredient of their preparations. The component compounds are generally accompanied by Cannabis Indica or some other anodyne remedy for the relief of pain and dispensed in a base of collodion or cerate, as will be found in the following formula:

LIEBIG'S CORN CURE

℞	Ext. Cannabis Indica	5 parts
	Salicylic acid	30 parts
	Collodion	240 parts

Mix until dissolved. Apply with a camel's hair brush for consecutive nights and mornings, to form a thick coating. The collodion protects the corn from irritation and rubbing, while the extract of Cannabis Indica acts as an anodyne, and the salicylic acid dissolves and disintegrates the corn.

HANSON'S MAGIC CORN CURE

℞	Salicylic acid	1 dr.
	Simple cerate	1 oz.

Mix intimately.

KOHLER'S ONE NIGHT CORN CURE

℞	Salicylic acid	1 dr.
	Lard	3 dr.

DIAMOND CORN PLASTERS

One of the most convenient and cleverly devised treatments is known as the "Diamond Corn Plasters," which are made as follows: An adhesive plaster is made by melting equal parts of resin and balsam of fir together; while warm, spread on cambric cloth cut in diamond shape. When worn, a circular pad, with a disc in the center should be placed in the middle of the diamond and the central disc filled with the following mixture.

℞	Ext. Cannabis Indica	1 dr.
	Resin	3 dr.
	Balsam of fir	2½ dr.
	Salicylic acid	5 dr.

Melt the resin and balsam of fir together, then stir in the Cannabis Indica and salicylic acid.

In applying these plasters the central medicated disc should be placed directly over the corn and the pointed ends of the adhesive plaster wound around the toe, to form the attachment.

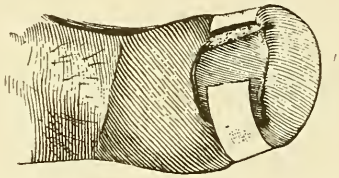
The surgical treatment of corns is of great importance as instant relief can be obtained by their immediate removal with the knife. To successfully detach a corn the operator has to exercise some judgment concerning the different forms of corns. The principal object in view is to remove all the corn tissue.

In dissecting away a corn or callosity, the operator should commence at the edge of the corn, and detach from the subjacent tissue every portion of the extraneous substances there imbedded, including the so-called eye of the corn. Great caution should be exercised not to cut into the true skin, as this will produce bleeding, which can be avoided if the operator is careful. If the corn is an exceptionally sensitive growth, a few drops of cocaine solution can be injected beneath the corn, and the operation rendered painless. After the corn has been successfully removed, the denuded surface should be dusted with aristol europhen, or some other antiseptic powder, over which a thin layer of absorbent cotton is placed and held in position with adhesive plaster, which will diffuse the pressure of the foot, and assist the healing process. Some chiropodists prefer to cauterize the surface with nitrate of silver, with a view of permanently destroying the growth.

Bunions are due to a malformation of the foot, which is usually limited to a morbid condition of the internal lateral ligament of the metatarso-phalangeal articulation of the great toe, of the superimposed cellular tissue and integument and the development of a bursa produced by pressure and irritation. When the bone has become affected, it is only secondarily, and must be viewed as a complication and not as a disease. The pain arising from a bunion differs from a corn, as it is of a more aching character. Although a radical cure for bunions can seldom be promised, there are many palliative treatments, which can be applied, and relief from suffering inconvenience

is afforded by proper treatment. The most beneficial local remedies are cold water dressings and linseed meal and boracic lint poultices. If the bursa becomes too annoying, it may be dissected away, but such operations always result in ankylosis.

Ingrown Toe Nail is of very frequent occurrence, and is usually found upon the outside surface of the great toe. This condition is due to wearing shoes which are not long enough for the feet, or the foot is thrown forward, as with high heeled shoes, impinging the great toe.



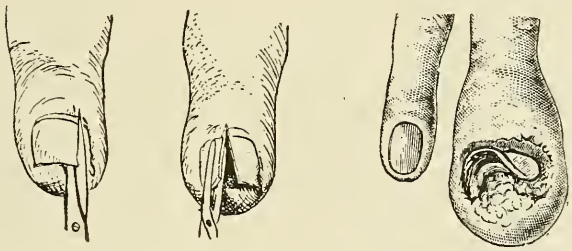
TREATMENT FOR INGROWING TOE NAIL.

The following method of medicated treatment is the most satisfactory and will cure at least ninety per cent of all cases: The flesh should be pulled away from the nail at the irritating side, by a strip of adhesive plaster which is wrapped around the toe, to draw the cutaneous border away from the nail. The irritating surface should now be thoroughly cleansed with peroxide of hydrogen. The exposed fissure should be packed with a copious application of dried alum and thoroughly packed in with an absorbent cotton tampion, over which the second strip of adhesive plaster may be wrapped entirely around the toe. The accompanying cut illustrates the method of packing and applying the tension strip, which is now ready for the final strip around the toe.

This simple method, if properly conducted, will give most excellent results; by repeating this application for a few days the suppuration rapidly dries up, and pain and discomfort are relieved almost at once.

The surgical treatment consists of complete removal of that portion of the nail imbedded in the flesh. The operation can be made painless by the use of an injection of cocaine

alongside the parts to be operated upon, and the Esmarch hæmostatic bandage should be applied above the operative surface, to check the flow of blood. With a pair of sharp pointed scissors the nail is cut its full length; the offending portion should then be grasped with a strong pair of dressing forceps and with a slight twist outwards, removed from the matrix, and an antiseptic dressing applied.



1 and 2. Operation for ingrown toe nail. 3. Onychis.

HORNY GROWTHS AND UNGUAL EXOSTOSIS

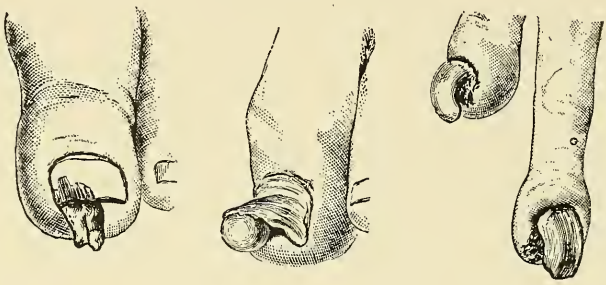
Sometimes appear at the outer margin of the great toe, and create great suffering; the only method of treatment is complete excision and an antiseptic dressing.

Onychis is an inflammation of the matrix of the nail, causing ulceration of the surrounding tissues and may be caused either by injury or constitutional disturbances. The simpler forms commence with the usual signs of inflammation around the nail, which becomes red, painful and swollen. Mild cases can be cured by cauterizing the parts with nitrate of silver, or other caustics. Other cases will require the complete removal of the nail by the use of the knife, allowing the wound to heal by granulation.

Hypersidrosis, or excessive sweating, is a very annoying condition, which Chiropodists are requested to treat. Patients thus afflicted should wash their feet and change their stockings daily, and provide good ventilation in their shoes. The

inside of their stockings should be dusted with boracic acid, and the application of the following formula, each night before retiring, will be found beneficial:

℞	Tannic acid	3 dr.
	Alcohol	6 dr.



UNGUAL EXOSTOSIS.

Bromidrasis, or obnoxious smelling feet, is not of uncommon occurrence, and many husbands and wives have been requested to sleep alone owing to the odor emanating from this condition. The following formula will always give prompt relief:

℞	Bismuth subnitrate	1 oz.
	Potass. permanganate	1½ oz.
	Rice powder	2 oz.

Sprinkle liberally on the feet and in the stockings and shoes. This application can also be applied to the axillæ and other parts of the body for the same condition.

Chilblain is a local non-suppurative hyperæmia, or cellulo dermatitis, induced by exposure to cold and can readily be cured by the use of equal parts of Peruvian bark and castor oil.

Goiter

Goiter, or "big neck," as it is popularly advertised, has been isolated as a specialty by some physicians and there is one medical company in Cincinnati who claim to have the names of two-thirds of the goiter patients in the United States. This list has been secured by persistent advertising for several years.

The treatment used by this company is an ointment composed of iodosyl incorporated in a base of lard and lanoline, applied three times a day. The internal treatment consists of iodide of potassium. Some years ago Dr. Hale devised a treatment by hypodermic injection, which has been used by several physicians with excellent success. The treatment is as follows:

Injection No. 1

℞ Carbolic acid ..... ½ dr.
Tinct. iodine ..... 2 dr.
Glycerine ..... ½ oz.
Aqua dis. ..... 1 oz.

Mix the carbolic acid and water, add the tinct. of iodine and glycerine and filter through absorbent cotton.

Injection No. 2

℞ Iodoform ..... 40 gr.
Glycerine ..... 3 dr.

Mix by triturating in a glass mortar and keep the solution in a colored bottle.

Local Application

℞ Tartar emetic ..... ½ dr.
Tinct. benzoin comp. ..... 2 dr.

Tinct. iodine ..... 3 oz.
Aqua ..... ½ oz.

Dissolve the tartar emetic in the water and add the tincture of benzoin and iodine, and filter.

Injections No. 1 and 2 should be alternated by first injecting from 1 to 5 minims of No. 1 and in three days inject from 2 to 10 minims of No. 2. In this way a patient receives about two hypodermic treatments a week. The amount of medicine used will depend somewhat upon the extent of the growth and the age of the patient. It is always best to commence with a minimum amount and increase the amount of medicine used as the treatment progresses. It is not necessary to inject deeply into the tissues, as you are dealing with a glandular substance and the medicine is readily diffused. The patient is also requested to apply the local application two or three times a day.

If you wish to remove the discoloration caused by the iodine, you can readily do so by applying a concentrated solution of hyposulphate of soda.

DR. CHAVETTE'S GOITER CURE

℞ Zinc sulphate ..... 2 dr.
Salicylic acid ..... 2 dr.
Boracic acid ..... 3 dr.
Iodoform ..... 3 dr.
Oleic acid ..... 8 oz.

Mix and keep at boiling heat for four hours, then pour off the liquid and after cooling, bottle and cork and keep in a dark colored bottle.

This preparation should be applied to the enlarged gland by using slight friction twice a day until slight desquamation occurs, then it may be applied only once a day until the enlargement has been entirely reduced. It has been stated that this is a permanent cure for goiter.

Beauty Specialists

The above title describes another type of specialist with which every city is familiar. These specialists are generally of the feminine gender, and their finely furnished parlors are found on every fashionable thoroughfare. As most women are ambitious to become handsome, we find these specialists well patronized and "for ways that are dark and tricks that are vain" they are unapproachable.

Georgine Champbaron, of Paris, was among the first to establish a reputation with her famous rejuvenating treatment Afterwards Mrs. Harriet Hubbard Ayer opened an establishment on Fifth Avenue, New York, for the purpose of beautifying the complexion of patients. From a financial standpoint, her success must have been phenomenal, for at the present time, we find temples of beauty everywhere, with a presiding princess, who is usually a woman past her first youth, hard in feature, illiterate to a degree, but seductive in manner and fluent in argument.

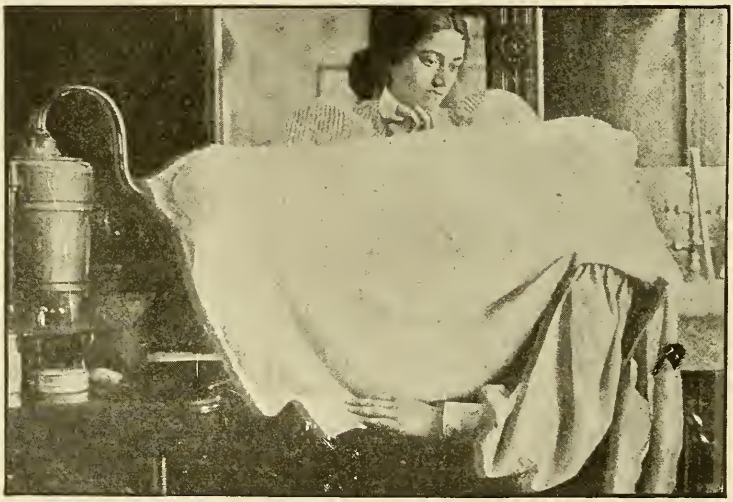
These "ladies" generally claim to be philanthropists, pure and simple, animated solely by a desire to help their less beautiful sisters (at a trifling charge of from fifty to three hundred dollars for each case). Their primary training as beauty specialists is often obtained at some fashionable manicure or hairdressing establishment, where they have acted as an apprentice and learned to listen to and sympathize with women who are not blessed with good complexions by nature.

A clever woman at once finds the field a large and profitable one, and enters into business on her own responsibility, with a few pretty young ladies as her assistants.

By consulting some recipe book she finds the formulæ for the preparations required in her practice, places them in fancy

bottles and labels them "Creme de Beaute of the French Court," "Helen of Troy Skin Rejuvenator," "Circle's Bloom," or "Elixir of Youth." They also have wrinkle-eradicators, hair dyes and bleaches, plasters, etc. They have steaming and other appliances which impress their patrons favorably.

A young lady once delivered herself into the hands of one of these philanthropic "ladies," for the purpose of learning



FACE STEAMING APPARATUS.

their methods, and under her treatment was kneaded, pinched, massaged, greased, steamed, lotioned, powdered, painted and elixired during six weary days. She claims that she got along with the treatment more easily than many others, for as soon as she had retired from their apartments, she washed their stuff off, and was not self-sacrificing enough to undergo the rejuvenating process, for she did not care to submit to the torture and be flayed alive. She describes the process of beautifying as divided into three departments, bleaching, steaming and plastering. The almost invariable basis of the complexion

bleach is corrosive sublimate, the action of which is to remove the outer cuticle, leaving the smooth, pink underskin exposed. The pain connected with the use of this preparation varies according to the strength in which it is applied, and the delicacy of the skin.

The face-steaming treatment used at these institutions is too well known to require much description. The face is thoroughly greased and then bathed with medicated steam. This opens the pores and allows all secretions to escape, including the natural oil which is absolutely essential for the nourishment of the skin. The great argument in favor of the face-steaming treatment is, that it removes all impurities, which is quite true, but experience has demonstrated that the continual and excessive use of these steaming treatments will weaken the secretory gland of the skin, and have a tendency to leave it dry by extracting its oil. This, of course, is the cause of wrinkles, which no amount of their creams or flesh food will repair.

The most horrible and barbarous of all the complexion processes is known by the alluring title of "rejuvenating treatment," and is guaranteed to make a person look twenty years younger in a few weeks. This is practically a revival of the torture process in vogue in France in the fifteenth century, and the suffering which it entails varies only in degree.

Unlike the other treatments given, the skin, in this process, is peeled off in strips. The face is first bathed with a mixture of iodine, some use the pure tincture. Plasters are then applied which not only loosen the skin, but draw out a thick, milky pus. The outer skin is finally torn off with the plaster, leaving the half-raw and agonizingly sensitive under-cuticle exposed. When the surface has entirely healed, the shortest time being from four to eight days, the complexion in many cases is really marvelously beautiful, although all the lines of character have disappeared, leaving the face as expressionless as that of a doll.

For weeks afterward the faintest breath of wind or the touch of the softest cloth in bathing the face, causes the most

excruciating pain. In a few months after taking this treatment, the sensitive skin commences to show thousands of criss-cross lines almost imperceptible at first, but gradually deepening until the face, when viewed closely, shows a shrivelled surface somewhat resembling that of a peach which has been plucked too soon. In connection with the above treatment, these specialists often give massage treatments; bleach, dye and shampoo the hair, treat baldness and remove superfluous hair, have remedies for pimples on the face and other skin diseases, advertise flesh foods to develop the bust and to round

APPLYING AND REMOVING THE PLASTERS IN THE REJUVENATING SYSTEM.

out the neck. They also have complexion tablets and other beautifying articles.

Although physicians, as a rule, do not care to assume the dignified title of "Beauty Specialists," they are often requested to compound toilet preparations for some of the above conditions. I, therefore, append some of the formulas of their secret preparations, which may be of service to them.

THE SKIN

It is this part of the anatomy that offers the "beauty specialists" their greatest opportunity to hold high carnival,

and we find their preparations extensively advertised to cure everything from a pimple to a "mother mark." Among the remedies used for beautifying the skin, glycerine, no doubt, heads the list. Pure glycerine should never be used, however, in concentrated forms, as it abstracts water from the skin and produces a sensation of heat and burning, but when it is combined with an equal part of rose water, we find it a very valuable agent in rendering the skin white, supple, soft and glossy. No other remedy will clear a sun-burned skin in so short a time as this preparation.

Owing to the penetrating properties of lanoline, we find it also a valuable preparation, in which other remedies may be incorporated to convey them to the under cuticle. Corrosive sublimate is the remedy most generally used as a bleaching agent.

To remove freckles, moth patches, liver spots, etc. I subjoin several formulæ which are used extensively in treating these different conditions of the skin:

ALBADERMINE TREATMENT

Under the title of Albadermine, a foreign specialist has devised a method of treatment for the removal of "tan" and the milder varieties of "freckles," which is as follows:

Solution A

℞	Potass. iodide	2 dr.
	Iodini pur	6 gr.
	Glycerine	3 dr.
	Infus. rosae	4 oz.

Dissolvethe iodide of potassium in a small quantity of the infusion and a drachm of the glycerine; with this fluid moisten the iodine in a glass mortar and rub it down, gradually adding more liquid until complete solution has been obtained; then stir in the remainder of the ingredients and bottle the mixture.

Solution B

℞ Sodii hyposulph (Thiosulphate) .....½ oz.
Aqua rose ..... 1 pt.
Dissolve and filter.

With a small camel's hair pencil or piece of fine sponge apply a little of "Albadermine A" to the tanned or freckled surface, until a slight but tolerably uniform brownish-yellow skin has been produced. At the expiration of fifteen or twenty minutes moisten a piece of cambric, linen or soft rag with "B," and lay it upon the affected part, removing, squeezing away the liquid, soaking it afresh and again applying until the iodide stain has disappeared. Repeat the entire process thrice daily but diminish the frequency of the application if tenderness is produced. In the course of from three or four days to as many weeks the freckles will either have disappeared entirely or their intensity will be greatly diminished. "Summer freckles" yield very speedily to this treatment.

GLYCERINE CREAM

℞ Glycerine	½	lb.
Almond oil	14	oz.
Rose water	12½	oz.
Spermaceti	3½	oz.
Wax	480	gr.
Oil of rose	60	gr.

Melt the wax and spermaceti by gentle heat, then add the almond oil, next the glycerine mixed with rose water and the oil of rose. This makes a splendid preparation for sunburn, chapped hands, etc.

MELVINA LOTION

This lotion is used in connection with the Melvina Cream, and is recommended by the manufacturers to remove freckles,

pimples, moth-patches, liver moles, ringworm and salt rheum and also to straighten wrinkles in the face, and cleanse and soften the skin to youthful freshness. The following formula will make a preparation similar to this remedy:

℞	Mercuric chloride	2 gr.
	Zinc oxide	3 dr.
	Almonds	2 dr.
	Rose water	1 pt.

Make an emulsion of the almonds and rose water; dissolve the mercuric chloride and add this with the zinc oxide.—(New Idea.)

ROSALIND

This is a cosmetic for tinting the fingers, face and lips, which preserves the skin, cures chapped hands, etc. The New Idea gives the following formula as approximately replacing the original:

℞	Eosine	10 gr.
	White wax	30 gr.
	Spermaceti	30 gr.
	Amber saxoline	410 gr.

MADAM RUPPERT'S FACE BLEACH

Recent analysis assigns the following composition to this highly lauded cosmetic:

℞	Corrosive sublimate	1 gr.
	Tincture of benzoin	7 gr.
	Water	500 gr.

Mix. —(Western Druggist.)

COMEDONE LOTION

℞ Sulphuric ether ..... 1 oz.
Carbonate ammonia ..... 1 dr.
Boracic acid .....20 gr.
Water, to make .....16 dr.
Mix and apply twice a day.

The ammonia carbonate forms a soap with the grease. The boracic acid acts as an antiseptic and the ether as a solvent.—(Analytic.)

HAGAN'S MAGNOLIA BALM

Said to resemble the genuine.
℞ Pure oxide of zinc ..... 1 oz.
Rose water ..... 4 oz.
Glycerine ..... 1 dr.
Perfume .....25 drops
—(Lillard's Prac. Hints and Formulæ.)

LAC VIRGINS

Cosmetic for the skin:
℞ Tinct. of benzoin ..... 10 parts
Rose water .....150 parts
Mix.

A teaspoonful of this mixture, added to an ordinary hand-basin of water, makes an admirable cosmetic for the skin of the face and hands.

FUNK'S CREAM OF ROSES

℞ Tragacanth ..... 1 dr.
Glycerine ..... 1 oz.
Triple extract of white rose ..... 1 oz.

Water ..... 8 oz.
Carmine .....q. s. to color

DELIGHT OF THE HAREM

This name sounds quite Oriental enough to enable one to conjure up a vision of some dusky beauty. This cream is used to whiten the skin of the neck and arms temporarily and is especially useful for the purpose of disguising a bad skin in the evening.

℞ Oxide of zinc ..... 1 oz.
Spermaceti ..... 1 oz.
White wax ..... 1 oz.
Paraffin ..... 1 oz.
Orange blossom oil .....20 min.
Almond oil ..... 6 oz.

LA DIAPHANE

This preparation is also known as Sarah Bernhardt's face powder, and has had a wonderful sale in some localities.

℞ Talcum powder .....10 oz.
Rice flour .....10 oz.
Zinc oxide (Hubbuck's) ..... 5 oz.

Mix well and perfume with a mixture of oils of bergamot, ylang ylang and neroli.

RED LIP SALVE

℞ Expressed oil of almonds ..... 2 lb.
Wax ..... 4½ oz.
Spermaceti ..... 4½ oz.
Oil of geranium .....150 gr.
Oil of santal ..... 90 gr.
Alkanet root ..... 4½ oz.

The beautiful red color which distinguishes this preparation is produced with alkanet root; the mass, before the essential oils are added, is macerated for from six to eight hours under frequent stirring with the comminuted root and then decanted from the sediment.

FINGER NAIL POLISH

The finger nail being an appendage to the skin, we give the following formula for imparting smoothness and gloss to the nails:

℞	Oxide of tin	4 ℔.
	Carmine	¾ oz.
	Oil of lavender	150 gr.
	Oil of bergamot	150 gr.

The oxide of tin must be an impalpable powder and is mixed with the other substances in a mortar.

ECCHYMOSIS

The following formula is the very best treatment known for discolored skin due to a bruise, especially the so-called "black-eye."

℞	Tincture of capsicum	1 dr.
	Gum arabic	1 dr.
	Glycerine	10 drops

Paint this over the affected parts, allow it to dry and then apply again, until the surface has three or four coats. The formulæ for other toilet preparations will be found in the chapter on Secret Nostrums.

THE NEW REJUVENATING OR ENAMELING TREATMENT

One of the most amusing incidents the writer has ever had in investigating beauty culture was to visit the parlors of an itinerant beauty specialist, who had advertised quite extensively and given several lectures regarding her rejuvenating treatment for the removal of wrinkles, etc. Her parlors were always crowded and she did a flourishing business during her stay in the city.

By allowing her to understand that I wished to secure an interest in the business, she was extremely willing to enlighten me as much as possible regarding her method of treatment. The specialist occupied three rooms in one of the leading hotels; one was used as a reception room, one as a consultation and treatment room and the other for what she called the "retiring room." Patients were required to take a course of ten treatments for $15.00 in advance. At this nominal price she found many victims from all walks of life, but old maid school teachers seemed to predominate.

The treatment, or enameling process, consisted of painting the entire face, using a common half-inch round paint brush, with the following formula, which I learned afterwards:

℞	Mercury bichloride	2 gr.
	Boracic acid	2 dr.
	White of eggs	1 pt.

Mix by beating and trituration.

The entire face was given a heavy coat of this substance and allowed to dry, when another coat was applied. This was repeated several times. With the assistance of a fan this process took about fifteen minutes and several ladies were treated at the same time. After the last coat they were placed in the retiring room and requested to stay there three hours; they were not allowed to talk or open their mouths, for fear they would break the enamel. Imagine yourself placed in a

room full of ladies, where all is silence and their faces as expressionless as a doll's; it reminds one of a visit to some ancient Egyptian, incarnated mummery.

The process removes the wrinkles, however, but of course the results are only temporary and many of the ladies abandon

RESULTS OBTAINED FROM THE NEW REJUVENATING TREATMENT—ONE SIDE OF FACE TREATED. ILLUSTRATION USED BY BEAUTY SPECIALISTS.

the treatment before the course is completed. This illustrates one of the many ridiculous things which a fluent and persuasive tongue can accomplish in inducing the gentler sex to improve their complexion and restore their youthfulness.

TO DEVELOP THE BUST

It is doubtful if there is any one thing other than a beautiful complexion that a woman desires more than a full, symmetrical bust. This has caused the inventor and the specialist to contrive all kinds of devices to assist nature in the development of the mammary glands in flat-chested women, and we find bust foods and vacuum treatments advertised very extensively.

THE ABOVE ILLUSTRATES THE VACUUM INSTRUMENT AND THE METHOD OF APPLYING.

The vacuum treatment consists of a cup-shaped glass (see cut) which will fit around the gland, and when suction is made at the apex, either with a rubber bulb or pump, it will draw the breast into the cup, where it is allowed to remain in this expanded position during the night.

Bust foods are nothing more or less than lanoline, which may be adulterated with lard or cheap oils and perfumed. This is rubbed into the breast by a course of massage treatment, which occupies from one to two hours each evening before retiring. I have never had any experience in the use of either of these treatments but the accompanying cut is supposed to represent the results obtained from their use.

The Medical World has the following to say regarding the development of the bust: If woman's "crowning glory" be her hair, it is certain that a well-developed bust is a more attractive feature to most people. Many women go through life with scrawny figures which are a source of constant mortification to them; when a little advice and proper exercise would modify matters materially. The quack advertisements in the yellowest of lay papers are matched by the better worded advertisements in the highest class of ladies' magazines in bidding for the money of the credulous. The proof is evident that there is a demand for some method of developing the figure, and the family physician should know what advice to give; in fact he should frequently have the tact to give advice unasked. The average physician would ridicule a lady patient who asked such advice, when he should encourage and aid. Of course one must ridicule any drug which has the merit (?) of "developing the bust four to six inches in a few days," but we can instruct our patients in the use of inunctions, massage, bathing and breathing so as to obtain for them appreciable results. The following extract is taken from Ostrom's Massage and Swedish Movements: "Massage and exercise are the only means by which the bust may be properly developed. The patient should be taught how to breathe properly, and for the quick development of the mammary glands, use in massage the following preparation:

℞	Cocoa butter	2 oz.
	Lanolin	2 oz.
	Extract saw palmetto	2 oz.
	Oil cajuput	1 oz.
	Oil of sassafras	½ oz.

This preparation has not a fine odor but produces a pleasant sensation in the skin. It is a valuable compound wherever we wish to develop a part, but it should not be used on the face."

A few deep breaths taken on rising each morning will work wonders in the course of a few months. The growing girl should be taught to stand and walk with the abdomen drawn back, the chest thrown well forward, shoulders well thrown back and on a line with the hips. Bathing with alcohol or cold water on rising or retiring is not only grateful but beneficial. If your flat-chested girl patients do not speak to you

THE RESULTS OBTAINED FROM VACUUM MASSAGE AND FLESH FOOD TREATMENT.

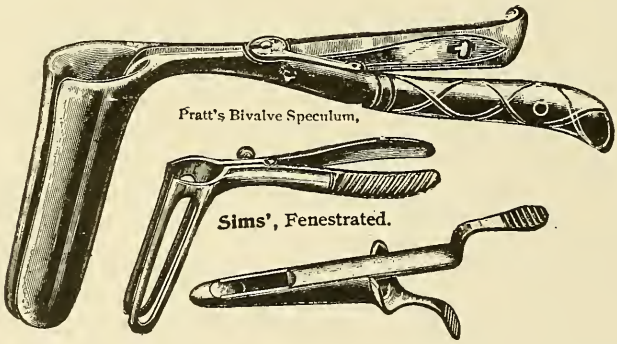
on such matters, it is your duty to speak to them (probably through their mothers) thus not only earning their gratitude but benefiting their health.

GALEGA

Galega is the internal remedy used by most mail order specialists and at local institutes for bust development, and it is claimed that wonderful results have been obtained in many cases, not only as a bust developer, but as an aphrodisiac for women. The discovery of this drug was due to its extensive use in the central parts of Europe, where it is given to cows to increase the quantity of their milk from thirty to fifty per cent.

Rectal Diseases

Of the three lower orifices of the body the rectum is doomed to share in its percentage of diseases and disorders, and there are very few people indeed, who pass through the span of life without suffering, at some period, with some derangement in this part of their anatomy. These diseases are particularly suitable to incorporate in an office practice, as a large percentage may be treated at the office without detaining the patient from his daily duties. I will, therefore, only outline the treatment of such diseases of this organ as may be successfully operated upon, and treated at the office, and allow the more voluminous text books to discuss the theory and technique of the major operation.

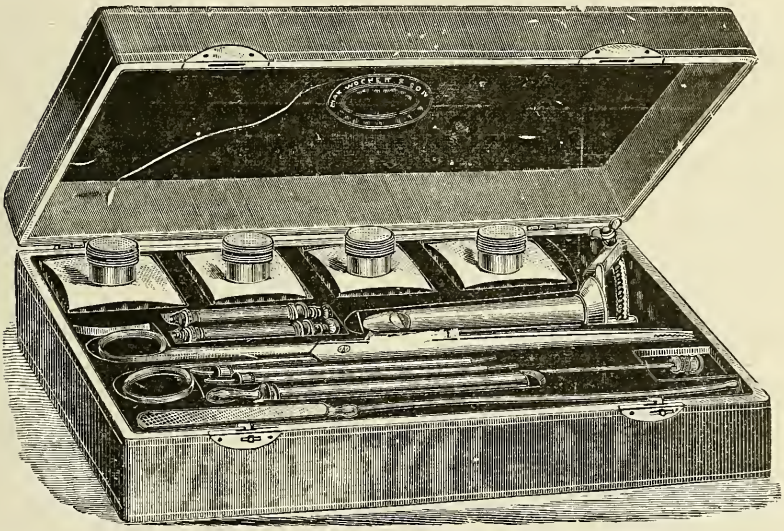


BRINKERHOFF'S, SIMS' AND PRATT'S BIVALVE SPECULUMS.

PREPARATORY TREATMENT

Patients who consult the physician at his office, regarding rectal diseases, generally possess sufficient pride regarding personal cleanliness to thoroughly bathe the parts before

submitting to an examination; this is all that is necessary for a superficial examination, to determine the nature of the disease, but before conducting a thorough examination it is best to detain the examination for one day, and instruct the patient to take light diet, and a thorough enema, and bathe before exploring the rectal walls. Of course this may be done at the office if necessary. Your examination rooms should be provided with good light, and if you examine and treat this class of patients during the evening hours, I have always found it a great advantage to use a small electric light bulb, attached to the speculum, as is illustrated here; this is of great assistance either day or night, for general examination and



THE OFFICE SPECIALIST'S OPERATING SET.
This makes a very convenient set for the Rectal Specialist. It contains four metal screw-top bottles for holding medicines, two syringes, one Brinkerhoff speculum, one rectal polypus or dressing forceps, one suppositor for ointments, one silver probe-pointed canula, one guarded and one plain hypodermic needle.

operative work. I have provided myself with four speculums: Pratt's bivalve and Sigmoid, Sim's fenestrated and Brinkerhoff's speculum.

I also have the rectal case illustrated here, which con-

tains nearly all the instruments for treating rectal diseases, and will be found indispensable to any office specialist.

LOCAL ANAESTHESIA

After determining the nature of the disease you have to deal with, and suggest an operation, about the first question the patient will ask you is, "must I take chloroform or ether"? and what a world of significance that little word "no" has, as it comes from the lips of the physician, for once more we have conquered pain in the treatment of these painful afflictions, and our old friend Quinine and Urea hydrochloride is monarch of the territory it surveys.

Dr. Gant was the first to abandon cocaine and other toxic anaesthetics, and prove that local anaesthesia could be produced by infiltrating the operative area with sterile water; by reinforcing his method with the addition of a one-half to a one per cent. quinine and Urea hydrochloride, we can produce a perfect anaesthesia for nearly all rectal operations.

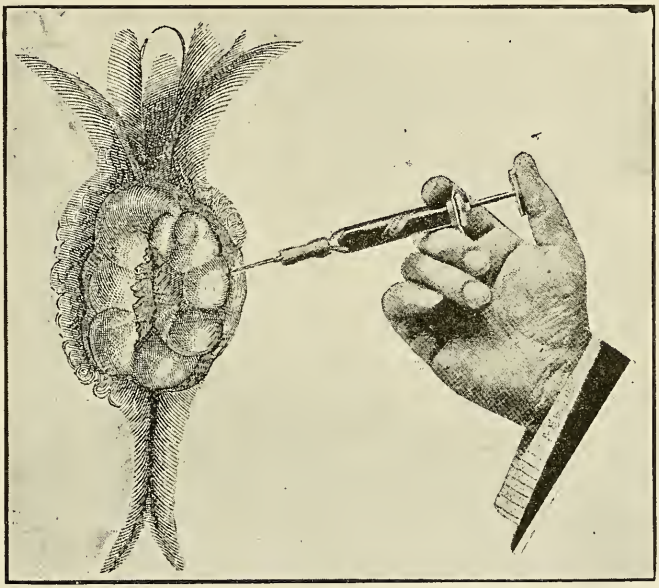
The technique for producing anaesthesia will depend upon the extent of the operation. In the operation for a simple fissure, it is only necessary to infiltrate the tissues under the surface; where complete anaesthesia of the rectal area is desired, the entire rectal walls should be completely anaesthetized; for this purpose I use the following solution:

Quinine and Urea hydrochloride .....5 gr.
Aqua dis. .....1 oz.

Sterilize the water by boiling, and when nearly cool add the quinine and urea hydrochloride.

When we wish to make an incision through the skin and subcutaneous tissue, as in fistula, colostomy for hemorrhoidal operations, etc., the following technique will completely anaesthetize the operative area: Commence by pinching up a fold of skin at the line of incision and press firmly with the thumb and forefinger. This will lessen the pain caused by the needle, which is now inserted between the layers of the skin, and a few drops of the anaesthetic slowly injected; the needle is

now inserted further and more anaesthetic used. This is followed until the entire operative area is distended, to resemble a water blister. Care should be exercised not to inject through the skin in this treatment, as it is only intended to obtund the skin. When you have anaesthetized the external surface which may require about one syringe full of the anaesthetic,



METHOD OF INJECTING THE LOCAL ANAESTHETIC.

the deeper structures may be anaesthetized by injecting directly into the tissues, without further pain; therefore, to completely anaesthetize the entire rectal area, at least four more injections are made. These injections should be made external to the sphincter muscles, thus avoiding the diseased area and large blood vessels of the rectum. I usually divide the surface into four punctures: one at the top and bottom of the median line, and one at each side, as is illustrated here. During these injections the index finger of the left hand is inserted into the rectum, as a guide to the needle, and to

prevent puncturing the inside walls, as the needle is inserted. Pressure is made upon the piston to deposit the anaesthetic at different points, and after the needle is withdrawn, the injected area is massaged with the finger within the rectum. One hypodermic syringe full of the anaesthetic, injected at these four points, as a rule, will produce complete anaesthesia; if you should fail, more of the anaesthetic should be used. The sphincter may now be dilated by the use of the mechanical vibrator, using vibratode P. and the lateral stroke, or with the speculum, and we are prepared for nearly any operation upon the anus or rectum.

CONSTIPATION

While constipation is the primary cause of a large number of rectal diseases, it is also a great menace by retarding any curative measures we may adopt for their relief; therefore, when this condition exists in connection with rectal disorders, our first step towards success will be to restore the dormant bowels to new life and activity. The causes of constipation are manifold; it may be hereditary, or due to indigestion, etc., but the most frequent cause is simple neglect. Many people are so little concerned regarding their health that they will not find time to answer nature's call, and by continuing this neglect, in due time they not only find themselves afflicted with rectal disease, but often many other bodily ailments, as the result of absorbing toxic influences, which should be eliminated each day; therefore, the physician's first step towards success, in treating diseases of the rectum, is to "educate his patients to educate their bowels," and thus remove the cause. This, in many cases, is all that is required to effect a cure, not only of rectal diseases, but many other constitutional ailments. This condition is of such frequent occurrence that it requires more than passing notice.

There is much said in medical literature regarding "intestinal atony." I am inclined to believe, however, that the

"atony" is located in the rectum more frequently than in the upper bowel, for direct treatment to the rectum will result in a permanent cure far more rapidly than when medication is directed otherwise. Retention of faeces in the rectum results in over distention, and thus weakens the walls by permanent dilation. This "plug" of faecal matter is particularly conducive to congesting the pelvic organs, by obstructing the return circulation, thus producing varicose veins or hemorrhoids, as well as displacements of the female organs, and other pelvic and constitutional disorders. Of all the treatments devised for the cure of chronic constipation, those directed to the rectum proper have been the most successful. Simple dilation of the sphincter, with graded rectal dilators, will give excellent results, as far as overcoming the tension

RECTAL ELECTRODE.

of the muscles is concerned, but this is not all that is required. Above these muscles we have a large pouch, formed by broken down muscular fibers, due to the continuous expansion of the rectal walls. This is the point where treatment is directed, with the best results for "atony," and the best means of restoring tonicity to these walls is by mechanical vibration and electricity.

We have already referred to vibrotherapy for constipation on page 91, to which you are referred.

To overcome the atony of the muscular walls of the rectum, electricity excels every other means. The modified Morton wave current described by Dr. Rice as follows: "The patient sits upon a chair on an isolated platform; ground the negative side of the machine to a water pipe or gas fixture. Connect to the latter the medium-sized condensers, and close the switch; the short rectal electrode, illustrated above, well

lubricated and inserted. The conducting cord is connected to the top of the condenser, on the positive side of the machine; the prime conductors are closed, and the machine started slowly, gradually separating the former until the patient feels the current at the side of the electrode; this current is allowed to pass about two minutes, and then increase the length of the spark gap to from four to six inches.

If the prime conductors are separated gradually, there will be neither pain nor discomfort during or after the treatment. This treatment should be given for fifteen minutes; if it is followed by mechanical vibration, ten minutes is sufficient. These treatments should be given daily, at first, and lengthen the intervals, as the treatment progresses.

Many hygienic and physical measures can be adopted with excellent results. Patients who are constipated should drink plenty of water, two or three glasses of water before breakfast, and at intervals during the day, with regular hours to go to stool (preferably after breakfast), with plenty of exercise for those of sedentary habits, will relieve many cases. Our Materia Medica is congested with remedies advocated for constipation, and nostrum venders continue to herald their literature for candy cathartics and laxatives, until today we have thousands of pronounced victims of the pill habit. Drugs should be used as sparingly as possible, although they may be used to a good advantage in commencing treatment. Of the entire list, there are only three worthy of much praise for chronic constipation, although many may be given for temporary relief.

Fl. ext. Cascara Sagrada heads the list, and by reinforcing this remedy with nux vomica and phenolphthalein, we may obtain permanent results, if judiciously used, as follows:

℞	Phenolphthalein	1 dr.
	Fl. ext. nux vomica	1 dr.
	Fl. ext. cascara sagrada	1 oz.
	Simple elixir, q. s.	4 oz.

Mix. Sig. A teaspoonful three times a day.

I supply the patient with the above mixture, and another eight ounce bottle of simple elixir, and each day, as he takes the three drams from the four ounce bottle, he refills it with the simple elixir; in this way, it is gradually reducing the amount of medicine used, and by the time it is exhausted he is taking very little medicine, and is relieved from constipation. By following this rule, and instructing the patient regarding a regular hour for stool, diet, drinking water, exercise, etc., we can cure the majority of cases. I never pronounce these cases cured, however, until they can tell the time of day by nature's calling them to stool. They have thus systematized their habits.

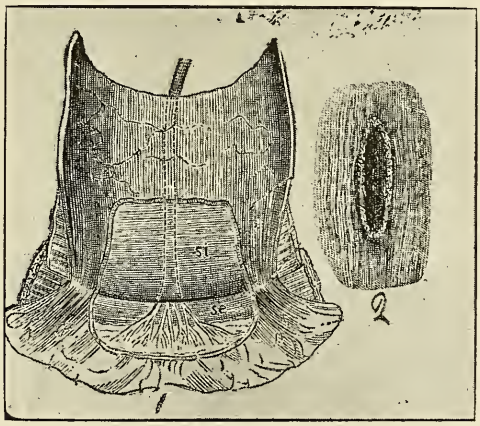


FIG. 1. DIAGRAM OF NERVE SUPPLY OF ANUS.
FIG. 2. FISSURE OF THE ANUS UNFOLDED.

FISSURE

This may be defined as "the biggest little disease" of the rectum, or perhaps the entire body; for there are few diseases involving so little space, which create such intense pain and gravely reflex disturbances as this innocent looking abrasion. at the muco-cutaneous border of the anal orifice. By referring to the minute anatomy (see accompanying illustra-

tion), we find this area more than abundantly supplied with nerve fibers, which are laid bare by this rupture of the mucous membrane, which are more sensitive to touch than the eye.

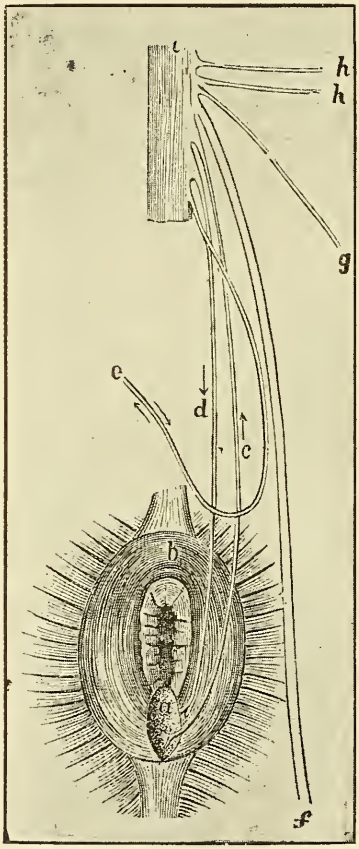


DIAGRAM OF NERVE TRUNKS WHICH ARE CONCERNED IN PRODUCING REFLEX SPASM.

a. Fissure. c. Sensory nerve. d. Motor nerve. e. Pudic. f. Ischiadic. g. Ilio-lumbar. h. h. Lumbar. i. Spinal center.

Owing to the pain and discomfort endured by the patient, the treatment of fissure has always demanded a large fee for its relief by the unprincipled rectal specialists, who would greatly magnify the seriousness of the disease for the

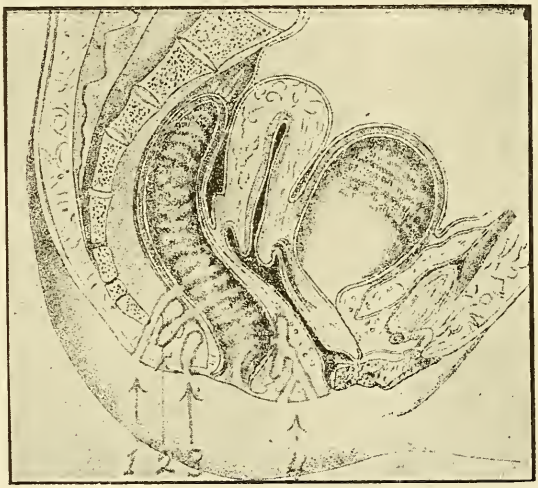
purpose of depleting their victim's purse. This is one of those little diseases where pain predominates, and "surgical operation is the only means of relief," and the patient is willing to pay almost any price to be relieved of his suffering. The fact is, the treatment of fissure is as simple as the disease itself. The first thing to accomplish is to relieve constipation, which is present in the majority of cases. Many of the superficial fissures may be cured by keeping the bowels in a semi-solid state, and applying pure carbolic acid to the full length of the fissure. Complete dilatation of the sphincter muscles, to the full extent of a Pratt's bivalve speculum, or the older way of inserting the thumbs of both hands into the rectum and stretching the muscles to their full extent will produce a temporary paralysis and displace the exposed nerve fibers. This, followed with scarification of the open surface, and the application of aristol, or other antiseptic dressings, will give immediate relief, and cure nearly every case.

A popular, and what may be called "up to date" method is by producing complete local anaesthesia with quinine and urea hydrochloride, and dilating the sphincter by pressing vibratode P. (page 85) well against the anus, using the lateral stroke until complete relaxations exist; the ulcer may now be dissected away, and the edges united with the required number of sutures. The bowels should be tied up for a few days in order to permit healing, and the after treatment directed to keep the bowels open.

ABSCESS AND FISTULA

Rectal abscesses and fistula are of the most common occurrence; in fact, some authors have given this the first rank in rectal diseases, believing it to be more common than hemorrhoids. These diseases are so closely related that it would be almost impossible to discuss them separately, as fistula is the result of abscess, in ninety per cent. of all cases, and only a few consult the physician untl the fistula has formed, and

when once formed it has little tendency to heal spontaneously. Where an abscess has formed, there is only one treatment, which is to make an incision, and remove the pus, and treat as an abscess in other parts of the body; if treated early this may avoid the formation of fistula by rapidly healing. The majority of cases, however, present themselves after the fistula has formed. There is little or no pain, and the chief annoyance to the patient is the continual discharge from the unhealed sinus.



DIFFERENT FORMS OF FISTULA.

Fistula has been classified as complete when it has a sinus leading from the rectum to the outer skin(see accompanying illustration) (1), internal, incomplete when the opening leads to the rectum, (2), external, incomplete when the opening is to the outside surface alone, (3), and the complex or horseshoe variety, which is complicated with one internal opening, with two or more external sinuses, (4). The first step towards treatment is to determine the character of the fistula we have to deal with; with the index finger in the rectum, and a silver probe it is not a difficult thing to learn the nature of

the fistula. Colored injections have been made in the external openings to determine the location of the internal exit. The use of the speculum or a well trained finger will, however, locate the papillae, which opens to the sinus.

NON-OPERATIVE TREATMENT

To cure fistula, without the use of the knife is the method advertised by the local irregular and itinerant specialists, and is the method preferred by most patients. "No knife and no detention from business" is the catchy caption; words which draw patients to their offices. It is well, therefore, to become familiar with their "tricks."

There are two principal things which prevent a fistula from healing spontaneously; the first is the tendency of the external opening to heal, and prevent free drainage of septic fluids, and second, the inlet of septic material through the internal opening. Overcoming these two obstacles has been the principal reason why these physicians have been so successful with non-surgical treatments.

Away back in the days of the Senior Brinkerhoff, when skilled rectal surgeons were few, and "quack pile doctors" were predominating, we find these rules most closely observed, and they have done much to favor the present non-surgical treatment of today. It will, therefore, be seen that absolute cleanliness, asepsis, and treatment to destroy old tissue and promote the development of new granulations is the method directed towards results; although the medication may improve as chemistry advances.

TECHNIQUE OF OPERATION

The patient should be prepared as for any rectal operation, and the nature of the fistula determined. A local anaesthesia is used, if desired, in sensitive patients as the use

of quinine and urea hydrochloride will avoid much of the post operative distress.

The external opening is dilated with a small flexible bougie, to provide free drainage, and extent of the fistula outlined. A medium sized syringe, with flexible silver probe, pointed canula, page 364, is filled with peroxide of hydrogen, and injected deep into the sinus, and every effort made to reach its most remote parts by massage; after the froth has escaped, the sinus should be irrigated with plain water, and a saturated solution of nitrate of silver is injected in the same manner, completely covering the abscessed walls. Great care should be exercised that the solution is injected into the cavity, and not into the tissues; therefore, a pointed needle should be avoided. In order to prevent the escape of the fluid into the rectum, where it may be absorbed and produce destructive effects to the walls and constitutional symptoms, the index finger, covered with the rubber shield (to prevent staining the fingers), is inserted into the rectum, and pressed firmly against the internal opening. The external opening is protected by lubricating the skin with vaseline. The solution of silver should be allowed to remain a short time and the parts massaged to reach all sections of the tract. After the silver solution escapes, it is sometimes well to dilate the external opening with a flexible bougie, to provide free drainage. In a few days, the diseased, living tissue will slough away, and be replaced by healthy granulations. This may completely obliterate the canal. If it does not, the parts still left open may be treated in the same manner in a few days, until the operation is successful. The original "Brinkerhoff System" used the following solution instead of silver nitrate, known as "Ulcer Specific."

℞	Dis. ext. hamamelis	5 dr.
	Liq. fer. sulph.	1 dr.
	Acid carbol, cryst.	2 gr.
	Glycerine	2 dr.

Dr. Mathews makes this method more energetic by di-

lating the sinus with a laminaria tent, and then inserts an Otis urethrotome, and both dilates and scarifies the interior of the sinus, to promote healing. Scarlet red medicinal is the latest remedy advocated for the injection treatment of fistula.

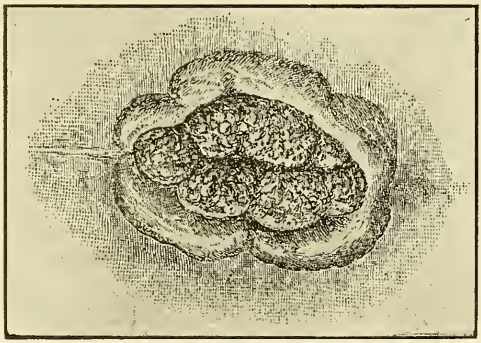
METALLIC CATAPHORESIS TREATMENT

This is also a very successful treatment, and is particularly suitable for office practice, as it does not detain the patient from his daily duties. A probe pointed copper wire electrode, attached to the positive pole, is inserted into the fistula track, so as to cover the entire surface, as near as possible. The index finger is inserted into the rectum, as a guide and to prevent the electrode to penetrate the internal opening, and contact with the opposite wall of the rectum. The negative pole is attached to the pad electrode, and placed upon the back or abdomen, and from five to twenty milliamperes used, according to the extent of the fistula covered, and the diameter of the electrode. The current is used for about ten minutes; the electrode is now removed with some force, as it has become attached to the walls of the diseased tissue, which is removed with the electrode, leaving in the fistula track, healthy tissue, which will unite and close the canal. There are many surgical procedures for the treatment of fistula, with which most physicians are familiar; we will, therefore, not discuss them here.

HEMORRHOIDS

Hemorrhoids have been classified as internal and external. The internal are those which originate above the verge of the anus and the external below; the internal being subdivided into veinous and capillary, and the external into thrombotic and tags of skin, or they may present a complicated condition of both internal and external, as is illustrated here.

The character of hemorrhoids may be easily diagnosed by having the patient strain as at stool. A large percentage of hemorrhoids may be treated and cured at the office, by the various methods of treatment we have at our disposal. The most unfavorable variety are those situated high up in the rectum and difficult to reach. These, however, may be treated to reduce the inflammation, and operated upon later, since we have such absolute control over pain by the use of local anaesthetics, there are very few cases indeed which can not be restored to health by office treatments.



INTERNAL AND EXTERNAL HEMORRHOIDS.

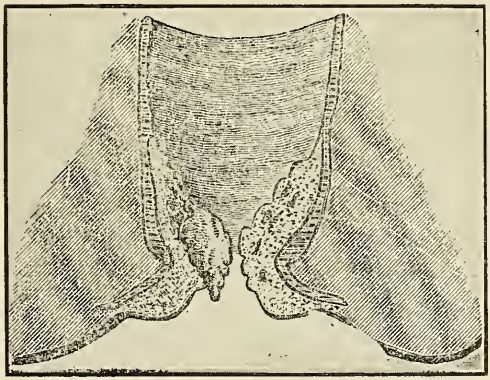
The treatment of hemorrhoids is directed to palliative measures, for the temporary relief of the patient, and those which permanently destroy the tumors. Hemorrhoids, like other diseases, have a tendency to cure spontaneously, or at least subside, so as to cause the patient little or no inconvenience. The main obtacle to overcome is constipation, and the use of cathartics, especially aloes, which more than any other remedy congests this organ.

Suppositories for the relief and cure of hemorrhoids constitute one of the oldest treatments, and much good may be accomplished from this medication. The following is of exceptional value in mild cases, and will give the patient immediate relief, providing we relieve the constipation and straining at stool. Each suppository contains:

℞	Quinine and Urea Hydrochloride	1 gr.
	Ext. Belladonna	½ gr.
	Ext. Hamamelis	1 gr.
	Bismuth sub. nit.	2 gr.
	Tannic acid	½ gr.
	Cocoa butter	20 gr.

Sig. Apply a suppository into the rectal cavity two or three times a day.

In resuming the therapeutic value of the above formula, the Quinine and Urea Hydrochloride and Belladonna are given for their obtundant and anodyne effects. The Hamamelis for



SECTIONAL VIEW OF EXTERNAL AND INTERNAL HEMORRHOIDS.

its specific influence upon the veinous blood vessels, the bismuth and tannic acid for their astringent effect to strengthen the walls of the rectum. I have often been surprised at the expressions of gratitude received from patients who have used this suppository, but in order to obtain the best results full doses from five to ten grains of phenolphthalein should be given if the patient is constipated, to clear the bowel of impacted faeces, and allow the bowels to move with the least possible straining. In fact, they should be so loose as to run off without straining at all, and thus avoid the protrusion of the pile tumors.

THE INJECTION TREATMENT FOR HEMORRHOIDS

This is another method of treatment which was ushered into the healing art under the clouds of mystery, and was formerly considered one of the "tricks" in the Medical World. It was slow in being kindly accepted by the regular physician when first introduced, but the venders of the "system" were successful in placing this method in the hands of the less skillful physicians, until the entire country was swarmed with itinerant "Pile Doctors," who were puncturing the piles and purses of patients by the hundreds. Then the Medical press commenced its campaign regarding the bad results from the treatment.

The fact is, the injection treatment for hemorrhoids is not the dangerous operation it was pictured to be, and the articles published by jealous physicians, regarding deaths from emboli, carbolic acid poisoning, etc., have very little weight when this method is used by skilled hands. Unfortunately, the "systems" were sold to many ignorant men who were not physicians, and entirely destitute of a sound Medical knowledge, yet in their hands the success obtained was remarkable, under the circumstances.

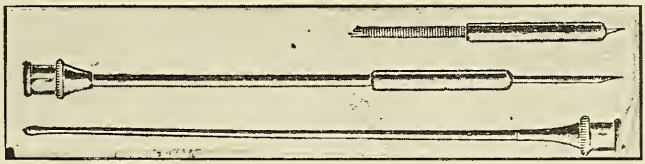
TECHNIQUE OF THE OPERATION

Prepare the patient as previously described, and he may be placed upon his side or back, as is most convenient for the operator; by requesting the patient to strain, as if at stool, he may force the tumors outside the sphincter muscles; if he is unable to do so, an enema of warm water may be given at the office, which will assist in forcing the hemorrhoids in full view of the operator. The tumors should now be bathed, and vaseline applied to the tumors and mucous membrane, to prevent any injury. If the injection fluid should overflow, and come in contact with the external surface, the syringe having

a guarded needle (see illustration) is filled with the following solution:

℞ Carbolic acid ..... 1 dr.
Glycerine ..... 1 dr.

The needle is now forced into the border of the tumor at its longitudinal diameter to the opposite side, being careful not to puncture the opposite wall, which is previously regulated by the guard on the needle, and as the needle is withdrawn, pressure is made upon the piston to deposit the medicine. The amount of medicine used will depend upon the size of the tumors, and should be regulated by the set screw on the piston stem before inserting the needle. This will vary from one to two minims for small, and four or five



GUARDED NEEDLE AND CANULA.

for the larger tumors. It is always best to treat the small tumors first, as they are more accessible than they are later, after the large tumors have been destroyed.

After the injection is made, and the cauterization is completed, it will be observed that the tumors are of a pale bluish color, which indicates that the cauterization has been successful. They should be lubricated with vaseline, and placed within the bowel. If it is impossible to force the tumors outside the sphincter muscle by straining, and for the tumors higher up in the bowel, the Brinkerhoff speculum is used to throw them in view.

The bowels should be tied up for a few days with morphine, and when they should move a full dose of phenolphthalein should be given, to produce a profuse watery stool, without straining. Never inject over two small or one large

tumor at each treatment, and at the end of ten days or two weeks continue the operation at these periods until they are all eradicated.

In summing up this operation, it might be compared with the injection treatment for hernia; they have both been more or less condemned by surgeons who wish to "knife" every case they come in contact with, yet the physicians who practice these methods are optimistic to their attack, and silently, yet successfully cure their patients, and reap the remunerative rewards attached to the operation. It is rather amusing to read the articles of some noted surgeon condemning this treatment as an unscientific and barbarous procedure, and later hear them boast of the results they have accomplisehd by pinching these delicate tissues in a clamp, and searing them with a hot iron; it is true that both methods destroy the tumors by cauterization; one can be done at the physician's office, with little or no pain, the other requires profound anaesthesia; but really, which method belongs to the barbaric ages of antiquity?

By observing the following notes regarding this treatment, you will be rewarded with success. If the piles or rectum are inflamed, reduce the inflammation by the use of the suppository, and other treatments previously given. Always see that the colon is unloaded before operating. Never use less than a 50 per cent. carbolic acid solution, for the stronger the solution the more complete the cauterization; inject under the tumor, and not into it, and do not try to accomplish too much at one treatment. One or two tumors is enough to treat at one time, and be sure that all soreness has disappeared from the preceding operation before continuing further treatment.

The following formulae have been advocated and successfully used by their originators for the hypodermic treatment of piles:

POWELL'S FORMULA

℞ Acid carbolic (crystals) ..... 2 dr.
Tinct. thuja ..... 1 dr.
Aqua dist. ..... q. s. ad. 1 oz.

OVERALL'S FORMULA

℞ Acid carbolic ..... 1 dr.
Fl. ex. ergot ..... 1 dr.
Ol. olive ..... 1 dr.

BRINKERHOFF'S FORMULA

℞ Carbolic acid ..... 1 oz.
Olive oil ..... 5 oz.
Chloride of zinc ..... 8 gr.

The little pamphlet furnished to the itinerants purchasing the "System" directs that the amount of injection inserted into the tumors shall be as follows:

Largest piles ..... 8 min.
Medium piles ..... 4 to 8 min.
Small piles ..... 2 to 3 min.
Club-shaped painless piles near orifice .... 2 min.

"Brinkerhoff's System" forbids the injunction of any but internal piles.

RORICK'S FORMULA

℞ Carbolic acid ..... 2 dr.
Glycerine ..... 2 dr.
Fl. ext. ergot ..... 1 dr.
Water ..... 1½ dr.

DR. GREEN'S FORMULA

℞	Carbolic acid	1 oz.
	Creosote	10 min.
	Acid hydrocyanic	1 min.
	Olive oil	1 oz.

DR. SMITH'S FORMULA

℞	Acid carbolic	35 parts
	Fl. ext. ergot	20 parts
	Glycerine	30 parts
	Distilled water	15 parts

DR. SHUFORD'S FORMULA

℞	Sodium biborate	1 dr.
	Acid salicylic	1 dr.
	Glycerine	1 oz.
	Acid carbolic	3 dr.

Mix. Sig. Inject three to five drops in small and eight or ten or more in large ones.

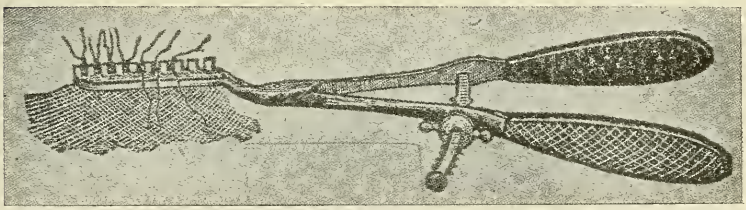
DR. HOYT'S FORMULA

℞	Acid carbolic	80 min.
	Ext. hamamelis	6 dr.
	Distilled water	6 dr.

CLAMP AND SUTURE OPERATION

Where surgery is resorted to, the best operation for office treatment consists of the clamp and suture. This is conducted by thoroughly anaesthetizing the operative area with Quinine and Urea Hydrochloride, as previously described. The sphincters are thoroughly dilated, either by mechanical vibration or the speculum, and the tumors brought to view; the

parts are thoroughly bathed, and made aseptic as possible. The notched clamp is clasped about the tumor, and the hemorrhoids cut off at the border of the clamp; the sutures are now made between the notches, uniting the borders of the wound with catgut. This gives us a clean surgical operation, which is nearly bloodless and painless, and we have so completely closed the wound as to prevent post operative hemorrhage; the sutures are absorbed in due time, and will cause very little detention, if any, from business. This operation is applicable to all forms of internal or external piles, or the mixed variety.



CLAMP AND SUTURES APPLIED.

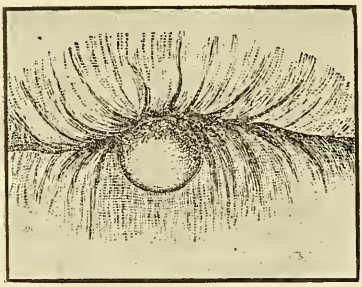
EXTERNAL HEMORRHOIDS

Thrombotic hemorrhoids are caused by a rupture of a vein, and the extravasation of blood, which forms into a clot of a bluish color, and extremely painful. This may be clasped in the clamp, as described above, or if accessible, this is not necessary. A fine incision is made and the clot rolled out and the edges united with sutures. Tags of skin may sometimes be present, in large quantities, either as the result of thrombotic piles, or irritation from constipation and straining at stool. These small tumors may be injected with cocaine, and clipped off with scissors; if large, a suture applied to prevent bleeding.

PRURITUS ANI

This is another one of those apparently little diseases, which annoy the patient to the border of insanity through the irritation it creates, the loss of sleep, worry, etc.

A few years ago I was consulted by a patient who had been afflicted with this disease for about two years; he stated: "Doctor, I believe I have bugs around the rectum." He described a typical case of Pruritis, and I determined to treat his case purely from a parasitic origin. I therefore gave him a box of blue ointment, reduced one-half with vaseline, and directed him to apply it three or four times a day; he used the contents of the box; and although he has been con-



THROMBOTIC HEMORRHOID.

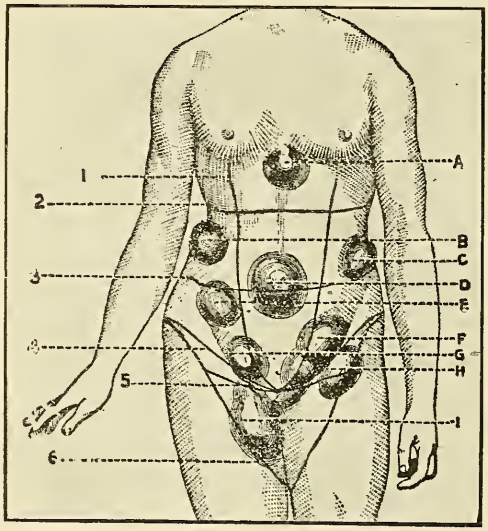
stantly under my observation, the disease has never returned, to my knowledge. This is only one case in hundreds where this simple treatment has proven effective in relieving this condition. Whether or not this disease is caused by a parasite, I am satisfied that treatment directed to this cause is more satisfactory than other methods of treatment. In extreme cases I use the ecorchement treatment as described on page 111, which thoroughly removes all the old skin, which has become like parchment, and involves the nerve filaments through continuous irritation. This will also prove very effective in stubborn cases.

Hernia

The treatment of hernia, up to the sixteenth century, constitutes the darkest pages in medical history. These unfortunate sufferers were objects of scorn and ridicule, denied access to society, and shut out from positions of honor and rank, while the strangulated were all abandoned to themselves to die. In the latter part of the seventeenth century the spring truss was invented and from that advent, the mechanical and surgical treatment of hernia has gradually progressed, until we have at our command several successful means of curing this condition.

Hernia is another condition which has offered the physician an inviting field in which to specialize, owing to the freqency in which rupture is found. Several years ago Bryant gathered the statistics, and recorded 93,355 hernia cases, with a view of finding the relative percentage of the different forms of hernia; out of this number of cases there were 46,551 simple inguinal, to 7,452 femoral, without distinction of sex; of 30,575 double hernia there were 28,503 inguinal and 1,972 femoral. The sum of his figures were 75,054 simple and double inguinal to 10,425 simple and double femoral, being one femoral to 7.10 inguinal. Malgaigue also gives statistics regarding the frequency of hernia in relation to population, and he estimates the proportion of the whole population of France that is ruptured, to be one out of every thirteen males, and one out of every fifty-two females, or taking both sexes together, one out of every 20.5 individuals. The accompanying illustration shows the different forms of hernia and their location; some of these are so rare, however, that they are considered curiosities when presented.

Judging from these statistics, we can readily see why the treatment of rupture makes a remunerative specialty. There have never been any cutting in fees with rupture specialists. The price for such treatment is usually $100.00 for single and $150.00 to $200.00 for double hernia.



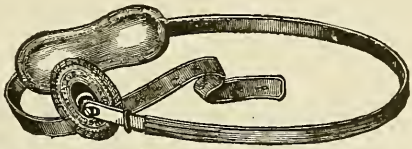
1. Epigastric Region. 2. Lumbar Region. 3. Umbilical Region. 4. Femoral Region. 5. Poupart's Ligament. 6. Scarpa's Triangle. A. Epigastric Hernia. B. Hypochondriacal Hernia. C. Lumbral Hernia. D. Umbilical Hernia. E. Ventral Hernia. F. Inguinal Hernia. G. Direct Inguinal Hernia. H. Crural Hernia. I. Femoral Hernia.

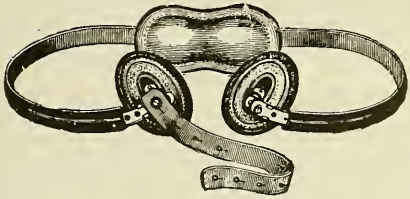
TREATMENT OF RUPTURE

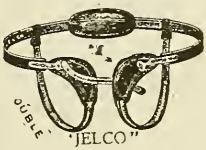
The treatment of rupture is divided into palliation of rupture or supportive measures and those which have a tendency to permanently close the canal. The former will depend upon a suitable truss, while the latter involves many different surgical procedures. We will only discuss, however, the three operations which are the most suitable and practical for the office specialist.

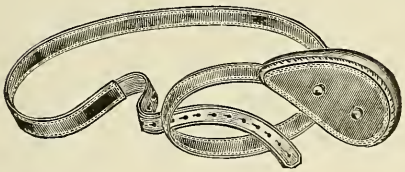
THE TRUSS

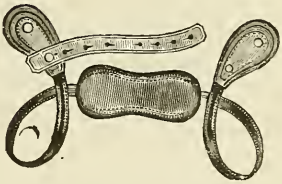
It was the latter part of the seventeenth century that the first spring truss made its appearance, and although a very crude affair, compared with the modern truss, it offered great relief and improvement to the only means previously used of carrying and supporting their hernias in cloth bags.





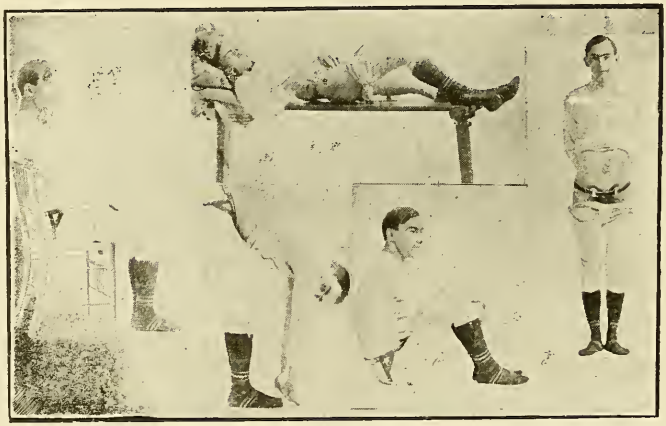






The modern apparatus employed for the retention of hernia have been brought to great perfection in the past few years, and when it is considered how great is the number of ruptured persons in the community, together with the essential relief they receive from these appliances, they must be regarded as one of the most useful productions of modern surgical appliances. The ingenuity of American truss-makers has enabled them to produce apparatus far superior to those made in other parts of the world. The object to be obtained by the application of a truss is to close the opening through which the protrusion has taken place, by means of external pressure

and thereby, after reduction has been effected, to prevent a second descent. A well-made instrument should exert sufficient and uniform pressure to keep the hernia in place without being easily displaced or causing undue discomfort. When the opening is not exactly closed by a properly fitting truss the omentum or intestine easily slips out and the patient who wears such an apparatus is in a state of constant insecurity and danger, especially if he be engaged in laborious work. There are, unfortunately, many trusses in the market which do not



TESTING THE TRUSS

fill these requisites and expose the patient to the risk of strangulation, by allowing a portion of the intestine to escape. It would indeed be better for the patient that no truss should be worn than such a makeshift. In the words of an eminent specialist, it may be stated that by early mechanical treatment a large percentage of hernias occurring under middle age can be cured. This is brought about by a slow process of thickening and gluing together of the sides of the opening through which the rupture occurred. It is advisable, however, that a truss be worn for at least one year after a cure has been effected.

In ordering, especial attention should be given to the following points: 1. The pad should be sufficiently large to covtr the hernial opening and extend at least half an inch over the surrounding parts. It should be made of material which will not readily absorb moisture and thus become foul and irritating to the skin. It should also have the proper shape, according to the variety of hernia, and press uniformly upon the parts. 2. The spring should have sufficient elasiticity to maintain the pad in position, without undue pressure or chafing.

The fitting of trusses is a much neglected art with physicians, and the safety and comfort of patients will greatly depend upon a perfect fitting appliance. This is doubly essential where this support is depended upon to make pressure during the Neoplastic process of the injection treatments. To have a well fitted truss, the following points should be observed: The patient should be able to place his body in any position which is usual, or may be unusual, in his vocation of life. He should lie on his back and raise his body from the floor by having some one support his feet. cough violently and persistently, bend his body forward, and try to touch the floor; in fact, go through various bodily contortions, to be sure the truss holds firmly, and when you are satisfied of this, you are ready for operative procedures to effect a permanent cure. The truss should be worn continuously during this treatment, however, only removing the appliance during the sleeping hours and in many cases it is well to continue its use during the night.

THE INJECTION TREATMENT

The injection treatment of hernia is purely an American operation, and the credit of its discovery has been divided between Drs. Valpeau, Pancoast and Heaton. Dr. Warren, who has done much to perfect this method, gives this honor, however, to Dr. George Heaton of Boston, who referred to his method as "tendonous irritation"; although Dr. Heaton's treatment

created much inquiry in medical circles, he was inclined to keep it a secret; it was, therefore, used by only a few physicians, for a number of years. About fifteen years ago this method was revised and adopted by many physicians, who are today using it with splendid success, in all parts of the country. The fees attached to the operation have induced many physicians to commercialize the specialty by advertising.

The injection treatment for hernia is, without a doubt, as successful as other operations for hernia, and is the most practical and convenient for the office specialist, as well as the patient, for it does not detain the patient from the daily duties of life and the treatments may be given in the office, with little inconvenience. The two irritant methods and the paraffin operation are the only treatments which we will consider for office specialties.

HERNIA FLUIDS

If there is any one thing the medical profession has been "stung" in securing the "right to use" it has been hernia fluids. Every promoter of a secret hernia cure has some special hernia fluid, which the attempt to extol as "superior to all others," the "only one which will stand the test," etc. These silver-tongued medicine venders have reaped a rich harvest in fleecing money from the less worldly physician by selling some simple fluid, with the right to use in certain localities, for a fancy price. The fact remains that these fluids are simple mixtures which every physician has in his laboratory and there is a large variety of medicines which will cure hernia if properly injected. Valpeau and Pancoast used tinct. of iodine. Roberts of Alabama, used oil of cloves. Dr. Mason Warren used sulphuric ether. Heaton's injected fluid was a solution of quercus alba, etc.

The therapeutic mission of any hernia fluid is to create a mild irritation, without inflammation or abscess and cause nature to throw out an abundance of sero-plastic lymph, which

will create adhesions in the ruptured muscles, with complete occlusion of the hernial rings, if possible. Theoretically, there are many remedies which may be used for this purpose. Elaterium and cantharides would be the most active, but would require very minute quantities.

Alcohol alone has been advocated by many; the following solution has been a favorite in my hands which I call:

"X. L. C. R." HERNIA FLUID

℞	Quinine and urea hydrochloride	5 gr.
	Resorcin	10 gr.
	Zinc sulphate	10 gr.
	Guaiacol	15 min.
	Thuja (Lloyd's tinct.)	1 dr.
	F. E. Quercus alba	2 dr.
	Glycerine	2 dr.
	Aqua, q. s.	1 oz.

Dissolve the quinine and urea hydrochloride, the resorcine and zinc sulphate in two drachms of water; add the other ingredients and sufficient water to make one ounce. This should stand a few days, and be shaken frequently; before using, filter through absorbent cotton until absolutely clear.

In resuming the above formula the quinine and urea hydrochloride is added for its prolonged anæsthetic effect and to obtund pain, during the irritant period. This is, also, greatly reinforced by guaiacol, with its irritant and antiseptic properties. Resorcine gives us all the advantages of carbolic acid, in a better form to use; zinc sulphate, quercus alba and thuja are incorporated for their mild irritant and astringent effects. The amount of this solution injected is from two to ten minims.

TECHNIQUE OF THE OPERATION

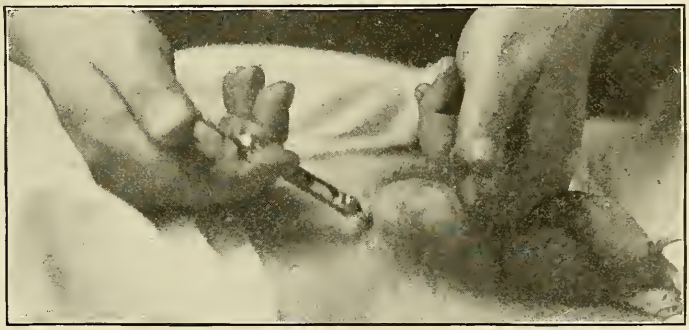
Before any injections are made, you must be satisfied that the patient has a well fitting truss and one that will support the hernia, under all circumstances; otherwise, you may be disappointed in the results, for this is the one essential thing in assuring success, for after the treatment is commenced, the rupture should never be allowed to protrude, even if the patient is required to wear the truss night and day.

After observing surgical cleanliness of both instruments and operating area, the patient is placed upon his back, on a surgical table or chair, with legs flexed and it is well to place a pillow under his hips in order to elevate them, that the gravity of the intestines will be away from the canal, and not come

METHOD OF INJECTING THE FLUID.

in contact with the operation. Having previously filled the syringe and regulated the set screw on the piston stem for the amount of medicine desired for the treatment, the operator, if right handed, should take a position at the left side of the patient, the forefinger of the left hand should be inserted in the canal of the rupture invaginating the scrotum to the point of the internal opening; with the forefinger in the canal, and the thumb of the same hand, the tissues are lifted up so as to draw the issues away from the cord and thus avoid puncturing

the contents. The needle is now inserted on an angle of about forty-five degrees until the point of the needle reaches the finger; if the needle pricks the finger, it should be withdrawn back, until it avoids the scrotal walls; pressure should now be gently made upon the piston head to force part of the contents of the syringe into the tissues, then the point of the needle moved to another place ir order that we may deposit the fluid at several minute areas in the canal. One of the principal things to be remembered is to try and deposit the fluid as high up in the canal as possible, for if you should close the canal too far down it would prevent further treatments, and not allow you to close the openings at the point desired; after



The above illustrates the method of making the injections.

the injection is made, and the needle withdrawn, the parts should be gently massaged in order to scatter the medicine and cover as large an area as possible. The truss is now replaced, so that it will make constant pressure over the injected area, and the patient allowed to resume his daily vocations.

This treatment will cause the patient but little inconvenience; he may complain of a slight stinging or burning sensation, due to the mild inflammatory action. This will subside in a few days and at the end of four or five days, or a week, the operation should be repeated.

THE AMOUNT OF MEDICINE USED

The amount of medicine used and the length of time required to effect a cure will depend upon the extent of the hernia. It is always well to commence with the minimum amount of the fluid and increase the quantity of each injection, according to the way the treatment agrees with the patient. I generally use only two or three minims, to commence with, and if it is borne well by the patient, increase the amount at subsequent treatments, always allowing sufficient time between each treatment for all inflammatory action to subside.

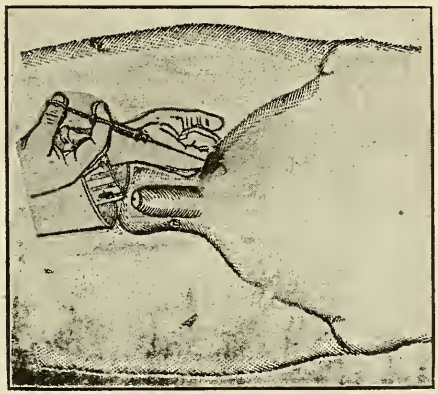
The length of time required to establish the desired results, from this treatment, will depend upon the condition and age of the patient and the extent of the hernia. The young and vigorous will respond to the treatment more rapidly than the feeble and aged. We can also obliterate a small opening with less difficulty than a large one.

In order that you may observe the progress of the treatment after the patient has received several injections, a test should be made to learn how the treatment is progressing. The first test should be made while the patient is upon the operating table. Place your hands over the hernia and request the patient to cough gently; if the hernia has a tendency to protrude the treatment should be continued until you are satisfied that the tissues have been thoroughly united, and the patient can go through the different manoeuvres in your presence, as was done to test the truss or are incident to his daily work. It is always well to have the patient wear the truss for some little time after you have discontinued the injections. This is especially so if the patient is doing heavy lifting. The truss may be entirely abandoned, however, in due time.

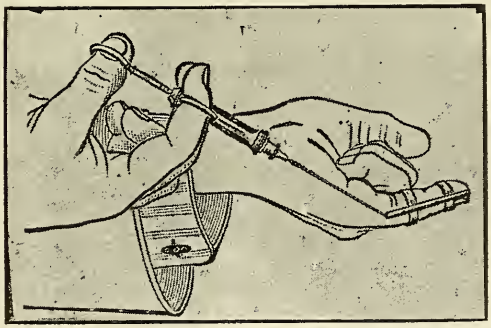
THE LANGDON OPERATION

Dr. Langdon has devised a new method of accomplishing the same results as previously described, using a different means and "route" to reach the inguinal canal; instead of

inserting the needle through the abdominal tissues, he has ingeniously arranged a needle and canula which fits over the little finger and by invaginating the scrotum with the little finger, with this attachment the needle is forced through the thin scrotal walls and thus deposits the medicine within the



METHOD OF INJECTING THE FLUID IN LANGDON'S OPERATION.



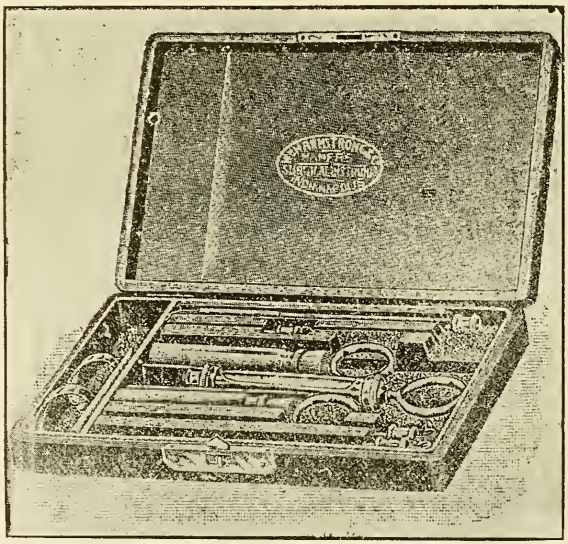
CANULA ATTACHED TO LITTLE FINGER.

inguinal canal at a point nearest the internal opening. The advantages offered by this operation are as follows:

1st. It avoids any possible danger of puncturing the cord, as the needle is inserted longitudinal, instead of transverse to the cord. 2nd. You are more certain of access to the canal, as you only have to penetrate the thin scrotal walls. 3rd. By

gently rotating the little finger, after the needle has passed through the scrotal walls, you produce a slight scarification, which also has a tendency to reinforce the adhesions; (although the latter is not advised by Dr. Langdon, the writer has found this procedure quite an advantage in both operations).

The technique of this operation is very simple; the little finger containing the canula which adheres to the finger by two clasps is inserted up the canal's invaginating the scrotum; the needle, which has a blunt point with openings on each side, is inserted through the canula up to, and through, the scrotal walls and the medicine deposited at different points by



LANGDON OPERATING SET.

rotating the finger. The after treatment is the same as is given in the former injection method. Dr. Langdon states that he has used at least one hundred different ingredients and combinations in hernia fluids and prefers fluid extract of quercus alba to other injection fluids. For a child, up to nine years of age, he reduces the fluid extract by heat, in a test

tube, to one half and injects from two to ten minims, using the minimum amount to commence with and increasing the quantity. From the age of nine to twenty, he reduces the F. E. quercus alba, by heat, to about four-tenths and adds one-tenth grain of zinc sulphate to each minim used. In patients from twenty-five to seventy-five years of age, he uses the same solution as is used for children, and adds one-half minim of beechwood creosote to each three minims of quercus alba.

In conclusion the doctor says: "I have no doubt that others have just as good results with other formulæ, but assuredly in later years my record is almost perfect, so that today I feel confident to cure nearly every case."

THE OLSTRUM METHOD

Dr. Olstrum who has devoted several years of his life to the rupture specialty and although a very enthusiastic advocate of the injection method, says he can cure fully fifty per cent of all cases which are curable with other methods by scarifying the surface of the canal or ring. He uses for this purpose the ordinary large hemorrhoidal needle and endeavors to scarify the opening so thoroughly at one treatment that he will get immediate union. After the surfaces of the opening have been thoroughly scarified the abraided surfaces are kept together by the pressure of the truss, union takes place immediately and one operation is often all that is necessary. This operation, skillfully and painlessly performed by the use of a local anæsthetic, certainly deserves to be recognized as an advanced treatment to other radical cutting operations. It accomplishes the same results by the same process of inviting union of two abraided surfaces and has the advantage of overcoming the fear of the knife. The patient should be kept in bed for a few days until all soreness has disappeared; he is also instructed to wear a truss for a few months afterwards.

This method of treatment illustrates what one of the simplest operations in the category of surgery can accomplish in curing a condition which is attended with a certain amount of danger to life, if not interfered with, and also avoiding the dangers of the radical cutting operations.

I once asked the doctor if he could devise a special knife or instrument which would be better suited for the operation than the point of a hypodermic needle to scarify the surface. He remarked: "I am used to a hypodermic needle and have no desire to change it for other instruments." While there are many cases in which this treatment cannot be applied, it will often close the doors of the canal more quickly and with greater certainty than injecting fluids and cutting operations.

THE PARAFFIN OPERATION

Paraffin has been used in the treatment of hernia with marked success by many operators and is often referred to as the "supportive treatment." The object of the use of paraffin is to obliterate the opening and canal with this neutral substance and thus prevent the escape of the intestine. It also supplements the truss, by making pressure between the abdominal walls. Paraffin, used in hernia, should have a melting point of about 120 degrees F., and the technique of the operation is the same as in other injection treatments. The paraffin syringe is filled with the paraffin at the right melting point and when cooled to a semi-solid state, the finger of the left hand is inserted up the inguinal canal for a guide and the needle is forced through the tissues to the point where the deposit is desired; the assistant operating the paraffin syringe, while the operator directs the deposit of paraffin with the index finger of the left hand in the canal and the right hand attempts to mold it into place. Of course, we cannot mold and manipulate the paraffin, in hernia operations, as we can in saddle back nose, and other operations, as we do not have as free access to the deposit. We can do much, however, in directing the deposit.

The effect of the paraffin in this operation has a double action; it not only acts as a support to prevent the protrusion of the intestine but also as a mild irritant, for while the paraffin is becoming incapsulated, there is an exudation of plastic material which creates adhesions and strengthens the resistance of the abdominal walls. Many operators do not advise the use of the truss after the operation, but the best success has been obtained where the truss is worn, after the operation, until all trace of inflammatory reaction has subsided; then the results of the operation are tested, the same as with the irritant injection treatment.

The paraffin treatment for hernia is slow in becoming popular as a general operative measure and at present is only advocated and used by a few, who are maintaining equal results with other hernia operators, and fattening their purses through their exclusive field, and secretive methods, but we feel safe to say that this operation in the near future will receive the credit it justly deserves from the regular practitioner.

By adopting any one of the foregoing methods the general practitioner will once more stay the hand of the surgeon and prevent his hernia patients from drifting into the hands of the advertising hernia specialists and retain both the glory and fees connected with the operation.

To refute the charges made against the injection treatment for hernia, Dr. C. F. Souder of Philadelphia, states: "I can only speak from personal experience; I have given nearly 16,000 such treatments without a death, abscess, septic infection or atrophy of the testicle. The treatment can be given from birth to old age."

Such assurance from a man with as wide experience as Dr. Souder, should convince any physician regarding the reliability of the injection treatment and although it is not indicated in all hernias, when it can be used it is thoroughly reliable, scientific and successful as any method in present use.

When an astringent as well as an irritant is needed, Dr. Souder uses the following in all forms of hernia:

℞	Guaiacol	3 min.
	Creosote	3 min.
	Zinc sulphate	3 gr.
	Fl. Ext. hamamelis	30 min.
	Glycerine	30 min.
	Alcohol	15 min.

Inject two or three minims when reaction disappears.

SECRET HERNIA FLUIDS

The local and itinerant hernia specialists have always attempted to guard their fluids with great secrecy, or if they sold their fluids with the supposed formula, they would coin some name of an ingredient which would confuse the physician who secured it. I therefore publish the following formulæ as examples of this class.

THE IDEAL HERNIA CURE

The Ideal Hernia Cure Company of St. Paul, Minn., formerly used large space in Medical Journals, offering to sell a formula for the cure of hernia, and a hypodermic syringe for $10.00. The syringe was of the regular $1.50 variety and this places the value of the formula at $8.50. The following is the formula they sold:

℞	Glycerole of tannic acid (90 gr. to the oz. 1)	2 dr.
	Alcohol	1 dr.
	Tinct. cantharides	1 dr.

Mix. Sig. Five to fifteen drops should be injected at each treatment. The patient must remain in bed at absolute rest for two days after each treatment.

DR. FIELD'S FLUID

℞ Zinc sulphate .....15 gr.
Alcohol ..... 2 dr.
Acid carbolic .....30 gr.
Aqua .....q. s. ad. 1 oz.
Mix. Inject from five to ten drops at each operation.

DR PROVOST'S FLUID

℞ Guaiacol .....30 min.
Zinc sulphocarbolate .....10 gr.
Creosote beechwood .....30 min.
Tannin-glycerite .....q. s. ad. 1 oz.

Mix. Reduce from ten to fifty per cent. with alcohol, and inject four or five drops which can gradually be increased as the case requires.

DR. SAUNDERS FLUID

℞ Zinc sulphate ..... 2 gr.
Creosote ..... 2 min.
Guaiacol ..... 2 min.
F. E. hamamelis .....30 min.
Glycerine .....30 min.
Mix. Inject two to four minims.

DR. WALLING'S FLUID

This fluid is sold at $2.50 for a two-drachm vial. He publishes the following formula, which is so complicated that it would require further instructions to properly prepare it:

℞ Complex salts of aldehyde 30%
Iodo-ethylate of guaiacol 30%
Sulpho-tannate of zinc 20%

Free guaiacol 5%
Beechwood creosote 15%

The above formula is a fair example of many of the so-called non-secret remedies (?) which are offered physicians with every intention to deceive them.

THE FIDELITY FLUID

The following formula has been published as the exact formula of the fluid used by this company:

℞ Carbolic acid 95%
Glycerine .....
Alcohol ..... a. a. p. e.
Tinct. iodine .....q. s. color

THE MILLER TREATMENT FOR HERNIA

This company used both the hypodermic method of treatment and an external astringent. The injection fluid was the same as that proposed by Dr. Heaton. The external astringent, which was to be applied by the patient, was as follows:

℞ Tinct. iodine comp .....
Soap liniment ..... a. a. p. e.

Gynaecology

Non-Surgical

Of all the diseases which have offered the office specialists a fertile field, the ailments peculiar to women perhaps head the list; and there are very few women who pass through the span of life without requiring the services of the physician at some period, for the treatment of diseases peculiar to her sex, and the prevalence of these conditions are, apparently, increasing to an appalling extent. Visit any hospital or sanitarium in the country and you will find at least twenty-five per cent. of the patients are gynæcological cases.

When God created woman from the rib of man, he evidently intended she would be his masterpiece, an improvement to man, or man modified and perfected, yet, in his last crowning handiwork, he has rendered her doubly susceptible to a class of diseases and injurious influences from which the other sex is entirely exempt; therefore, from puberty to the menopause may be considered the critical period of her life. During these thirty or more years the functional derangements, physiological changes and pathological conditions constitute the greatest number of any classified diseases the physician is called upon to treat.

Surgery, of later years, has entered into gynæcological practice to such an enormous extent that nowadays it is, apparently, a fashion, other than a necessity. Out of idle curiosity I recently requested a fashionable club lady to "invoice" the members of her club, to ascertain the percentage who had undergone an operation; her report was, that of the eighteen members present, fifteen had been surgically treated for the diseases peculiar to their sex; of these, seven were laparotomies. She also stated that "this proved to be surgical day at the

club," all discussing their ailments and operations, and the remaining three (who were not victims of the knife) were apparently jealous because they had not experienced the pleasure (?) of a surgical operation. This is a fair illustration of the extent of gynæcological surgery in our cities. In the country this practice is not carried on to such an extent.

I do not wish to be understood as condemning conservative surgical measures, for there is no class of ailments in which surgery has served a more noble purpose than in the diseases of women, but these special diseases have also offered such an inviting field to the "surgical grafter," that many highly respected Gynæcologists have created a breach in moral and medical ethics by advising surgery for the sole purpose of attempting to establish their reputations as surgeons, and fatten their purse.

These operations have not only been confined to ovariotomies for the prevention of conception, but in a large class of diseases in which non-surgical means would have produced better results. I will, therefore, discuss some of the therapeutic measures which have rendered me indispensable service in the non-surgical treatment of the diseases of women.

CLASSIFICATION OF TREATMENTS

The non-surgical treatment of the diseases of women incorporates every means other than the knife; we therefore, have all the physiologic methods discussed in the preceding pages, combined with the medicinal measures at our command. These may be divided into internal medications, or medicines taken by the mouth. Extra-uterine medication, or medicines used by absorption by applications to the vaginal canal, at the mouth of the uterus, etc., intra-uterine medication by application to the uterine canal and cavity.

These three methods of medication, either used singly or combined, incorporate the means generally used by physicians for alleviating suffering and curing the diseases peculiar to

women. It is, therefore, well to have a correct understanding of these therapeutic measures.

INTERNAL MEDICATION

Of the remedies which interest us most, for the internal medications for the diseases of women, come under the classification of uterine tonics, alteratives and analgesics. It is beyond the scope of this book to discuss in detail all the remedies offered in this class. I will, therefore, give only two formulas, which are dispensed in tablet form, that have been of much service to me, and will be referred to later.

UTERINE TONIC

Each tablet contains:

Ext. Viburnum prun.	1 gr.
Ext. Viburnum opul.	1 gr.
Ext. Star grass	½ gr.
Ext. Squaw vine	½ gr.
Ext. Helonias	½ gr.
Caulophyllin	¼ gr.

Directions—A tablet four or more times a day, as required.

UTERINE TONIC—SEDATIVE AND ALTERATIVE

An exceptionally efficient combination in Dysmenorrhoea, Ovarian neuralgia, Uterine congestion, and all painful conditions of the pelvic organs, associated with anaemia and constipation.

Blaud's Mass	1 gr.
Ex. Black Haw	1 gr.
Ex. Blk. Cohosh	1 gr.
Ex. Hydrastis	½ gr.
Euonymin	½ gr.

Apiol	½ gr.
Ex. Gelsemium	¼ gr.
Strych. Sulph.	1/120 gr.
Aloin	1/10 gr.

One or two tablets three times a day.

VAGINAL DOUCH THERAPY

That the external bath was succeeded at a very early period by the internal bath or douch, through the principal orifices of the body, the rectum and the vagina, is authenticated by one of the ablest early historical writers on bathing —Dr. John Bell—who states that women of the orient devised apparatus of dried skins and bladders of animals, with crude wood or bone nozzles, by the use of which they could take the vaginal douch. There was no improvement upon devices for the vaginal douch until the utilization of rubber in commerce. Since the introduction of rubber, there have been many styles of douch syringes; the old style double tube, hand ball syringe was the first to become popular. This was followed by the fountain syringe; both are deficient in their purpose when we consider the anatomical construction of the parts and the therapeutic uses of the vaginal douch. In conducting the vaginal douch for therapeutic purposes, there are many things to be considered. The first and most important is a properly constructed douch syringe; the second is the technique of the douch to accomplish its greatest therapeutic results; third, the use of the vaginal douch as a sanitary, hygienic and prophylactic measure; fourth, its utilization as a curative and restorative means in the treatment of many diseases peculiar to women.

In selecting a syringe to accomplish the best results from vaginal douch therapy, there are many essential things to remember. The first and principal object of the vaginal douch is cleanliness; to accomplish this, the syringe should be so constructed as to wash out and not in. This brings us to the point of considering the anatomical construction of the vag-

inal walls, the lining membranes of which are arranged in transverse folds and pockets, instead of logitudinal, as is generally believed by those who are not familiar with the minute anatomy. It is these transverse folds and pockets which naturally detain the escape of effete matter; to thoroughly eliminate these accumulating impurities requires a douch current, which will be ejected from the syringe in a transverse rotary or whirling movement. The pouch which surrounds the cervix, known as the cul-de-sac, is also another favorite seat in which accumulation of effete matter accomplishes its destructive influence in breeding pathological conditions, and the only way to reach this part of the female generative tract is by distending the walls. Another very important thing to be considered in the mechanical construction of a douch syringe is its ability to maintain hot, cold or medicated solutions against the expanded walls of the vagina for a definite length of time; as all solutions are absorbed and receive their greatest therapeutic influence more rapidly with the walls expanded than they will while in a relaxed state. It will thus be seen that the only way to properly conduct a vaginal douch will depend upon three principal things, namely: Complete dilatation of the vaginal walls, a transverse rotary movement of the douch current, to dislodge and remove any and all destructive elements, and to retain the expansion of the vaginal walls long enough to allow the hot, cold or medicated solution to have a prolonged influence, if desired. While the double tube ball syringe has fallen into the relics of antiquity, the fountain syringe is fast following in its wake, as the only results accomplished by either of these syringes is a superficial flushing, which is sure to leave remnants of impurities, with their contaminative influence.

There is one syringe offered the medical profession which can be unhesitatingly endorsed and recommended, as fulfilling all the requirements mentioned above. This is known as the "Irrigating Syringe." This syringe is so constructed by a special device at the tip, that the douch current will be

ejected in a rotary movement, which will immediately dislodge and remove all effete matter from the walls and transverse folds of the vaginal canal, from the cul-de-sac to the labio-vaginal orifice. At the base of the nozzle is a soft rubber adjustable shield, which anatomically conforms to the parts without injuring their delicate and sensitive structure. This shield prevents the escape of water, and allows the syringe to be used in either the recumbent, sitting or standing position, as may be required at times, without soiling the clothing. This device also allows complete expansion of the vaginal walls, and the prolonged effect of the douch solution, when desired. The bulb which is also the container for the douch solution, has a capacity of nine fluid ounces, and, although smaller in volume than the fountain syringe, the douch solution accomplishes greater results, as it covers every particle of space within the vaginal cavity, which would be impossible to do with a four gallon solution and the ordinary nozzle of a fountain syringe, that has to be continually moved from place to place, being likewise inconvenient, deficient and ineffective in its purpose and results. While the use of the fountain syringe generally requires the sitting position and a receptacle, this syringe may be used in any position, as the douch solution is drawn back into the rubber bulb by simply releasing the pressure upon the bulb. This syringe is also so constructed that it may be easily taken apart and rendered antiseptic at all times, with little or no inconvenience; in fact it is the only ideal and scientifically constructed syringe, in present use, which is based upon the anatomical conformation of the parts to conduct the technique of the vaginal douch. Our attention is now called to what conditions, class of ailments or pathological changes can "Vaginal Douch Therapy" be utilized to its greatest advantage. The first requisite is personal cleanliness; it was John Wesley who said "Cleanlines is indeed next to Godliness," and in no part of the female organism is the axiom of truth from this great divine better exemplified than in the use of the vaginal douch, as a hygienic and prophylactic principle; for the propagation of weakness and dis-

ease often have their origin in the neglect of cleanliness of the vaginal canal, and the cause of the prevalence of ill health among many women, may be traced directly or indirectly to a deficiency in knowledge of the value of the vaginal douch. It is the general belief among many women that the vaginal douch is only necessary in diseased conditions; this is a great mistake, as the vaginal douch is the one principal means in our possession of obtaining and maintaining health to this generative tract, and requires the same precaution toward cleanliness, only in a greater degree, than any part of her body, for at this age the internal as well as the external bath will bear fruit in the health of the future generation. I feel justified in stating that fully fifty per cent. of the weaknesses and diseases peculiar to women could have been obviated by the timely use of the vaginal douch. To comprehend the value of the vaginal douch in the treatment of diseases peculiar to women we must know the value of tepid, hot, cold and medicated douch solutions; also their therapeutic relation and value in the different pathological conditions.

In considering the thermic influence of douch solutions we must always bear in mind that cold contracts the blood vessels, and retards the circulatory functions, while heat increases the circulation by dilating the blood vessels, and increasing the progress of blood currents. We therefore find that the cold douch has such a limited field of usefulness that it is hardly worthy of mention; this is also true of the tepid douch, and the medicated vaginal douch are of the greatest expected for cleanliness; therefore, the hot, prolonged vaginal douch, as there is no reaction, and neutral results are only value.

THE TECHNIQUE OF VAGINAL DOUCH THERAPY

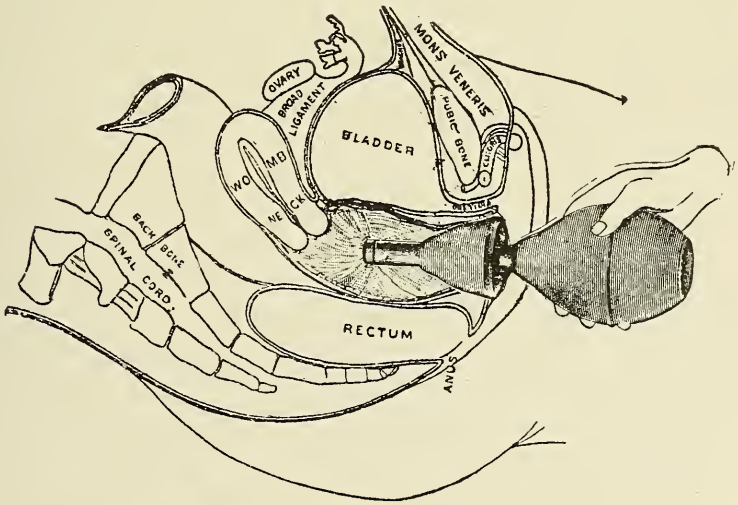
This will depend upon the functional or pathological condition we have to contend with, and whether we wish the douch for its immediate effects, as for cleanliness, or the pro-

longed effect for its thermic influence or the extra-uterine medication. Should we wish the douch for an immediate flushing for cleanliness, the standing or sitting position may be preferred by many, as the vaginal canal in this position is at an angle of about forty-five degrees, with the apex pointing upwards, and the gravity of the douch solution would naturally fall downward with greater force upon withdrawing the syringe, and be more thorough in its purpose. If we wish a prolonged or medicated douch, the recumbent position is preferable, as the vaginal canal in this position is placed at an angle of forty-five degrees, with the apex downward, and the gravity of the water, together with the force from the pressure upon the bulb, and the prevention of the escape of the douch solution, by the protective labial shield will allow the thermic or medicated solution to remain for an indefinite length of time, which is one of the many advantages of the irrigating syringe.

In order that we may logically comprehend the value of vaginal douch therapy we must understand the technique of the different methods of applying the douch, and its therapeutic relation to disease. Undoubtedly the most valuable douch in vaginal therapy is often referred to as the prolonged vaginal thermic bath;" this douch was made popular at Luxeuill, France, by a special apparatus whereby 20 to 25 gallons of water was used to maintain its thermic influence. The same effect can be produced by nine ounces of douch solution with this syringe.

To obtain the full benefit of this bath the patient should be placed in the recumbent position with the legs drawn up, and the hips elevated; the bulb of the syringe previously filled with the douch solution at a temperature of 110 to 113 degrees F.; the nozzle is inserted into the vagina until the protective rubber shield is adjusted firmly against the labio-vaginal orifice to prevent the escape of the solution; pressure is now made, gently, upon the bulb, until the vagina is distended to its full capacity; the bulb is now relaxed, and the solu-

tion is withdrawn back into the syringe. The operation should be repeated several times, as the dilation and relaxation of the vaginal walls have a very stimulating effect. Fresh douch solutions may be used each time if desired, although it is not necessary. This is the treatment, par excellence for many forms of pelvic affections. It will relieve pain in this cavity as a rule, almost instantly; any form of congestion and inflammation are greatly benefited, as it increases the activity of the circulation, and removes the inflammatory exudates. Its therapeutic influence is fully one hundred per cent. greater than hot fomentations and the use of the water bottle, to the external surface, as the vaginal douch brings the thermic effect in more direct contact with the disease and will penetrate the mucous membrane of the vagina more repidly than it will the integument and muscular layers of the external abdominal walls.



Space will not allow me to give the technique of the value of this douch in all the different pathological conditions within the female pelvis, but in emphasizing its therapeutic value will say that pain, inflammation or congestion from any

disease within the pelvis is greatly benefited by its use; this applies not only to the surface in which the douch solutions come in contact, but the penetration of heat will reach the deeper structures, as it will by no other means, and will be found useful as a therapeutic application in metritis, localized salpingitis, ovaritis, cystatis, pelvic peritonitis, diffuse lymphangitis, without much swelling, etc. While these douches may not be the principal therapeutic curative process, they are especially valuable in preparing the way for other treatment. What is true in pathological conditions is equally true in functional disorders; its influence in curing amenorrhœa and dysmenorrhœa is almost specific at times, while leucorrhœa is only a symptom of other diseases; it abates the discharge by restoring health to the primary cause; this is also true in menorrahage, metorragia, etc,. In all cases there is a palliation of symptoms, and douches of this character may eliminate the presence of exudates and tumefactions of the adnexa, especially when used in conjunction with extra uterine and intra-uterine medications.

EXTRA-UTERINE MEDICATION

It is this method of treatment which is most universally used by all physicians and consists of any and all medications applied within the vaginal walls, which are utilized in the form of medicated douches, tampions and suppositories. The suppository medication is, by all means, superior to any other form of extra-uterine treatment, as it has the following advantages: it may be used by the patient in the privacy of her home; it allows complete and continuous medication while the organs are at rest, during the sleeping hours, (as the best time to use this medication is before retiring), and also allows direct medication to the diseased parts, in many conditions, and its absorption reacts to a therapeutic advantage in the more remote diseases. We, therefore, find that with this form of treatment, we are able to reach the diseased conditions of all organs within the female pelvis. There are many medicines which

have entered in this method of treatment, from time to time, but my experience, in the continuous use of the following medications, in their former and present modified form, has convinced me that it is superior to any other combination of medicinal agents, as a universal extra-uterine application.

℞	Elaterium	1–6 gr.
	Powd. Jequirity	¼ gr.
	S. E. Belladonna	½ gr.
	S. E. Hyoscyamus	½ gr.
	S. E. Hamamelis	1 gr.
	S. E. Calendula	1 gr.
	S. E. Thuja	1 gr.
	Quinine and Urea hydrochloride	½ gr.
	Resorcine	2 gr.
	Zinc Sulphate	2 gr.
	Boric acid	4 gr.

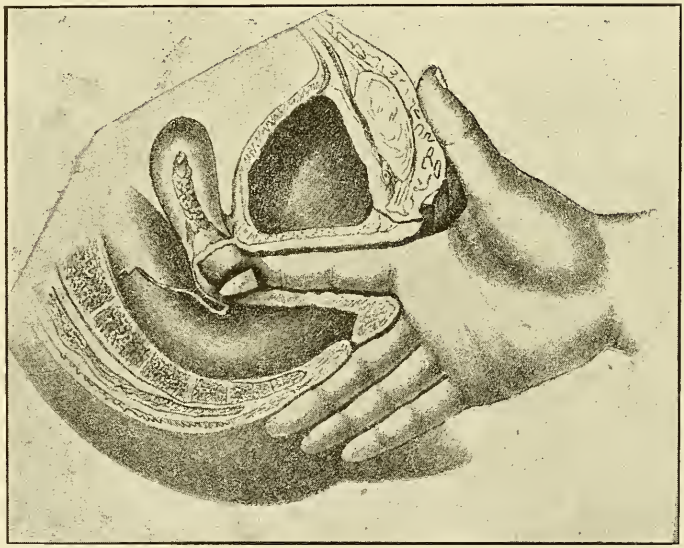
I have the above medications prepared in two forms: No. 1, in a base of cocoa-butter and slippery elm, and No. 2, in tablet form, resembling in shape the ordinary suppository. The former is used where quick action is required, as in dysmenorrhœa, frequent and painful urination, the pain of cancer, etc. The latter is used where slow continuous medication may be required.

In reviewing the above formula, one would naturally ask: why are so may remedies incorporated in a single suppository? I can only say that each has been added, from time to time, with a decided improvement, and as a general extra-uterine application, it would seem almost impossible to dispense with any one of them. We will, therefore, resume the therapeutic value of each remedy, and point out its specific purpose.

Elaterium has long been recognized as one of the most efficient remedies we possess in extracting serum from the intestinal tract, and producing profuse watery discharges for the relief of ascites, anasarca, uremia and cerebral disorders. It has likewise been found to extract serum from the pelvic cavity, when in constant contact with the mucous membrane of

the vagina, and accomplish the same results as glycerine tampions, used by nearly all physicians for the purpose of extracting serum, and thus relieving congestion and all inflammatory exudations. In fact, it is the pelvic antiphlogistic, "it bleeds, but saves the blood," and is a most valuable remedy in all inflammatory conditions, whether acute or chronic.

Jequirity is a counter-irritant. The temporary effect is to create a mild inflammation, which subsides and eliminates old inflammatory processes. This is generally controlled by the



METHOD OF APPLYING EXTRA-UTERINE APPLICATION.

other remedies in this formula. The local use of belladonna is well understood by all physicians, as an antispasmodic and anodyne, and as a remedy to relieve pain, particularly of the pelvic organs. Hyoscyamus is added for its anodyne effect. Hamamelis has a special influence over the veinous circulation, promotes the healing of erosions, ulcers, etc., and checks foul discharges, leucorrhœa and gonorrhœa. Thuja and calendula are also added to reinforce this influence. Quinine and urea hydrochloride has made a wonderful improvement in the origi-

nal formula, as by the use of this remedy, we have a most valuable and prolonged obtundent, and when this is applied at the mouth of the womb, it will not only deaden the pain, which may be caused from dysmenorrhœa or cancer, but placed between two other important organs the rectum and bladder, will give immediate relief to any irritating influence which may exist, while other therapeutic measures are being carried out for their permanent results. It is, therefore, of great value in relieving the pain from hemorrhoids, frequent and painful urination, as a result of an irritable bladder. I have, also, added resorcine to this improved formula, as we derive all the benefit of carbolic acid in its non-irritating form; the zinc sulphate is utilized for its astringent properties and boric acid for its antiseptic influence.

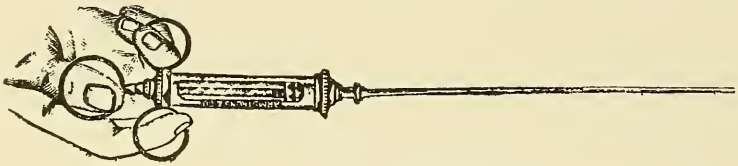
This formula may have the appearance of a "shot gun prescription," but it will hit the target, at rifle range, so often, that it has become one of my strongest armorments in fighting many pelvic diseases; as morphine has the widest range of usefulness in general medicine, this covers the broadest area in pelvic disorders. By the application of this suppository we suppress all pain and distress within the pelvis, nearly as rapidly as with a hypodermic injection of morphine, and while we are receiving this temporary relief, we are removing inflammatory exudations, healing erosions and ulcerations, decreasing corrosive and purulent discharge, and permanently restoring these organs to their normal condition.

The diseases in which this medication will be found valuable will be described under their respective classifications.

INTRA-UTERINE MEDICATIONS.

It is this form of uterine medication which has been commended and condemned more than any other means of gynæcological therapeutics; although this offers us a valuable means of uterine treatment, it is not devoid of danger, when injudiciously used. The principal reason many physicians have failed to be successful with this treatment is not the quality of

medicine used, but the quantity. They do not stop to realize that the normal unimpregnated uterus, when extended to its full capacity, will only contain about ten or twelve mimims, as graduated on the piston stem of a syringe, and any amount of medicine used, above this quantity, is either forced into the fallopian tubes, or perhaps through them, into the peritoneal cavity, where the most grave results may occur. This is the one principal thing which should always be remembered, and avoided, in all intra-uterine medications, as it is this state of



INTRA-UTERINE APPLICATOR.

affairs which has made many physicians ignorantly condemn the method. Another very important thing to be considered is to have your instruments, and servical canal aseptic, before entering the uterus proper, as any infection which may enter this cavity is sure to rapidly multiply, until the entire walls, including the fallopian tubes, and perhaps the peritoneum, will be involved; therefore, always be on the safe side, and avoid these unpleasant and grave obstacles; never inject over eight or ten minims, as is regulated by the graduate on the piston stem.

In order to conduct intra-uterine medications successfully, it is necessary to have a suitable instrument. I prefer Baun's applicator, (or the one illustrated here), as this gives you full access to the uterine cavity, and control of your medication. I can only condemn the glass pipett, which resembles the ordinary medicine dropper, as with this instrument you never have control of your medicine, and almost always inject air into the cavity, producing "uterine colic."

MEDICATIONS FOR INTRA-UTERINE TREATMENTS.

Intra-uterine medication is divided into two sections: the cervical canal, and the cavity of the organ; treatment to the

canal is by far in the greatest demand. Cocaine may be injected for anæsthetic purposes, in sensitive patients, to dilate the internal os; previous to dilation of the same, hemostatics and astringents may be used, where there is persistent and dangerous hemorrhage.

Menorrhagia and metorrhagia, dependent upon simple chronic congestion, and hyperplasia of the endometrium, are successfully treated by these medications. Gonorrhœa, and other septic infections, extending to the uterine cavity, may also be successfully treated by direct application of appropriate medication to the affected area; thus we find inflammation, congestion, infection and excessive hemorrhage the principal indications for intra-uterine medication. There are many remedies employed for this. Ichthyol alone, or in combination with other remedies, is one of the best medications; it is not a caustic, but its action upon the tissues will contract the blood vessels, and reduce inflammation or congestion, and also has a soothing analgesic effect. Protargol is another valuable non-irritant astringent and antiseptic. Phenol iodatum, which consists of iodine 20 parts, glycerine 20 parts, and phenol 80 parts, is also an excellent medication. These remedies either used singly, or in combination, constitute the greatest part of the medication used in office treatments. I use these in combination, in the following formula, which I refer to as:

INTRA-UTERINE APPLICATION.

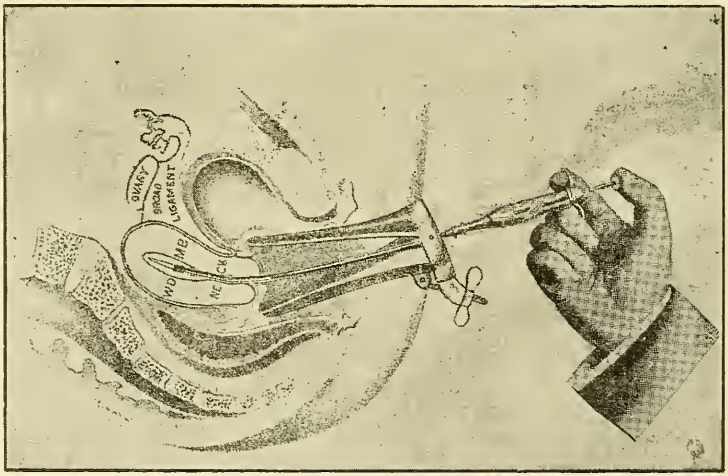
℞	Protargol, sat. sul.	2 dr.
	Phenol Iodatum	2 dr.
	Ichthyol	4 dr.

The above makes an indispensable preparation, as it has such a universal field of usefulness.

TECHNIQUE OF INTRA-UTERINE MEDICATION.

With the patient in the dorsal position, the speculum is introduced, and the cervix is exposed and cleansed with an antiseptic solution, by the use of the dressing forceps. In com-

mencing Intra-uterine medication, I always begin with the minimum quantity, to see if it will be tolerated by the patient. Many women are very susceptible to this treatment, and it seems that any form of treatment within the uterine cavity will cause distress; if the cervix alone is treated, there is never any complaint. The syringe is filled with the medication, and the tip pointed upwards, to force all the air out of the sound applicator, the set screw is adjusted on the piston stem, from five to ten minimum, and the applicator inserted to the point desired. Where gentle pressure is applied, to force out the medicine, and the instrument withdrawn, and a tampon of cotton applied to the os uterus, to absorb any superfluous medication which may come away later. This very simple means of treatment is applicable in many cases which will be reviewed later.



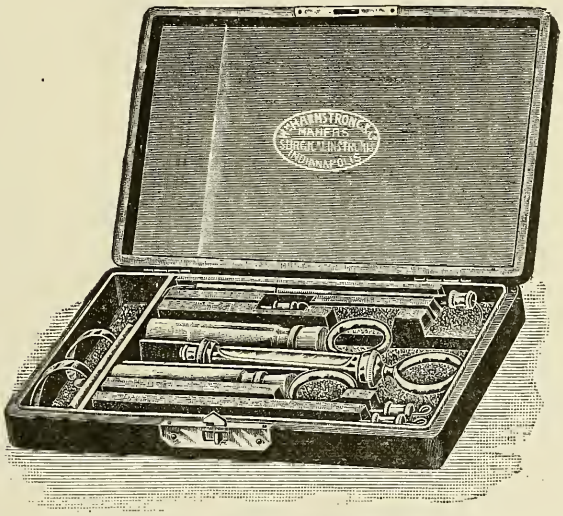
METHOD OF APPLYING INTRA-UTERINE APPLICATION.

ELECTRIC UTERINE CURETTEMENT

The word curette is taken from the word "cure," meaning to cleanse, as applied in surgery to scoop or scrape. In office practice, electricity provides us with a more convenient and agreeable means of accomplishing the same results, without the aid of an assistant. The object of curretting the uterus is

to remove fungous degeneration, due to chronic endometritis. Retention of adherent placental villi, after miscarriage, etc. This is accomplished by the acid radical of the positive pole of the galvanic current, as it is by no other means. The technique of the operation is as follows:

The patient is placed in the dorsal position, with a large electrode at her abdomen, attached to the negative pole; a copper wire intra-uterine electrode is inserted to the fundus of the uterus, attached to the positive pole, and a current from 20 to 30 milliamperes is used, the electrode remaining



GYNECIC SET OF ELECTRODES.

The specialist following this line of practice cannot afford to overlook the most complete assortment of appliances adaptable to his work offered in this set. 1 set Goldspohn's Copper Intra-Uterine Electrodes; Cataphoric Vaginal Electrode; 1 Neiswanger's Cervix Cataphoric Electrode; 1 Hayes' Abdominal Electrode; 1 Goelet's Bi-Polar Vaginal Electrode; 1 Goelet's Zinc Dilator Set.

about ten minutes. The current is now turned off, and the electrode is gently rotated until it is loosened, then it is withdrawn, and you will find it covered with the endometrium, and you have accomplished the same results as you would by the more bloody and inconvenient method of curretting the organ. This is repeated once or twice a week, until you have removed every particle of diseased tissue.

THE COMBINED TREATMENT.

By the use of the foregoing treatments, either used singly or combined with the addition of electricity, and other physiologic methods, we are able to master many of the diseases of women and "stay the hand of the surgeon." In order that

1. Nieswanger's Cataphoric Electrode for Prostetic Urethre.
2. Nieswanger's Cataphoric Electrode for Urethre.
3. Nieswanger's Cataphoric Cervix Electrode.
4. Fitz Hugh's Electrode for Erosions.
5 and 6. Nieswanger's Copper Intra-Uterine Electrodes.

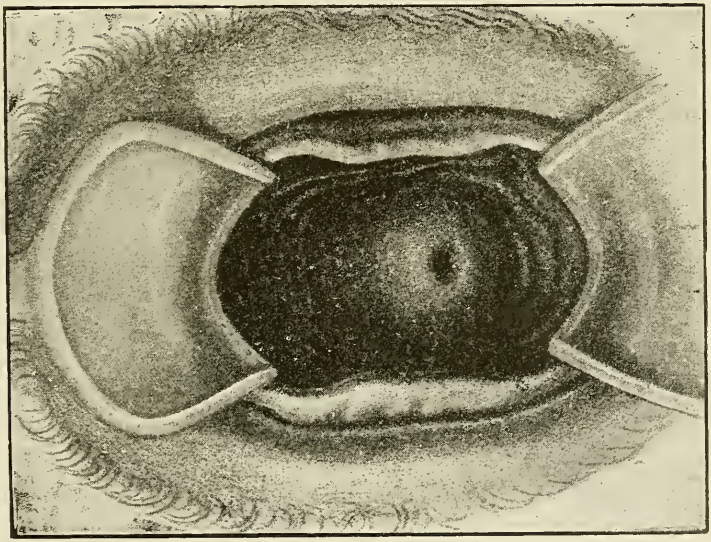
the reader may readily comprehend the practical application of these different treatments, I will illustrate their use as applied to disease.

FUNCTIONAL DISEASES OF WOMEN.

From puberty to the menopause, the functional diseases of women offers a very important part in the practice of medicine, and there are very few women indeed, who pass this period of womanhood without experiencing some of the disorders of the menstrual phenomena.

AMENORRHOEA.

This condition is usually divided into two distinct classes. First, absence of the menses in girls who have never menstruated, and, second, suppressed menstruation where the flow having once been established fails to appear at the regular time. The absence of menstruation is a normal condition during pregnancy, and while the mother is nursing her child.



INFANTILE UTERUS

CAUSE.—Non-appearance of the menses is a frequent malady of girlhood, and may be due to a variety of causes, as lack of pure air, sunlight and proper exercise, improper and insufficient food. Anæmia, chlorosis, consumption or

other wasting diseases; malformation of the generative organs. Suppressed menstruation is most generally caused by exposure, such as getting the feet wet and body chilled. Intense excitement and excessive study will cause it, but unless the excitement or study be constant the system reacts healthily, and the trouble soon disappears. Acute diseases, such as typhoid and scarlet fever, frequently suppress the menses, while displacements of the womb are among its causes.

SYMPTOMS are both local and general; some of the local symptoms are pain and a sensation of weight in pelvis; dragging feeling in groins, weakness and bloating of limbs. The general symptoms are such as languor and debility, palpitation of the heart, difficult breathing, dizziness, shooting pains and cramps in the different parts of the body, and a long train of both bodily and mental symptoms may ensue, indicating a derangement of one of the most important organs of the body. One of the most singular results of suppressed menstruation is a condition known as Vicarious Menstruation, where the discharge develops at some other part of the body. This flow may occur at the regular time from the nose, gums, breasts, bladder, or from sores that may be on the body.

TREATMENT of amenorrhœa requires the most discriminate care and attention to ascertain, if possible, the exact cause. Careful study should be made of the habits of life and mode of living. The patient should always have plenty of outdoor exercise, such as walking and riding in the open air, and indulge in such pastimes as conduce to good health and cheerfulness of mind and general tranquility of both mind and body.

If due to anæmia or chlorosis, the uterine tonic with Blaud's mass, is of the greatest value. The prolonged vaginal douch and sitz bath, before retiring, will also be of great assistance in establishing a normal circulation in the organ. This should be followed by the extra-uterine application, and another vaginal douch in the morning. This treatment, continued for some time, will generally suffice in a large percentage of cases, where mechanical obstruction is not present; if by the use of the speculum is revealed the "infantile" or un-

developed uterus with congenital stenosis of the cervical canal, (see accompanying illustration), electricity is by far the best means of permanently dilating the canal, and assisting nature to develop this organ. The patient is placed in a dorsal position. A large, flat electrode, attached to the positive pole of the continuous current, is placed over the abdomen, and an olive shaped tip electrode, just about one size larger than the constriction, attached to the negative pole, is gently inserted into the uterine canal, until it meets the constriction; the current is now turned on, using from five to seven milliamperes, from five to ten minutes, interrupting it through the rheotome every two seconds, during the treatment; these interruptions produce a series of contractions and relaxations, (electric massage), and as a rule, the electrode will pass through the stricture; if it does not, repeat the operation, at the end of three days; as a rule, however, the electrode will pass the stenosed part. At subsequent treatments larger electrodes may be used, until the canal is permanently dilated. This is our most successful treatment for all forms of stenosis of the uterine canal. If the uterus is undeveloped, as is the case illustrated here, our attention is now called to the development of this organ.

The switch is changed to the induced current, and with the electrode en situ, the rheotome is arranged in circuit for forty or sixty interruptions per minute, with the rheostat. We supply sufficient current to be agreeably tolerated by the patient. Contractions should be distinctly felt, but not painful. These treatments should be continued from three to ten minutes. By continuing this treatment at intervals of three or four days, for a few weeks or months, we will succeed by this method, where other means have failed, as we have softened the indurated tissues, strengthened the muscular walls, dilated and increased the blood supply.

DYSMENORRHOEA.

There are four varieties of dysmenorrhœa, which are

classed as follows: First, obstructive; second, congestive; third, neuralgic; and fourth, membraneous.

THE CAUSE AND SYMPTOMS—In the obstructive variety some organic impediment hinders the exit of the menstrual blood from the uterus, which gradually becomes distended and painful from the spasmodic efforts to discharge the menstrual fluid. If these efforts prove successful there is an interval of relief.

Flexions and versions of the uterus may occlude the canal of the neck of the organ, thus preventing the free escape of blood, causing intense suffering. In fact, this variety of dysmenorrhœa may be caused from any constricted or narrowed condition of the neck of the womb, whether it be the results of inflammation, congenital malformation, or the improper application of strong caustics used by incompetent physicians.

In the congestive variety, the mucous membrane lining the womb seems to be the seat of irritation. The blood flows into the small blood vessels in greater abundance than is natural, these vessels become congested and enfeebled and so altered in their sensibility as to cause much excitement and pain. This variety may be associated with inflammation of the ovaries, peritoneum, bladder or other surrounding organs. Before the flow is established there is always a feeling of weight and heat in back or pelvis, headache, flushing of the face and some fever. These symptoms usually disappear after the discharge is thoroughly established.

The neuralgic variety of dysmenorrhœa is usually found in persons of a highly nervous temperament, who lead an indoor life, and are subject to neuralgia in other parts of the body, which at the time of menstruation instantaneously reflects upon the ovarian and uterine nerves, which seem to be the center of irritation and pain, and is at times so severe as to be almost unbearable. I have seen a number of women who affirm that the severity of labor pains were not so great as those caused by this disease. The neuralgic pains fly along the tracks of the nerves to different organs and may some-

times be transferred to the uterus or ovaries and sometimes elsewhere, producing nausea, headache and often delirium and convulsions. Ovarian dysmenorrhœa is applied to a class of cases which are associated with diseases of the ovaries. There is pain between the periods in the region of the ovaries, which is aggravated by pressure and exercise, and greatly increases at the time of menstruation. In the membranous variety of dysmenorrhœa the entire mucous membrane lining the cavity of the womb in consequence of some morbid process, is gradually detached and dispelled during menstruation. They are steady pains at the commencement of the menstrual flow, but they increase in violence and become decidedly expulsive. The mouth of the womb gradually dilates and finally the membrane is forced out, attended by a slight flow of blood and an entire subsidence of pain.

TREATMENT.—The treatment of dysmenorrhœa should consist of such means as will establish a normal and healthy circulation of blood in the parts, and thus relieve congestion and pain. For this purpose relief is obtained by means of using prolonged vaginal douch or hot sitz baths are of much benefit in relaxing the parts; this is followed by the extra-uterine application. This application alone will often give relief, nearly as rapidly as a hypodermic injection of morphine, and may be applied every three hours, if necessary, during the period, with marked benefit, and, by continuing this treatment in conjunction with the uterine tonic, during and previous to the menstrual intervals, has permanently cured many obstinate cases in my hands. I generally advise these patients to take one or two uterine tonic tablets four times a day, and each night before retiring, use the prolonged vaginal douch, and insert the extra-uterine application, which is allowed to remain until the next night. This treatment is continued each day, for a few weeks or months, until all distress at the period has disappeared.

In connection with this treatment, I have many patients visit the office twice a week, where I keep the cervical canal dilated, with the electric current, and treatment described in

Ammenorrhœa. If the cervical canal continues to remain open, and we are sure there is no obstruction, the continuous current is applied only to the cervical canal, with the negative pole; the positive pole to the abdomen. This means of keeping the uterine canal open with electricity, and relieving the congestion by the other medications, will establish a permanent cure in fully ninety per cent. of all cases of obstructive congestive and neuralgic dysmenorrhœa. In the membranous variety, which, fortunately, is not very common, we have a different condition to deal with, and electricity alone will usually destroy and prevent the formation of this membrane, if used as described under the caption of "electric currettment," to which you are referred.

MENORRHAGIA AND METORRHAGIA

Menorrhagia, or excessive flow at the menstrual period, and metorrhagia, a flow during the interval of the period, are not diseases within themselves, but are symptoms of disease, bearing different classifications; thus we find these conditions existing in fibroid tumors, cancers, retention of the secundines after miscarriages, endometritis, etc. Whatever may cause these profuse hemorrhages requires our attention to check the flow, and remove the cause, if possible; this will be thoroughly discussed in treating the diseases in which this condition occurs.

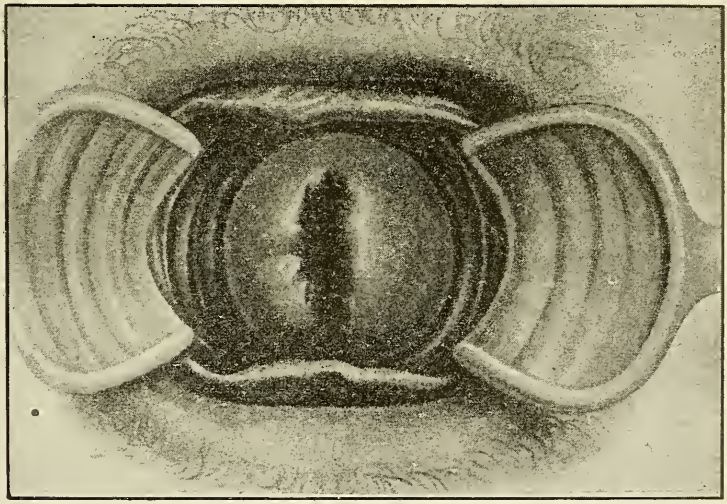
METRITIS AND ENDOMETRITIS

Endometritis is an inflammation of the mucous membrane lining the womb, while Metritis is an inflammation involving the entire organ. The latter is generally the extension of the former. Their symptoms are so near alike that they can well be discussed together.

CAUSE.—Catching cold or imprudence at the menstrual period, the extension of simple or specific inflammation of the vagina or other pelvic organs, injudicious or unclean intra-uterine medicated injections. The unskillful use of instruments and appliances, such as sounds, curettes and stem pes-

saries in the hands of inexperienced physicians, bear the responsibility in many cases. Improper and neglected attention during child-birth, miscarriage, and the lying-in period, deformities of the womb and canal, tumors, etc.

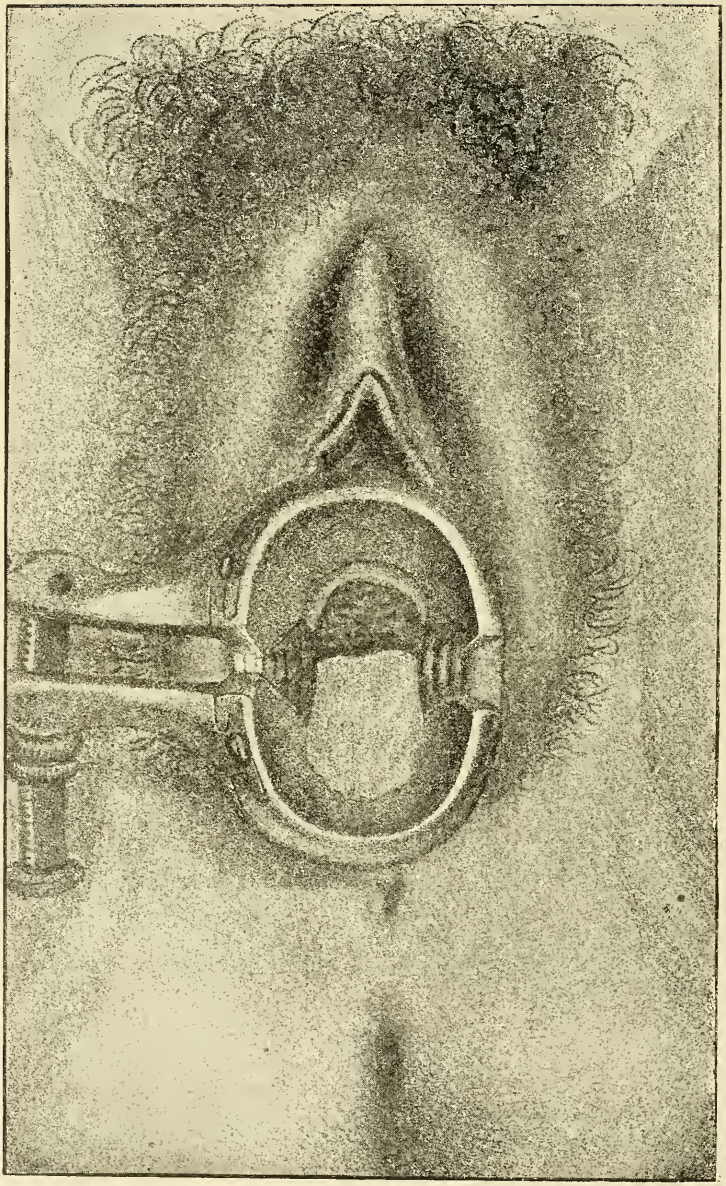
In making a speculum examination of the external os, the first thing which attracts our attention is the enormous amount of glairy, tenacious, semi-fluid, ropy substance, oozing from the external os, (see accompanying illustration). This is the condition referred to, by the older writers, as "Uterine Catarrh," and is the pathognomonic symptom of these diseases. There is, of course, profuse leucorrhoea; as the result of this discharge, derangements of menstruation, especially menorrhagia and dysmenorrhœa are often present, due at times to the obstruction of the canal by the tenacious substance.



CONGESTED CERVIX OF METRITIS.

Sterility is also traced to the same cause. There are, also, bearing down pains and sensations of weight and dragging in the back; sensitiveness over the womb. Nausea and vomiting may be present, indicating a sympathetic irritation of the digestive organs.

TREATMENT.—In this condition we have a diseased



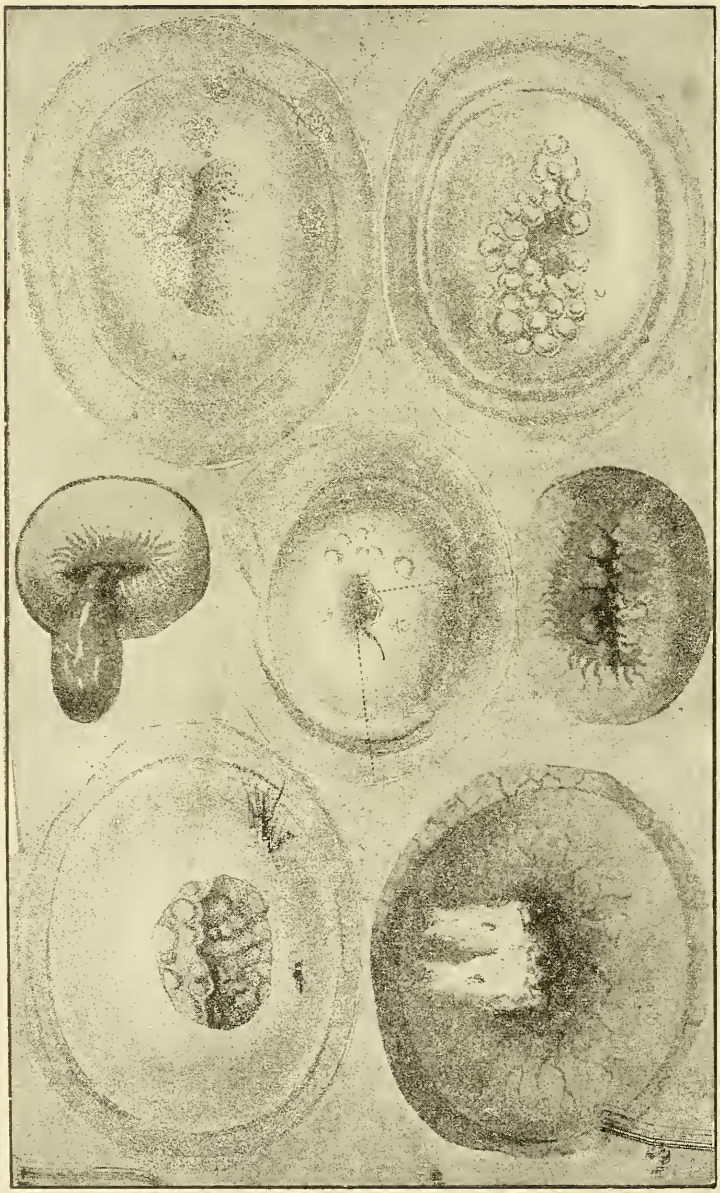
ENDOMETRITIS—UTERINE CATARRH.

membrane to deal with, and our only means of establishing a permanent cure is to remove this old, diseased tissue, in much the same way as we build new skin on the face with the ecorchement treatment. This is done by a combination of medical agents with electricity. By this, apparently, simple method, "currette" the uterus with a copper electrode, attached to the positive pole, as previously described. After this treatment, inject about eight minims of the extra-uterine application. This treatment should be repeated about every four or five days, for a month or longer, or until the discharge has ceased, and the organ resumes its normal condition. During this time the patient is advised to use the vaginal douch before retiring, followed by an extra-uterine application, and the uterine tonic tablets, or whatever other treatment is required; this is a remarkably successful treatment. We have "curretted" the uterus, and stimulated the tissues by electricity, and reinforced this treatment by depleting effete matter and reorganizing the circulatory nervous system of the female generative tract.

CORPOREAL ENDOMETRITIS, EROSIONS, ETC.

In making all speculum examinations, the first thing the physician observes is the condition of the os uterus, as this is the "tell tale" of many diseases. These objective symptoms often allow us to determine, at a glance, the exact condition of local or more remote disease; it is therefore, one of the methods of diagnosing disease without asking any questions.

Simple erosions are usually the result of excoriating discharges, and usually heal after we cure their primary cause. They may be produced by injury from syringe nozzle and other instruments, or the extension of inflammation from the vagina, too hot or corrosive injections, etc., on the other hand, the neck and os of the uterus may picture out morbid conditions, cancer, (see tumors), or benign tumors, polypus, fibroid, etc., many of which are illustrated in this chapter. Where an erosion exists uncomplicated it may be readily healed by a few applications of the Fitzhugh electrode, (illustrated here), attached to the



Top Cuts—1. Simple Granulations. 2. Follicular Cysts.
Middle Cuts—1. Polypus. 2. Follicular Cysts and Structures of Cervical Canal. 3. Cysts with Fungus Ulceration.
Bottom Cuts—1. Excrescences of the Cervex. 2. Corporeal Endometritis.

positive pole, using thirty to forty milliamperes, after which they are painted with the intra-uterine application; generally three or four treatments will establish the desired results. Follicular erosion should be opened with the knife, and afterwards treated in the same manner.

Corporeal endometrist is a diseased condition involving only the membranes of the cervical canal. This is treated with the intra-uterine copper electrode, attached to the positive pole, and the same technique carried out as when the cavity is treated, previously described.

LACERATION OF THE CERVIX.

The formation of the cicatricial tissue at the cervix, as the result of laceration during child-birth, was formerly removed only by surgical means. The cataphoric use of thiosinamine promises a means of revolutionizing this practice, as these cicatrices may be dissolved and removed by this more agreeable procedure. The technique of which is as follows:

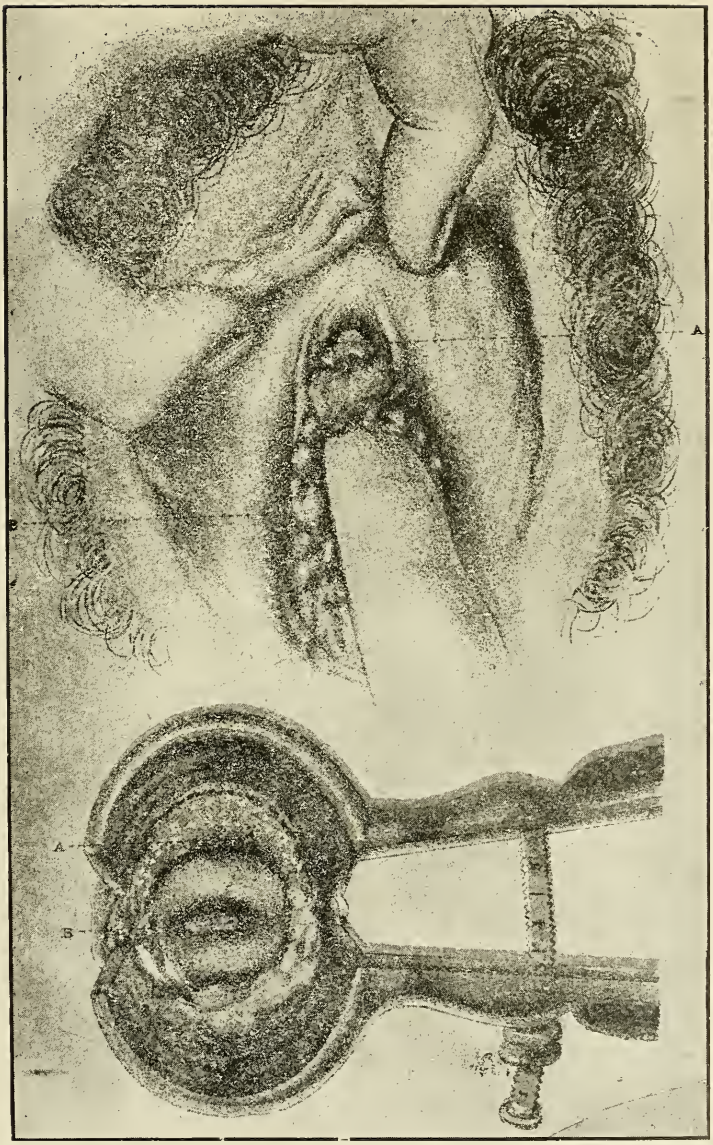
Dr. Nieswanger, to whom is credited this valuable procedure, has designed special electrodes for this and similar cataphoric operations, which consist of a brass stem, with a platinum terminal, isolated its entire length with hard rubber, and the platinum tip surrounded by a perforated hard rubber ball, which can be removed for the purpose of covering the tip with medicated cotton. The medication used is the same as given in treating scar tissue, on another page. With the abdominal pad in position, attached to the negative pole, and the cataphoric electrode connected to the positive pole, previously saturated in the thiosinamine solution, is placed in contact with the cicatricial tissue on the cervix, and fifteen to twenty milliamperes of the continuous current turned on through the rheostat, and the treatment continued about ten minutes. It is often surprising to note the action this remedy seems to have in softening this tissue; it has a tendency, however, to abrade the healthy mucous membrane, if the current is too strong, and these treatments should be continued at least once a week, to insure success.

VAGINITIS AND URETHRITIS

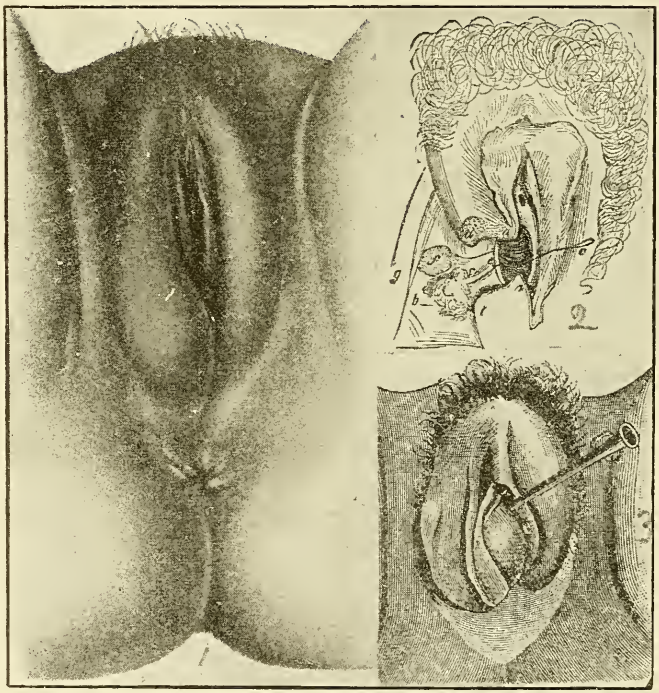
Vaginitis and urethritis are so closely related that they may be discussed together. They consist of a simple or specific inflammation of the mucous membranes of the vagina or urethra. These diseases may be caused by the use of too hot, medicated or caustic injections, misfitted pessaries, and other mechanical appliances. Gonorrhœa infection is, however, responsible in the greatest number of cases.

The patient will complain of pain, heat and swelling in the vagina, and upon examining the parts, it will be observed the mucous membrane of the vagina is highly inflamed, with numerous granulations upon the surface, (see accompanying illustration B above, A below). By making pressure upon the urethra, (see A above), a few drops of greenish pus will ooze from the cavity. The inflammation may extend upwards, and the uterine canal will be filled with a muco-purulent discharge, (see B below), which will later develop into chronic endometritis. If there is any one condition in which the extra-uterine application will prove its specific value, it is in the treatment of Vaginitis. Within ten minutes after the treatment is applied the distress will subside by its palliative effect, and by continuing this treatment, a thorough and permanent cure will rapidly follow. Each treatment should be preceded by the vaginal douch, and in severe cases, the application should be applied four or five times a day, in a cocoa-butter base; if the cervical canal and urethra are affected, they should also be treated with bougies, containing protargol, during the acute stages.

If the healing process is retarded, from any cause, or the case has developed into a sub-acute or chronic state, involving the deeper folds of epithelium, electricity is one of the most potent measures. The germicide and astringent effects of copper, when cataphorically deposited by the copper electrode, from the positive pole, and continuous current, is so powerful it will rapidly destroy gonorrhœa, or other existing germs; usually, three or four treatments will be sufficient to establish a


A
B
A
B

complete cure. The technique of the operation is as follows: A local anæsthetic should be injected into the urethral canal, as the patient will not be able to withstand the pain, in many cases. The copper electrode is now introduced, attached to the positive pole, and from five to ten milliamperes of current used, for about five minutes, repeating this operation every four or five days, until a cure is established.



DISEASE OF BARTHOLINIAN GLANDS

INFLAMMATION AND CYSTS OF THE BARTHOLINIAN GLANDS

As a consequence of vaginitis or injury, inflammation and suppuration of the glands of Bartholin is of very common occurrence. These glands lie beneath the labia minora and majora, and are about one-half inch long; sometimes develop, especially

in prostitutes, as large as an almond. They contain a duct of sufficient size to admit a bristle, which is about one-half in long. The accompanying illustration (Fig 1) shows the gland in the acute stage of inflammation; the upper right hand cut shows a dissection of the parts, exposing the glands, and right lower figure, the formation of a cyst, as the result of the closure of the duct.

The polliations in women are due to this gland.

A simple cyst (Fig. 3), may develop, varying in size from a nut to a goose egg, and contain a colorless fluid, sometimes mixed with blood. The contents have been evacuated, and after aspiration, treated like a hydrocele, by injecting thuja, (see hydrocele), or ten or twelve minims of a chloride of zinc solution. Another later procedure, is to evacuate the contents, and fill the cyst with paraffin, which outlines the cavity, which is thoroughly dissected away, like a fatty tumor, using cocaine to obtund the pain.

Inflammation and suppuration of this gland is, however, of the most frequent occurrence following gonorrhœa, (Fig. 1); by pressing on the duct, a greenish or milky pus is expelled. These may be freely opened, and treated as a common abscess, and, if the inflammatory action re-occurs, complete extirpation of the gland is necessary.

URETHRAL CARUNCLE

Is an inflammation of the urethral glands, at the orifice of the urethra, generally caused by gonorrhœa, and other irritating discharges. This is one of the most painful, apparently little, affections of the female organs. The papillæ around the mouth of the canal are deep red, and will often not allow the gentlest manipulation. These irritating ulcers may often be exterminated by the use of nitric acid, or nitrate of silver, if only superficial, but the best and most rapid means is to treat the growth with an electric needle, from the negative pole, in the same manner that warts and moles are destroyed.

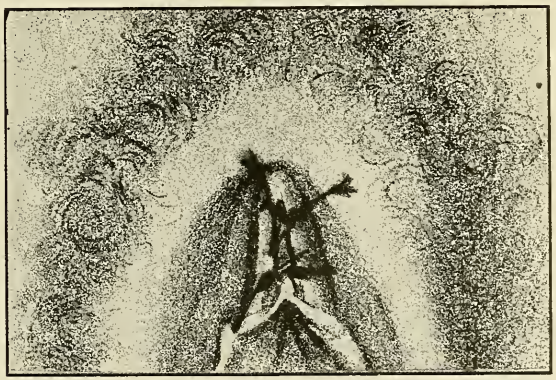
The parts should be previously anæsthetized with cocaine; carbon dioxide snow is also a very rapid and efficient means of destroying these growths.

IMPOTENCY AND STERILITY

While text books for the treatment of diseases of women are prolific in discussing the pathological conditions of the female sexual system, very little is said regarding impotency or sexual frigidity and sterility; yet these two conditions, more than any other, are subjects which greatly concern the marital happiness of man and wife. If we were to trace the court records, we would find stringent laws regarding impotency in the male that incapacitate manhood; yet the unwritten law regarding sexual frigidity, or apathy in the female, remains silent with the physician, who is constantly consulted regarding this subject. It is, therefore, his duty to look the subject square in the face, and institute such means as will cultivate this active function of love," which is so essential to conjugal peace and happiness. I am satisfied that the physician can diminish the frequency of divorce, domestic infelicity and social evils, by correcting many physical defects and pathological conditions of the female sexual system. Our Creator has designed the functions of these organs for the harmonious procreation of the species, and any apathy which may exist by either sex, cannot be corrected by law-makers or statesmen, as these unwritten laws are only revealed to the physician. whose duty it becomes to advise and treat these patients. Every physician is familiar with the fact that congenial sexual relations are conducive to happy unions, and any deviation from this law is usually followed by domestic infelicity. What is true of sexual apathy is likewise the rule with sterility. It is the heart's desire of nearly every man and woman to procreate, and be blessed with sons and daughters, to smooth the rough roads at the decline of life, and there is nothing quite so disgusting to a well-bred physician as to listen to a woman boast of the number of abortions she has had performed, and

later meet her on the street, leading a poodle dog, which she calls "baby"; really the string which unites the two links together species which is often difficult to differentiate, from a moral and mental viewpoint, yet some "pin-headed" philosopher has the courage to call this a typical American family.

There are two degrees of sexual frigidity in women. The first is where there is absolutely no desire, no feelings for or during the sexual embrace, and the second is where this function is partially developed but without gratification, and the question arises: what can be done to awaken these organs to life and activity? There is only one remedy, which, apparently, has a specific aphrodisiac effect upon the female sexual system, and that is galega; the evolution of this drug is somewhat interesting. Galega grows in its natural state, in large quantities, in Switzerland, and is also cultivated to a great ex-



LINE OF INCISION AND SUTURES IN POSITION

tent, and given cows, for the purpose of increasing their supply of milk. Its stimulating effect upon the mammary glands induced many women to use the remedy for the purpose of developing the bust, and rounding out the form; it was discovered that the women who used the drug for this purpose found their sexual appetite was also greatly increased. It is this evolutionary proceeding which has introduced galega as

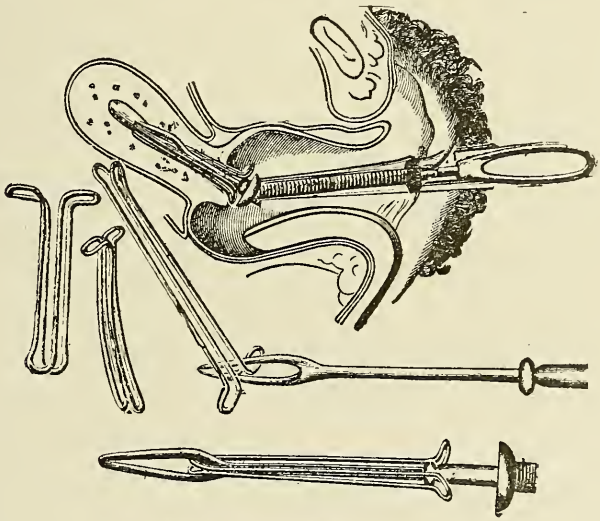
one of our foremost remedies in the treatment of sexual apathy, in both male and female, and by combining this drug with other remedies, bearing a therapeutic action upon nerve centers, as is given in the "pill that will" in the succeeding chapter, much can be done by internal medication to develop and awaken this dormant function.

The surgical treatment consists of denuding the clitoris. This operation is analogous to circumcision in the male. The technique of the operation is simple; the hood is pinched up with the thumb and forefinger, and an injection of cocaine is given to obtund the pain; after the anæsthesia is completed, the hood is lifted from the clitoris, and a V-shaped incision is made from the apex downward, (see accompanying illustration) and the denuded edges of the integument and mucous membrane are united by four sutures, two at the apex and two at the base, (black silk was used in the accompanying illustration, which may be confused with the line of incision), the wound is dressed in the usual way, and the sutures removed as soon as healing has taken place. This medical and surgical procedure has been the means of restoring this function in a great many cases in my hands, and you will find your efforts greatly appreciated by both husband and wife.

STERILITY

Although sterility is frequently found in women with sexual apathy, these conditions are in no way related, as there are several causes why women cannot conceive and bear children. The principal of these is stenosis of the uterine canal, due to endometritis, where the uterine canal is obstructed with the thick tenacious secretions, preventing the entrance of the spermatozoa, as is illustrated on a preceding page. The history of many of these cases are the results of criminal abortions; on the other hand, where a woman has never conceived, the uterine canal will often be found in a contracted state, as in the infantile uterus. These two conditions are conservatively estimated to be the cause in ninety per cent. of all cases, and

by establishing a healthy condition of the membranes of the uterus in the former, and using either mechanical, or other dilatory means, in the latter, a great number of barren women may be made fertile. The method of maintaining dilation of the uterine canal by electricity has been previously described. Many physicians prefer, however, mechanical dilators, of which Outerbridge's stems offer the best means. These instruments are only used where the uterine membranes are in a healthy condition, for the purpose of keeping the canal continuously di-



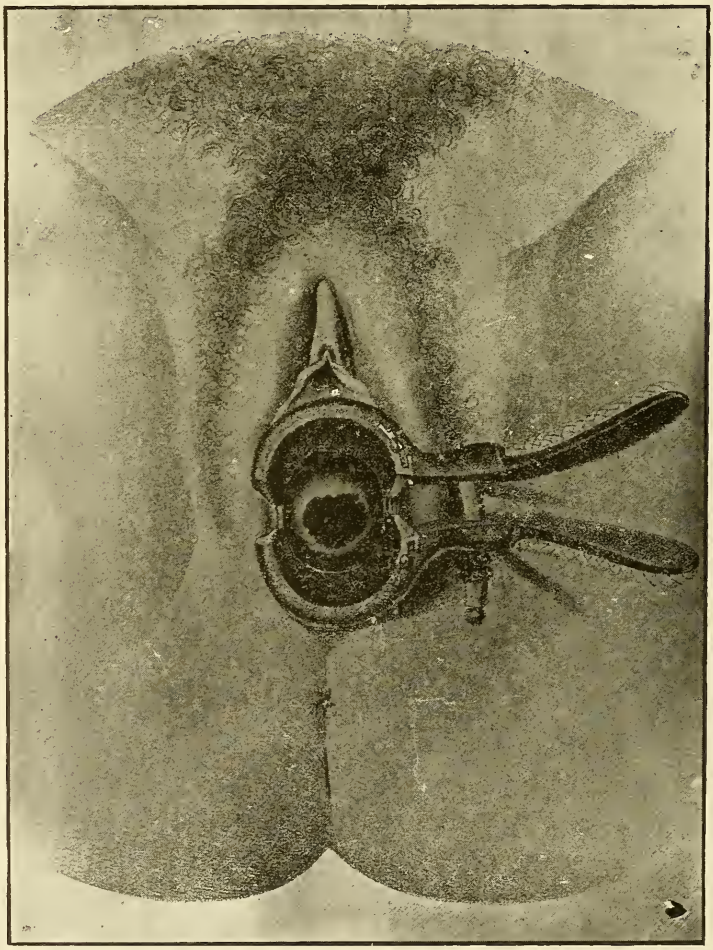
OUTERBRIDGES, STEM DILATORS

lated, and are of equal service in many cases of dysmenorrhœa, due to a constricted canal. Of course if any form of uterine catarrh exists, occluding the canal, they will not accomplish their purpose in sterility, and the diseased condition should be treated and cured first.

Dr. J. Marion Sims was the first to introduce artificial impregnation by injecting semen with a intra-uterine syringe; although this method has never become popular in medical literature, it is more frequently practiced than is generally supposed, and will be found successful in a great many cases.

ILLUSTRATED CASES.

When a physician becomes too enthusiastic regarding a special treatment he is often branded as a "crank." If this



The above illustrates the way all Exterior Erosions or Ulcerations of the External Os should be "Painted" with the Intra-Uterine Application.

caption applies to my case it will be accepted very gracefully, and I only wish I could be as "successfully cranky" with many

other treatments in the practice of medicine. I consider this treatment, either used in part or combined, as the case may require, one of the most successful treatments in present use for the diseases of women commonly met with, and far superior to the caustic remedies or the fashionable cautery, electricity. As a rule I do not believe in "stereotyped therapeutics" and occasionally I modify this treatment to meet the requirements of some individual case, but in a large majority of cases I know of no means of improvement, and use it as given here. With a large number of patients I find the best results are obtained from the combined treatment, and usually I have a patient visit my office once or twice a week, and that I may apply the intra-uterine application and watch the progress of the treatment. During the intervals she is instructed to take a douche of warm or rather hot water each night before retiring and apply the extra-uterine application; throughout the treatment she also takes a tablet of the Viburnum tonic compound six times a day, or whatever other internal treatment her case may demand. By the judicious use of these remedial measures I am convinced that they will effect a cure in many cases where other methods of treatment have failed to be of benefit, and it will excell the numerous routine treatments, proprietary preparations and nostrums often used by physicians. To demonstrate its wide range of usefulness, I will point out its value in the following illustrated cases:

IRRITATION OF THE BLADDER

Miss G., an actress appearing at one of the theaters in this city, consulted me regarding this troublesome and painful condition with which she had been suffering at different times for about two years. She stated that it was almost impossible for her to fulfill her engagement, as she was in such distress; between each act she would attempt to urinate, but there would be only little urine and such unbearable, spasmodic pains afterwards. This was about 5:30 p. m.; I instructed her to take a vaginal douche of two quarts of hot water, as hot as she could

comfortably endure, and apply an extra-uterine application (in cocoa butter and slippery elm base) and to repeat the operation at 7:30, just before the performance. She followed my advice and reported the next day that in about twenty minutes after she made the first application all of her distressing symptoms left her and she passed the evening in perfect comfort. The following day I washed out the bladder and instructed her to use the extra-uterine application three times a day. She continued the treatment during her week's stay in this city and took sufficient medicine with her to last two months, making one application each night before retiring. I did not hear from her again until the following season, when she visited my office and informed me that she had never been troubled since. She wished me to prepare some more medicine, however, to be used in case of emergency as she was in constant fear of the old trouble returning. I relieved her mind, however, by telling her that in all probability she would never be troubled that way again.

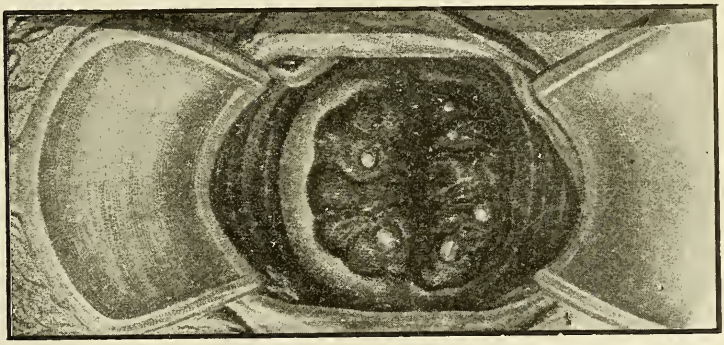
AMENORRHOEA

Miss H., aged 16, applied for treatment for irregular menstruation. The menstrual periods were established when 13 years of age. At this time she thought she "took cold" from bathing; at least, the periods did not return again for four months; since this time they have always been irregular, appearing at intervals from two to three months. The patient was anaemic and complained of having much backache. Her anæmic condition was, no doubt, one of the primary causes of her condition. I prescribed the "Viburnum compound" three times a day, and after each meal she was given a five grain Blaud's pill combined with arsenic and strychnine. I instructed her to use a hot water douche each night before retiring and insert an extra-uterine application. She continued this treatment nearly five months; at the end of this time she was menstruating regularly; her complexion became florid, and her general health was seemingly good. She continued the inter-

nal treatment for several months, omitting the iron tablets at intervals. She has been constantly under my observation, and at this writing is perfectly well, strong and healthy.

CONGESTIVE DYSMENORRHOEA.

Mrs. H. consulted me regarding her daughter, 19 years of age, who had always suffered from dysmenorrhœa. Menstruation was not established in her case until 16 years of age, and during the menstrual period she was confined to her bed the greater part of the time. She was a very plethoric girl



and appeared rather timid in disposition, although she frankly informed me she "hated doctors." If I had suggested examination in her case she no doubt would have been out of the office before the words left my lips. After briefly discussing her case with her mother, I pronounced it congestive dysmenorrhœa, and prescribed a douche of two quarts of hot water each night before retiring, and instructed her how to use the extra-uterine application (in a cocoa-butter and slippery elm base). After the douche I also gave her a tablet of the "Viburnum tonic compound" six times a day. She promised to carry out the treatment persistently and report after the next menstruation; in due time her mother called and informed me she had suffered some pain, but it was not so severe as at former periods. She continued the treatment as above, and the next pe-

riod was passed with still less pain; the next period was passed in perfect comfort. She continued the treatment altogether about five months, and has never suffered since. It is now a year since she has abandoned all medication.

This is only one of many cases which have come under my observation which has demonstrated the curative value of this treatment. Had I prescribed the application during the first two periods she no doubt would have not suffered at all, as will be illustrated in the following case:

DYSMENORRHOEA

Miss B. I was called at the bedside of this lady, who was suffering intensely. She informed me that she always suffered this way, but the pain was less severe after the appearance of the menstrual discharge. I immediately gave her a douche of hot water and she inserted an extra-uterine application; in less than half an hour nearly all the pain had left her. She repeated the operation twice during the night; in the morning the menstrual flow had made its appearance, but she continued the application twice a day throughout the period, with but very little pain.

This lady continued the treatment for about four months, with the aid of the "Viburnum compound," and occasionally dilating the cervical canal, and she was discharged and pronounced cured.

CANCER OF THE CERVIX

I was called to see Mrs. P., aged 47, who was flowing excessively. She had been advised by another physician that her condition was due to the change of life, although he had never examined her. Speculum examination revealed the fact that she was suffering with a cancer of the cervix, involving the lower third of the fundus and the upper walls of the vagina. I informed the husband regarding her serious condition and also told him that I believed operative procedures

would be of no value, as the destruction of tissues was so great, and the only treatment would be to offer her as much comfort as possible until the end. She was suffering much pain, which was very severe at times. I gently curetted the sloughing surface and applied the intra-uterine application to the abraded surface, and advised her to take a douche of warm water and apply the extra-uterine application every two or three hours as her case required. It was suprising to note how rapidly this treatment relieved the pain and seemed to control the hemorrhage and abate the odor. This treatment was continued until the very last, when morphine had to be resorted to. Although the treatment in this case was only palliative, it offered all that can be accomplished in such cases.

ENDOMETRITIS OF THE CERVICAL CANAL

This lady was 29 years old; was married and had never become pregnant, very much contrary to her wishes. Her general health seemed excellent, but she said she had been troubled with leucorrhœa for years. After reading some domestic medical book she became alarmed at her condition, thinking the discharge was a sure means of destroying her life. I made a speculum examination and, with the aid of the sound, I found the diameters of the uterus and the internal os about normal. The external os, however, was ulcerated, everted and enlarged. By passing the sound the mucous surface would bleed very easily, showing the mucous membrane was very much congested. It was easily determined that she had endometritis limited to the cervical canal. I applied ten minims of the intra-uterine application to the entire length of the canal, and also thoroughly covering the external ulcerated surface with the medicine, after which I inserted a tampon saturated with glycerine and thymol at the external os before removing the speculum. These local treatments were continued twice a week; during the intervals she used the extra-uterine application, with warm water injections each night before retiring, and the Viburnum compound. This treatment was continued

about four months. At the end of this time the mucous membrane of the canal seemed to be perfectly healthy, and the external erosions entirely healed. In order that I could watch her condition I had her visit my office once a month for several months, but the old condition never returned.

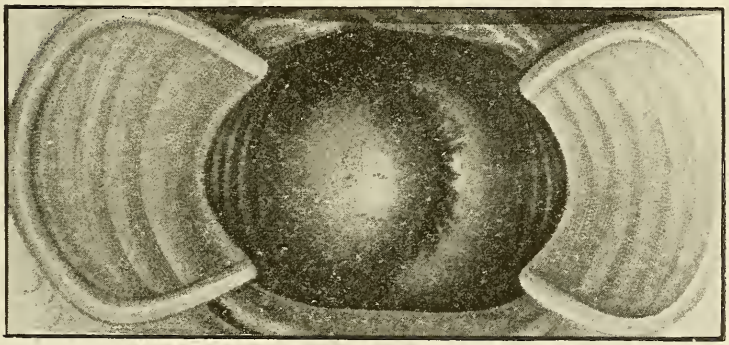
CORPOREAL ENDOMETRITIS.

Mrs. D., 41 years of age, came to my office, stating that "It seems as though beavers are building a dam in my womb, there is such a constant gnawing." By examining her with a speculum I found the external os and cervical canal in apparently a healthy condition, but on entering the uterus with a sound she complained of some pain, and said "that is the very place which is causing me so much discomfort." The surface would bleed easily at the most gentle manipulation. Menstruation was irregular, but when it did appear it was too profuse and lasted longer than it should. She also had leucorrhœa, which at times was offensive. I decided that she had endometritis limited to the uterine cavity, which is not of common occurrence. I treated her twice a week with the intra-uterine application, and curretted the surface occasionally, and also had her use the extra-uterine application and "Viburnum compound." At the end of three months all symptoms of the disease had left her, and she was discharged as being cured.

A COMPLICATED CASE.

Mrs. J.—This was one of those complicated cases not unfrequently met with, where the inflammatory condition seemed to involve the entire pelvic cavity, and had she fallen into the hands of the modern gynæcological surgeon, she no doubt would have parted with much of her anatomy. Congestion and hyperthesia was manifest everywhere within the pelvis; the ovaries were sensitive, and at times she would have frequent and painful urination, backache and constant pain in the pelvic region. Speculum examination revealed an enlargement of the cervix, which was fairly purple in color, showing retarded

circulation. There was a large erosion on the external os, the lining membrane of the cervical canal and uterine cavity were sensitive and bled very much when touched with the sound. There was large quantities of mucous oozing from the canal, which was often streaked with blood. Menstruation appeared too often and was too profuse; her general health was very much impaired; she was weak and anæmic, had disturbances of the stomach, and was extremely constipated and nervous. It was not difficult to see she was suffering with metritis and endometritis, involving the entire membranes of the uterus. She was placed upon a thorough course of reconstructive and tonic internal medication, and the intra-uterine application was



applied to the entire uterine cavity and cervical canal, by gradually increasing the amount of medicine at each application until ten or fifteen minims were used, which was sufficient to cover the entire surface. She was also instructed to use the extra-uterine application and a hot water douche each morning and evening, as an intermediate treatment. The extra-uterine application seemed to have a wonderful effect in her case; at the end of one week she declared she had not a pain or discomfort in the pelvic region. Often when she would take a douche there would be large pieces, amounting sometimes to entire casts of the vagina, of coagulated serum, come away, which demonstrated the value of the application as a depilatory in curing these conditions by exosmosis.

After she had continued the treatment for several months, she had gained about 25 pounds in flesh, the size of the uterus was gradually diminished and the endometrium was apparently in a healthy condition, when an accident occurred which ended in her death, by falling down an elevator shaft in one of the large department stores in this city.

SPECIFIC VAGINITIS

Mrs. C., a refined lady, 32 years of age, contracted gonorrhœa from her husband, who was "rather sporty inclined." I did not inform her the cause of her condition, as I did not wish to take an active part in a family disturbance, as I was treating the husband for the same disease. (I think St. Peter will pardon a few prevarications under such circumstances. She was suffering intensely with vesical and rectal tenasmus, had a profuse discharge and all the accompanying symptoms of the disease. She was instructed to use a douche of two quarts of warm water in which 2 drachms of borax had been dissolved. 5 or 6 times a day. After each douche she inserted an extra-uterine application. She experienced great relief from the first, and at the end of ten days the symptoms of the disease had left her and she was practically well. She continued the local treatment, however, once or twice a day for about three weeks.

Genito-Urinary and Venereal Diseases

The diseases resulting from the "great social evil" have always contributed liberally to the physician's yearly income, as it may be conservatively stated that one-tenth of the physician's income, comes from this source; therefore, placing the average physician's income at $1,000.00 per year, there would be paid $14,500,000 for medical fees in America, for the treatment of Genito-urinary and venereal diseases. This is such a profitable branch of medicine that the advertising physicians have nearly abandoned other diseases, stating that they can receive larger fees, with less labor, than are obtained in any other specialty. It is this reason that makes this specialty so conducive to "quackery." The medical and minor surgical therapeutic procedures have been greatly improved in Genito-Urinary and venereal diseases, within the last few years. We will, therefore, outline many of the modern methods of treatment used in these special diseases.

URETHRITIS.

The most prevalent of venereal diseases has been described, from time to time, under the synonymous terms blenorrhagia, gonorrhœa, clap and urethritis. This disease, for a very long period, was a fruitful theme of debate, to identify this condition from syphilis. The history of this disease will date back to the origin of the first unclean woman, and that means the origin of the species; therefore, Rudyard Kipling need offer no apology for writing "the female of the species is more deadly than the male." Moses, in his wisdom, was the first to recognize and institute prophylactic measures to prevent this, and

other venereal diseases; and in his code of moral laws the males were not only required to be circumcised, as it was thought the prepuce was responsible for spreading disease, but the females were required to be separated from their husbands during the menstrual and other periods. These are the first prophylactic measures which history has given us. The vagina offers a most prolific field for the generation of germs, containing pathogenic properties; its exclusion from light, and the decomposition of the secretions from her own generative organs; together with the physiologic secretions from the male, the semen, and the irritation during cœtus makes it a particularly favorable seat for decomposition, and the development of irritating toxins.

The treatment of gonorrhœa consists of both internal and local measures. The internal medication may cover a large number of remedies, but the true specifics are few in number. The principal effects desired is to relieve the pain during the acute stages, and render the urine alkaline. The following, in tablet form, will be found very serviceable:

℞	Ext. Kava-Kava	1 gr.
	Potass. Bicarbonate	2 gr.
	Oil Sandal	1 gr.
	Oil Cubeb	½ gr.
	Balsam Copaiba	½ gr.
	Iron Sulphate	½ gr.
	Salol	1 gr.
	Pepsin Pure	½ gr.

Two tablets three or four times daily.

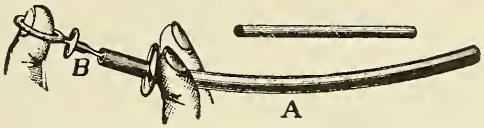
The local treatment is of the greatest importance, and I always prefer these medications in the form of urethral bougies, as it is more accurate, convenient and thorough than other forms of local medication. These treatments are supplied in the form of long, narrow pencils, which are used with an applicator, (as is illustrated here), or each bougie is wrapped in paraffin paper coil, or tube, which answers the purpose of an applicator, and also protects the bougies from melting

when not in use. This is the best means of reaching all areas of the urethral tract, and has the advantage in prolonging the medication to any diseased area.

The following formula in bougie form is as near a specific for urethritis as can be obtained by medicine:

℞ Protargol . . . . . ¼ gr.
Hexamethylenamine . . . . . ¼ gr.
Quinine and Urea hydrochloride . . . 1-6 gr.

Sig.—Use a bougie three or four times a day, and before retiring. Always instruct your patient to urinate before each application, as this clears the canal of toxic secretions.



URETHRAL APPLICATOR AND BOUGIE

In resuming the above formula, we have the combined astringent and antiseptic effects of Protargol, which has long been recognized as superior to other astringents, or germicides, in the treatment of this disease; this is reinforced with Hexamethylenamine, whose relation to formaldehyde makes it a most favorable treatment for the destruction of micro-organisms. Quinine and urea hydrochloride is not only a mild astringent, but also an anodyne and prolonged anæsthetic. The addition of this remedy is indispensable in treating this disease, as its obtunding properties immediately stop all pain and irritation, while the other medications are effecting their permanent results. In fact many patients will state they would not know they were diseased if it were not for the discharge.

STRICTURE

Stricture is a narrowing of the urethral canal from any cause, and may be spasmodic, congestive, inflammatory or fibrous. This is one of the most frequent complications of gonorrhœa, and although the different forms cannot always

be differentiated clinically, it becomes the physician's duty to institute a means whereby the canal will maintain its normal caliber. For this purpose, there have been many different treatments used, from time to time. Space will not allow a discussion of all these methods; we will, therefore, confine our treatment to the more simple and practical measures.

A large percentage of strictures following gonorrhœa are the results of forming fibrous tissue, due to the inflammatory process narrowing the canal; thus the treatment is directed to dilate or stretch the canal to its normal caliber, or absorb the fibrous tissue by electricity or medicated bougies. The gravity of stricture will depend upon its distance from the meatus; the nearer this orifice the more easily cured, and the farther the distance the more difficult to master. Forced dilation does not offer us a successful treatment, except in the most super-

FIBROUS STRICTURE

ficial constrictions. When the stricture is deep seated, they may be made to admit a large sized sound, and we congratulate ourselves that we have relieved the constriction only to be disappointed by the patient returning in a few days with no apparent improvement. It has been demonstrated, however, that thiosinamine applied in bougies, after dilation, would produce permanent results. The technique of the operation is as follows: locate the seat of the constriction, and dilate the stricture with graduated sounds as far as possible, and, after withdrawing the sound, insert a bougie composed of the following:

℞ Thiosinamine . . . . . ½ gr.
Resorcin . . . . . ¼ gr.
S. E. Thuja . . . . . ¼ gr.

A few of these dilatations and medications will usually overcome the most obstinate cases of urethral constriction due to fibrous tissue. Thiosinamine may also be used by cataphoric application as follows: the cataphoric urethral electrode (shown on page 275), is saturated with the thiosinamine solution, as for treating scar tissue. This is inserted to the constricted area, on the positive pole. The negative pole placed on the abdomen, and five milliamperes of current used for five minutes. A very few of these treatments will be followed by the most excellent results.

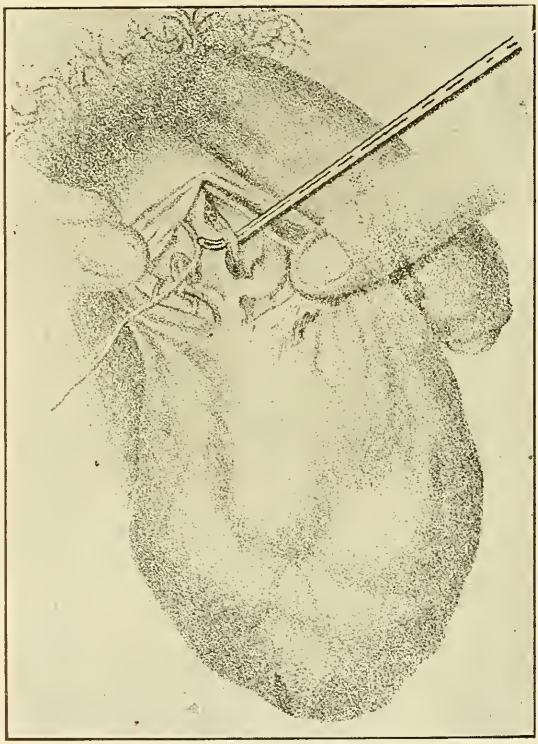
VARICOCELE

The frequency in which varicocele occurs, in the adult male, has offered a field for an independent specialty, and nearly every city contains a "Varicocele Specialist," who, as a rule, charges the uniform price of $100.00 for treating this disease. The injurious effects depicted by these specialists, are greatly exaggerated, however, with a view of depleting the purses, by frightening the victims with the statement that this disease will result in impotency, while the truth remains that this disease is not a serious condition, and produces comparatively little discomfort.

Surgeons differ greatly in estimating the frequency in which this disease occurs. Dr. Henry, police surgeon of New York, found 41 cases in 2,000 robust and healthy men, examined for police service. Ludston gives an estimate of 5 per cent. in men examined for military service, which would give a better percentage for average healthy men. At any rate, varicose veins are more frequently found in the plexis of veins surrounding the spermatic cord than in any other part of the body, and often require treatment to cure this condition, even if the disease is not dangerous. It relieves the annoyance, portrayed by bold advertising, upon the minds of many neu-

rotic patients, and prevents them from falling into the clutches of quacks, who point at this condition as a consequence of noctural emissions, masturbation, and resulting in "physical decay" or impotency.

There have been many operations devised for the relief of this condition; the two which have been the most univers-



THE OPEN LIGATION OPERATION

ally successful are the open ligation, and the subcutaneous ligation. I prefer the former, as you are not required to work in the dark. The open ligation method is a very simple operation, and you have the minute anatomy constantly under your observation, and avoid any possibility of including in your ligature tissue which is not required, and often leaves unfavorable results by not completely strangulating the veins.

TECHNIQUE OF OPERATION

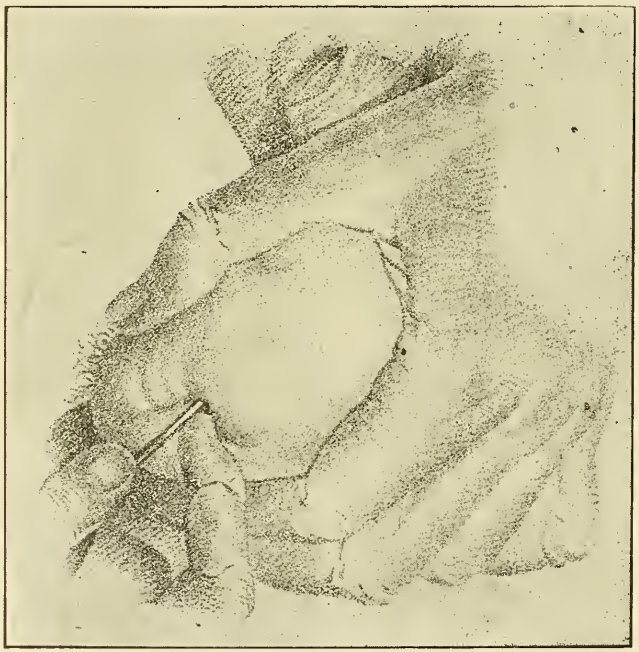
The field of operation is made surgically clean by shaving, and bathing the parts with a bichloride solution, and a local anæsthetic injected into the parts to obtund the pain; a small incision is made, high up as possible, the varicose veins located, and tied with chromicized catgut, being careful not to include the vas deferens or other tissues; the wound is now closed, under antiseptic precautions, and sealed with collodion. In the subcutaneous operations the same results are attempted, but it is almost impossible to isolate the veins and ligate them without including other tissue, even in the most skilled hands. The technique of the operation is as follows:

After observing surgical cleanliness, and the use of a local anæsthetic, if necessary, (this is seldom required, however, in this operation), the Whitehead or Riverdine needle, threaded with an antiseptic ligature, is made to transfix the scrotum at a distance of the junction of the upper middle third of the distance from the inguinal ring to the testis; after the needle has passed through the scrotum the vas deferens should be located internally, and separated from the veins. The needle is now transversed to the point of first entry, and if the operation is successful, the two ends of the ligature tied, which includes the mass of veins producing strangulation. The point of puncture should be sealed with collodion.

HYDROCELE.

Hydrocele consists of an accumulation of serous fluid, in the tunica vaginalis testis caused by continuous irritation. This is found in ten per cent. of the male population in Brazil and other tropical climates where the scrotum being relaxed and pendulous is more liable to injury. Wearing trousers tight in the crotch has also been given as the cause of injury. While there are several methods advocated to permanently cure this condition the injection treatment, in its different forms, is in the greatest favor. There have been many remedies advocated

for this purpose, among which may be mentioned all the astringents, sulphate of zinc, alum and vegetable astringents depending upon tannin; tincture of iodine and carbolic acid are also general favorites. The former is the most universally used, but the latter has been demonstrated to be of the greatest value, and owing to its anæsthetic properties renders the operation nearly painless. I prefer the tincture of thuja, however, to any of the injection remedies.



THE HYDROCELE OPERATION

Many newly formed hydroceles are permanently cured by only withdrawing the fluid, and in reviewing this history, I only use this means for the first operation, but if the sac is refilled, or in old chronic cases, the injection treatment should be used. The technique of the operation is as follows:

The tumor is held in position with the left hand, while the right hand forces a trocar well into the sac, see illustration,

avoiding the testicle; the trocar knife is now removed, and the fluid withdrawn, with the metal cone of the trocar still inserted in the sac. A long, blunt pointed needle is inserted through the metal cone, through which is injected the following solution into the sac:

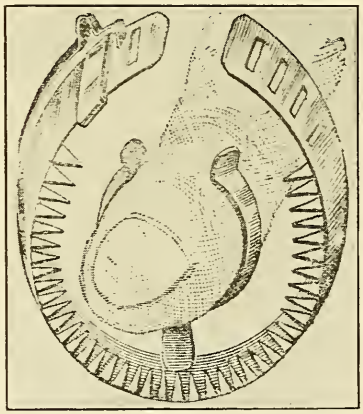
℞ Thuja (Lloyd's specific) . . . . . ½ oz.
Glycerine . . . . . 1 and ½ oz.

This should be manipulated rather vigorously until the entire surface has been thoroughly covered, and the solution is allowed to escape, and the site of puncture sealed with collodion. This is, as a rule, a very successful operation, and I prefer thuja to carbolic acid or iodine, and other astringents and caustic remedies, as we obtain an equal degree of success with less heroic measures. The patient should wear a suspensory bandage for a few days, and in old and feeble patients it is best that they should remain in bed for a few days until the reaction thoroughly subsides.

SPERMATORRHEA

Spermatorrhœa, nocturnal emissions and impotency are the three conditions of the male sexual system which have offered the advertising physicians of the past the most profitable field for their operations, to commercialize medicine, by both local advertising and in the mail order business; owing to their bold advertising in the yellow press, the regular physicians have, apparently, neglected these conditions, fearing, perhaps, if they would give them due consideration, they would be associated with the bold faced quack, but inasmuch as many state and national laws have stopped their operations, the general practitioner may now consider this a legitimate field. Through the cleverly worded advertisements of the charlatans, the laity have been taught that nocturnal emissions and spermatorrhœa are of the same condition; although spermatorrhœa has been defined as an involuntary loss of semen, independent of intercourse, it does not necessarily involve nocturnal emissions. True spermatorrhœa is caused from a weakness of the

seminal ducts, while nocturnal emissions are a physiological phenomenon, characteristic of the vigor of youth. By painting, in these young minds, the picture of lost vitality, "weak manhood" and "general debility," which will terminate in placing the victims behind prison bars, and in mad houses, has constituted the blackest sheet in medical advertising; on the other hand the secretions which escape while straining at stool, and during sexual excitement from the prostate and Cowper's gland have also been used in their argument to frighten their patients. What is there in the practice of medicine more condemnable than to attempt to create disease for the purpose of curing it for personal gain?



SPERMATORRHOEA RING

The above outlines the conditions described by some writers as pseudo spermatorrhœa. The fact remains that true spermatorrhœa is not of very frequent occurrence, but when it does appear, is the result of sexual excesses, masturbation or perhaps excessive nocturnal emissions, or a combination of all three causes, resulting in a weakness of the organs, whereby diurnal or nocturnal emissions take place without sensation or power.

The treatment of spermatorrhœa may include moral, psychic, medical and mechanical measures. The patient should

be advised that nocturnal emissions, in the young and vigorous, is not of a serious consequence, as is portrayed by the quack, and unless this condition is at too frequent intervals will not terminate in serious results.

Masturbation is the most frequent cause, however, and although the patient will usually deny this practice, he should be emphatically advised to abandon the habit. Nocturnal emissions may often be relieved by sedatives, but the most positive way of mastering this condition is with the so-called "Spermatorrhœa ring," illustrated here; although this instrument is a product of an advertising physician, who in the past has reaped a fortune from its sale, it is now extensively used by many physicians. The ring is placed around the penis, while in a flaccid state, at its base on retiring, and if an erection takes place during the night it will expand and prick the organ, thus awakening the patient, who should be advised to urinate at this period before going asleep again; with the use of this instrument, and moral advice, we have at our command the only radical cure, as far as relieving the cause is concerned, but where these cases present themselves at a late hour, we have a different condition to deal with—Impotency.

IMPOTENCY

Impotency has been described, by most writers, as existing in two forms, viz.: pseudo-impotency and true impotency. In the former there seems to exist, in certain individuals, a lack of confidence in themselves, or they may be impotent with blondes, and not with brunettes, and vice-versa; in others, the erection may be weak, with premature ejaculation. These are often due to conditions of the mind. He remembers the advertising literature of the quack, and comes to the conclusion that he is physically weak. It is this condition that the family physician has neglected and treated lightly, and the charlatan has magnified the evil consequences for large professional fees The only treatment required for many of these cases is suggestive therapeutics, and relieving their minds of any impend-

ing danger. Do not laugh at his imaginary troubles, and actually drive him into the hands of the quack with your ridicule, but treat him with all the seriousness of a more grave condition. There are many ways of stimulating the sexual organs, whereby profound and prolonged erections may be maintained; the passing of a cold sound twice a week, or an application of the electric current, may produce the desired results. Premature ejaculations may be due to an excessively sensitive gland penis, as a consequence of a phymosed prepuce and circumcision will effect a cure, while much can be done in false or nervous impotency by establishing a feeling of self-confidence in the patient. True impotency due to an exhausted condition of the sexual apparatus and nervous system from excesses, will require more heroic measures.

Many remedies under the classification of aphrodisiacs have appeared from time to time, and although excellent results have been obtained from many of these, there are few specifics; the following, however, in tablet form, offers the best combination of medicinal agents I believe in present use. It has reached at least a sufficient degree of perfection to be referred to by many physicians as the "pill that will." The formula is as follows:

℞	S. Ext. Galega	3 gr.
	Chromium sulphate	2 gr.
	Zinc phosphide	1/10 gr.
	Ext. Nux Vomica	¼ gr.
	Cannabin	1/10 gr.
	Cantharides	1/12 gr.
	Avenine	1/200 gr.

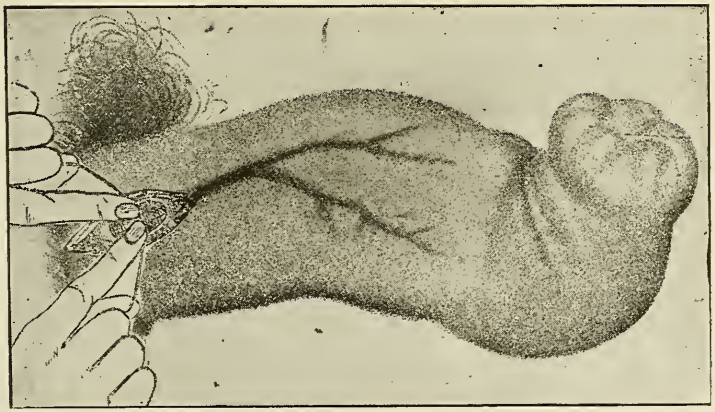
Sig.—A pill six times a day.

In resuming the therapeutic value of the above formula I believe Galega to be the most specific remedy we have for the treatment of impotency for either sex. It is a glandular stimulant and, apparently has a select action upon the sexual organs of both sexes (see page 351).

In conjunction with the above tablet, I frequently pre-

scribe the fluid extract of Galega in one-half dram doses, to stimulate the secreting glands of the sexual system, and I have often been surprised at the new life it establishes in dormant or worn-out sexual systems, in both sexes. This remedy is reinforced with Chromium sulphate, Phosphide of zinc and nux vomica; each bearing their tonic and stimulating influence to the nervous system. Cantharides may be called the true sexual excitant in small doses, which is likewise reinforced with the alkaloids, Avenine and Cannabin.

This tablet has a wide range of usefulness, and although it has achieved the name "the pill that will," through its



LIGATING THE VEIN BY OPEN OPERATION

success in treating impotency, it is of equal service in many other conditions, where a nerve tonic is required. It is one of the best medications for the tremor of alcoholism, and to build up the system after debauch, spinal and cerebral anemia, locomotor ataxia, and many other nervous diseases, are also successfully treated with this medication.

Vibratory massage with the ball vibratode from the tenth dorsal to the coccyx, using the medium speed and long stroke, occupying from six to eight seconds, at each center, is of much more value in functional impotency. Electricity to the same area, with the brush applicator to the penis, has been success-

fully used in many cases. There has been rather elaborate cupping apparatus devised for the purpose of exciting the sexual system by increasing the blood supply, by the Bier method. A far better and more successful treatment, however, is to ligate the two superficial dorsal veins of the penis, (veins dorsalis penis superficialis); this is a very simple operation, and involves just sufficient technique to be called a "surgical operation," and is therefore used to a good advantage in extracting large fees by the irregular physician. The technique of the operation is symplicity itself. The parts are made surgically clean and anæsthetized with cocaine; pick up the veins with the thumb and finger, and pass a small curved needle through the integument, and under the vein near the base of the penis. The needle is now transversed, entering at the exit, and passed above the vein to the point where it first entered, and ligated, and the two openings sealed with collodion. Both veins should be treated in this way. The object is to obliterate the veins, and cause congestion of the organ, the reaction of which will produce the necessary erection. Some prefer the open operation as is illustrated here, as you have your work constantly before you as in the varicocele operation. This operation, and the use of the "pill that will," will restore this function, in a large majority of cases, and many physicians have the courage to charge a fee of $100 for this procedure, and the patients seem to believe they have received their money's worth, and thus their prayers are answered:

"Blessed are they of human race,
To whom the Lord has given grace
To hope, to learn to wish and pray,
When one little stitch will pave the way."

HYPERTHROPHY OF THE PROSTATE

From the age of forty to the decline of life enlargement of the prostate gland is of such frequent occurrence that it is often looked upon as a natural consequence, rather than a

disease, and if our Creator has selected any one organ of the male sexual system to equalize or correspond to the suffering endured by women for the pro-creation of the race, he has concentrated his efforts in this gland, which is often referred to as analogous to the uterus of the female. This over-growth of tissue is not only a constant menace during advanced years, but it often robs the patient of many years of his life, unless therapeutic measures are instituted for its relief or cure.

These patients will generally consult the physician under the erroneous idea that their kidneys or bladder is diseased. They will complain of difficulty in starting the urine; although there is a frequent desire to urinate, especially at night. Will also state that the stream and force is diminished, even to dribbling, and the bladder is unrelieved by his efforts. These symptoms, together with neuralgia pains in the penis and testicle, with a sensation of weight in pelvis, and a discharge of glairy mucous will reveal to you an enlarged prostate. To confirm the diagnosis, however, a digital examination is made through the rectum, and the patient is requested to pass his urine in your presence to observe the force and volume of the stream.

The treatment of enlarged prostate will naturally be divided into palliative measures, for the immediate comfort of the patient and those directed to produce permanent results. Hyperacidity of the urine, and irritation at the neck of the bladder may be relieved by Triticum, Repens, Pichi, Oil of Sandalwood, Buchu and other similar treatments. Hexamethylenamine, which is also sold at fancy prices, under the coined name of "Cystegen," is one of the best remedies, especially where there is decomposition of urine. With this remedy we receive all the benefits from formaldehyde in a convenient form to dispense.

In advanced cases the residual urine should be withdrawn, and the bladder washed occasionally to prevent decomposition. The passing of sounds will often afford temporary relief, by increasing the force and caliber of the stream.

Of the internal remedies, which have been given with a view of producing permanent results, Ergot, Saw, Palmetto and Galega perhaps are in the greatest favor. These, administered in combination, in the following formula, will produce better results than any medication to my knowledge:

℞	F. E. Ergot	1 oz.
	F. E. Saw Palmetto	1 oz.
	F. E. Galega	2 oz.
	Simple Elixir, q. s.	6 oz.

Sig.—A teaspoonful three or four times a day.

Although Ergot and Saw Palmetto have long been looked upon as favorite remedies for enlarged prostate, reinforcing these drugs with Galega is of a decided advantage, as this remedy has a remarkable influence in stimulating glandular tissue.

The trend of modern therapeutics has a tendency, however, to favor local medication, in the form of suppositories, applied through the rectum to the prostatic area; and also the cataphoric application of drugs. A suppository which has rendered me much service is as follows:

℞	Thiosinamine	4 gr.
	S. E. Saw Palmetto	4 gr.
	S. E. Galega	1 gr.
	Cocoa-butter, q.s.	24 gr.

Apply through the rectum to the prostatic area before retiring.

The thiosinamine solution used to remove scar tissue, as advocated by Dr. Nieswanger, is also one of the most successful means of treatment at our disposal. These methods used independently, or in combination, will give relief, and apparently cure a large number of these obstinate cases.

In order that I may outline the method of using the combined treatment, I will cite the following case:

Mr. H., aged 64, merchant, from subjective symptoms and digital examination, presented a typical case of prostatic hypertrophy, with most of the symptoms previously described,

and was obliged to urinate several times during the night; he was directed to take a teaspoonful of the Galega compound, three times a day and a prostatic suppository was applied each night before retiring.

Every four days the patient visited the office for the cataphoric application of thiosinamine; the technique of its application was nearly the same as advocated by Dr. Nieswanger. An electrode (shown in Fig 1, page), was used, by using an applicator of galvanized iron, instead of copper wire. This applicator was loosely wound with absorbant cotton for about two and one-half inches, and saturated with the same thiosinamine solution, as is used for removing scar tissue, on page . The wire applicator is slipped into the hard rubber protective shield of the applicator. This was well lubricated, and passed to the prostatic area of the urethra, attached to the positive pole; the negative pole applied to the abdomen with the pad electrode. The continuous current was gradually turned on, until it reached ten milliamperes, and the current allowed to flow from eight to ten minutes.

At the end of two weeks the patient would not be disturbed in his sleep, by the desire to urinate in the night, and in less than two months was discharged as cured.

CHRONIC CYSTITIS

This form of inflammation of the bladder, frequently succeeds the acute disease and continues as a low inflammatory catarrhal process; taking on acute symptoms at times and again lapsing into the sub-acute state. This is especially so when accompanied with enlarged prostate. The following formula has been of much service to me:

℞	Hexamethylenamine	2 gr.
	Ext. Corn Silk	1 gr.
	Ext. Pichi	1 gr.
	Ext. Buchu	1 gr.
	Ext. Hydrangea	1 gr.
	Atropine Sulph.	1.600 gr.

Dose: A tablet every three hours followed by a large glass of water.

This simple electric prescription has also given me excellent results:

℞	Cannabis Indica (Lloyds)	1 dr.
	Collinsonia	2 dr.
	Gelsemium	½ dr.
	Aqua, q.s.	4 oz.

Sig.—Teaspoonful every hour for 12 hours then teaspoonful every four hours.

VEGETABLE TREATMENT OF SYPHILIS

My attention was first called to the medical treatment of this disease by an article written by Dr. J. Marion Sims, which contained many astonishing assertions, and, after using this vegetable alternative, in my practice in many cases, I am convinced that the prescription he gave might almost be called a specific, if such a thing were possible in the treatment of the disease. Although many physicians are familiar with this prescription, I think it will be of sufficient interest to give you a history of it which dates back from its discovery among the great medicine men of the Creek Indians, who in early times inhabited middle Georgia. The negroes in that vicinity finally adopted the preparation and prepared it as given to them by the Indians. Dr. Sims' article would be too long to insert here, but Dr. B. Rush Jones, brother-in-law of Dr. Sims, gives the following:

"A few years before the civil war there were many obstinate cases of secondary syphilis around Montgomery, which had resisted the efforts of the best physicians. They went the round of the doctors, and could not be cured. One of these was advised to consult an obscure negro, by the name of Lawson, who worked on a cotton plantation, and after being under his treatment for a few weeks was perfectly cured. His recovery was so great an event that others applied to this same Lawson and were also cured.

Dr. G. W. McDade, hearing of these cases, took a great interest in the subject, and visited Lawson and obtained from him the formula used so successfully. It seems that this formula had come down from a mulatto slave, by the name of Horace King, who resided among the Creek Indians for several years before they removed west of the Mississippi river (1837) and had learned while with them their method of treating syphilis.

Dr. McDade says that instead of adopting the so-called Indian remedy as he found it, he began by eliminating those roots and herbs and inert substances which he knew were absolutely of no value. He selected the few known to possess medicinal properties, and instead of making a decoction, as had been done before, and which had to be made in large quantities every day or two, he had them prepared in the form of fluid extracts, which placed the remedy on a specific basis and insured uniformity of action. He then gives the formula as follows:

℞	Fluid ext. of smilax sarsaparilla . . .	16 parts.
	Fluid ext. of stillingia sylvatica . . .	16 parts
	Fluid ext. of lappa minor	16 parts
	Fluid ext. of phytolacca decandra . . .	16 parts
	Tinc. of xanthoxylum carolinianium . .	8 parts

Dr. Sims in his article gives many cases which were treated by the negro Lawson on the plantation; he also mentions the success Dr. McDade has had with it. Dr. B. Rush Jones of Montgomery, who has been treating syphilis for more than 40 years, now says he has but little dread of undertaking the worst case since adopting this formula. He has repudiated mercury and idodide of potash entirely, as he says they are unnecessary when this formula is used.

From the odor and general properties of this combination we are led to believe it identical in formula with the much advertised and secret preparation called S. S. S. The printed matter on this latter preparation, which states that it has been in domestic practice in certain parts of middle Georgia ever since the retirement of the Creek Indians in that section of the state, does much to strengthen our belief.

The Alcohol and Drug Habit Specialties

What are the factors which predispose certain individuals to the excessive use of liquor, while others do not care to use it at all? This is a question that has never been satisfactorily answered. I believe that certain individuals are born drunkards, just as I believe that others are born thieves, and there are children born every day cursed in their mother's womb by the dissipation of one or both parents. Bad company and poor literature contribute, perhaps, more toward the development of the drink habit than any other cause. A man with a timid disposition often thinks he is better able to combat with the world if he imbibes freely of the amber-colored liquid, while a man with an unevenly balanced mind believes he can be made more worldly if he flushes his stomach with the fiery fluid. A poor man feels rich if he is in a state of semi-intoxication, and especially so if he is in a glittering bar-room with company in a similar state. Finally, the intoxication increases, stupor comes on, and after this has worn off in the morning comes thirst, misery, headache, tremor and nervous irritability. Again he seeks relief by the usual "eye-opener," and again he keeps his jaded nervous system stimulated during the day until outraged nature rebels, and his stomach will no longer retain the poison, and the disordered brain and nervous system are on the border of collapse unless rest or medical aid will restore him to the normal, and compel him to leave alcoholic liquors alone for a few weeks or months. This is the history of the average periodical drinker.

There is another class of men whom we generally find in active business who do not intoxicate themselves to the extent just described, but who consume a large amount of liquor every

day and keep it up for years, without much apparent injury, but by carefully watching these subjects, we find that they finally die from some disease for which alcohol is responsible. Possibly the heart may become exhausted or the liver or the kidneys give out, or the weakened blood vessels at some point of the brain will yield and apoplexy result.

There is still another class of men who may properly be called degenerates. These individuals are certainly physically and mentally weak, and, if allowed, will consume as much liquor as they can get their hands on. They wish to keep in a state of intoxication all the time, until they are finally taken to the prison or madhouse or wear out the lives of their most devoted friends.

From so high authority as Sir William Roberts we find in his excellent little work on "Diet and Digestion," that tea, coffee, tobacco and alcohol have been beneficial in strengthening both the muscles and the brains of Americans. He argues that this is one of the reasons why we have outstripped our eastern brethren in civilization and intellectual attainments. If such be the case, we have bought our civilization and our intelligence at an enormous expense.

There has been much discussion in medical literature as to whether the excessive use of alcohol is a disease or a habit. I am inclined to think that it is both, and that it may be either hereditary or acquired. If a man goes on an occasional spree and has no particular taste or craving for liquors, we may say that he has a habit. If he has an uncontrollable appetite for alcohol and feels that he cannot exist without the stimulant, we must admit that it is a disease, for there are certain pathological changes which take place in his nervous system.

Whether or not alcohol may be used without being abused is too broad a question to be discussed here, but we all know that it is a dangerous companion with which to associate, and we may live longer and better lives if we disinherit this king of many climes.

It was Henry W. Grady who said that whisky had wasted more lives, dug more graves and sent more souls unshrived to judgment than all the pestilences and wars since God sent the plague into Egypt and Joshua stood before Jericho.

HOW TO ADMIT PATIENTS FOR TREATMENT

When a person applies for treatment for alcoholism he is generally in a state of intoxication; he wants sympathy and a friend. Possibly he has been called a drunken brute, which may be true in many instances, for there are many individuals who are correct impersonations of Dr. Jekyll and Mr. Hyde when under the influence of liquor. Men who have a kind. lovable and charitable disposition are transformed into perfect demons by its influence. A person not addicted to the liquor habit might think that it is not a difficult task to stop drinking, and we often find people who subject the drunkard to the most severe criticism, is a habitue of perhaps a milder stimulant or narcotic, i. e., tea, coffee, snuff or tobacco. I have seen as pronounced tea drunkards as I ever have whisky addicts.

Although Dr. Keeley and others who were among the first to classify alcoholism as a disease, were ridiculed by the Medical Profession, we are pleased to note at this writing that their views have been generally accepted, and by treating these conditions as disease, patients can be rapidly restored to their former manhood.

Any man of ordinary intelligence knows right from wrong, and by explaining to him the evil effects of his habits and how his dissipation has reflected upon himself and family; how he and his have been shunned by society; how his noble and faithful wife has patiently waited for the time to come when he would abandon the evil habit and become the same kind father, brother or son that he once was. She has, no doubt, many times knelt in prayer, and implored the Divine Giver of Life to shield her loved one from this terrible curse. Have your patient understand that he is able to live a different and a better life and that he has applied to you for the purpose of

having you cure him of an uncontrollable disease, alcoholism, and when he has completed his treatment, he will return to his loved ones a much different man. But in order to be successful, he must avoid his former associates and places where liquor is sold, and in order that the treatment may be properly carried out, you must have his fullest co-operation.

EQUIPMENT

There has been a diversity of opinion whether or not a physician in general practice, can treat alcoholism and the drug habits as successfully as they could be treated at habitue institutes. The principal and only advantage the institutes have they are genearlly equipped for treating such cases, and the psychic influence it has on the patient, of "leaving home for a vacation," which is generally their excuse. Alcoholic habitues dislike to admit their weakness and acknowledge that alcohol is their master. You often hear the most profound drunkard remark, "I can drink or let it alone," but they more often drink to show you they can drink than they do to abandon its use for demonstrative purposes.

There is rather a fraternity among drinking men, and while at an institute they discuss many experiences regarding the evil effects of alcohol, which often leads from the cradle to the prison or mad house. If the modern temperance lecturer is deficient for food for argument, his time will be well spent in visiting one of these institutes. There is no special class of men exempt from this evil, and we find inmates at these places who were clergymen, doctors, lawyers, etc., holding respective repentance with men of the lower classes, all congregated for one grand purpose of restoring manhood and placing themselves before the world once more, the same honorable, upright citizen they once were. They leave the institute with new resolutions and a brighter future before them.

A well equipped institute should possess everything which will be conductive to entertainment and health. For this purpose a small gymnasium is of special value, not only for amuse-

ment, but as a strengthening process. Baths of every description offers the same advantages. I feel I cannot say too much regarding baths, as they offer us one of the best means of elimination obtainable, the Turkish bath mentioned on another page will answer the purpose, but the shower and other baths can be added to a good advantage. Patients should be required to take a Turkish bath, at least every other day throughout the treatment. Although the institutes have a few advantages, a physician in general practice can treat patients equally as successful as far as actual medication is concerned. The only equipment other than medicine is the bath outfit just mentioned. His first step toward success is to obtain the utmost confidence and co-operation of his patients and keep them under his observation and treatment for at least four weeks. At the end of the first week, he no doubt will abandon the use of liquor and by the judicious use of remedial measures, at the end of the remaining three weeks, he will leave your care with no further desire for alcoholic beverages.

PRELIMINARY TREATMENT

The preliminary treatment for alcoholism depends somewhat upon the condition of the patient when he presents himself for treatment. He may be perfectly sober, or, on the other extreme; he may be brought to you in a state of total collapse, or suffering with delirium tremens, or manifesting symptoms bordering upon this condition, as a result of a recent debauch; the former condition will require no special treatment, while the latter demands the physician's immediate attention. The patient's stomach may be in such a state that he cannot tolerate solid foods; in such cases we find hot broths, milk and invalid foods are the best diet. If the patient is not able to take this nourishment by the mouth, it can be given by the rectum. Many drunkards eat and sleep very little while on a debauch, and it is owing to this deficiency of rest and diet which have a tendency to induce collapse and delirium tremens, by overtaxing their already shattered nervous system.

It has often been observed that alcoholics who eat and sleep well never manifest delirious symptoms. We therefore find that the most important factors as a preliminary restorative treatment will be to sustain nourishment, quiet the nervous system and induce nature's sweet restorative—sleep—and eliminate all the poisonous elements from the body. The patient should be encouraged to eat, the congested liver and portal system should be relieved by a full dose of calomel followed by a saline purgative or the continuous use of phosphate of soda. The congested kidneys should also be relieved with an active diuretic, through diaphoresis should be obtained by means of the Turkish bath given in the bath cabint illustrated on another page and followed by a hot plunge bath for a few minutes in water of 110 degrees F.

These baths are indispensable as a means of elimination, and should produce sleep. If the baths should fail to produce sleep, the patient can be given a full dose of bromidia, sulphonal, trional, veronal paraldehyd, or any other suitable hypnotic, which will be discussed later in what is known as the "Rest Cure."

Patients have been educated by the former founders of the so-called "gold-cure" institutes to believe they can have all the liquor they desire. Thus we often find it necessary to carry out our treatment on the same plan, or the patient may think our treatment an inferior one. If the patient is very weak he should only be allowed sufficient liquor to support him. There is no remedy in existence which will support an irritable heart or calm the nerves of the whisky habitue as quickly as whisky. This should only be allowed in moderate doses, however, for a few days, until nature has an opportunity of recuperating from other sources. If the patient is a moderate drinker and in a state of intoxication or semi-intoxication, he may be allowed a four ounce bottle of whisky and advised to see how long he can make that last. All patients should be emphatically forbidden to enter any place where liquors are sold, or drink any intoxicating liquor other than that which he receives from you.

In order that the reader may become familiar with the different methods of treatment, I will first give the treatment I used while in charge of an institute and which I have since used in private practice with excellent results for the treatment of alcoholism and the drug habits. I will also outline many secret cures and systems, sold to the profession at different prices according to territorial right, etc. By the judicious use of these treatments you will be prepared to treat and cure alcoholism and the drug habits as successfully as they can be treated elsewhere.

THE REST CURE

Some institutes have what is known as the "Rest Cure," which in detail is very much like the preliminary treatment just described. This treatment is of special value as a preliminary treatment for patients who are nervous or present themselves in a state bordering on collapse, or manifest symptoms of delirium tremens. The patient is given a hot water bath or a hot blanket bath, which consists of wrapping the patient in woolen blankets taken from water with the temperature 140 degrees F. These baths are frequently repeated to keep up free diaphoresis. Nourishment is given in small amounts as the patient awakens. The patient is allowed as little whisky as is necessary to support him and is kept in a hypnotic or semi-hypnotic state from two to four days, until the effect of the alcoholic poison wears off.

The remedies used for the purpose of producing "rest" (hypnosis) are hyoscine, trional, veronal and paraldehyd.

Dr. J. Collins, in writing regarding the relative value of the three last named remedies, says:

The reliance which we place upon them, apparently, judging from the frequency with which they are used, is indicated by the order in which they are enumerated. Although veronal, one of the most recently introduced hypnotics, has something to be said in its favor, and particularly that it produces a hypnosis more profound than that caused by trional, there are disagreeable features attendant upon its use which compel

us to admit that trional is the more suitable hypnotic. My experience with veronal, which I have used upward of a year in a great many cases of insomnia of manifold causation, is that it causes quite the ideal artificial sleep, it sometimes produces motor inco-ordination, especially of the lower extremities, erythematous eruption, neuralgia, and it diminishes the solids and urin. Although trional will do all of these, I have not noticed any of them with anything like the frequency that I have after giving veronal. Nevertheless, veronal is an excellent hypnotic, and the sleep-producing effects are greater than those of trional, given in from ten-grain to fifteen-grain doses. It usually produces sleep after the second or third dose in patients with delirium, whereas trional must be given oftentimes in twice or in three times this quantity before any considerable hypnosis results. We have the best results from the administration of trional when we give it in ten-grain doses every hour and with large draughts of hot water. After from four to six doses have been taken, the patient usually secures a more or less protracted sleep.

Paraldehyd is the most reliable of all hypnotics. Every one who has much experience in nervous and mental diseases will concede that this is a fact. It is never a pleasant medicine to take, and if given frequently it is sure to disorder the digestion. In delirium tremens the subacute or chronic gastro-duodenal catarrh is almost invariably present, and paraldehyd tends to increase it and exaggerate it; for this reason we never give it in the City Hospital as a routine measure, but when other hypnotics fail we rely upon its administration in producing sleep and are rarely disappointed.

The rest cure is only given to patients who are delirious or extremely nervous and irritable and have muscular tremor, etc., and require rest. If the patient places himself in your charge in a reasonable state of sobriety, the rest treatment is omitted, with the exception of a hypnotic at bedtime, otherwise the patient is placed at once upon the following general tonic and reconstructive treatment:

TONIC AND RECONSTRUCTIVE TREATMENT

The first treatment I ever used was that known as the Dunlap Cure, which was approximately the same treatment, somewhat modified, as that used by Dr. Gray, the formulae of which were made public through the efforts of Dr. Andrews, of Chicago; and it is my belief that this treatment is quite as good as any in use at the present time, if used according to the following revised formulae:

I commence giving the patient hypodermically:

℞	Gold and sodium chloride	4 gr.
	Aqua. dis.	1 oz.

M. Sig. Inject five to ten minims at seven and eleven-thirty a. m., and at five and nine p. m. Each ten minims represents one-twentieth grain of the chloride of gold and sodium.

I also give the following internally:

℞	Atropine	¼ gr.
	Strychnine nitrate	1 gr.
	Tinct. Capsicum	2 dr.
	F. E. erythroxylon coca	1 oz.
	F. E. avena sativa	1 oz.
	F. E. chionanthus virg.	1 oz.
	Compound F. E. cinchona	3 oz.
	Simple elixir	1 oz.

Mix. Sig. A teaspoonful every two hours while awake.

In briefly resuming the therapeutic value of the above medication, I may add that it is the belief of many physicians that the only important part gold has in the treatment of alcoholism is the gold coin which passes from the hand of the patient to the pocket of the doctor. This is a great mistake, although the term "gold cure" has been extensively advertised for commercial purposes and sounds well and looks well. The therapeutic value of the chloride of gold and sodium is strongly indicated to antagonize the evil effects of alcohol. By referring to all modern literature upon the subject and accepting the views of the most competent clinicians, we find that the salts of gold are alteratives of the highest order and seem to

exercise their best efforts upon organs and tissues destroyed by the poisonous effects of alcohol.

It is a remedy par-excellence for sclerosis of the internal organs, especially the liver and kidneys, drunkards dyspepsia, characterized by red glazed tongue, relaxation of the bowels, catarrh of the bile-ducts, duodenum, jaundice, etc. It has been highly commended for suicidal mania, melancholia and a tonic for low spirited people, and many other conditions which are associated in a direct or indirect way with chronic alcoholism; thus we find that the use of gold is not as empiric as we are often led to believe, and is one of the principal remedies used at many successful institutes. Atropine has been judiciously added to the preparation as a means of relieving cerebral congestion and headache, which is nearly always present after a debauch. It is also especially useful as a cardiac and respiratory stimulent. Strychnine is also a valuable adjunct in the treatment of alcoholism and the drug habits as a stomachic tonic and a stimulant to the heart respiratory, muscular and nervous system. Erythroxylan, avena sativa and the cinchona compound have been added for their respective tonic properties. Chionanthus in passive doses, as given here, is a cholagogue and mild diuretic and promotes activity of the liver and kidneys, and assists elimination. There is no remedy which replaces the fiery taste of whisky better than capsicum. Whisky drinkers are accustomed to hot drinks and this remedy supplies this desire. This can be omitted in many cases, however, and should always be gradually reduced within a few days, or it can be administered separately if desired.

After the patient has taken this treatment for a few days, he generally loses his desire for liquor and discontinues its use, but the treatment should be continued for a period of three or four weeks. On the other hand, we occasionally find a patient who thinks he is overly-wise and can "beat the cure." These patients are generally of the lower classes and will drink, drink, and drink, until compelled to stop. They are easily managed, however, and it is rather amusing to see how quickly

you can relieve their minds of these erroneous ideas. After a patient has been taking the treatment a few days and you feel that he is fighting the treatment, when the time comes for the hypodermic injection, give him an extra large drink of whisky. Have him secure it at the drug store, if you wish, so that he will not think you have doctored it, and instead of the regular injection, give him one-tenth grain of apomorphine. This, of course, will make him sick at his stomach and vomit. In nine cases out of ten you cannot get him to touch liquor any more, but once in a while a patient will attempt to drink again. I remember once giving a patient seventeen of these injections before I could conquer him.

Apomorphine and the "sickening process" have always formed one of the "trade secrets" of the different gold-cure institutes, and I believe that apomorphine is one of the most valuable drugs we have as an emergency treatment in the cure of alcoholism, as it makes you master of the situation, and at the same time, impresses the patient with the fact that the treatment you are giving is a complete antidote to alcohol, and that the two can not be taken at the same time. You will also find that some patients before quitting the treatment wish to see if they can take a drink of liquor, to learn whether or not the cure has been complete. In many cases I have requested them to drink and then given them an injection of apomorphine at the same time. This satisfies them in the extreme. This might be condemned by some as an unprincipled and injudicious practice, but, such as it is, it is effective and curative and I believe that there is a larger percentage of cures in those who have undergone the sickening process at least once while taking treatment than in those who have not. The mental impression the patient receives (and alcoholism is conceded to be partially a mental disease, hence the term "dipsomania") is lasting in its results. After this treatment the patient is thoroughly disgusted with his favorite beverage. I have often seen patients become sick at their stomach by watching others drink, several days after taking the apomorphine.

This is what is known at most gold-cure institutes as the "barber pole shot." They have three solutions for injecting, labeled number one, two and three. Number one is white and contains a solution of nitrate of strychnine; number two contains gold and sodium and is colored red; number three contains the apomorphine, which if mixed with water will turn a bluish green, hence, by taking medicine from each bottle, we get the red, white and blue.

There is no special advantage of treating alcoholism by hypodermic medication, other than you have the patient under your immediate control. You can absolutely compel him to stop drinking by the use of apomorphine and having him report regularly for his hypodermic treatment; you can keep him constantly under your observation and control and witness the progress of your treatment. The hypodermic injections also have a wonderful psychic effect. Many patients have never received a hypodermic injection before and they imagine that this method of treatment is much more certain and curative in its effects than the ordinary treatment given by the mouth.

Although the apomorphine treatment is not required in all cases, it would be almost impossible to cure some cases without its use, and this method of producing emesis is far better than to give an emetic in whisky, and is not nearly so easily detected.

The combined treatment which I have just outlined is the one I prefer for the general class of patients and it will establish as great a number of cures as any treatment in present use. It can be used in either private or a sanitarium practice with equal success.

THE TREATMENT FOR OPIUM, COCAINE AND OTHER DRUG HABITS

There are several different types of drug habitues and several different methods of treatment to cure them, each method having its enthusiastic advocate. The treatment of drug habits differs from alcoholism inasmuch as nearly every

case presents different individual characteristics and requires special attention and skill on the part of the physician to meet the emergencies. While we find alcoholic patients desire companionship and enjoy social functions, opium and other drug habitues are generally secretive in their disposition, and the physician who treats them should lose no time in securing the confidence and co-operation of his patients. They are wedded to their drug and believe that it is part of their existence; therefore they should have the assurance that they can have all of the drug their system requires during the treatment, but that they are to take only that which they receive from you.

To illustrate the cautiousness of many patients, I remember one lady who applied for treatment who had three drachm bottles of morphine and a hypodermic syringe secreted in her clothing. She did not tell me this until after she had completed the treatment, when she handed them to me and confessed her actions, stating that she had heard so much about the torture received in curing the morphine habit, that she came prepared not to suffer. She was placed upon the gradual reduction treatment and made a splendid recovery.

There are several things to be considered in carrying out a treatment for the drug habits. We have to combat the physical and mental disturbances, which are sure to follow the withdrawal of the drug. We have to relieve the patient from the craving of the drug, that we may enable him to permanently discontinue its use. We have to restore his mental and physical condition so that he will not depend upon the drug for support. These are problems which often confuse the minds of the most skillful physicians, but they can be solved by the appropriate therapeutic measure.

Among the patients applying to you for treatment, you will find first, the young vigorous patients, who have not taken the drug long enough to produce any marked pathological changes in their anatomy. Second, the one who has used the drug for several years without its seemingly producing any ill effects. Third, the one who uses the drugs for the relief

of pain of some co-existing disease, such as cancer, chronic sores, hepatic and renal calculi, etc. Fourth, the old and feeble who have existed upon the drugs for years and have brought about pathological changes which are beyond repair.

As the digestive and assimilative organs are practically paralyzed; the secretions of the stomach, liver and bowels are checked. They become emaciated and live upon their reserve of former years.

The first and second class will generally yield to proper treatment. The third class may also be cured, providing you can establish a cure for the painful disease, but as a rule, the fourth class is beyond all medical aid and the patients should be allowed to use the drug as long as they live. The preliminary treatment for drug addicts should be very much the same as that for alcohol. If in your judgment, you think the case is a curable one, for a few days previous to the treatment you adopt, the patient should take hot air and water baths and open the pores of the skin. The alimentary tract should be cleaned out by the use of calomel and phosphate of soda. Acetate of potassium will be found a good remedy to stimulate the secretions of the kidneys. The patient will then be ready for the regular routine treatment. There are several ways in which the drug habit may be treated, viz:—the gradual reduction method; the rapid reduction method, and the immediate withdrawal method, etc.

THE GRADUAL REDUCTION METHOD

This is one of the most satisfactory methods of treatment in present use for curing morphine and other drug habits and has the advantage that it can be used in private practice nearly as well as at a sanitarium or institute. With full co-operation of the patient this method of treatment offers the following advantages, viz.: It is not attended with any marked discomfort to the patient, no weakness or profuse perspiration, generally no pain or diarrhoea or extreme nervousness, collapse, etc., often accompanying other treatments. With this treat-

ment there is no fixed amount of the drug reduced each day, but the patient is requested to take as little of the drug as possible, and still remain comfortable.

The principal point to be observed is to build up the patient's general constitution and prepare him for the reduction previous to withdrawing his drug supply, and allow him as minimum amount of the drug as is compensative with health and comfort, and to withdraw the amount so gradual that it will not be noticeable to the patient. Most patients take much larger amounts of the drug they are using than is generally necessary to keep them comfortable. If a patient is taking 30 grains of morphine a day it can be reduced to at least one-half that amount, or even less, the first few days, and hardly be noticed, and the patient always feels better for its removal. It is always a good rule to commence the first day's treatment by reducing the amount of the drug at least one-half; if you are satisfied that the patient is absolutely in need of more you may allow it. If he has passed the first day successfully and in comparatively a comfortable manner, the drug may be reduced as much as you think he will stand the next day; finally you will reach the minimum amount which will support him without distress, and this should be your starting point. Remember, however, that you should never allow the patient to suffer for the want of the drug; on the other hand, they often imagine they want the drug when they really do not require it; in such instances a hypodermic injection of water will often pacify them. After you have found the minimum amount he can stand, the reduction should be made from now on in such small amounts each day that the patient will not be able to detect the reduction. As soon as you commence to reduce the drug the functions of the body, which have been chained down, will awaken to new life and activity, the appetite will usually increase, the secretions will be more profuse, the bowels will become more regular, although the patient may be somewhat restless at night. What sleep he does procure will be more profound and refreshing. If he should suffer too much from

insomnia, a suitable hypnotic may be given when he awakens. The heart may become irritable, weak, fast or irregular, requiring a hypodermic injection of strychnine.

With this method there is no stated time promised to effect a cure; it might require one month, or it may require ten weeks; this depends somewhat upon the physical condition of the patient, which is always to be supported in advance or in proportion to the amount of the drug withdrawn, always watching the condition of the appetite, bowels, kidneys and heart, and see that the skin is active with hot air and water baths, which assist the eliminative process. If the patient has weak recuperative powers, it will take longer to effect a cure than it will where the functions of the body are more active. During the reduction the patient will require a good thorough tonic and eliminative treatment. The following offers one of the best hypodermic medications to support the heart's action and nervous system:

℞	Strychnine nitrate	½ dr.
	Spartein sulph.	6 gr.
	Aqua	1 oz.

Mix. Sig. Inject ten minims with the amount of morphine you find necessary to support the patient; each ten minims represents strychnine, one ninety-sixth grain, and spartein one-eighth grain. The best time to make the hypodermic injections is about fifteen minutes before meal time and just before going to bed. The stimulating effect allows the patient to eat and sleep better if given at these times, and it is absolutely necessary that he should maintain a good appetite and rest to have the treatment progressive and accomplish results. The patient should also take internal treatment. The following formula has given excellent satisfaction:

℞	F. E. avena sativa	1 oz.
	F. E. passiflora incarnata	1½ oz.
	F. E. Cinchona comp.	2 oz.
	Bromidia	1½ oz.

Spts. ammonia aromatic . . . . . 2 oz.
Syr. lactucarium virosa . . . . . 2 oz.
M. Sig. A teaspoonful every two hours while awake.

To illustrate the use of this method of treatment, we will say that the patient is in the habit of taking forty grains of morphine; we know that he can exist in perfect comfort with twenty grains, we therefore commence our first day's treatment with twenty grains. If the day is passed comfortably, the next day we make a still further reduction of two grains. This reduction is made from one to two grains a day until we have reached the minimum amount which will support him comfortably. If this should require twelve grains we will commence from this amount as a starting point and from now on we will make the reduction so gradual that the patient will not be aware of it. I have the following solution prepared:

℞ Morphine sulphate . . . . . 96 gr.
Aqua . . . . . 1 oz.

Mix. Each five minims of the above solution represents one grain of morphine; of this he receives four injections the first day by taking ten minims (two grains of morphine) of this solution and ten minims of the spartein in strychnine solution at about 6:45 and 11:45 a. m., and 5:45 and 9:30 p. m. He is also allowed two powders of one-half grain each triturated with ten grains of sugar of milk, to be taken if absolutely necessary between the injections, allowing him to have only one powder at a time. We will now attempt to reduce the morphine one grain a day for five days. After about two weeks, under judicious management, we will find we have reduced the drug from forty to about six grains a day without much discomfort to the patient. The reductions from now on will have to be made in much smaller amounts. A new solution should be prepared containing one grain to every ten minims and from this solution you can commence by using twelve minims with one-half grain powders if necessary. At the end of another week the patient can be well supported by three grains. By reducing the drug in very small amounts for about three or

four weeks longer it can be gradually withdrawn altogether without the patients knowledge. During the last three weeks if you have not abandoned the internal powder, it is well to substitute quinine, which has a similar bitterness and cannot be detected by the patient. Of course, you will find there are many complications arising from this treatment the same as there are with others, but by carefully watching the patient and with his co-operation, you can effect a cure in fully eighty-five or ninety percent. of all cases. If the patient is weak and nervous, endeavor to build him up physically and mentally in proportion to the amount of the drug you withdraw. Do not attempt to be in too great a hurry and cause the patient discomfort, for it is better to have the patient in a peaceful state of mind than otherwise, even if it takes longer.

Complete recoveries can be made by this treatment in six weeks in many cases, while in others it will require three months. Although this treatment is condemned by enthusiastic advocates of other treatments, I believe it to be the best medication for the average patient and it is particularly advantageous in the aged and persons with low vitality. If we fail to get the full co-operation of the patient by the gradual reduction method, there is only one alternative, which is the rapid reduction method.

THE RAPID REDUCTION METHODS

There are two ways generally practiced of reducing drugs rapidly; one is known as the Intermediate Withdrawal Method and the other as the Radical Withdrawal Method; both require much discipline on the part of the physician, and some distress and will power on the part of the patient, for a few days after the drug has been entirely abandoned. The latter can be greatly overcome, however, by appropriate medication. Both of these methods have been largely used at institutes where the patient only had a limited time to receive treatment. Many patients start on this treatment and terminate with the Immediate Withdrawal Method, as will be discussed later.

INTERMEDIATE WITHDRAWAL METHOD

The drug can be reduced by this method by either hypodermic or internal medication. I prefer the internal treatment in powder form, triturating the drug with sugar of milk. If you are treating the patient for the morphine habit, duplicate quinine for the morphine as you withdraw the latter. This will give the powder a bitter taste so that it will not be noticed by the patient that you are using less morphine each day, and at the same time you get the tonic effect from the quinine.

The amount by which the morphine is reduced each day will depend upon the amount consumed. To illustrate, if the patient is in the habit of consuming fifteen grains of morphine in twenty-four hours, it should be prepared with sugar of milk as follows:

℞ Morphine sulphate . . . . . 15 gr.
Sugar of milk . . . . . 45 gr.

Triturate and divide in as many powders as the patient wishes. He can take these powders at the same intervals as was his former custom. The next day we will make a reductino of two grains and add quinine as follows:

℞ Quinine sulphate . . . . . 2 gr.
Morphine sulphate . . . . . 13 gr.
Sugar of milk . . . . . 45 gr.

Triturate and divide in powders as required.

We will attempt to reduce the morphine two grains a day for the first five days and add two grains of quinine each day, then one grain a day for three days, then half a grain a day for four days. After this, the drug should not be given at all, if possible. Now we commence to reduce the quinine as we did the morphine until the patient requires none of the powders. This is the general plan of treatment by the simple reduction method, but oftentimes we have to deviate from this, and not reduce the drug so rapidly, also giving an extra dose of morphine to allay the nervousness. But this method of treatment should be adhered to as nearly as possible, and be

sure that the patient gets a smaller quantity of the drug each day. The tonic treatment may be kept up for some time after the powders are abandoned, but it should be taken in smaller doses each day and withdrawn altogether a week or two after the quinine is stopped.

THE RADICAL REDUCTION METHOD

The amount of the drug is much more rapidly reduced by this method than it is by the gradual reduction or intermediate treatments previously given. The patient is allowed the drug to which he is addicted for about seven to twelve days and then it is given up altogether. The method of reduction is to reduce the drug by one-half each day. To illustrate, if the patient should take thirty-two grains of morphine each day, the second day's treatment he receives sixteen grains, the third day eight grains, and so on until the end of the tenth day, when he receives one-sixteenth grain; then it is used no longer. From the time he is allowed less than two grains a day for about ten days or two weeks, he will suffer considerable mental and physical distress, but by successfully bridging him over this critical period by the use of judicious therepeutic measures, he will reach the crisis successfully.

Aside from the hypodermic and tonic treatment he receives during the critical period, a suitable hypnotic and baths should be given to induce sleep. It might be necessary to confine the patient to his bed for a few days and keep him in a semi-hypnotic condition, by alternating hyoscine with other suitable hypnotics. This method of treatment is rather a severe one and is only a modification of the Levinstein treatment. It can be used successfully, however, in many cases where time is limited and the patient has sufficient courage and vitality to withstand its application. It is this and similar treatments, however, which give institutes a bad reputation, as having a torture process connected with their treatment. It is best never to use this treatment without first explaining the details of the treatment before commencing its use. Patients who

have taken this treatment are not liable to give the method a very hearty commendation, which often reacts to a disadvantage to the physician's reputation.

IMMEDIATE WITHDRAWAL METHOD

The Three Day Cure

A few months ago there was a Dr. Swain located in this city, who afterwards established a sanitarium in Cleveland and advertised quite extensively what was known as the "Three Day Cure." This and similar quick cure treatments used at institutes are described as the "Immediate Withdrawal Method," which is approximately the treatment I wish to outline here. This treatment can be adopted to a good advantage in the young, vigorous, and in new cases. The patient is prepared for this treatment the same as for other treatments, by giving hot air and water baths a few days. Before commencing the treatment remove all foreign matter from the bowels by cathartic remedies; the kidneys should also have diuretic treatment. In the meantime the drug should be reduced to a minimum. After giving these preliminary measures the attention they require and the day comes to commence the treatment proper, the patient is requested to abstain from the use of the drug to which he is addicted until he can no longer resist the craving. Then he may be given a hypodermic injection of five minims of the following formula:

HYPODERMIC MEDICATION

Formula No. 1

℞	Hyoscine hydrobromide	½ gr.
	Tincture rhus tox	5 min.
	Tincture apis mellifica	5 min.
	Solution boracic acid (2 per cent.) . . .	1 oz

Mix. Sig. Use hypodermically. Maximum dose ten minims; minimum dose five minims; use according to the directions which follow:

At the end of fifteen minutes, give him five minims more, and in a half hour he can take ten minims more. The patient will now tell you that his throat is very dry, and he will fall asleep; his sleep will probably last four or five hours. If he should become sleepy after the second dose, five minims will be sufficient for the last injection.

When the patient awakens he will complain of being dizzy; his pupils will be dilated and his face flushed. If he has been asleep four or five hours, he should have another injection of ten minims.

By this time he is getting the characteristic physiological effects of the hyoscine. He will imagine and do all sorts of things. He may cry, sing or imagine he sees funny people; he will pick at the bed clothes, etc. This should not cause you to be alarmed, as all these symptoms are due to the denarcotizing effects of the hyoscine. The patient should be given hypodermic injections at intervals of four or five hours until he has been kept in this condition for a period of twenty-four hours; then discontinue their use and allow the patient to resume his normal mind. He may ask for more of his accustomed drug or he may say that he has no desire for it whatever. If he should still crave the drug, he should be kept under the influence of hyoscine for a period of twelve hours longer; then stop the treatment again until he is rational. If he still has a craving, you may again produce the semi-intoxicated condition with the hypodermic injections for a few hours longer, but if he states he has no further use for the drug, and is free from the craving, you should discontinue the hypodermic injections and at once commence giving him the following:

INTERNAL MEDICATION

Formula No. 2

℞	Hyoscine hydrobromide	⅛ gr.
	Strychnine nitrate	1 gr.
	Nitro-glycerine	¼ gr.

F. E. avena sativa . . . . . 2 oz.
Simple elixir, q.s. ad. . . . . 6 oz.
Mix. One teaspoonful every four to six hours.

During the time you are giving the hypodermic injections, the patient may manifest a variety of symptoms. His heart action generally remains about normal, but if it should become weak, give him a hypodermic injection of 1-40 grain strychnine nitrate or 1-100 grain nitro glycerine, if his body is cold. The patient will almost always vomit freely and feel much better afterwards. He may also have fetid breath, dry tongue and free salivation. None of these symptoms should cause you alarm.

Respiration may be accelerated, but this is of little concern. If it should become labored, one-fourth or one-half grain of morphine may be given, which will give immediate relief without retarding the treatment. During the treatment, the patient should have all the water he wants and nutrition should be kept up as much as possible with milk or some one of the prepared invalid foods.

After the patient tells you he has no desire for his accustomed drug, he should commence taking a teaspoonful every four hours of formula No. 2. This should be continued for a few days, according to the needs of the patient, when it should be gradually withdrawn.

The most common complaint of one who has taken the opium cure is insomnia, and it is always best to omit hypnotics. If possible, try to induce sleep by having the patient take hot or cold baths, but, if it is absolutely necessary, you may give from seven to fifteen grains each of hydrate of chloral and bromide of potassium.

A patient undergoing this treatment should be undressed and confined to his room, and have the constant attention of a nurse, who should watch the patient very closely and see that he has a hot or cold bath every day. This has a remarkable soothing effect. Allow the patient to sit up or lie down as he prefers. The bowels should move at least every other day,

but, if diarrhoea should exist, it should be checked by appropriate treatment.

This method of treatment may be considered rather heroic, but it is not dangerous in selected cases. The patient should never be told beforehand the effects of the treatment, but you can inform his friends if you wish. This is a very successful treatment and will produce remarkable results in curable cases, but I prefer the gradual reduction method when it can be applied.

THE MIXED TREATMENT

It becomes necessary at times to change from one treatment to another; this is particularly so if you do not succeed in getting the full co-operation of the patient. You might commence the gradual reduction method and find the patient is taking his drug on the sly, which, of course, detains the progress of the treatment. In such cases the immediate withdrawal of the drug and the use of hyoscine bears the same relation to the opium habit as the apomorphine does to the alcohol habit; it rather compels them to abandon the drug. It can also be used to a good advantage in many cases, where for various reasons, the patient has only a limited time to complete his treatment. I have seen beautiful results from commencing treatment with either the Gradual, Immediate or Rapid Withdrawal Treatment, and when the point has been reached where the patient craves more of the drug than you are supplying him, to place him at once upon the Immediate Withdrawal Treatment and terminate the cure. While on the other hand there are a few selected cases where the Immediate Withdrawal Treatment has been used first and the Gradual Reduction Treatment completed a cure.

GENERAL COMPLICATIONS

As I have previously stated, there can be no stereotyped rule, treatment or medication which can be applied in all cases alike. Although you will find that there are several compli-

cations, idiosyncrasies and personal characteristics which may confront you and require your immediate attention as they present themselves during the course of any treatment you deem best suited for any particular case. These complications should be readily met with proper therapeutic measures. The condition of the appetite, heart, kidneys, liver and bowels should always be watched. Endeavor to keep them in as normal state as possible. The heart may become weak and require a stimulant, of which we find strychnine, spartein or nitroglycerine acceptable. The sudden withdrawal of morphine may cause diarrhoea, which may require the use of salol, bismuth, the sulpho-carbolates, etc. Excessive perspiration and night sweats may be checked with atropine. Sickness at the stomach and hyperacidity often require the physician's attention. A morphine addict who has existed upon the drug a long time, pain will be a prominent symptom when the drug is withdrawn; this may be either real or imaginary. Rest, hot air and water baths, accompanied by hypnotics, are the best means of relief. If the patient should manifest symptoms of delirium, some one of the hypnotics mentioned in the "Rest Cure" will be servicable. The treatment of alcoholism and the drug habits in general require remedies thoroughly classed as a heart stimulant, nerve tonics, sedatives, reconstructives, hypnotics, etc. Elimination is the foundation of all curative measures and is well expressed by Dr. Waugh in his favorite quotation "Wash up clean out and keep clean," cannot be used in any disease to a better advantage than in eliminating poisonous drugs, which have found a lodging place in the bodies of habitues for years.

Every accessible source we have in promoting elimination should be utilized. The most important of these is hot air and water baths; these baths have as important a relation in the treatment of alcoholism and the drug habits as quinine does in malaria, or mercury in syphilis. Baths are the one indispensable agent in assisting nature to eliminate the poisonous elements. They should be taken at least as often as every

other day from the commencement of the treatment and continued for several months afterwards. Baths are not only important as an eliminating process, but they will often relieve pain and induce rest and sleep when other treatments fail.

When the patient has successfully completed his treatment, It is always a good plan to provide him with remedies which will stimulate the secretions of the kidneys and liver and regulate the bowels.

There are many remedies and emergency treatments which might be mentioned here, but every physician is familiar with the therapeutic value of the drugs required, and by carefully observing the condition of the patient during the process of the treatment, he will be able to meet the demands of the different complications and successfully bridge him over the critical period to a successful crisis,

A CURE FOR THE TOBACCO HABIT

It may seem rather unreasonable to state that the tobacco habit is one of the most difficult to conquer, but such is the case, and in order to effect a cure, the patient has to exercise his will-power to its fullest extent. In this habit we have what may be termed a mechanical as well as a physical and mental condition to overcome.

Those who use tobacco are accustomed to having something in their mouth and they miss this as much or more than they do the narcotic effect of the tobacco. I once treated a patient for the tobacco habit, who used at least three ounces of fine-cut every day, and after the cure was completed, he stated that he had no desire for tobacco, but he must have something in his mouth; he, therefore, chewed wheat. He was still keeping up this practice when I saw him last, four years after taking the treatment. Others want gum, while cigarette, cigar and pipe smokers often like to hold a lead-pencil in their mouth.

The following formula has proved that it meets the demands in curing the tobacco habit in many cases in my practice:

℞ Atropine sulphate . . . . . ⅛ gr.
Tr. nux vomica . . . . . ½ dr.
Tr. humulus . . . . . 1 oz.
Tr. quassia . . . . . 1½ oz.
Tr. gentian . . . . . 1½ oz.
Tr. cinchona comp. . . . . 2 oz.

M. Sig. A teaspoonful every two or three hours while awake.

For the chewing tobacco habit the patient should be allowed a small amount for a few days; he should use fine-cut and use a piece no larger than a bean.

This may be used every three hours for the first day; every five hours the second day; the third day it may be used twice; and the fourth day it should be given up altogether; but every time the patient thinks he wants a chew from this time on he should take a few drops of medicine on his tongue. This will stop his craving.

If the patient smokes, he should be instructed to smoke a pipe instead of cigars or cigarettes. He may have a short smoke of not more than a quarter of a pipe full at a time every three hours the first day, and every five hours the second day; twice the third day, and none the fourth day. The same plan of treatment of taking a few drops of medicine on the tongue will apply to smoking the same as it does for chewing. From now on he need not take a teaspoonful of the treatment every three hours, as the medicine he takes when he has a desire to use tobacco will be sufficient to cure him. The treatment should be kept up for a month or more.

WHAT CONSTITUTES A CURE FOR THE ALCOHOL, MORPHINE AND OTHER HABITS

The physician in charge of institutes or sanitariums where these habits are exclusively treated, differ greatly as to the percentage of cures, some claiming ninety-five per cent. and others as low as fifty per cent. These different percentages of success naturally lead us to inquire what may be considered a cure.

I believe that if we can succeed by proper treatment in placing a patient in a condition in which he does not require or crave any alcohol, morphine or other drug to which he is addicted, for a period of six months, he may be considered cured, and, if he has any strength of character, he can let it alone from that time on. There are always periods after a patient has taken treatment when he has a feeling of loneliness or absent-mindedness steal over him. This cannot be termed a craving, but he cannot help realizing the delightful sensations that were present when he was full of his once accustomed poison. It is therefore many times beneficial to give a good tonic preparation after the regular treatment is abandoned and to tell him that if he should ever have a desire for his liquor or drug to take this preparation for a day or so. This in many cases will carry him through.

Patients of this kind should have their minds occupied either with work, amusement, travel or change of scene, or some other diversion.

If we consider a term of six months a sufficient length of time to pronounce a case cured, the percentage of cures will be much larger than they would if we accept only those cases which are permanently cured. Of the first fourteen cases I treated for alcoholism, the first to relapse was at seven months. From this time up to two years, eight went back to their former habits, one died six months after taking treatment, of pneumonia. Some of these eight took the treatment again, however, and did not drink again for many months. The last time I heard from the remaining five, they were still total abstainers. I have had occasion to note patients who have taken the Keeley and other treatments, and I found that the percentage of cures are about the same. Owing to the lack of association, I believe that the percentage of cures in drug habits is greater. We will always notice that those who drink alcohol want associates, while those who indulge in drugs want secretiveness.

Even if the percentage of permanent cures may be considered small, this treatment has been instrumental in doing more good than any other temperance cause ever instituted. If its only field of importance were to make homes happy for a period of six months or a year, it would be a worthy practice, but we find, on the other hand, a certain percentage of permanent cures, which bring with them new manhood and happy families. In the foregoing pages I have endeavored to give the details of the different methods of treatment generally used at gold cure institutes, private sanitariums and in private practice. Although the treatment may vary in many instances it is practically all founded upon the methods already outlined. There have been several other methods and secret systems used which have come under my observation, and in order that the physician may broaden his knowledge as much as possible upon the subject, I will append the formulæ and details of several of these secret and non-secret systems.

LEVINSTEIN'S METHOD OF SUDDEN WITHDRAWAL.

This method is also often spoken of as the English Method, due to its first being introduced in England by the above author. This treatment consists of placing the patient in a padded cell and suddenly withdrawing all morphine. He is constantly watched by a medical attendant and provided with stimulants or other medication he may require to meet the emergencies as they present themselves. The patient raves and fights until he is often in a state of collapse: at the end of from four to six days his struggle is over, and with appropriate tonic treatment he reaches a successful crisis.

This barbarous treatment needs no mention other than its condemnation, as it requires an extra amount of courage for both physician and patient, although it is successful in many cases. There have been many sudden deaths, and the mortality is much greater than in the use of other treatments.

DR. MATTISON'S TREATMENT FOR MORPHINISM

In opposition to the English method, Dr. Mattison, of

Brooklyn, has published what he calls the American Method, which is an intervening method of treatment from the cruel method of sudden withdrawal without supporting the nervous system, as practised by Levinstein and avoids the long delay of reaching the crisis by the use of the gradual reduction method. The treatment used by this noted specialist, in brief, is as follows: The morphine is gradually reduced in from ten to twelve days, and as the reduction is taking place the nervous system is supported with increasing doses of bromides. The bromide of sodium is preferred, as it is attended with the least cutanious eruption and is more agreeable and acceptable by the stomach. The sodium is administered twice a day, at ten a. m. and ten p. m.

To illustrate, the patient states he generally uses about thirty grains of morphine each day; we find this about one-third more of the drug than is necessary to support him comfortably. We therefore commence the first day's treatment with twenty grains of morphine; from now on we reduce two or more grains a day until at the end of ten days the drug is entirely withdrawn.

To support the nervous system and produce sedation the bromide of sodium is given in increasing doses, as the morphine is withdrawn. The first day the morphine is reduced three grains and the patient receives ten grains of the bromide of sodium twice daily; the next day the morphine is likewise reduced and the sodium increased to twenty grains twice a day; the third day another reduction is made with the morphine, and the patient receives thirty grains of the sodium each morning and evening, thus the decrease of morphine and the increase of sodium is kept up until the morphine is entirely withdrawn and the patient is taking the maximum dose of sodium bromide, which might reach to seventy-five or one hundred grains daily. The object of this treatment is to produce sedation and conquer all nervous manifestations by large doses of the bromide.

The length of time required to carry out this treatment

and the amount of morphine reduced each day and the quantity of bromide required to produce sedation, will depend largely upon the condition of the patient and the judgment of the physician. The patient should not have any stated amount of the bromide, but sufficient to produce complete sedation at all times. After the patient has taken this treatment a few days, he will appear to be drowsy and want to sleep; he may also manifest symptoms due to the increased amount of bromides he has taken, i. e., acne, fetid breath, etc. All these symptoms may be absent if the bromide of sodium causes an increased action of the kidneys, as it often does. After the patient takes his last dose of morphine he may require a few injections of codeine to carry him through the critical stage. Insomnia is often present and is treated with trional. For pain and restlessness he gives large doses of fluid extract cannabis indica, thirty to forty minims.

Dr. Mattison has devoted many years of his life as a specialist in drug addictions and has been remarkably successful with this method, of which he is the originator.

THE KEELEY TREATMENT

A physician who was in charge of one of the Keeley Institutes and who afterwards conducted a sanitarium of his own, for the cure of alcohol, drug habits and nervous and mental diseases, published a little booklet giving the methods of treatment which he used and which he claims were identical with the methods used at the Keeley Institute. This booklet was sold to physicians for $25.00, and had many purchasers, and I believe the treatment he gives is reasonably correct, as I have met several physicians who had charge of similar institutes and are willing to vouch for its accuracy. Space will not allow me to publish the entire article, which to a certain extent would be only a repetition of what has been said, but I will give the formulæ of some of the preparations used, and the reader can judge for himself as to their value.

HYPODERMIC SOLUTIONS

Solution "S"

℞ Boracic acid . . . . . 4 gr.
Strychnine nitrate . . . . . ½ gr.
Aqua dest. . . . . 1 oz.
Tr. cudbear . . . . . q. s. color
Sig. Dose five to ten minims, four times a day.

Solution "A"

℞ Atropine sulphate . . . . . ½ gr.
Boracic acid . . . . . 20 gr.
Aqua dest. . . . . 1 oz.
Mix. Sig. Dose five to eight minims.

Solution "AP"

℞ Apomorphine . . . . . 4 gr.
Boracic acid . . . . . 20 gr.
Aqua dest. . . . . 1 oz.
Mix. Sig. Dose six to ten minims.

Solution "T"

℞ Thein. mur. . . . . 8 gr.
Boracic acid . . . . . 20 gr.
Aqua dest. . . . . 1 oz.
Sig. Dose five to ten minims.

Solution "P"

℞ Pilocarpine mur. . . . . 8 gr.
Boracic acid . . . . . 20 gr.
Aqua dest. . . . . 1 oz.
Mix. Sig. Dose five to six minims.

Solution "M"

℞ Morphine sulph. . . . . 8 gr.
Aqua dest. . . . . 1 oz.
Mix. Sig. Dose fifteen to thirty minims.

It will be noticed that the name of the solution is an abbreviation of the active ingredient contained. To illustrate, "Solution "A" is atropine, "S" is strychnine, etc.

TREATMENT FOR ALCOHOLISM

When the patient enters the institute he is given a mixture containing the following:

℞	Gold and sodium chloride	30 gr.
	Strychnine nitrate	4 gr.
	Atropine sulphate	1 gr.
	Glycerine	2 oz.
	Fl. ext. cinchona comp. q. s. ad.	16 oz.

Mix. Sig. One teaspoonful in water three times a day.

In addition to the internal remedy, the patient is also given hypodermic injections from the solutions that the physician deems the patient requires. The atropine solution is generally pushed, until patients get the full physiological effect of the drug. The apomorphine is used when it is desired to produce the "sickening process." You will notice that the solutions are colored conveniently for the "barber pole shot." After the desire for liquor has been conquered the patient is given hypodermic injections from Solution "S", and the following internal remedies throughout the balance of the treatment:

℞	Ext. cinchona solid	40 gr.
	Grd. gentian root	2 oz.
	Powd. capsicum	20 gr.
	Grd. bitter orange peel	½ oz.
	Glycerine	3 oz.
	Aqua	2 qts.
	Caramel q. s. to color	

Mix the first four drugs in the water and boil twenty minutes; remove and filter; then add the glycerine and caramel.

Sig. One teaspoonful every two hours in water.

FOR ALCOHOLIC GASTRITIS

℞	Pepsin sacch.	1 dr.
	Bismuth subnit.	1 dr.
	Powd. capsicum	20 gr.

Mix. Ft. powders XXX. Sig. A powder every three or four hours.

FOR NEURASTHENIA

℞	Tr. cinchona rub.		2 oz.
	F. E. kola		2 oz.
	F. E. scutellaria		1 oz.
	Elix. aromatic	q. s. ad.	6 oz.

Mix. Sig. One teaspoonful in water four times a day.

THE TOBACCO TREATMENT

℞	F. E. calumba		½ oz.
	Tr. quassia		½ oz.
	Alcohol		½ oz.
	Aqua	q. s. ad.	4 oz.

The hypodermic treatment consists of injections from Solution "T" four times a day, and an occasional injection from Solution "P," or if the "sickening process" is required, from Solution "A P."

DR. GRAY'S TREATMENT

Dr. J. L. Gray, of Indiana, was among the first to use the so-called "Gold-cure" for the alcohol habit, and his method was made publicly known through Prof. Edmond Andrews, of Chicago, who published an article on it in one of the Chicago papers. The treatment given was as follows: On entering the institute the patient was given a hypodermic injection four times a day, containing one-tenth grain of chloride of gold and sodium, and one-fortieth of a grain of nitrate of strychnine. He also received a mixture to be taken by the mouth composed as follows:

℞	Chloride of gold and sodium	12 gr.
	Muriate of ammonium	6 gr.
	Nitrate of strychnine	1 gr.
	Atropine	¼ gr.
	Comp. fl. ex. of cinchona	8 oz.
	Fl. ex. of coca	1 oz.
	Glycerine	1 oz.
	Aqua des.	1 oz.

Mix. Sig. Take a teaspoonful every two hours when awake.

I have used this treatment on several cases and find it is an excellent one, but do not believe that it is necessary to give such large doses of gold and sodium and strychnine, as they cause the muscles to twitch and an eruption to break out on the skin in many cases.

THE ANTI-NARCOTIN CURE

Since the first edition of this publication I have received many letters from physicians wishing to sell secret formulæ, of which this is an illustration: This treatment came from Dr. J. E. Clark of Hiattsville, Kansas, who claims it was formerly obtained from a Dr. Williamson, who was the attending physician at the Anti-Narcotin Institute, of St. Louis, Mo. Although it offers no special advantage over other treatments already given, it illustrates the simplicity of another "great cure," for which I gave approximately $10.50.

℞	Hyoscine hydrobromate	1-100 gr.
	Pilocarpine	1-100 gr.
	Strychnine nitrate	1-100 gr.
	Atropine	1-600 gr.

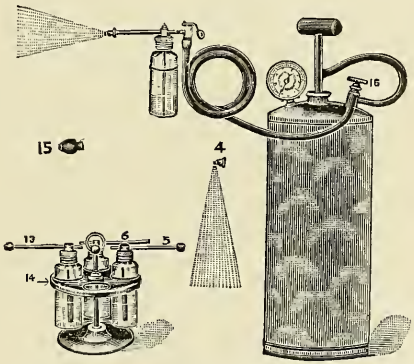
The above medication is given hypodermically every three hours, missing the treatment at twelve and three at night, during which time the patient generally sleeps. The directions for using, which came with the treatment, are as follows: On the evening before commencing the treatment the patient should be given a full cathartic and remove all foreign substance from the bowels; on the morning of the first day's treatment, the patient is allowed his usual quantity of morphine, and about two hours afterwards the above treatment is commenced and given at regular intervals.

Thou sparkling bowl; thou sparkling bowl;
  Though lips of bards thy brim may press,
And eyes of beauty o'er thee roll,
  And songs and dance thy power confess—
I will not touch thee; for there clings
  A scorpion to thy side that stings.

—John Pierpont.

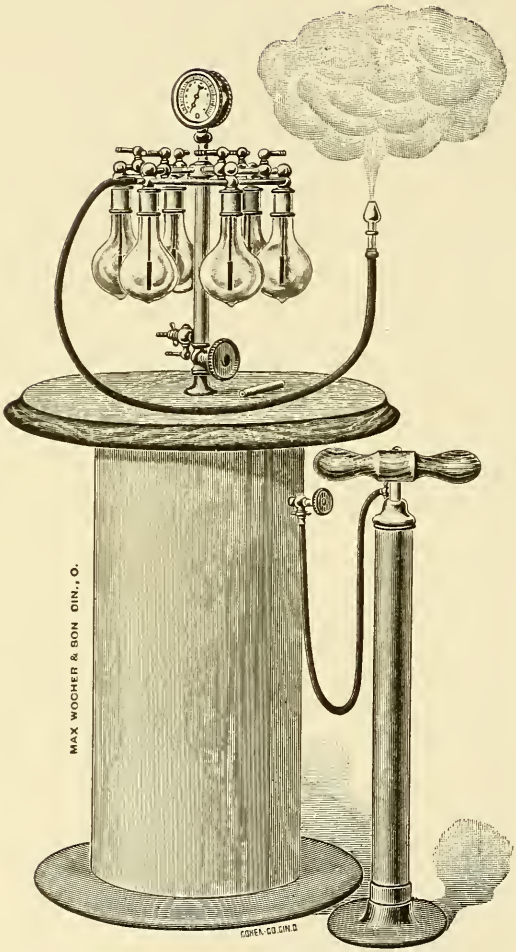
Diseases of the Eye, Nose and Throat

The diseases incorporated under the above caption have constituted the oldest of single or combined specialties, and there are so many valuable and exhaustive text books upon the subjects that no attempt will be made, in this chapter to cover the field. I will, therefore, only point out what may be considered some of the unusual methods of treatment, which will be of much service to the general practitioner. No phy-



A PRACTICAL $12.50 NEBULIZING OUTFIT

sician should think of conducting an office practice, or sanitarium, without installing a nebulizer or atomizer outfit; or some may prefer the more elaborate apparatus known as the Inhalatorium. These may be obtained at prices ranging from $12.50 to several hundred dollars. The small nebulizer, represented here, will render equal service to the more expensive apparatus, but is not as convenient for the physician, or elaborate to please the eye of the patient. In connection with either of these apparatus, the physician should provide himself with a trial case for fitting glasses. This is a very "profit-



A MODERN NEBULIZING OUTFIT.

able'' branch of office work, which really belongs to the physician, but has been monopolized by jewelers, who know little or nothing regarding the anatomy, physiology, and diseases of the eye; but tinker eyes upon the same principle they do watches. Any physician can acquire a skillful knowledge of refraction in a short time, which will be the means of adding several hundred dollars to his yearly income. Physicians can like-wise treat many of the simple diseases of the nose and throat, with equal results, to the city specialists, and the time devoted to the study of these chronic diseases will prove to be one of your most valuable of professional assets.

OCULAR THERAPEUTICS

If I were only allowed one remedy for the treatment of the diseases of the eye, I would unhesitatingly choose oil of thuja, as it will accomplish better results, in a larger range of eye diseases, than any one remedy in our possession.

Although thuja has been extensively used by our eclectic brothers for years, very little has been said regarding its use in diseases of the eye, except by Homeopathic physicians. This, no doubt, has been due to the difficulty in finding a suitable form in which to dispense this drug to the sensitive and delicate membranes of the eye. Alcoholic extracts have, of course, been excluded on account of the irritation they produce, and the oil of thuja I refer to is not the volatile oil of camphoraceous odor found on the market, which is produced by the distillization of thuja in water, but an artificial oil, prepared by distilling thuja in olive, or other vegetable oils, by a special process. This gives us a suitable menstruum in which we may receive the full value of this drug, without producing an irritation, as is characteristic with other preparations of thuja. One of the earliest uses of thuja was its action for restraint, and reduction of hypermetrophic changes in mucous and cutaneous tissues. It will deaden and repress fungous granulations, and has a marked action on such granulations as those of trachoma.

In this disease, thuja cannot be overestimated, as one drop of this oil, applied to the eye three or four times a day, will often produce the most remarkable results. Corneal ulcers and opacities are often, apparently, absorbed, and vanish like magic, as do cystic growths and pterygium, sclerotic and palpebral conjunctivitis. In fact, it is the first remedy I think of in all forms of acute or chronic inflammation, and as a solvent for corneal opacities, growths, etc.

I sometimes think that physicians become stereotyped in their methods of treatment, and this would well describe my attitude in the use of oil of thuja in the treatment of many diseases of the eye.

When the therapeutic action of any single remedy becomes so firmly fixed upon a physician's mind, that he considers it almost a panacea, the practice of medicine loses its scientific aspect; yet after prescribing this remedy for the large variety of classified diseases, in which it seems indicated, and observing its therapeutic value, we must accept the truth, and I believe the oil of thuja will not disappoint reasonable expectations, in the treatment of a large number of the diseases of the eye than any one remedy in our possession. Thuja is slightly anodyne, stimulant, antiseptic, alterative and tonic, and when applied to the eye in the form of a non-irritating oil, it will remove the granulations, and subdue inflammation in trachoma and conjunctivitis. It will often remove pterygium, and the diffuse nebula, or the more dense form called macula, which follows corneal ulcers. In fact, it is the first remedy to be thought of in all acute and low forms of inflammation, and corneal opacities of the eye, and the best of all, it can be applied by the patients at their own home with little or no inconvenience. I usually provide patients with a drachm vial, and a medicine dropper, and instruct them to apply one drop, three times a day. The patient should lie down, to retain the oil in the eye, and after it has been applied, massage the eye over the closed lids.

DIONIN is another drug which has a unique position among ophthalmic remedies. This remedy is one of the products of opium, and occurs as a white, odorless, bitter powder, soluble in seven parts of water. This drug is a powerful optical analgesic and lymphagogue. It is superior to cocaine in the treatment of many painful affections of the eye, although it is not a local anaesthetic, as is cocaine, as sensibility is not affected but its analgesic effects, in the treatment of many superficial, and deep seated inflammatory and painful affections, as iritis iridocyclitis, glaucoma, ulcers, pain and inflammation of the cornea, gives it an independent, therapeutic value in a large range of application.

Dionin is also a lymphagogue. It produces redness, and a very marked vascular dilation, with abundant lacrymal secretions. The lymphatic channels become distended to several times the size of their normal caliber, thus removing inflammatory exudates, and replacing the tissue with healthy tissue. In this respect, it has been referred to as a counter irritant, and belonging to the same category as Jequirity, in increasing lymphatosis. Dionin is applied to the eye in the form of dry powder, or in aqueous solution, ranging from 2 to 10 per cent. according to the effect desired. When stronger than a five per cent. solution is used, Lacrimation and chemosis of the conjunctiva, and swelling of the eyelids, are characteristics of its use.

As an analgesic, in all painful affections of the eye, Dionin has no superior, in its action upon inflamed mucous surfaces, and is particularly indicated in the deep seated pains, such as accompany glaucoma iritis, iridocyclitis, etc., while in iritis it has a threefold effect; relieving the pain, hastens the absorption of exudates, and assists atropine in dilating the pupil.

In interstitial keratitis it will hasten resolution and rapid healing, and clear the cornea under its influence. Konigstein believes that Dionin is abortive of parenchymatous keratitis, if used in the early stages, but valueless in the later stages.

In resuming the therapeutic value of dionin for the diseases of the eye, its first indication is for the relief of all pain in the eye, either the superficial or deep seated. One-quarter to one-half grain of the dry powder, or one to two drops of a five to ten per cent. solution, installed in the conjunctival sac, and followed with massage will be attended with some pain; this will subside, however, in a short time, and suppress all pain, which will last from four to eight hours, when the powder, or above a five per cent. solution is used. It will be followed with chemosis of the conjunctiva, which may frighten the patient, if not forewarned. This need cause no alarm, however, as it will rapidly subside, and is even an appearance to be welcomed, as it is in these cases we receive its greatest analgesic effects, and as the apparent irritation it produces subsides, it has a tendency to remove inflammatory exudates, and remove disease. We have, therefore, produced a mild form of disease for the purpose of removing a more serious condition, and this may be compared to the results of vaccination in the treatment of smallpox.

Cineraria Maritina has obtained quite a widespread reputation as a solvent for cataract. This remedy is imported from South America, by some concern in Georgia, and is sold to physicians at $1.25 per drachm vial, which is about one month's treatment. By placing one drop of this remedy in the conjunctival sac, and massaging the eye, there have been many favorable reports given, where it has restored sight by removing the obstruction to vision; while the principal sphere of action concerning this remedy seems to center as a solvent for cataract, it has been recommended for other ocular diseases, corneal ulceration and opacities, injuries to the eyelid, conjunctiva or cornea iritis, catarrhal or muco-purulent conjunctivis, inflammation of the lachrymal gland or of the cellular tissues of the orbit trachama, and in fact, any condition of the eye where an absorbent antiseptic is desired.

Throat and Nose Medications.

Dr. Carl Seiler, of Philadelphia, has become very well known as the author of certain antiseptic preparations. Seiler's Antiseptic Wash is made after the following formula:

℞ Sodium bicarbonate. 8 dr.
Borax ..... 8 dr.
Sodium benzoate ..20 gr.
Sodium salicylate ..20 gr.
Eucalyptol .....10 gr.
Thymol .....10 gr.
Menthol ..... 5 gr.
Oil wintergreen ... 6 min.
Glycerine ..... 8½ fl.oz.
Alcohol ..... 2 fl.oz.
Water.....q. s. ad. 16 pints

Dr. Seiler gives these directions for preparing the compound: Dissolve all the volatile ingredients in the alcohol, rub up the solution with the sodium salts, and dissolve in the water, finally adding the glycerine. Allow to stand in a large bottle with occasionally shaking for at least two weeks before dispensing. Dr. Seiler has placed on the market also his Antiseptic Tablets, which, dissolved in water, produce a solution similar to the above.

℞ Sod. bicarb. ..... 1 oz.
Sod. chlorid ..... 1 oz.
Sod. chlorid ..... 1 oz.
Sig.: Add a teaspoonful to a pint of lukewarm water and use with a syringe or atomizer to cleanse the nose from thick mucous and crusts.

℞ Sod. bicarb. .....15 gr.
Sod. biborate .....15 gr.
Acid carbol ..... 4 gr.
Glycerine .....15 min.
Aquae .....ad 1 oz.
Sig.: Dobell's solution. Dilute with equal parts of water and use with atomizer or snuff up the nose. Simple cleansing solution.

℞ Acidi acetici ..... 2½ dr.
Glycerine ..... 3 dr.
Aquae .....10 oz.
Sig.: To be used as an antiseptic and stimulating wash in the nose and nasopharynx in the course of the exanthematous fevers.

℞ Acidi carbolici .....30 gr.
Ammoni carbonatis ... 1 oz.
Pulv. carbonis ligni... 1 oz.
Olie lavandulae .....20 min.
Tinct. benzoin comp...½ oz.
Sig.: Uncork and inhale to relieve the congested condition of the mucous membrane in acute coryza and hay fever.

℞ Acid carbolici .....30 gr.
Ext. pini canadenis dest. .....20 min.
Liq. vaselin ..... 1 oz.
Sig.: To be used in acute stage of hay fever for the anesthetic effect of the carbolic acid.
—(Ingals.)

℞ Acid chromici cryst.....¼ gr.
Aquae ..... 1 oz.
Sig.: Ft. nebulae and use to check sneezing.

℞ Eucalyptol .....15 min.
Menthol .....15 gr.
Camphor .....15 gr.
Ol. pini compilonis....½ dr.
Ol. roasae ..... 2 min.
Liq. vaselin, q. s. ad... 2 oz.
Sig.: Use in the nose with an atomizer in mild cases of hypertrophic rhinitis.

℞ Ichthyol .....48 gr.
Lanolin ..... 4 dr.
Vaselin ..... 4 dr.
Sig.: Use on a cotton-wound applicator to massage the nasal mucous membrane in chronic forms of rhinitis.

℞ Hydrarg. ammoniati.... 4 gr.
Pulv. sach. albi.....½ oz.
Sig.: Insufflate into the nose to stimulate the mucous membrane in ozaena.

℞ Antipyrin .....15 gr.
Aquae .....ad 1 oz.
Sig.: To be used in the nose and throat as a hemostatic.

℞ Pulv. fol. matico.
Pulv. amyl. excic, aa equal parts. M.
Sig.: To be insufflated into the nose for epistaxis.

℞ Glycerit. acid, tannici.. 3 dr.
Aquae .....ad 3 oz.
Sig.: One teaspoonful to a wineglassful of warm water, to be injected in the nose night and morning, as a remedy for post-nasal adenoids.

℞ Iodini .....10 gr.
Pot. iodidi .....10 gr.
Ol. gaulther ..... 5 min.
Glycerine ..... 1 oz.
Make four solutions, varying the amount of iodine and potassium iodide between the limits given in the prescription.
Sig.: In dry rhinitis, pharyngitis and laryngitis, begin with the weakest solution and gradually increase to the strongest to stimulate the glandular function of the mucous membrane.

℞ Guaiacol ..... 4 dr.
Olive oil ..... 4 dr.
Sig.: Apply to the fauces of pharynx in acute tonsilitis and pharyngitis.

℞ Argent. nitrat ..... 4 dr.
Aquae dest. ..... 4 dr.
Sig.: It may be used instead of the guaiacol mixture. One or two applications of the above mixture are often sufficient to arrest acute inflammations of the throat and pharynx if applied in the first stage.

℞ Guaiacol .....½ oz.
Ol. amygdalae dulcis....½ oz.
Sig.: To be applied with a cotton-wound probe in acute inflammation of the throat. It is also applied to relieve pain.

℞ Tr. iodi ..... 1 dr.
Glycerine .....½ oz.
Aquae ..... 3 oz.
Sig.: To be used to moisten compress in laryngitis.

℞ Eucalyptol .....10 min.
Menthol ..... 5 gr.
Camphor ..... 5 gr.
Liq vaselin.....q. s. 5 oz.
Sig.: To be used in acute laryngitis after cleansing the throat with aqueous solutions.

℞ Menthol .....48 gr.
Ol. olive .....q. s. 1 oz.
Sig.: To be applied to the larynx in laryngeal tuberculosis with a cotton-wound applicator or atomizer. —(Rosenberg.)

℞ Ol. eucalyptol ..... 2 dr.
Ol. terebinth ..... 1 dr.
Magnesiae carb. levis... 2 dr.
Aquae .....q. s. 3 oz.
Sig.: A teaspoonful in a pint of hot water. Inhale the vapor to loosen the secretion and allay the cough in tubercular laryngitis.

℞ Quininae sulphatis .....½ gr.
Acid carbolici .....½ gr.
Extract krameriae .....½ gr.
Pep. ..... 2 gr.
Sig.: Take one before each meal at which meat is taken in cases where there is sluggish digestion with flatulency. This is of special value for vocalists, actors and speakers, in whom the digestive system is frequently impaired by nervousness.

℞ Potassii chloratis ..... 2 dr.
Glycerin ..... 2 dr.
Aquae .....10 oz.
Sig.: Use as mouth-wash in syphilis during the administration of mercury.

℞ Liq. hydrarg. nitratis... 4 dr.
Aquae .....q. s. 1 oz.
Sig.: To be applied to the sloughing ulcers of tertiary syphilis. As the application is very painful, cocaine should first be applied.

Sig.: Drop in the ear three times daily to soften inspissated cerumen preparatory to removing with a syringe.

℞ Hydrozone (15 vol.) .. 3 dr.
Aquae ..... 3 dr.
Sig.: Use same as preceding.

℞ Acidii carbolic (1-5 per cent.) ..... 1 oz.
Glycerine ..... 1 oz.
Sig.: Drop into ear to relieve pain in middle-ear inflammation.

℞ Peroxide of hydrogen... 1 oz.
Sig.: A few drops into ear in middle-ear suppuration.

℞ Camphor (reduced to a fine powder with a few drops of rectified spirits) .. 1 oz.
Chloral hydrate ..... 1 oz.
Sig.: To be applied externally as an anesthetic in neuralgic and other affections of the throat.

℞ Hydrarg. oxidi rubri... 4 gr.
Pulv. sacch. albi.....½ oz.
Sig.: To be blown into the nose after cleansing in ozaena.

℞ Iodoformi .....10 gr.
Menthol ..... 5 gr.
Lanolin .....½ oz.
Liq. vaselin ..... ½ oz.
Ft. ung. Sig.; To be applied to the interior of the nose with a brush in ozaena or ulcer of the septum.

℞ Creolin ..... 4 min.
Aquae ..... 1 oz.
Sig.: Antiseptic and deodorant, to be used in atrophic rhinitis, syphilitic and other ulcerations, and in diseases of the accessory sinuses.

℞ Sanguinariae canadens.. 1 dr.
Aquae tepid ..... 1 oz.
Ft. lotio. Sig.: To be used with an atomizer or syringe morning and night for ozaena.

℞ Zinc sozoiodol .....48 gr.
Talc .....q. s. 1 oz.
Sig.: To be blown into the nose in atrophic rhinitis after cleansing the nose from crusts.

℞ Menthol .....48 gr.
Toluol ..... 2 dr.
Sol. per chloride iron .. 1 dr.
Alcohol absolute ..... 1 oz.
Sig.:To be applied locally in diphtheria or pseudodiphtheria. —(Loffler.)

℞ Acid lactici ..... 1 dr.
Aquae ..... 1 oz.
Sig.: To be used with an atomizer in diphtheria as a solvent of the membranous exudate. —(L. Browne.)

Refraction

Among other specialties which physicians have allowed to drift from their possession, is the fitting of glasses. This specialty is a very compensative adjunct to an office practice, and should not be allowed to remain in the hands of the traveling spectacle peddler or local jeweler, who have seemed to monopolize the business, although they are absolutely devoid of any knowledge of the diseases of the eye; other than the manipulation of a trial case.

The cost of equipment for fitting glasses is so small compared with the profits received that every physician should incorporate this specialty with the other routine of office work, and thus place the specialty where it justly belongs, in the hands of the physician.

TRIAL CASE.

The case contains pairs, plus and minus spheres, and pairs plus and minus cylinders, also prisms numbered from ¼ to 20 degrees. The spheres are numbered in intervals from 0.12 D. S. up to 3.50 D. S. The interval is 0.25 D. S. from 3.50 D. S. to 8 D. S. the interval is +0.50 D. S., and from 8 D. S. to 20 D. S. the interval is 1.00 D. S.

The cylinders have the same intervals, but only go to 6 or 8 diopters.

The trial case also contains a frame called the trial frame, which is used to place lenses in front of the patient's eyes. The best frames have three cells, two in the front, and one in the back of the frame. The eye pieces of such a frame are numbered on the periphery in degrees of half a circle, so that the axis of the cylinders can easily be seen during refraction. The left of the horizontal line in each eye piece is recognized as the starting place or zero (0) and the degrees are marked

from left to right on the lower half, counting around to the horizontal meridian which at the right hand is numbered 180. This horizontal meridian is, therefore, as horizontal zero (0) or 180 degrees. The meridian halfway being zero (0) and 180 degrees is the vertical meridian or 90 degrees. The trial case also contains plano lenses, colored lenses, blinders, stenopaic slit, pin-hole disk, maddox rodetc. The frame can easily be adjusted; the pupillary distance measured, bridge properly adjusted, riding bows measured and height of nose piece taken.

RECOGNITION OF LENSES

Convex sphere lenses in the case are put in nickel rims. These lenses are thick at the center and thin at the edge, and have the power of converging the ray of light.

The convex lens is a magnifier and a 20 D. S. lens is often used in removing foreign bodies from the eye through oblique illumination. Objects viewed through a convex lens as it is moved before the eye appear to move in an opposite direction. If a convex lens is brought toward the eye, objects already enlarged appear smaller and more distant. A concave sphere is thick on the edge and thin in the center and causes the rays of light to diverge. When the lens is moved away from the eye objects appear smaller through a concave lens and larger as the lens is brought nearer the eye.

If a convex cylinder is moved in front of the eye in the direction of its axis, objects seen do not change position, but when moved at right angles to its axis the objects appear to move in the same direction as when a convex sphere is used.

If a concave cylinder is moved in front of the eye in the direction of its axis, objects seen or looked at do not change their position, but when moved at right angles to its axis the objects appear to move in the same direction as when a concave sphere is used.

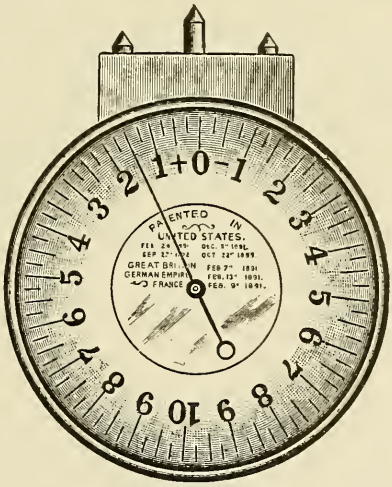
A cylinder lens has two little diamond scratches on the edge of each lens and these scratches note the axis of the lens and when astigmatism is corrected you can note the axis of the cylinder on the trial frame through these scratches.

A circle viewed through a strong convex cyl. (cylinder) appears as an oval with its long diameter in the opposite direction to the axis of the cyl. The long diameter of the oval will be in the same direction as the axis of the cyl. when the circle is viewed through a concave cyl.

The sides of a prism converge to a thin edge at one extremity of the prism. This is called the apex. At the other extremity they diverge from each other, forming the base. Objects viewed through a prism are displayed toward its apex and that portion of a straight line seen through a prism never coincides with the straight line.

NEUTRALIZING LENSES

The optician should supply himself with a lens measure, and by the use of the same can in a moment's time find the



LENS MEASURE

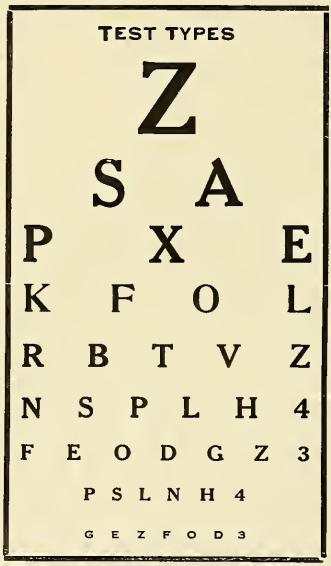
curvature on each side of a lens. If a spherical lens, the difference of the sides are subtracted from one another and then you have the strength of the lens.

If a compound lens you measure the sphero, and cylinder sides and you then have the strength of each side. Now to find

the axis of the compound you take a sphero. lens, opposite strength from the one found in the compound lens, also cylinder lens opposite strength from one found on cylinder side of compound lens; place these two lenses before compound lens and looking at distance objects rotate cylinder and when the neutral point is found you have located the axis of the compound lens.

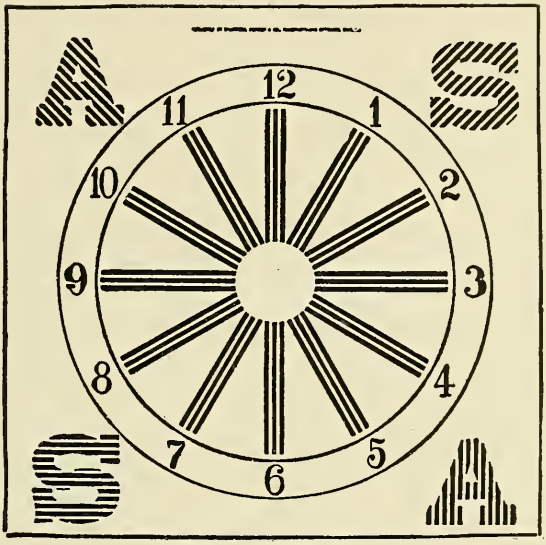
FITTING THE LENSES

Seat your patient twenty feet from the charts used; these charts should be well lighted and "Snellen's" type of chart is considered the best. The trial frame is then adjusted. Be



sure that it fits the patient comfortably. The pupillary distance properly placed and see that the eye lashes do not touch the lenses when inserted in the frame. Now you proceed to test your patient's eyes. First place a blank before the left if this helps the vision. If it does add +0.25 D. S. lens and see if this helps the vision. I fit does add +0.25 D. S. more and keep on adding a +0.25 until you have given the best vision possible. Now you have the Hyperopia corrected.

Next is to determine if there is any astigmatism present. Have the patient look at the clock dial placed beside the test type, and see if all lines appear the same shade of black, and if some of them are lighter than others, the patient has astigmatism and these lines are to be made uniform by the aid of a cylinder lens. The correction of astigmatism will always give



ASTIGMATIC TEST DIAL

the patient better vision. If the patient is far sighted and has astigmatism the 9 to 3 line on the clock dial will appear darker. Plus cylinder placed at 90 degrees is used to make the proper correction. In finding the axis of the astigmatism the cylinder is rotated to where the best vision is found, and can be proven by rotating the axis a small distance from this point each way, where the vision will blur. If the patient should be myopic minus lenses are used, instead of plus lenses, and the same course as heretofore described is followed with minus spheres instead of plus and after the myopia is corrected have your patient look at the clock dial, and if astigmatism is present a minus cylinder is used and rotated from zero to 180 degrees, until the lines are all uniform, combining the

spherical and cylinder lenses after the myopia and astigmatism is corrected you have a compound lens and the proper correction for the eye. The same course here described is used in examining the left eye with the blank placed over the right eye.

KIND OF GLASSES NEEDED

After your examination is completed and all errors of refraction corrected the next thing to note is the kind of glasses the patient wishes to wear. If spectacles are wanted note on your prescription blank whether they are to be rimless or with rims, quality of frame wanted; whether with cable temples or plain wire temples, the cable temples are best as they do not irritate behind the ears, and should always be recommended. Next note the length of temple required, then the pupillary distance is taken, and the size of lenses that will give proper pupillary distance. Next thing to note is the base of the bridge on the nose, also the height of the bridge, whether the bridge is inward or outward, so as to bring the lenses a proper distance from the eyelashes. If nose glasses are preferred note whether the patient wants rimless or with rims, style of nose glasses, also distance between guards, at top and bottom, pupillary distance measured, size of lens required to bring about pupilliary required and see that the eyelashes do not touch glass at any point; if they do use an offset guard or stud in eyeglasses so as to avoid lashes touching lenses. If the lashes be long toric lenses should be recommended, as they give a wide field of vision, and with their inside curve of six diopters the glass can be placed very near the eye and still avoid the eye lashes.

If bifocal lenses are required, or both distance and reading lenses together, you note the style of bifocal, whether cement or invisible, and this is checked off on prescription blank.

In prescribing bifocals the size and shape of segment should be noted and the segment should never come above the center of the distance lens, and the lenses should be tilted a

little downward, as this will give better vision. Your nearest optical house will furnish you with prescription blanks, gratis, which you will find very handy for putting down frame measurements.

If a physician will secure a test case and practice the heretofore rules laid before him he will be able to correct ninety per cent. of patients coming to him with defective vision.

MADDOX ROD

A Maddox rod is found in every trial case, and can be used as a most reliable test for the muscles of the eye. In making the examination of the muscles of the eye you place your patient six metres from a small flame, place the rod horizontally before one eye, a red colored glass before the other; if the line formed from the Maddox rod passes through the flame, there is orthophoric, as far as the horizontal movements of the eye are concerned. Should the line be to either side of the flame, as in most people it will, there is either latent convergence or latent divergence, the former if the line is the same side as the rod, the latter if to the other side.

In order to test the vertical deviation the rod is placed vertically before the eye, a horizontal line of light appears and the patient is asked if the line passes directly through the flame, or if it appears above or below the flame. If the flame is lowest there is a tendency to upward deviation of the naked eye; if the line is lowest of the eye before which the rod is placed.

The measurements of the extent of the deviation may be made in the ordinary way, by finding that prism placed before the naked eye, for the eye covered with a red glass, which brings the line and flame together.

PRESBYOPIA

The accommodation diminishes gradually from early life onward, and the near point recedes farther from the eye with each succeeding year. As long as it remains within 20 or 30

C. M. no appreciable inconvenience in reading is noticed, but when the near point has fallen off to a greater distance than this, it is not possible to read fine type without the aid of convex glasses unless the visual acuity is much above the average. This condition is termed presbyopia and is a normal result of growing old.

The cause of presbyopia consists of hardening of the crystalline lens, which is thus prevented from assuming the increased convexity which constitutes the essential factor of accommodation. The increase of convexity necessary for seeing near objects must be supplied to the eye by a spectacle lens. In early stages of presbyopia weak convex lenses are used and as the patient grows older and the power of accommodation diminishes, stronger convex lenses will have to be prescribed.

RETINOSCOPY

Retinoscopy is a system of examination of the refractive errors and measuring the eyes for glasses, and it was discovered by Cuignet and later by Sir William Pagent Bowman in the sixties. Since that time many writers have produced works covering this subject, but in every instance it is quite apparent they have had a greater desire to show their profound knowledge rather than to make plain this intricate yet fascinating method for diagnosing difficult cases.

This system is the objective method for estimating the refraction of the eye by the character of reflected images thrown from a plane or concave mirror, observing the movements which the retinal illumination makes by rotating the mirror. It gives the advantage of a quick diagnosis of the case without asking a question. Positive information is obtained as to whether the case is hyperopic or myopic, except in low degrees of either defect; when spasms of the ciliary muscle or accommodation exists, then the true condition of the eye is uncertain; this may be obviated to a certain extent by having the eye turned slightly inward, thus preventing the light from falling directly on the macula lutea, and by so doing the test

is made much easier by removing at least part of the spasm.

There are four methods in retinoscopy, named as follows: First, the McFatrich; second, the static; third, the dynamic, fourth, the fogging. In the following explanations let it be understood that only the plane mirror is used.

The McFatrich method is to seat the optician fifty-three inches from the patient, and with the retinoscope reflect the light into the eye, directing the patient to look slightly inward; this illuminates the retina; then rotate the mirror in such a manner as to cause the light to move directly across the face from left to right. If the shadow moves with the mirror the case is hyperopic, caused by the eye being too short, thus making the focus come back of the retina of the eye, and a plus lens is required. Place a +0.50 D. lens in the trial frame before the eye, and if the shadow still moves with the mirror keep adding plus lenses until you find the weakest lens that just reverses in that meridian. Then if it is a simple case of hyperopia you will find that if you rotate the mirror in the vertical meridian, the shadow will just reverse in that one also.

We will take, for example, a case where we find in the right eye in the horizontal meridian that the shadow moves with the mirror and it takes +5.50 D. to just reverse it, so after making a +0.75 D. deduction, (an allowance made for bringing the far point of the eye to a point in front of him), we have a +4.75 D. lens for the correction of the horizontal meridian. We next examine the vertical meridian and find that the shadow still moves with the mirror, and that it takes a +3.25 D. lens to just reverse it, and after making the +0.75 D. deduction we have a +2.50 D for the result. Now, if it takes a +2.50 D. to correct the vertical and a +4.75 D. to correct the horizontal meridian, we have a difference of a +2.25 D. between the two meridians, so we can use a +2.25 cyl. axis 90 over the +2.50 D. sphere, thus making a compound, and the correction for the right eye would be as follows: O. D. + 2.50 D. () + 2.25 cyl. axis 90.

We next examine the left eye and find that the shadow

moves with the mirror in the horizontal meridian, and find that it takes a +4.50 D. to just reverse it; after making the +0.75 D. deduction, we have for the result a +3.75 D. We now rotate the mirror in the vertical meridian and find that it takes a —1.75 D. lens to just reverse the shadow, so we add a —0.50 D. (an allowance made in myopia, as the far point has been carried back of the operator, so that a —0.50 D. must be added to the concave lens that just reverses the shadow), making a —1.75 D. in the vertical meridian. Now the difference of the two meridians would be the sum of 3.75 D. and 1.75 D., which is 5.50 D., so that the retinoscopic corrections for the eye is as follows: O. S.-1.75 D. + 5.50 cyl. Axis 90.

We will suppose another case; that in the horizontal meridian that the shadow moves against the mirror, and we find the weakest minus lens required to just reverse the shadow is a —0.25 D.; then we add the —0.50 D. and that makes a —0.75 D. for the horizontal meridian to just reverse it, so after deducting the +0.75 D. from it we find the eye emmetropic in that meridian. Our retinoscopic finding for this eye is a cylinder written as follows: O. D. — 0.75 cyl. ax. 180.

We next examine the left eye in the horizontal meridian and find that the shadow moves against the mirror and the weakest minus lens required to just reverse it is a —1.50 D., and after adding the —0.50 D., we have the result, a —2.00 D. for the above mentioned meridian. We then examine the vertical meridian and find that the shadow with the mirror and it takes a +3.75 D. to just reverse it, so after deducting the +0.75 D. we have a +3.00 D. for this meridian. Now if it takes a +3.00 D. to correct the vertical and a —2.00 D. the horizontal, we take the sum of these two for our cylinder, which is a —5.00 cyl. ax. 180, so that our retinoscopic finding for the left eye is as follows: O. S. + 3.00 D. () — 5.00 cyl. ax. 180.

Then again we have the numerous cases where the shadow does not run with or against the mirror in either the horizontal

or vertical meridians, but runs obliquely instead; then we rotate the mirror in the oblique at right angles to each other, and proceed using the same rules as heretofore described.

The static method is to place a +1.00 D. lens in the trial frame in front of each eye; then rotate the mirror at a distance of 40 inches from the eye, requesting the patient to look at the test card 20 feet away, and if the shadow remains still in the meridians, then the case is emmetropic, as the +1.00 D. lens just neutralizes the distance between the optometrist and the patient. If the shadow moves with the mirror, the case is hyperopic, and if it moves against it is myopic, and from all retinoscopic findings in this method, a +1.00 D. should be deducted.

The dynamic method is just the reverse of the static, and a system of shadow testing where the accommodation is active. In this method the patient is directed to read a small card of different size letters, placed on the forehead of the optometrist 40 inches away; now to do this he has to use 1.00 D. of his accommodation. Now let the deep thinking optometrist follow this explanation closely, then he can judge as to the real value of this method, as it is the writer's intention to give facts and prove that this method, which seems so nice in theory, does not meet with accurate results then in practical use.

Here are a few examples, as follows: First case: If the eye is emmetropic the rays of light will emerge parallel and the 1.00 D. of accommodation will converge these rays and cause them to focus at a distance of 40 inches and no motion will be observed in either meridian, as the 1.00 D. of accommodation used takes the place of the +1.00 D. lens that is used in the static method.

Second case: If the patient has 1.00 D. of hyperopia he will be obliged to use 1.00 D. of his accommodation to see the test card clearly at a distance of twenty feet and 1.00 D. to read the brow card at a distance of 40 inches, thus making a total of 2.00 D. of accommodation used.

Third case: Suppose a patient has 1.00 D. of myopia; his

far points for distance vision is 40 inches and the emergent rays will focus at this point, and the patient will not use any accommodation to read the brow card.

Now, it is claimed by the exponents of the dynamic method that it is impossible to separate accommodation and convergence by placing the plus lenses in front of the eyes, except for hyperopia, they may have. In the first case we find the eye emmetropic using 1.00 D. of accommodation. They place plus lenses in front of the eye and find the strongest that will be accepted without reversing the shadow. In an emmetropic eye they state that a +0.25 D. will cause a reversal even though the eye is accommodating 1.00 D.

In the second case we find the eye using 2.00 D. of accommodation. They claim that this eye will relax 1.00 D. for it is that much hyperopic, but it cannot relax any of the other 1.00 D. as the convergence checks it so it will not relax.

In the third case, the eye being myopic 1.00 D., no accommodation is in use. They place an over correction of minus spheres, rendering the refraction of this case hyperopic. Then they gradually reduce with minus spheres until they find a point of reversal.

The special advantage claimed by the exponents of this system is: In case of a spasm of accommodation sometimes found in a case of hyperopia the eyes will test myopic at 40 inches because the spasm holds the focus in front of the retina. The spasm covers the 1.00 D. of hyperopia and renders the eye myopic 1.00 D. and at 40 inches requesting the patient to read the brow card; this calls for 4.00 D. of accommodation, and as the patient has a spasm of 2.00 D. covering his 1.00 D. of hyperopia, thus bringing the focus 1.00 D. in front of the retina, so it will only be necessary for him to use 3.00 D. of hyperopia; but right here the dynamic exponents claim that he will accept just 1.00 D. as this is the amount of his hyperopia and that his convergence checks relaxation at this point, but does it?

This whole system hinges upon their theory that accommodation and convergence are so closely related that by plac-

ing plus lenses in front of the eyes this relation cannot be disturbed. If we allow the exponents their premise in an argument, we generally have to admit it, as their reasoning will be logical all the way through. If right here we take pains to experiment so we can determine the truthfulness of their first proposition, and then we will discover why this method proves up inaccurate in nearly 90 per cent. of all its cases. The writer states fearlessly that convergence is not a check upon accommodation and will prove it by the following experiments:

If the exponents are right in the relation of these two functions in their shadow test, it surely ought to be demonstrated with lenses subjectively. Take a person with emmetropic eyes, and if we place —2.50 D. sphere in front of their eyes, and in order that they can read the 20-20 line, on the test card 20 feet away, they will have to use 2.00 D. of their accommodation. The 20-20 line on the test card 20 feet away is perfectly plain, bearing in mind that their accommodation is fixed for 16 inches. This ought to prove most conclusively to any optometrist that under the above-named conditions the accommodation can be exercised 2.50 D. while the convergence remains fixed for 20 feet. If we were to increase the strength of the minus spheres, it would produce diplopia, thus showing that 2.50 D. is the limit of their power of separation between these two functions.

In another experiment we find that they can read the 20-20 line perfectly with 25 degree prisms (half of the amount over each eye) base out. This shows that they can send a nerve force to the internal muscles without affecting the ciliary muscles in the least. It seems to the writer as if these two last experiments, which can be made on yourself or anyone else, ought to convince any deep-thinking optometrist of the inaccuracy of the theory of the dynamic method.

In all cases of hyperopia, except the "squints," we find these two functions working entirely out of harmony with each other, showing the wonderful power of adjustment in nature. In all cases of myopia we have the same conditions reversed,

for while the convergence is fixed for 20 feet, the accommodation is nearer to the eye according to the myopia.

The fogging method of retinoscopy is one that relaxes all accommodation, as it is an active accommodation that is responsible for many errors in refraction. The test is made by placing a plus 4.00 D. lens before the eyes, and have the patient look off into space. This renders the eyes myopic and puts them in a condition of rest. If the eyes are emmetropic, the emergent rays will be parallel and a +4.00 D. sphere will bring these parallel rays to a focus at 10 inches in front of the lens. As you observe the motion of the shadow from 40 inches, you will find the eye decidedly myopic. Move closer and closer until you reach the point of no motion. Measure from the lens to the mirror, and if the eyes are emmetropic you will find the neutral point or conjugate foci to be 10 inches. If your case happens to be hyperopic of 1.00 D. the rays of light will emerge 1.00 D. divergent; as it requires 1.00 D. of your +4.00 D. to make these rays parallel, they will be brought to a focus 13 inches from the eye. The motion will reverse at this point. In all cases of myopia the emergent rays are convergent and the +4.00 D. will make them still more convergent. If there is 1.00 D. of myopia, the convergent rays would focus at 40 inches without any lens. Placing a 4.00 D. sphere in front of the eye causes the rays to focus at 8 inches in front of the lens.

If we wish to be exact in our measurements in this or other methods we can attach a tape measure to our trial frame and hold the same in one hand, while we rotate the mirror with the other, at the required distance. In the fogging method this will give you the exact distance between the lens and the mirror and you will find your conjugate foci. The rule to follow is: place a +4.00 D. sphere in front of both eyes. Reflect the light with a plane mirror into the eye and find the point where there is no motion. If it is the focal point of the lens 10 inches, the eye is emmetropic.

Suggestive-Therapeutics Hypnotism

The medical profession of this country have never seemed to study the phenomena of suggestive therapeutics as our medical brothers across the water have. Although it is a subject that interests the statesman, the scientist, the professional man and the layman alike, it is discussed by a few only, and is marveled at by the many.

Showmen and charlatans have endeavored to hold the world at bay regarding its secrets by teaching the people that they were in possession of a gifted mystic power.

While the phenomena of hypnotism are beyond the scope of this book, I feel that I would be neglecting a very important subject if I did not divert it of the supernatural and explain how it is done.

If there is any class of people who should acquire a knowledge of hypnotism, it is the medical profession, for in their hands, it will find its greatest field of usefulness as a healing agent and sociological factor.

In the following pages I will endeavor to give, in brief, the history of hypnotism; the different methods of producing the hypnotic state; hypnotism as a curative agent, etc. This may seem very simple to you. It is simple and by following the instructions and with a little practice, you can produce all the different phenomena of hypnotism, as well as other operators. Every physician should at least be familiar with the subject, if he does not practice it.

THE HISTORY OF HYPNOTISM

It is almost impossible to realize what an important part hypnotism has played in the political and religious histories of the world. It has made prophets and seers of old, witches and

wizards at the beginning of the last century, and all kinds and conditions of religious fanatics of our present day. The laying on of hands, the absent treatment and other methods used by the modern divine healers (?) were practiced by the Egyptians before the year 1552 B. C. It is also known that Francis I., of France, and other French kings up to Charles X., practiced the art of healing by the imposition of hands. Another system was presented at the end of the middle ages, which developed out of the doctrine of the influence the moon and stars had upon men, which is well known to be practiced by astrologers at the present day.

In the beginning of the eighteenth century, we find Santanelli in Italy, recognizing the great influence of imagination and advancing the theory that every thing material possesses a radiating atmosphere which operates magnetically. Although the foundation of "animal magnetism was thus laid, universal attention was first drawn to it by Mesmer (from whom the name mesmerism developed), a Viennese doctor (1734-1815). Mesmer used animal magnetism in the treatment of diseases. He cured, at first, by contact, but believed later that different objects of wood, glass, iron, etc., were capable of receiving the magnetism, consequently he made use of them as a means of conveying his magnetism.

Mesmer made many disciples. His pupils and successors were generally called Mesmerists and the doctrine of animal magnetism was also called mesmerism, vital magnetism, biomagnetism. These practices flourished and gained a strong foothold all through Europe.

Mesmerism was introduced in Manchester, England, in 1841, when Dr. Braid, of that city, became interested in the subject and showed with much method that the phenomena were of a subjective nature. By carefully fixing the eyes upon a given object it induced a condition of sleep which he called "hypnotism," which was the origin of that term.

A few years late, Dr. Braid came to America and introduced hypnotism in New Orleans, which was its chief center for many years.

In the year 1878 Dr. Charcot, of Paris, France, began his public classes, in which he directed attention to the physical states of hystero-epileptics during hypnosis. Later hypnotism was introduced by Prof. Bernheim, in the second Medical College of France, at Nancy. This created a contest between the school of Charcot and that of Nancy, which is not yet entirely settled. The latter, however, has gained ground more and more.

At the present time hypnotism has gained its entrance into the lecture rooms of several universities and medical col-

Charcot's Clinic, Paris, France.

leges, both in Europe and America; therefore it must be mentioned that animal magnetism, out of which hypnotism has developed, has retained many adherents in the scientific world and today, we can recognize three great schools with many points of transition: First, the school of Charcot; second, the school of Nancy, and third, the school of Mesmerists.

METHOD OF INDUCING HYPNOTISM

There are several ways of producing the hypnotic condi tion, but for convenience, I will divide them into only three

ways: First, the mesmeric method, which is the system used at most public exhibitions, and I believe the easiest way to induce hypnosis; second, the so-called mental method, and third, the fascination method. It is these methods, used either singly or combined, that Charcot, Bernheim, Feré, Braid, Regnard, Preyer, Dumont and all others used.

Hypnotists of international reputation are using the mesmeric method. I consider this method the easiest and most practical way of producing hypnosis. The first thing to accomplish, is the concentration of thought in the subject. Require him to sit down; give him a coin or some other article, tell him to look steadfastly at it and not take his eye from it, and think of nothing else except the article you hand him. By watching the subject carefully, you can tell whether or not his mind is upon the object. If you think his mind is not wandering, approach him and suggest that his eyelids are growing heavy, that it is impossible for him to keep his eyes open. Have him close his eyes and make passes from the head to the knees (the mesmeric passes). Now suggest that his eyelids have grown together, and it is impossible for him to open his eyes. Have him try hard (he will try, but in vain). Place his hands upon his knees and tell him that he cannot remove them. He will try, fail to do so. Keep up the passes and suggest that he is now going to sleep, sound asleep; that his mind is a blank; he can no longer think of anything, but will remain sound asleep until you tell him to wake up. If your subject is susceptible to the hypnotic influence, he will sit before you in a complete state of hypnosis, and ready for any suggestions you may offer. You may tell him he is a horse, broom or thrashing machine, and he will believe it and act his part well. In order that I may give you a clearer idea of the phenomena of this mystic power, I will tell you my first experience as a hypnotist. I was attending a medical convention in Cincinnati, and some of the physicians, with whom I was stopping, requested me to join them in a theatre party, to attend a performance given by a lady hypnotist. I consented to do so, and watched her perform very attentively. She used the same

method as described above. On arriving at our hotel, after the performance, we entered into a discussion regarding hypnotism and I stated that I believed that if that lady could produce the hypnotic condition, I could, for I could see nothing supernatural about her, and I really had more confidence in my own ability than in hers. This self-confidence and positiveness, I afterwards learned, is one of the chief requisites for a successful hypnotist. To be brief, the physicians present volunteered to supply me with the subjects if I would hypnotize them. This was agreed to and they presented me with three persons, two ladies and a young man. I seated them and handed each a coin, requesting them to concentrate their thoughts on that one thing and to think of nothing else. They took the matter seriously and followed my instructions. Presently, I approached one of the ladies and told her that her eyes were getting tired and advised her to close them. I then commenced to make passes from her head to her knees. I suggested that her eyelids had grown fast and she could not open them. I told her to try hard, and she did, but in vain. She was perfectly conscious, but could not get her eyes open. I then assured her that she had grown fast to the chair and could not get up. She tried, but failed. I then told her that I was going to give her a magnetic treatment, and make a few passes over her body and she would go fast asleep. I commenced to make the passes and at the same time to suggest "You are going to sleep now, fast asleep," etc., and in a few moments she sat before me in as complete a state of hypnosis as one would wish for. You may imagine my surprise. To tell the truth, I was somewhat confused, for I had never studied hypnotism, and did not know the first principle of it; in fact, I did not know whether or not I could awaken her, but I slapped my hands loudly in front of her face, and said "Wide awake," and she immediately opened her eyes and smiled, which was, I assure you, a great relief to me.

I next tried the young man. I could place him in a condition in which he could not open his eyes, but could go no farther.

The other young lady I could do nothing with.

I cite this experience to show you how simple the subject is, and when you make your first efforts in that line, you will, no doubt, be as much surprised at your sucesss as I was. I had never read an article on the subject, and knew very little about it, except what I had seen the lady do that evening.

The mental method of inducing hypnosis is the method used at the school of Nancy, and is frequently referred to as the Nancy method. This is the most popeular method in use throughout Europe. By its use the subject is thrown into a hypnotic state by arousing in his mind the image of sleep. This is more easily practiced on subjects who have previously been hypnotized. The following is the exact method proposed by Dr. Bernheim, and used at the college in Nancy, France: The person is advised to be seated and close his eyes. Then tell him: "You must try and go to sleep;" "think of nothing, but that you are to go to sleep." Leave him in this condition for a few seconds and then continue: "You are commencing to feel tired and sleepy all over your body;" "your arms and legs feel heavy;" "a feeling of drowsiness is now taking possession of your body;" "your head feels dull;" "your thoughts grow more confused;" "you can no longer resist, you are now sound asleep;" "You cannot open your eyes;" "your mind is a blank," etc. These mental suggestions are often all that is required to produce a complete state of hypnosis, and it is a very convenient way with some subjects. You can now ask him if he is asleep, and he will answer, "Yes." Ask him if he hears the band playing; he will say, "Yes." Tell him to open his eyes, and he will see a beautiful white horse. Place a chair in front of him for a horse. Tell him to get on the horse and take a ride. He will straddle the chair and attempt to ride. You can ask him what he sees while riding through this beautiful forest and he will describe very accurately some scene he has viewed in his life. You now have completely robbed the subject of his will by simply suggesting sleep. He is en rapport with you and you only.

The fascination method is induced by looking the subject

straight in the eye. After you have done this for some time, take him by the arm and draw him away with you. Still keep your eyes fixed upon each other; then raise your arm and he will do the same; in fact, you can have him imitate any movement or position that you make as long as you keep your eyes fixed upon his, but as soon as you cease to look at him, the charm is broken. This method is demonstrated in lower animals. We have often seen snakes and cats charm birds. For all practical purposes it is used less than the other methods.

THINGS THAT PREVENT AND ENCOURAGE THE PRODUCTION OF HYPNOTISM

When you are attempting to hypnotize a subject, you must insist that the place shall be kept quiet; disturbing noises of all kinds have a tendency to distract the attention and interfere with the mental condition required to induce the hypnotic-state. Have those who are present assume rather a serious mood and avoid all actions, either by word or gesture that will give any evidence of mistrust. Gain the confidence of those upon whom you operate. Endeavor to have perfect harmony in your presence. This, together with soft, sweet music and quietness, will assist you in establishing the results you desire from your efforts.

HOW TO AWAKEN FROM THE HYPNOTIC STATE

There are as many ways of awakening a subject from the hypnotic state as there are of putting him into it. Crying out "Wide awake," or "All right," "Open your eyes," and slapping your hands loudly, or snapping your fingers in front of the subject's face is generally all that is required. They will also awaken if left alone, but this will take some time if they are in a deep state of hypnosis. If passes have been made downward, reverse them. You will never have any trouble in bringing your subject out of the hypnotic state.

HYPNOTISM AS A THERAPEUTIC AGENT

In the foregoing paragraphs you were told how to induce the hypnotic state, and now we wish to know how its influence can be used as a curative agent, but before discussing its various applications, we wish to call your attention to the importance of the way in which you make suggestions.

A hypnotist must always be positive and firm, yet kind and gentle. Your subject must feel that you understand your business, and that you are master of the situation. You should make your suggestions in as concise and impressive a manner as possible. For instance, do not say, "Try to open your eyes; they are closed fast and it is impossible for you to open them," but say, "Your eyes are closed fast, you cannot open them, try hard."

The first suggestion you give is the first to be received by the subject, that is, in the first sentence, you told him to open his eyes, which he might do before you finish the balance of your suggestion. In the latter sentence you told him that his eyes were closed. This he receives and his efforts to open his eyes will fail.

There are a great many ways in which hypnotism can be applied to good advantage. It can produce either local or complete anæsthesia. Under its influence, Jules Cloquet removed a breast, and Dr. Loysel amputated a leg painlessly in the year 1845. Its influence is also used at the present time by hundreds of physicians in America and Europe for the treatment of certain diseases and in minor surgery. Teeth have been extracted, small tumors removed, the pain of neuralgia relieved, and it is applied to good advantage in various diseased conditions, which I will illustrate in the following cases:

Case 1—Mr. H., aged 23, applied to me to have an upper molar tooth extracted, and requested me to hypnotize him for the operation, as he was prejudiced against the use of local anæsthetics. I directed him to be seated; I had hypnotized him before and it was very easy to place him in a state

of hypnosis, which I did. I told him, "I wish to extract a tooth for you which will be done without pain. You must open your mouth wide," which he did without any hesitation. I then added, "Your mouth is now wide open, and it will be impossible for you to close it." I took this precaution to prevent his closing his jaws upon my fingers or the instruments. I now placed my thumb and finger on each side of the tooth and made heavy pressure, and said, "This tooth is perfectly dead now. The nerve has been killed and there will be no pain." I now loosened the gums from the alveolar process and removed the tooth. The patient still sat in the chair with his mouth open and face motionless. I now told him, "The tooth is out, close your mouth and spit out the blood." He did as I suggested, after which I slapped my hands in front of his face and added, "All right, wake up." He opened his eyes and said, "Did you get it, doctor?" He seemed surprised to find his mouth full of blood.

This is the usual method of producing all forms of local anæsthesia through hypnotism. If I were to remove a small tumor, I would carry out nearly the same method of suggestion, and stroke the part to be removed before operating upon it, and never forget to suggest that it will be done without pain.

SIMPLE SUGGESTION

I do not wish to associate hypnotism with Christian Science, but their modern operations are very much alike at times. Their principal therapeutic agent is suggestion, which will be illustrated in the following case:

In the early days of my medical career, I was treating a patient who had a fever. Her temperature was 104½. She was delirious and I had much difficulty in getting her to sleep. Various remedies were used, but with little effect. I invited an older brother practitioner to visit the case with me. On entering the room, we found that she had had a very little sleep in the last twenty-four hours, and was very

nervous. The doctor was a kindly magnetic old soul, and after discussing the case briefly, he sat down beside the patient and gently stroked her forehead, and said, "I guess you can go to sleep now. Try hard. Think you are going to sleep and you will sleep." He continued stroking her head for a few minutes and she fell into a beautiful sleep, which lasted four and one-half hours, and awakened feeling much refreshed.

This patient was not hypnotized, but she took the suggestion favorably. This demonstrates what simple suggestion will often do as a restorative agent if properly applied.

It is by this simple method of suggestive therapeutics that the modern Christian scientists, faith cures, and divine healers, have claimed to achieve their great success, and. although its field of usefulness is limited, it is worthy of consideration in many cases, and can often be applied in the general practice of medicine. It might be well for me to add, however, that if I had told the good old doctor he was practicing hypnotism or Christian science in that case, he would have ceased to be my friend, for he was very skeptical on such subjects.

The following case is reported by Dr. Bernheim, and will illustrate the way hypnotism is applied at the school of Nancy, and the power it has over muscular rheumatism. The doctor says: "A child was brought to me with a pain like muscular rheumatism in the right arm, which dated back four or five days. The arm was painful to pressure; the child could not lift it to its head. I said to him, 'Shut your eyes and go to sleep.' I held his eyelids closed and went on talking to him, 'You are asleep and you will keep on sleeping until I awaken you. You are sleeping very well, as if you were in bed. You are perfectly well and comfortable. Your arms and legs and whole body are asleep, and you cannot move.' I took my fingers off his eyelids and they remained closed. I put his arms up and they remained so. Then touching the painful arm, I said: 'The pain has gone away; you will have no more pain; it will not come

back any more.' In order to increase the force of suggestion by embodying it, so to speak, in a material sensation, I suggested a feeling of warmth. The heat took the place of the pain. I said to the child, 'You feel that your arm is warm; the warmth increases and you have no pain.' I awakened the child in a few minutes; he remembered nothing. The sleep had been profound. The pain had almost completely disappeared. The child lifted the arm easily to his head. I saw the father the day following, and he told me that the pain had disappeared completely, and that there was no return of it.''

The above case is interesting, for it illustrates the way in which painful disorders of every description will often yield like magic to the influence of hypnotism. Tooth-ache, neuralgia, dysmenorrhœa, headache and other affections of a nervous origin, may often be cured by placing the patient in a hypnotic state and stroking the parts, and suggesting that the pain has left, never to return. There are thousands of victims of the alcohol and drug habits that have been cured by hypnotism, while the great Charcot and his followers have used it with wonderful success in all diseases of the mind and the nervous system.

In conclusion, I will say that wherever hypnotism can be applied, it has a large field of usefulness. It is simple in practice and deep in theory. As yet no entirely satisfactory explanation has been made why this phenomena exists, but we know that it does exist, beyond a doubt, and today hypnotism holds a respected place in the scientific world. But its nature, like the nature of most other mental phenomena, is not understood, and to the medical practitioner who is wedded to drugs, a statement of the result obtained from the hypnotic influences may seem like the miracles of some ancient Oriental work.

I do not wish it understood as my belief that hypnotism will ever be the universal curative agent, the panacea for all ills, or that it will ever supplant the use of cocaine, chloroform, ether or gas as an anæsthetic for surgical purposes.

My experience with hypnotism has been very limited, but I must confess that it has been rather satisfactory.

It is practical when it can be used, but on the other hand, it is impractical when we stop to consider that only about one in three can be hypnotized, and a smaller percentage cured by its use. I really believe that hypnotism has a bright future, and if this chapter has succeeded in merely throwing a small ray of light upon the subject and robbing it of its mysteries, I will feel that I have not wasted my efforts.

"God bless the man who first invented sleep!
So Sancho Panza said and so say I;
And bless him, also, that he didn't keep
His great discovery to himself, nor try
To make it—as the lucky fellow might—
A close monopoly by patent right."

—J. G. SAXE.

Painless Dentistry

THE ODTUNDENT SYSTEM OF PAINLESS DENTISTRY

Whoever procures exemption from physical suffering may be considered a public benefactor and in no other field of labor has there been a better chance of earning such a title than in that of extracting teeth, as the painless operator is the one whom people praise and patronize, but as a general rule a large percentage of operators have made a failure of local anæsthetics, (nostrums) and have discarded them altogether, as being worthless. They do not understand why some can make a success of their use and others can not. While this chapter will not be an exhaustive treatise on the subject, I will endeavor to make it as plain and practical as possible, and give all the information that will be required to handle local anæsthetics successfully. What will be said has been taken from the experience of myself and other operators under my observation, who have used this method successfully in over sixty thousand different operations; and I believe that every operator of ordinary skill and intelligence, who will faithfully follow the directions given will be equally successful.

IN FORMULATING

A local anæsthetic to be used in dental surgery, there are several objects to be obtained, viz.:

First—To have one that will be safe at all times.

Second—One that can be used in all pathological condition of the gums.

Third—One that will have no bad after effects.

Fourth—One that will not decompose, within a reasonable length of time.

In the formulas given in the chapter on local anæsthesia, to which you are referred, I think we have overcome all these obstacles and have an anæsthetic that is safe and can be used in all pathological conditions of the gums without any bad after effects, if used with antiseptic precautions and ordinary skill.

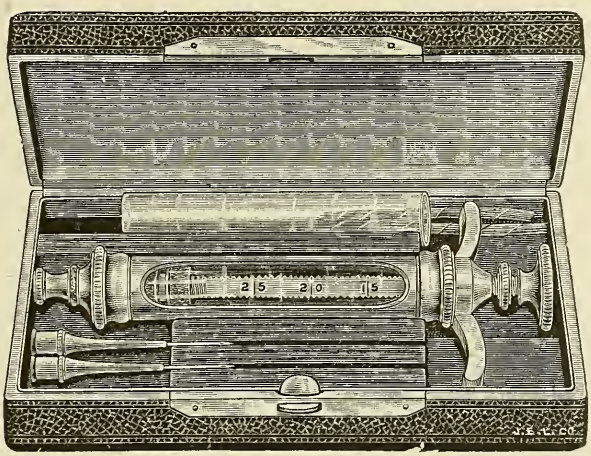
HYPODERMIC SYRINGE AND NEEDLES

The syringe for this kind of work should have a strong broad cross bar, or finger brace, also a large flat pistol head so that by continual use it will not make the fingers sore. The piston stem should have a minim graduate, or scale, and an easily working nut on the same (for we can best regulate the use of our medicine with this nut). The diameter of the glass cylinder should be quite small, so that you may run up a high pressure when required. Never use a syringe that holds over thirty minims, as larger ones take up too much room when operating. The metal frame work holding the glass cylinder should be open on both sides so that you can have a clear view of the contents of the syringe, and know that it contains no air or floating matter when operating.

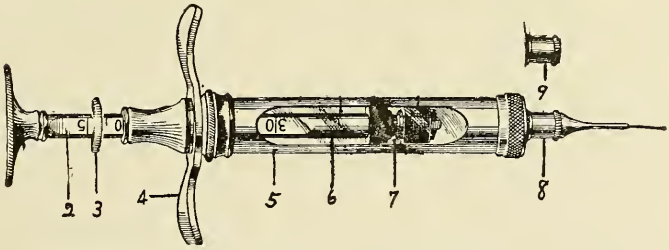
The needle should be of medium size, about twenty-two, twenty-three or twenty-four standard wire gage is the proper size. When the syringe is not in use, put a wire previously dipped in olive oil through the needle, and screw the cap on the syringe tight; this keeps the needle from rusting and getting stopped up and the packing of the syringe from drying out. If you are not using the syringe continually you should oil the cylinder occasionally and always keep it in working order, and ready for use. Before using the syringe again, be sure that it has been disinfected and is in a thoroughly antiseptic condition. Never use a rusty needle, or one that

has a blunt, or rough edge. They always cause more or less irritation. One of the best things to sharpen a needle on is a common honing stone.

The accompanying cut represents the kind of syringe to be used when operating with local anæsthetics: 1. Piston head. 2. A 30 minim graduated piston stem with scale. 3.



Syringe and Case Designed for Dental Operations.



Regular Dental Syringe, Two-thirds Size.

Nut which is set for about two minims, sufficient to inject one side of a molar. 4. Finger brace. 5. Metal frame work supporting glass cylinder. 6. Glass cylinder. 7. Plunger with oil chamber. 8. Needle. 9. Cap to be applied when syringe is not in use. If your needle should get stopped up, so that you cannot get a wire through, but can force water through, put a drop of sulphuric or hydrochloric acid in the funnel

end of the needle, and blow until it shows at the point; allow it to remain this way a little while, then try to get the wire through; should you fail, try the acid preparation again until you succeed and then rinse the needle and syringe thoroughly.

TO FILL THE SYRINGE

With the medicine screw the needle on tightly (never remove the needle to fill the syringe). Insert the needle in the anæsthetic until it has been thoroughly immersed, then slowly draw the piston back until you get all the medicine you can in the syringe. Adjust the needle upwards and make sufficient pressure on the piston to force all the air out of the syringe and needle; in this way you obviate the danger of injecting air into the tissues. Before operating make a

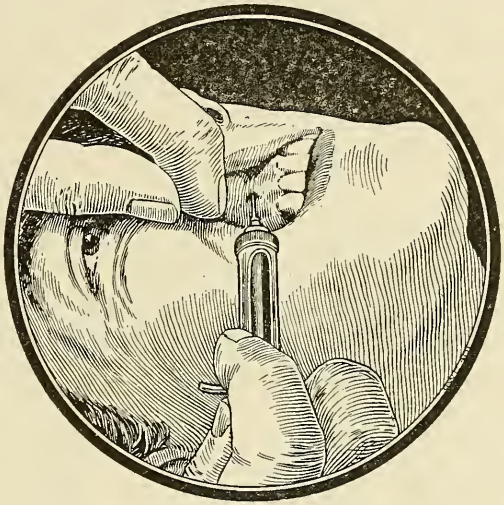
Antiseptic Swab, One-half Size.

swab by winding some absorbent cotton around the point of a pair of pliers. (See cut.) Dip this into an antiseptic solution of which listerine is one of the best for this purpose, and bathe the gums thoroughly around the teeth to be operated on. This makes the operation thoroughly antiseptic, providing you have kept your syringe aseptic.

THE GUMS

To be operated on by the use of local anæsthetics can be divided into three classes, viz.: Firm, spongy and diseased. The firm gums are the most favorable of all for the use of local anæsthetics, inasmuch as they retain the medicine in place a greater length of time, and lessen the constitutional absorption. You will find it requires a greater degree of pressure to force the medicine in firm gums than it does where they are spongy, and generally a sac will form where the medicine has been injected, which should always be spread by

the antiseptic swab. Spongy gums are much more treacherous than firm gums, and if you do not watch them carefully after withdrawing the needle the medicine will escape, and you will not get the desired effect. Hence, after withdrawing



Method of Inserting the Needle.

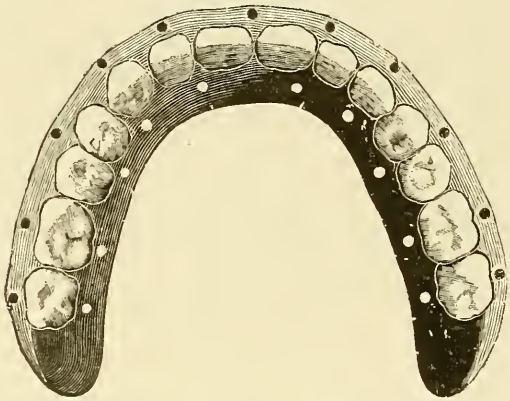
the needle, apply the antiseptic swab and scatter the medicine immediately. Ulcerated and diseased gums are almost invariably spongy and should always be treated as such, and carry out the antiseptic method of treatment more thoroughly by using listerine freely. Should there be an abscess I always open it freely and inject peroxide of hydrogen.

Swelling of the gums will follow the use of local anæsthetics in a certain per cent. of operations, which seems unavoidable, especially if the gums are diseased. The difficulty subsides in a few days, and leaves the gums in a perfectly healthy condition.

TO INSERT THE NEEDLE

Insert the needle about one-tenth of an inch above or below the gum margin, as the case may be. Do not try to

insert the needle between the gum and the tooth at its margin (a mistake made by many operators,) as you are quite sure to insert some debris which generally accumulates at the margin, along with the needle, which always causes more or less irritation. To insert the needle with but little pain, put the flat side of the needle on the gums and just make sufficient pressure to catch the needle under the gum tissue, and as you push the needle in on a line with the roots, force the medicine ahead of the needle until you have reached a depth correspond-



The dots in the above cut represent where the needle should be inserted for a complete operation.

ing with the length of the roots; withdraw the needle and make sufficient pressure on the outside surface with the antiseptic swab to scatter the medicine and hasten its absorption by the alveolus. A similar treatment should then be made on the opposite side of the tooth and extract immediately. I never exceed waiting over one minute after rubbing the gums with the antiseptic swab. In this way you liberate a large portion of the medicine, hence more can be used for this purpose than where it gets access to the general circulation. Regulate the amount of medicine used at each injection by the nut on the graduated piston stem. In this way you do not have to watch the syringe to see how much medicine you are using at each injection, but you know when the nut

on the piston stem comes in contact with the syringe, just how much medicine has been used.

THE AMOUNT OF MEDICINE USED

In preparing teeth varies according to the teeth being prepared for operation. Molars and canines require more medicine than incisors and bicuspids. It also requires more medicine to prepare a single tooth than it would a number located together. For instance, if I were to prepare a single molar I would use from two to two and one-half minims on each side of the tooth, where if I was to prepare a number of molars located together I would use from one and one-half to two minims on each side. In preparing the four incisors at once, I make five injections, two on the lingual and three on the labial side, using about one and one-half or two minims at each injection. In preparing any single tooth, all molars and canines always inject on each side of the tooth. The reason it does not take as many injections on the lingual side as it does on the labial is, the space is more compact and the tissues more dense, and you can spread the medicine at your will with an antiseptic swab, which I always hold in my left hand when preparing the teeth. The accompanying cut will show about where to insert the medicine for a complete operation. The dots representing about where the needle should be inserted. It will require a little experience to become skilled in manipulating the syringe and needle, and the more you operate, the less medicine you will use, as it requires a little practice to learn where the medicine will do the most good. While I claim that the use of these anæsthetics when carefully administered are perfectly harmless, at the same time I insist that they be properly used. Dentists generally think if they cannot inject a whole mouth full of a local anæsthetic into a patient's gums at once, the anæsthetic is at fault. Experience with the use of these formulæ in over sixty thousand different operations by myself and others under my observation, convinces me, that they are the safest

and best in use, and, if handled with one-fourth the skill other anæsthetics are, you would never hear of any bad effects resulting from their use. It is not the use of a medicine but the abuse of it, that makes people condemn it. In carefully looking up the records of the use of local anæsthetics, I am not able to report a single death caused by their use. If a patient presented himself for you to administer chloroform, you wouldn't commence by pouring one or two ounces of the drug on a napkin for inhalation, but would begin gradually, the same method should be observed in using local anæsthetics. Instead of injecting a patient's gum full of the anæsthetic the first thing, carefully prepare one or two teeth, and operate in this way. If the operation is painless and successful, you get the patient's confidence, and he loses all fear of proceeding farther. Always allow a few minutes (from five to fifteen) after each operation for the patient to rinse his mouth and the gums, to stop bleeding. Then prepare three or four more, allowing sufficient time after each operation for the patient to rinse his mouth, and his gums stop bleeding. If your patient gets impatient, tell him you cannot operate while his gums are bleeding; for the secret of safety and success is to allow sufficient time to intervene after each operation. I will admit I am a hundred times more reckless than the instructions given above, as I frequently prepare from ten to sixteen teeth at a time, but I am so accustomed to its use, and can judge the temperament of a patient so well that I am perfectly safe in doing so, and the above instructions are laid down for operators with less experience and it is always best to be on the safe side.

Should you ever make such a mistake as to inject the gums full of the medicine at once and the patient should complain of feeling faint, sick at his stomach, etc., extract immediately, and this will liberate a large portion of the anæsthetic, also give the patient a liberal supply of good liquor (preferably brandy), and they will generally feel all right in a few minutes; but do not continue the operation until the patient tells you he feels better and is ready to proceed.

If stronger stimulants are required, aromatic spirits of ammonia and amyl nitrate may be used to good advantage.

YOUR SUCCESS

There has been much said of late in current literature regarding sloughing gums and disastrous after effects following the use of local anæsthetics, and they do not understand why one dentist can handle a local anæsthetic successfully and another cannot. Many dentists will secure some nostrum, allow it to stand around the office for three or four months, exposed to the heat and light until it decomposes and loses its strength, throw their syringe into a box, allow it to corrode, dry up, and the needle get rusty, and when a patient presents himself he gets the benefit by having some decomposed medicine injected in his gums through a corroded and rusty syringe and needle. The patient complains that the operation has been painful (and he ought to). He will probably return in a few days with his face swollen badly and you might find an abscess where the needle was inserted to add to the patient's misery.

There is always a right and a wrong way for everything, and if the operator will follow the instructions given and observe the following "pointers" I will assure him that he will be successful while his competitors are not: First—Always operate under antiseptic precautions by using listerine or some other antiseptic freely. Second—Never allow your syringe and needle to corrode, dry up and become rusty, but always keep it aseptic and in working order. Third—Never get in a hurry, but give the patient plenty of time to rinse his mouth, etc. Fourth—Always operate more slowly on weak, nervous and sickly people than you would on the robust. Fifth—Be sure that the medicine has been inserted in the gum and not squirted in the mouth, as the medicine that gets into the mouth is what causes the patient to complain of sore throat, stiff tongue, faint, sick at stomach, etc. Never operate without having liquor at hand that no needed stimulation may be delayed.

The Dispensing Specialist

When physicians commence to awaken to the fact that oftentimes pharmacists can be counted as one of his greatest competitors, and that pharmacy of the old school has degenerated into a sort of semi-free dispensary, he will commence to dispense his own medicines, and the time is fast approaching when the physician will abandon his former custom of sitting at his desk with his pen and prescription pad at hand, ready to deplete his own purse for the benefit of some brother pharmacist, who in return many times would not hesitate to counter prescribe for the same patient, if opportunity presented itself, and thus rob the physician of his vocation and income.

There are many reasons why physicians should dispense their own remedies; the most important are as follows: it allows him to become acquainted with the tools of his profession, and it also allows him to keep within his professional domain; a larger financial income, than he would receive from prescription writing. Hundreds of dollars are thrown into the hands of the pharmacists every year which should have fallen into the purse of the physician, and many physicians little realize what it means to send a prescription to an unscrupulous pharmacist, who not only receives the revenue from continually refilling the prescriptions, but by becoming familiarly acquainted with patients often quizzes him regarding his ailments, and when another patient with similar ailments asks the pharmacist to prescribe for him he will prescribe from this same prescription. We therefore find that the pharmacist prizes his prescription files more than any other thing in his armamentorium.

At the present age, when compressed tablets, pills, tablet triturates, alkaloidal granules, fluid extracts, and specific tinc-

tures, etc., are so accessible to the physician, the art of dispensing is an easy and accurate procedure compared with former years, and our many reliable pharmaceutical manufacturing and chemical companies can supply their products in nearly every form the physician may desire, which he can dispense in their original form or compound into stock preparations with little or no trouble. The only equipment required would be a glass graduate mortar and pestle, a glass funnel, a percolator, and filtering paper. The following stock preparations are in daily use with many physicians and will be found superior to many similar preparations found in the drug stores.

Elixir of Buchu, Juniper and Potassium Acetate

F. E. buchu	12 dr.
F. E. juniper berries	4 dr.
Potassium Acetate	192 gr.
Alcohol	1 oz.
Simple syrup	1 oz.
Simple elixir	12 oz.

Mix. Allow to stand 24 hours and filter through talcum. Each fluid dram contains 1½ grains of potassium acetate, and represents about 5½ grains of buchu, and 2 grains of juniper berries.

Elixir of Celery Compound

F. E. celery seed	1 oz.
F. E. cocoa	1 oz.
F. E. kola	1 oz.
F. E. of black haw	1 oz.
Alcohol	2 oz.
Aromatic elixir, enough to make	16 oz.

Mix the alcohol with four fluid ounces of aromatic elixir; to this add the fluid extract of celery in several portions, shaking after each addition, and afterwards the other fluid

extracts; finally add the remainder of the elixir, allow the mixture to stand 24 hours, and filter.

Elixir of Four Chlorides

Mercuric chloride	2 gr.
Solution of arsenic	5½ dr.
Tinc. ferric chloride	2 oz.
Hydrochloric acid, diluted	11 dr.
Syrup of ginger	4 oz.
Water enough to make	16 oz.

Mix, dissolve, and filter if necessary.

Each fluidram contains about 1-40 grain of arsenious acid (as so-called "chlorine of arsenic"), 1-64 grain of mercuric chloride, about ¾ grain of ferric chloride, and about 5 minims of diluted hydrochloric acid.

Elixir of Helonias, Compound

F. E. false unicorn (helonias dioica)	2 oz.
F. E. Mitchella	4 oz.
F. E. blue cohosh	2 oz.
F. E. crampbark	2 oz.
Purified talcum	½ oz.
Aromatic elixir, enough to make	16 oz.

Mix and filter.

Each fluidram represents 14 grains of michella, and 7 grains each of helonias, blue cohosh and crampbark.

Elixir of Hypophosphites

Calcium hypophosphite	384 gr.
Sodium hypophosphite	128 gr.
Potassium hypophosphite	128 gr.
Citric acid	30 gr.
Water	4 oz.
Glycerin	4 dr.
Compound spirit of cardamon	4 dr.
Aromatic elixir, enough to make	16 oz.

Dissolve the hypophosphites and the citric acid in the water; then add the glycerin compound spirit and the aromatic elixir. Filter if necessary.

Each fluidram contains 3 grains of calcium hypophosphite and 1 grain each of sodium and potassium hypophosphite.

Elixir of Hypophosphites of Iron and Quinine

Iron hypophosphite	128 gr.
Potassium citrate	128 gr.
Quinine sulphate	128 gr.
Calcium hypophosphite	30 gr.
Spirit of orange	2 dr.
Spirit orange flower water	1 oz.
Sugar	5 oz.
Alcohol	
Distilled water; of each sufficient.	

Dissolve the iron hypophosphites with the aid of the potassium citrate in the orange flower water, and enough water to make the solution measure 6½ fluid ounces, and in this dissolve the sugar. Triturate the quinine sulphate with 5 fluid ounces of alcohol, add a solution of the calcium hypophosphite in 4 fluidrams of water, and shake the mixture occasionally during 1 hour; filter, and wash the filter with enough alcohol to make 6½ fluid ounces. Add this solution to the spirit of orange, mix this with the iron solution and sugar solution previously prepared, and filter the whole.

Each fluidram contains 1 grain each of the hypophosphites of iron and quinine.

Elixir of Six Iodides

Arsenic iodide	1 gr.
Mercuric iodide	1 gr.
Manganese iodide	13 gr.
Sodium iodide	128 gr.
Potassium iodide	128 gr.
Solution of iron iodide, N. F.	15 m.
Sodium hypophosphite	sufficient
Simple elixir, enough to make	16 oz.

Add the six iodides to the elixir, dissolve by agitation, add a few grains of sodium hypophosphite, or sufficient to decolorize the liquid, and filter.

Each fluidram contains 1-128 grain each of arsenic and mercury iodides, 1-12 grain of ferrous iodide, 1-10 grain of manganese iodide, and 1 grain each of sodium and potassium iodides.

Elixir of Long Life

Aloes	200 gr.
Rhubarb	35 gr.
Gentian	35 gr.
Zedoary	35 gr.
Spanish saffron	35 gr.
Water	84 oz.
Alcohol	12 oz.

Mix the drugs in coarse powder with the two liquids, macerate for 3 days, agitating frequently; express and filter. Sometimes 35 grains of agaric is added to the other drugs, and the menstruum generally employed is diluted alcohol.

Elixir of Orange

Bitter orange peel, cut	1600 gr.
Cinnamon, bruised	320 gr.
Potassium carbonate	80 gr.
E. gentian	160 gr.
E. wormwood	160 gr.
E. Buckbean	160 gr.
E. Cascarilla	160 gr.
Sherry wine, enough to make	16 oz.

Macerate the orange peel, cinnamon, and potassium carbonate with the 16 fluid ounces of sherry wine for 8 days, agitating occasionally; express the liquid portion in the latter, dissolve the extracts, filter, and add enough sherry wine through the filter to make the filtrate measure 16 fluid ounces. —Germ. Pharm.

The National Formulary recognizes what is identically the same preparation under the title "Compound Wine of Orange." In the latter no extracts are used, but the drugs themselves are mixed with the orange peel, cinnamon and potassium carbonate, the whole being extracted by percolation.

Elixir of Pepsin, Quinine and Strychnine

Strychnine sulphate	1¼ gr.
Distilled water	4 dr.
Elixir of pepsin and quinine	15½ oz.

Dissolve the alkaloidal salt in the water and add the elixir. Each fluidram contains 1-100 grain of strychnine sulphate, nearly ¼ grain of quinine sulphate, and nearly 1 grain of pepsin.

Elixir of Rhubarb and Potassium

(Neutralizing Elixir.)

Rhubarb	320 gr.
Golden seal	160 gr.
Cinnamon	160 gr.
Potassium bicarbonate	320 gr.
Spirit of peppermint	1 dr.
Simple syrup	2 oz.
Diluted alcohol,	
Simple elixir—of each sufficient.	

Reduce the three drugs to moderately coarse powder, extract them in the usual way by percolation with diluted alcohol until 6 fluid ounces of percolate are obtained. In this percolate dissolve the potassium bicarbonate, add the spirit of peppermint, syrup, and enough elixir to make 16 fluid ounces of product, and filter.

This preparation represents the well-known syrup of rhubarb and potassium in the elixir form.

Secret Prescription Writing

Very often we find physicians who wish to have their prescriptions filled at a certain drug store, either because they think they have better drugs or else because they receive a percentage on prescriptions or perhaps they have an interest in the store. This has caused different secret systems of prescription writing to be introduced. The following very simple method has been used in some places and is a very convenient way to write prescriptions.

By the use of this system all medical ingredients are divided into grains, minims, and drachms. If the drug is a solid, it is designated either as grains or drachms, if a liquid, either minims or drachms. Grains and minims are distinguished from drachms by the position of the period. If the period appears at the right of the number, it either means grains or minims (1. one grain or minim); if at the left of the number, it signifies drachms (.1 one drachm). To illustrate, the following prescription will give symbols of both ways of writing the same prescription:

℞ Strychnine nitrate ..... ½. equals ½ gr.
Tinc. capsicum ..... 20. equals 20 min.
F. E. cinchona com..... .6 equals 6 dr.
Simple elixir.....q. s. ad. .32 equals 4 oz.

M. Sig. A teaspoonful every hour as a "bracer" for debauch.

For writing prescriptions in this way you should have special printed prescription blanks directing the patient to the pharmacy where it is to be filled or tell the patient that he can get it filled only at that certain store.

To the pharmacist who is not familiar with this way of writing prescriptions it is rather puzzling and some will refuse to fill the prescriptions altogether, while others will attempt to guess it out, which might act to the disadvantage of the prescriber.

Index