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PATHETOLGY.

For the Magnet.

INTERESTING EXPERIMENTS.

Mr. Editor—The writer of the following discoveries has nothing to offer by way of apology for presenting them to the public, through the Magnet, but a sincere desire to extend the knowledge of a science (as he believes it to be,) so wonderful and interesting, and not less beneficial to mankind. The manner in which I propose to bring the subject before the public, is to follow the steps by which the discoverer himself has been led to produce the results.

As the phenomena was universally called *Animal Magnetism*, I was naturally led to conclude that it might, in some way, be connected with mineral magnetism, and accordingly instituted the following experiments.

Having pathetised a sensitive subject, I applied a common horse shoe magnet to different parts, and found, when applied to the temples, the effect too powerful and shocking to admit of experimenting.

I next tried a subject less sensitive, and found that when I held the north pole of the magnet to the right side of the head, and in front, the head seemed to be repelled by the magnet; but when I held the *north* pole of the magnet to the *left* side of the head, it seemed attracted; and if the *south* pole of the magnet was held to the *right* side of the head, it seemed attracted, and if held to the *left* side it was repelled. I next applied the magnet to the finger's ends, and found the same effect was produced. Hence, the only conclusion, in my opinion, is, that the right side of every person is north, or has north polarity; and the left side is south, or has south polarity.

But for reasons hereafter to be explained, I prefer to call the right side of a person *positive*, and the left side *negative*.

Contemplating further on the subject, I considered that I always sat facing the subject to be magnetized, and that my right hand came in contact with the subject's left side, and vice versa. So that the operator's positive side, and the subject's negative, are brought into contact, and should attract each other.

Now, I believe it is generally known among the operators, that when a subject is pathetised, if the right hand or arm of the operator suffers pain by being pinched, the left hand or arm of the subject feels the same sensation. I was therefore led to conclude that if the right hand of the operator could pathetise the right side of the subject, and the left hand the left side, this sensation in the subject, ought to be reversed.

2. I have never yet been able to affect a subject with his arms crossed, but having pathetised in the usual way, I have crossed my arms and continued the manipulations a few minutes, when I found the sensations of my subject were really reversed; so that when I took anything cold or hot in my right hand, it felt cold or hot in the right hand of the subject; or in my left hand, it felt the same in the subject's left hand.

3. My next experiment was still more wonderful. Believing that the phenomenon was magnetic (as its name imports) I was led to try experiments in the phrenological organs with steel magnets. For this purpose I procured two pieces of steel, four or five inches long, and gave to the one *south* polarity, but no north; to the other *north* polarity, but no south. Being thus prepared, and my subject well pathetised, I held the north pole magnet to an organ on the left side of the head, and found that organ immediately and intensely excited to action. Withdrawing this magnet and placing the other, the south pole magnet, to the same organ, the faculty of that organ was instantly paralyzed. The same is true with regard to the right side of the head; in which the south pole magnet excites an organ, and the north paralyzes it. It should be recollected here, that the right side of a person is north, or positive; and the left side south, or negative: and the two north and two south poles always repel each other. Now take two such magnets as those described above, apply them to either side of the head; say the right, or positive; select any two organs, say veneration and mirthfulness; place the *south* magnet over veneration, and the *north* over mirthfulness. Veneration is excited, and mirthfulness is depressed: the thoughts and conversation of the subject are grave and solemn. *Change* the magnets: place the south magnet over mirthfulness, and the north over veneration; mirthfulness is excited, and veneration paralyzed; the conversation of the subject is immediately changed from the solemn to the gay and lively. Thus, these two little pieces of steel may be alternately shifted on the two organs for any length of time, and the subject as often changes the drift of thought and conversation. This would prove the phenomenon of pathetism to be magnetic. But in almost all cases of my operations, I have thought I have discovered electrical phenomena, too numerous to be here mentioned. Now if it be electrical phenomenon, my inferences were, that the operator draws the fluid from the subject under operation, to produce the effect, and if subjects could be cut off from all communication with the earth and other bodies, from whence they might draw electricity as the operator takes it from them, they would pathetise easier. This, therefore, was my next experiment.

4. I seated my subject on an insulated stool. The success was wonderful, beyond my most sanguine expectations! Soon after the commencement of the operation, the subject, (to use her own expression,) was all on fire. Phosphorescent light, (for it appeared more like it than sparks of electricity) were for a short time only seen to follow the fingers over the face and hands, as the brushes were made over those parts, but none were seen on the dress of the subject.

More wonderful yet! I noticed after the subject was partially pathetised, if I ceased manipulations a short time, she would receive a shock from my fingers when laid on again; of course I continued the manipulations without ceasing, until the subject was completely asleep. I then laid my hand on the stool on which the subject was sitting; the result was as I anticipated: the subject received a most powerful and distressing shock, which waked her, or brought her out of the sleep, and no inducement will tempt her to suffer a repetition of the experiment. But this experiment, though completely satisfactory, to show the phenomena to be electrical, needed another of a different character. If the phenomenon occurred in consequence of the subject being insulated, it ought to follow, if the subject is immediately connected with the earth, no phenomena ought to ensue. To ascertain this, I seated my subjects as usual, and put into their hands one end of a chain, the other end of which was passed out of the window and buried a few inches deep in the moist earth: all other things being equal, with my utmost exertion I have never been able to produce the least effect on subjects whom I never fail to put to sleep in the ordinary way, in a few minutes. Now, if a subject holding a chain cannot be put to sleep by reason of drawing electricity from the earth, he would draw it from another body with which he might communicate as well as from the earth. If there be another person, both should impart the electrical fluid to the operator, and both should be affected. This I accordingly tried.

5. Seating two subjects side by side, and hand in hand, I then made the manipulations on one only, and both fell asleep at the same time. Two subjects may be seated several yards from each other, and connected by a chain passing from the hands of one to the hands of the other, and the effect is the same. If two can be pathetised together in this way, any number ought to, according to the strength of the operation. With this view, I formed a ring, placing myself in the centre, and made the usual manipulations on one only, when all fell asleep but one only.

In this experiment I had not subjects enough at hand, to make the ring as large as I wished, but the deficiency was made up with a chain forming a part of the ring. Now, when I excited any of the phrenological organs of one individual, the same organ was excited in *all*; for instance, when I excited combativeness and destructiveness in one head, they were all mad. If I took anything warm or cold in my hand, they all felt the same sensation in the hand individually. If I touched the chain with my hands they all felt a severe shock: if another person touched it the effect was the same. I know not to what extent subjects may be affected in rings; this I think depends on the strength of the operator; but I have never found it more difficult to affect several at once than one; neither does it take longer. There are yet remaining a multitude of experiments to be hereafter tried, and as every additional experiment throws new light on the subject, it is somewhat uncertain what may yet come out of it. But thus far investigated, it appears to be electrical phenomenon,

and that it is imparted to the subject during the operation; yet he does not appear to be either positively or negatively charged, but in his natural state. Perhaps he imparts the fluid to the earth as fast as he receives it. I have stood on an insulated stool, and put one to sleep, sitting on a chair on the floor, and was not charged myself, though I think I should be if all other things were favorable. It appears as if one side of a person were positive and the other negative, and when these two sides are in electrical equilibrium, no phenomenon is visible. The person is then in his own natural state, in full possession of his own sense and feeling. But when the electrical equilibrium is disturbed, he has the senses and feelings of the operator, and none of his own, at least in the first stages of the electrical sleep, as it should be called, but as appears by experimenting first, he takes the sensations of his positive side from the operator's left, unless the operator reverses the sensations, as described in experiment first, in which case he takes them from the operator's right side.

But the subject receives the most vivid sensations from the operator, when he *wills* the subject, as it is called, which only means *thinking for* the subject. Now then, there is but one way to account for this wonderful phenomenon. The nerves of sensation are acted upon or vibrated by a due proportion of positive and negative electricity, and these two principles are put into action by the will of the person thinking, and as the nerves vibrate, so will be the vibrations of these two fluids, not only in the person thinking, but at a certain distance round him, and the more intense the thought the more intense the vibration. So when a person is electrised, he takes his sensations from the undulations given to the two fluids by his electrizer, and being similar, produce similar sensations, and if these sensations originate in the electrizer's *positive* side, the subject's negative side receives them. If the positive side of the electrizer, electrized the negative side of the subject, and vice versa. That the nerves of sensation are acted upon by the two electrical fluids is evinced in the physical structure of the creature. Two sets of phrenological organs are necessary to affect sensation, the one positive and the other negative, each furnished with nerves made to vibrate by their respective electricities, and hence the harmony and regularity of the thinking apparatus of man, who, without the aid of electricity would be as insensible as a stone. The writer is of opinion, that the phenomenon of clairvoyance and sympathy is explainable on the same principle, and proposes, hereafter, to lay his views on these states before the public, founded on experiments now making.

But he would here ask the candid, which is the more wonderful, (not the more novel), that a person in the electrized state should perceive things at a distance through the medium of electricity (which every where abounds) acting on and vibrating a *thousand* nerves, or that he should see the moon in his natural state through the medium of her dim light acting on and vibrating a *single* nerve? (for the moon may be seen by one eye only.) The fact is, the faculty of seeing is so common, that it does not excite wonder, while that of clairvoyance is new, yet less wonderful, and more readily accounted for. That the science of animal electricity will completely develop the connection between matter and mind, I do not at present aver, but this much is quite certain, that the brain is the reservoir of sensation, and that the nerves are the electrical feelers, sent into all parts of the system to gather up the sensations of every part, and convey the same to the brain.

But, says one, what has electricity to do in conveying these sensations? we have the sensation of

feeling equally well, let us touch, with the hand, whatever substance we may, whether it be an electric or non-electric, or positive or negative, or in its natural state. I reply: it makes no difference whether we touch it at all or not, if we are *electrized*, and our electrizer touches it for us: we have the same sensation we should have if we touched it ourselves, and in either case the sensation is conveyed through the nerves to the brain by the electrical vibrations of the nerves. I have some subjects of very delicate constitution, of the nervous temperament, and so very sensitive when electrized, that if I take my hands off fifteen seconds, and then lay them on again, they receive a violent shock. If I hold one of their hands in mine, and with the other hand touch a third person, they receive a still *more violent shock*. I have sometimes left such subjects awhile, and on returning to them again, have been obliged to begin the manipulations three or four feet off, and approach them by degrees, until the ends of the fingers came in contact with their dress. But subjects differ greatly under the influence of animal electricity. Some are too sensitive for *any* experiments, while others are not enough so. It must not, therefore, be expected, that one subject will display all the phenomena herein described. I have been obliged to use many. But I have extended this article much beyond what I first intended. My only request is, that experienced operators would try these experiments for themselves, and if any of them fail on one subject, try another.

Yours truly,

ZENAS CAMPBELL.

Great Bend Select School, Susquehanna Co., Pa.

Feb. 4, 1843.

For the Magnet.

PATHETISM.

It is a principle of our nature to have a particular theme or study. None has ever given me more pleasure than the study of nature, as it is; and, above all, human nature. Who is it, that has never felt the inborn desire of knowing himself? And yet, how far short of the full and true conditions of our nature do we arrive, in our estimates of them. It is only by the most candid, honest, and impartial investigation of our moral character, that we are enabled to approach the truth in such conclusions. When we proceed a step further, and attempt to investigate the cause of such phenomena, ought we not to be seriously impressed with the necessity of rational and careful conclusions? Instead of hastily penetrating into the centre of an unknown country, we should keep in view some prominent landmarks, and move cautiously forward, so as to be enabled to retrace our steps, when our progress happens to be arrested by insurmountable barriers, or impenetrable chasms. Metaphysical writers have invariably lost themselves in such obstructions, by forced and abstract conclusions. The plan you have laid out before the world in the Magnet, for the investigation of the phenomena of life, must, I feel confident, conduce more to the true end, than any that has ever preceded it.

What a sublime thought, to contemplate the *mysteries of life!* Like the infinity of space, and eternity of time! Incomprehensible thought! What controls thy power, and suffers thee to roam beyond thy moral sphere? May we not safely turn to our terrestrial sphere and contemplate our own being? Nature is kind and instructive; we must reason with her works. Let us commence with facts already established; organised, intelligent matter; *sympathy*, as existing between mankind; the influences

exercised by one over another, by looks, gestures, language, first sights, love, fear, &c. These, all appear to be facts of a general cause. A cause which, from the nature of its influence may be compared to sound; which may be propagated, and modulated, by all the different instruments of music, and even differently by the same species of instruments. This general cause, from its superiority over human causation, we shall never, in my humble opinion, be permitted to analyze. I conceive it to be the *link* between God and man. We may agitate this link in the great chain of life, and receive from its source knowledge, light, and life. It is, manifestly, the fountain of human happiness, as long as we invoke our sustenance from its superior source. And, by employing its inferior source, we shall inherit all the ills of flesh. We behold the planets, and contemplate their motions, from the effects they produce on the earth. But their composition is all conjectured with us. So with the motive power of nature, i. e. *Life*. The theory of *Pathetism*, or animal life, I am confident, will be as exactly systematised, by its effects alone, as has been the science of the planetary heavens. Phrenology, somniphany, clairvoyance, and all the mysteries of Pathetism, shall be made as plain to us as the tides and changes of the seasons. We content ourselves by assigning the cause of the planetary motions to the power of the Creator. (Bishop Wilkins supposed it to be a machinery put in motion by the hands of the Creator.) From the constant companionship of the imponderable materials, I am induced to consider them one and the same substance, and that substance the motive power of nature. The different names applied to this substance, occur from its development under different circumstances. For instance: the same substances compose all the different varieties of animals. So with the vegetable kingdom. The modifications of both these kingdoms seem to depend upon the different affinities they possess for the imponderable essence, i. e. *Life*. It must be admitted, that we cannot further examine a substance, really superior to ourselves, than through the instrumentality of the organs upon which it acts; and that can only be an admission of its existence, and influence, on our physical organs. It is not presumable, that the Ape species contemplate *our* endowments. They come next in the chain of nature; and, like the inferior animals, they live in awe of man. What causes this dominion of man over the brute species? It is not his physical power; but his control or modifying influence of the motive power, both in his own and the inferior species. I have been enabled to keep fierce dogs at bay, by fixing my eyes on theirs. The mental power of man is ever his source of protection and preservation, and in many instances, this alone, is sufficient, without the physical motion produced by it. A determined look, in the correction of our species, is mostly as efficient as physical force. Also, in the determination of great physical efforts, we imbibe a due portion of the motive power to fulfil them. By analogous reasoning, agreeable to our conception of mechanical forces, the motive power of nature plays the same part. A light substance in motion will increase its power by increase of velocity; and hence great physical action under great mental excitement. The nervous system has a natural affinity for the motive fluid. This affinity, by excitation of the nervous system is increased, and consequently an influx of the fluid, which sooner or later is followed by an outflux of the same, until the natural equilibrium is restored. It may be questioned here, by what power the nervous system is excited to a redundant influx. We must infer, by virtue of its natural supply. A magnetic bar, by friction

over an unmagnetized bar, has not only its own power increased, but it also makes a magnet of the other. Magnetism in metallic bars, seems more permanently fixed, than electricity is, either in metal, or glass. This discrepancy does not conflict with my idea of the identity of the cause. Like grosser substances, it may play a different part by being associated with different kinds of matter. From this view of the subject, the phenomena of somniphathy are much disrobed of their mystery. The somniphathist, in the first place, voluntarily acquiesces to the operation; consequently no more of the motive power acts, than what is attracted by natural affinity, just a sufficiency to keep the vital organs in healthy action. At this stage of the operation it appears to me that the portion which the somniphathist releases, the pathetiser imbibes. The whole success of the experiment seems to depend upon the mental passiveness of the patient, and mental activity of the operator. As the patient tranquillizes his mental energy, so will the pathetiser gain the ascendancy, until he gets into his control the balance of the motive power, when he may apply it at his pleasure, upon the neutralised functions of his patient. Persons with energetic minds are not so susceptible of the somniphathetic condition, as those of a different mental character. This, however, I think, is caused by the difficulty such persons are under, in tranquillizing the mental energy, when submitting themselves to pathetetic operations. In my observations in Cephology, I have been confirmed in my opinion, which I have for some years maintained, viz: that the brain is no more the source of mental action, than a book which an individual may write, should be the source of what it might contain. From all my reasoning, which is ever founded upon the economy, simplicity, and beauties of nature, I have been led to the belief, that the brain is the receptacle of mind. From the nature of its construction, presenting a great surface for the quantity of matter, it seems well devised to receive all the impressions of our moral acts. The particular preservation that nature has awarded the brain, placed, as it were, in the sanctum sanctorum—even better guarded against accident than the heart, seems to indicate that it is the storehouse of knowledge, rather than the producing power of it. It is the grand account book wherein is recorded what we have been cognizable of: to which we can, at any time refer; with abundance of blank pages for the recording of new events. Such a view is in accordance with the doctrines of phrenology. The enlargement of the portions of the brain, from a cultivation of the propensity to which it is ascribed, in my opinion arises from the necessity of enlarging that volume of the series, to receive the impressions formed by the nervous system, and correspondent to that chapter. This enlargement of particular organs, may take place without an increase of the whole mass, by taking in its folds a portion of the next unoccupied series of pages.

Somniphathists have no recollection of what they have done under the pathetetic influence after they are restored to a natural condition, because these works were not framed by their own nervous system, which is the type of record. That is, the works of the somniphathist are not the results of external circumstances essential to the patient's individual animal economy. The operator being the legitimate instrument of such works, and, of course, receives the impression in his own record; he may, however, call the attention of the patient to the necessity of remembering things that may be stated during the pathetetic interval, which, through the animal economy, are conveyed to the cerebral memorandum by its legitimate nerve.

I shall close for the present, but should my natural mode of reasoning tend to elucidate or simplify the noblest of sciences, I shall always cheerfully contribute my iota to the sum total of human knowledge.

JNO. WISE.

Lancaster City, Pa. February 14, 1843.

P. S. To ocularly demonstrate the passage of an imponderable fluid from the human body, take a common English rabbit, and rub the fur against the grain until it lies smooth; then bring the hand (after making a circular pass in a direction away from the animal) with the points of one or more fingers in close proximity without touching the smoothed fur, and the fur will bush up towards the fingers. The experiment succeeds best in clear, dry weather.

TRANSMISSION OF QUALITIES.

“One organic law, I have stated, is that the germ of the infant being must be complete in all its parts, and perfectly sound in its condition, as an indispensable requisite to vigorous development and full enjoyment of existence. If an agriculturist sow corn that is weak, and damaged, the plants that spring from it will be feeble, and liable to decay. The same law holds in the animal kingdom; and I would ask, has it hitherto been observed by man; notoriously it has not. Indeed, its existence has been either altogether unknown, or in a very high degree disregarded by human beings. The feeble, the sickly, the exhausted with age, and the incompletely developed through extreme youth, marry, and without the least compunction regarding organization which they shall transmit to their offspring, send into the world miserable beings, the very rudiments of whose existence are tainted with disease. If we trace such conduct to its source, we shall find it to originate either in animal propensity, or in ignorance, or more frequently in both. The inspiring motives are generally mere sensual appetite, avarice or ambition, operating in the absence of all just conceptions of the impending evils. The punishment of this offence is debility and pain transmitted to children, and reflected back in anxiety and sorrow in the parents. Still the great point to be kept in view is, that these miseries are not legitimate consequences of the *observance* of the organic laws, but the direct chastisement of their *infringement*. These laws are unbending, and admit of no exception; they must be fulfilled, or the penalties of disobedience will follow. On this subject profound ignorance reigns in society. From such observations as I have been able to make, I am convinced that the union of certain temperaments, and combinations of mental organs in the parents, is highly conducive to health, talent, morality in the offspring, and *vice versa*; and that these conditions may be discovered and taught with far greater certainty, facility, and advantage, than is generally imagined. It will be time enough to conclude that men are naturally incapable of obedience to the organic laws, when after their intellectual faculties and moral sentiments have been trained to observance of the Creator's institutions, as their duty, their interest, and a grand source of enjoyment, they shall be found in continual rebellion.

“Phrenology reveals the principle on which dispositions and talents are thus hereditary.—Mental qualities are determined by the size, form, and constitution of the brain. The brain is a portion of our organised system, and as such, is subject to the organic laws, by one of which, as already observed, its form, size, and qualities are transmitted by hereditary descent. This law, however faint or ob-

scure it may appear in individual cases, becomes absolutely undeniable in nations. When we place the collection of Hindoo, Carib, Esquimaux, Peruvian, and Swiss skulls, possessed by the Phrenological Society, in juxtaposition, we perceive a national form and combination of organs in each, actually obtruding itself upon our notice, and corresponding with the mental characters of the respective tribes; the cerebral developement of one tribe is seen to differ as widely from that of another, as the European mind does from that of the Carib. Here, then, each Hindoo, Esquimaux, Peruvian, and Carib, obviously inherits from his parents a certain general type of head; and so does each European; and if the general forms and proportions are thus so palpably transmitted, can we doubt that the individual varieties follow the same rule, modified slightly by causes peculiar to the parents of the individual? the differences of national character are equally conspicuous as those of national brains, and it is surprising how permanently both endure. It is observed by an author cited in the Edinburgh Review, that "the Vincentine district is, as every one knows, and has been for ages, an integral part of the Venetian dominions, professing the same religion, and governed by the same laws, as the other continental provinces of Venice: yet the English character is not more different from the French, than that of the Vincentine from the Paduan: while the contrast between the Vincentine and his other neighbor the Veronese, is hardly less remarkable."

"A striking and undeniable proof of the effect on the character and dispositions of children, produced by the form of brain transmitted to them by hereditary descent, is to be found in the progeny of marriages between Europeans, whose brains possess a favorable development of the moral and intellectual organs, and Hindoos and native Americans, whose brains are inferior. All Authors agree, and report the circumstance as singularly striking, that the children of such unions are decidedly superior in mental qualities to the native, while they are still inferior to the European parent. Captain Franklin says, that the half-breed American Indians "are upon the whole a good looking people, and, where the experiments have been made, have shewn much expertness in learning, and willingness to be taught; they have however been sadly neglected."—*First Journey*, p. 86. He adds, "It has been remarked, I do not know with what truth, that half-breeds show more personal courage than the pure breeds." Captain Basil Hall, and other writers on South America mention, that the offspring of aboriginal and Spanish parents constitute the most active, vigorous, and powerful portion of the inhabitants of these countries; and that many of them rose to high stations, during the revolutionary war. So much is this the case in Hindostan, that several writers have already pointed to the mixed race there as obviously destined to become the future sovereigns of India. These individuals inherit from the native parent a certain adaptation to the climate, and from the European parent a higher developement of brain; the two combined constituting their superiority.

Another example of the same law occurs in Persia. It is said that in that country the custom has existed for ages among the nobles, of purchasing beautiful female Georgian and Circassian captives, and forming alliances with them as wives. It is ascertained that the Circassian and Georgian form of brain stands comparatively high in the development of the moral and intellectual organs. And it is mentioned of some travellers, that the race of nobles in Persia is the most gifted in natural qualities, bodily and mental, of any class in that country; a fact dia-

metrically opposite to that which takes place in Spain, and other European countries, where the nobles intermarry constantly with each other, and set the organic laws constantly at defiance. It is a general rule, to which I shall afterwards more fully advert, that close affinity of parents produces a deteriorating influence on the children. The degeneracy and even idiocy of some of the noble and royal families of Spain and Portugal, from marrying nieces and other near relations, is well known; and defective brains in all these cases may be observed.

If then, form, size and constitution of brain, are transmitted from parents to children, and if these determine natural mental talents and dispositions, which in their turn exercise the greatest influence over the happiness of individuals through the whole of life, it becomes extremely important to discover according to what laws this transmission takes place. At the first aspect of the question, three principles present themselves to our consideration. Either, in the *first* place, the constitution, size, and configuration of brain, which the parents themselves inherited at birth, are transmitted absolutely, so that the children, sex following sex, are exact copies, without variation or modification, of the one parent or the other; or, *secondly*, the natural and inherent qualities of the father and mother combine and are transmitted in a modified form to the offspring; or, *thirdly*, the qualities of the children are determined jointly by the constitution of the stock, and by the faculties which predominate in power and activity in the parents at the particular time when the organic existence of each child commences.

Experience shows that the first cannot be the law; for, as often mentioned, a real law of nature admits of no exceptions; and it is well established, that the minds of children are *not exact copies*, without variation or modification, of those of the parents, sex following sex. Neither can the *second* be the law; because it is equally certain that the minds of children, although sometimes, *are not always*, in talents and dispositions exact blended reproductions of the father and mother. If this law prevailed, no child would be a copy of the father, none a copy of the mother or of any collateral relation; but each would be invariably a compound of the two parents, and all the children would be exactly alike, sex alone excepted. Experience shows that this is not the law. What, then, does experience say to the *third* idea, that the mental character of each child is determined by the particular qualities of the stock, combined with those which predominate in the parent, when its existence commenced?"—*Combe*.

LIFE.

For the Magnet.

ANIMAL LIFE.

BY DAVID PORTER, M. D.

Sir—The *gist* of the theory I propose to establish, it may be presumed, is now understood. It contemplates the animal body as simply a galvanic machine, whose various internal circles of physical operations, more or less under control of mind or instinct, constitute life. That one person should, by volition, form a circle with another, and thus produce various sympathetic effects; and that an invalid person in whom the opposite galvanic powers are not well balanced, should be best adapted to the purpose; and that, in such a one, by throwing into the circle his functional electricity, the operator might suspend the mental functions, produce sleep, &c., although never

vet witnessed by me, would seem to violate no probability whatever. The torpedo possesses not only an analogous power of operation, but by a special apparatus, is enabled to accumulate it for purposes of defence, as well as offence. There is, then, to say the least, no inherent improbability in such, and many other results of what you call pathism, sufficient to warrant any believer in a galvanic theory of life, in rejecting the testimony of such men, as are now ranged among the converts to animal magnetism. Among them we observe the name of the learned and sagacious Caldwell of Louisville, Ky. Deep, discriminating, cautious, and well-ripe in years, the adopted faith of such a man is not to be slighted. I much regret that I have not been able to lay hands on his "Facts in Mesmerism."

In my last I commenced a notice of functions of the human body, designed at once to indicate their resolvability into galvanic laws, and to show that by those laws the very complex notion of life is explained, without the aid of any additional principle or property whatever.

We will next apply our galvanic theory to the sympathies of the animal body. Under the term sympathy we have certain reciprocal operations, supposed to be susceptible of nothing better than to be mystified under the name of vital property. To those who know anything of galvanic laws, I need not say that the power of a galvanic machine depends on its plates. Few need be told, either, that if, instead of one, any greater number of wires is attached to either end of a pile or trough, in proportion as power is displayed in one, it is more or less arrested in others, and vice versa. Here we have a clue to the explanation of *inverse* sympathies; of which kind are all immediate sympathies of the nerves. Direct sympathies belong more immediately to the blood-vessels. It is known to all observers, that during an unusual excitement of any part, blood accumulates in it. *Ubi irritatio, ibi fluxus*, was early recognised as a law of animal life. But it is a late discovery, that while the blood increases in a part by excitement, its circulation *through* it is actually diminished. Such, however, is the fact, and a very plain explanation is found in the consideration, that during the unexcited state, blood actually circulates through the capillary arteries and veins by a *vis a tergo*. But as the fibres of these vessels are excited to contract, the blood thus arrested in its circulation, is forced laterally into the tissues, and increases excitement. The contraction of vessels for the same reason, also forces more blood, not only into congenerous, but also into anastomosing vessels. Thus are produced direct sympathies, as shown in the spreading of continuous excitement, as well as in the direct association of distant organs. Direct sympathies, therefore, depend more immediately on the arrangement and distribution of the arteries, while *inverse* sympathies depend directly on the mutual connections of the nervous system.

With regard to digestion, I will only say at present, that my theory makes the solution of food in the stomach, as well as the fluid state of lymph in the blood, to depend on a charging of their globules respectively. Globules having similar electric charges must necessarily repel each other. A small portion of food remaining in the stomach and becoming highly charged, constitutes the gastric juice, which, by imparting a portion of its electricity to other animal or vegetable matters, may dissolve them.

All this will, perhaps, be regarded as what *may* take place, rather than as what actually does take place. I ask no more at present. Yet, regarding the question of life itself, the reader will please to recollect, that I occupy vantage ground. The nega-

tive of a question, I need scarcely say, must be presumed until the positive is proved. It lies with those who introduce a principle, first, to show the necessity for it. I have attempted to prove that no such necessity exists, by showing, that those phenomena which have been supposed more especially to indicate the principle, are explicable without it. In the question whether there is such a principle as *life*, with its appropriate properties, the *onus probandi*, certainly rests with those who maintain it. No other direct proof of my explanations is strictly necessary, than that they account for all the facts. It is a plain maxim in philosophy, that effects are evidences of the presence of appropriate causes, nor is it ever proper to infer the existence of unknown causes when the presence of those which are known will answer the purpose. If the phenomena of life may be explained by well known galvanic laws, and an arrangement in all respects suitable is presented, may we not infer the intelligible cause?

The intelligent reader will perceive, that I profess to add nothing to the laws of galvanism as taught in the schools, but merely to show their existence in the animal functions. It will be presumed that he is sufficiently acquainted with those laws to judge of their application, and perceive their sufficiency to account for the phenomena of life. Thus far, by bringing them into juxtaposition with the laws of life, I have endeavoured merely to show their agreement in principle, and to impress the probability of their identity. As we descend to particulars, some knowledge of anatomical structure, and particularly of the nervous system, will be indispensable.

The brain, together with the spinal marrow, and ganglia, being respectively composed of cortical and medullary matters with interposed fluids, have, so far as investigations have gone, all the requisites for galvanic power. Considered as a pile, however, they differ in this, that, instead of a succession of equal plates, they present, after the first, a succession of divided and subdivided corresponding organs of galvanic power. Thus, supposing the brain and spinal marrow to correspond to the first plate of a series, the olfactory ganglia and the ganglia of Gasser, with a double row of about thirty pairs attached to the posterior fasciculi of the spinal nerves, will correspond to the second. To the third order will belong the ophthalmic, the auricular, and the maxillary ganglia, together with the opposite chains of sympathetic nerves, which, commencing with the sphenopalatine ganglia, descend on each side of the spine. The fourth order consists of the cardiac, cœliac and coccygeal ganglia, together with those sometimes found in the renal and hypogastric plexuses.

These ganglia are all supplied with nerves, which being conductors, serve as communicating wires for the living battery. Looking from the brain, every order, except the last, sends some nerves to the next order in succession, and others to the various organs of motion, sensation, &c. The former I have taken the liberty to name ganglionic nerves, the latter functional. The nerves from the brain, and through the ganglia towards the various organs, I will attempt to show, are all negative. Towards the brain, and from it through the eighth pair, they are positive. The eighth pair, and particularly the par vagum, are thus made to antagonise with all the other nerves.

As the whole system is capable of but a certain amount of power, it is obvious, that increase of function in any portion of nerves of either the positive or negative poles of the system, must proportionably suspend it in others of the same respectively. The same is true of the nerves of each ganglion. The operation of each nerve and fibre respectively tends

to suspend that of the others. Again, as each order of ganglia from the brain out adds power, it is obvious that, *cæteris paribus*, the functional nerves of a more distant ganglion may suspend those of the third, and the latter those of the second, &c. Here, we hope to show, will be found a most satisfactory explanation of the inverse sympathies of animal life. But of this I will treat in my next. At present I only indicate principles.

Principles, it will be conceded, are the proper landmarks of all scientific research. By the principles of a science, I mean those elementary propositions into which it may be ultimately resolved. In other words, principles state the whole science in the fewest possible words, and present, as it comes immediately from the hand of God. The principles of natural philosophy, accordingly, comprise his immediate physical providence. The laws of Nature are his mediate or general providences. Principles of natural science may be said to designate the machinery of Nature, with their endowments. The laws of nature are their modes of operation, and facts are the results. Principles are universal, and of course have no extremes, nor do they qualify or limit each other. Hence, moral, as well as physical laws, although they tend to perfection or full accomplishment, are always so limited by each other, that they rarely, if ever, attain it in fact. Not a leaf, nor, perhaps, a crystal, ever attains to that mathematical exactness of form, which its uncontrolled formative laws would produce.

Now, if I am understood, I hope I may repeat the assertion, that the great objects of scientific research are *principles*. The question at once arises—how are these to be attained? I answer, by analysing facts, and tracing the laws of nature to their sources. This is what we understand by induction. It consists, not in conforming facts to theories; but in conforming theories to facts. For twenty centuries facts were forced to suit theories; but this great error finally gave way to the inductive method, and we are now rid of it. But the human mind, always disposed to extremes, in discarding a mere speculative theory, seems, at present, to have quarrelled with all theory. Another Bacon may be necessary to teach philosophers, and particularly medical philosophers, that mere facts are not the ultimate objects of philosophical inquiry. The glory of the former Bacon's great plan, "The Instauration of the Sciences," contemplated the "establishment of the universal principles of natural knowledge, in a regular and complete system."

Rosstraver, Pa. January 20, 1843.

For the Magnet.

HUMAN LIFE.

Dear Sir;—I have lately become a subscriber, and a reader of the Magnet. I have been considerably gratified in discovering the improvements now advancing in what you call *pathetism*; and have been instructed in many facts of very recent origin. For more than forty years I have had some knowledge of this subject, and have given full credence to the astonishing impressibility of one person by another, under circumstances favorable to the attempt. Indeed, on a former occasion I had asserted in prints, the following opinions; to wit:—"the facts already established in the history of magnetism demonstrate the power of mind on mind, and of mind over organization."

Yet, during this time, I have been fully convinced, that the subject has been involved in impenetrable darkness, that nothing has been known of it except the collection of a few empirical facts; and I am now

aware that it can never advance so as to claim a standing amongst any of the sciences, until some other thesis is assumed as a foundation for progressive improvement. Many and incongruous have been the hypotheses of physiologists with regard to the primordial movements of animal structures, but they do not endure the fire of investigation. It seems to be the conclusion of the many in modern times, that Life is "the conjoined operation of many actions."—(Bortach, et alii.) Broussais is quite candid in saying it is an "unknown power." Dr. Wilson Phillip thought he had discovered an identity between the galvanic and nervous fluids, and thereby imputed the phenomena of life to some inexplicable influence of the galvanic aura. This, now, seems to be considered the prime mover of organic life, and from hence appears to arise the style of your periodical, the *Magnet*. So it is common to hear of *Animal Magnetism*;—yet other imponderable gases are brought in as auxiliaries, so we hear of electro galvanism, et cet. Life has sometimes been defined "to be the assemblage of the functions, and the general result of their exercise."

Most of these hypotheses rest on the assumption that *life* is the effect of organization, yet modified by some of the imponderable auras. The real subject of enquiry is not solved by this; for it must first be answered, what efficient agency presided over the formation of the organism. What agency moved the primordial particles of the *nascent ens*, and ushered it into form?

There appears to be certain distinct, elementary, and imponderable essences in nature, of which something is known; such as caloric, light, electricity, galvanism, and magnetism. But there is another scarcely recognized by philosophers, except obscurely by some of the ancients, to wit—*vitality*, or the principle of life, although it has been much spoken of.—It has received many appellations by physiologists as a sequence, whilst it has scarcely been recognized as a distinct entity, or *esse*, diffused through water, earth and air, much like the other imponderable auras. This principle is discoverable by its effects much like the other auras, yet, indeed, the phenomena of vitality are more imposing and obtrusive through all creation than any of these. The phenomena of life are discoverable through all animated nature. Like other auras, it seems to have predilections to particular forms of matter, as albumen, fibrinum, gelatine, et cet.

When the creator spoke this world into form, more was manifested of life than most of the other essences, yet he who said "let there be light, and light was," also "breathed into man the breath of life, [*lives*] and he became a living soul." (See Gen. 1st to 3d chap.) I cannot here pursue the history, or the arguments in favor of a vital principle being diffused throughout all the earthly creation of God, when his spirit "moved upon the face of the waters." Yet I am not knowing to any writer of modern date, who has vindicated the principle, until advanced by myself in my *Institutes of Medicine*, published in 1839. But I now discover in the Magnet for January, 1843, an intimation by Dr. R. Nelson of your city, as you say, that he had marshaled "life" with five other of the imponderable elements, p 175. It is not intimated whether Dr. Nelson originated the thesis, or whether he borrowed it. It need only be remembered, that there are many copies of the above work in the city of N. Y. even if not much read.

But, my dear sir, aside from all this, give me liberty humbly to suggest, that no material advancement can ever be made in the process of what you call *pathetism*, until the thesis of an independent vital principle, or vital aura, is fully acknowledged as

the basis of all the investigations. Simply considered, an animating aura should be assumed as the basis of all improvements in this intricate subject.—I cannot go into much argument here, but would respectfully refer any reader of this to the above work, which will be found in the 4th sect. of vol. 1st p. 42, *on vitality in connection with the susceptible tissues*. The subject is continued to page 98. This topic is there reviewed in the briefest manner, and much might be added.

It may have been noticed, that many, if not all, of the imponderable elements, occasionally act as auxiliaries to the vital aura in producing the phenomena of life, vascular motion, organization, and intellect. The subject embodies the entire range of all animal and vegetable, as well as human physiology. This principle is united in different capacities, and force, in all the varied tissues of the system. Its force, however, is most eminently displayed in the different nervous plexuses, and in each tissue modified phenomena are discoverable in health, and also in modified states of excitation. The extensive plurality of nervous susceptibilities give occasion to numerous and diversified phenomena.

All animated beings are governed by laws peculiar to themselves; so we see all vegetable and animal organization to be directed by their own peculiar and inherent powers. The presiding principle adheres with considerable pertinacity to the animal tissues. Still these forces do suffer modifications from extraneous agencies, and by these disease may be produced: and how far the manipulations of pathetisers with other adjuvants, may impress and modify the functions of organs, remains yet to be learned, and whether as tending to good or evil.

These cursory remarks are submitted to your direction; whilst I am, dear sir,

Your humble servant,

JOS. A. GALLUP.

Woodstock, Vt., Feb. 6, 1843.

HEALTH AND LONGEVITY.

I am desirous of calling the attention of the reader, and particularly of the invalid, to the best methods of preventing disease, as well as of recovering health when lost or impaired; and I wish to impress upon their minds that this consists, principally, in a *well regulated diet* and regimen. It is very natural and very customary, for us to indulge our propensities and appetites till some derangement of our digestive functions is the consequence; and then instead of avoiding the exciting cause of the evil, we resort to medicine for a remedy, which at best, is a poor substitute. I have heard of a person subject to dyspepsia, who was so fond of indulging his appetite, that he *would have* a good dinner; and after eating it, he was in the habit of running his finger down his throat and vomiting it up. This excess in a greater or less degree, is indulged in by thousands; and they would rather suffer the penalty of gluttony, than to practice abstinence or temperance. They will eat and drink whatever their appetites crave, because diseased; then torture their stomachs with drugs or nostrums till their lives are rendered wretched indeed.

I wish to see a reform in this respect as well as in the habitual use of ardens; as the one is almost as destructive to health as the other.—Says Dr. Mott in one of his lectures, “All who have abused their stomachs will assuredly be brought to an account for it sooner or later. I am not sure,” says he, “but more disease and suffering result from intemperance in eating, than intemperance in drinking. Hence there is as much need of a *temperance eating*, as a

temperance drinking society. From whatever cause the digestive organs become deranged, the system will exhibit disease in some form or another,” although it may be years before the disease develops or shows itself.

“Happy would it often be,” says a writer, “for suffering man, could he see beforehand the punishment which his repeated departure from the laws of physiology or nature is sure to bring on him. But as in the great majority of instances, the breach of the law is limited in extent and becomes serious by the frequency of its repetition, rather than by a single act; so is the punishment gradual in its infliction, and slow in manifesting its accumulated effect; and this very gradation, and the distance of time at which the full effect is produced, are the reasons why man in his ignorance so often fails to trace the connexion between his conduct in life and his broken health.

To the intemperate in eating and drinking the day of reckoning is merely delayed, and there is habitually present a state of repletion which clogs the bodily functions, and may lead to some sudden death by some acute disease when the individual is apparently in the highest health.”

How many instances might be mentioned to prove this fact. A person who resides the next door to me is now very low from the same causes. He had been a butcher by trade; had lived very high, and taken very little exercise, which caused great plethora. He was suddenly attacked with a severe disease, and for some days his life despaired of; I anticipated a similar result from his mode of living. Another acquaintance of mine was lately brought to the same condition by indulgence in eating and drinking. One day he commenced working in his garden, and on stooping, the blood rushed to the head, occasioning fatal apoplexy. How frequently do we hear of similar cases from similar causes. A person asked my advice, some time ago, in relation to symptoms arising from improper regimen. I prescribed suitable diet, &c. Afterwards he informed me that he began to follow my directions: but his wife dissuaded him from it. She prepared so many good things for him to eat that he could not abstain from them. He continued to violate the laws of nature till he was seized with a fit of palsy or apoplexy, which renders his recovery doubtful. Volumes might be filled with similar cases.

Says a late writer, “Is it not better by a rational exercise of judgement, to preserve health when we have it, than first to lose it, then pay the penalty in suffering and danger, as an indispensable preliminary to its subsequent restoration?” It is known, that as soon as a person applies to a judicious physician for advice, he is put under a proper course of regimen to restore him to health. Now it must be evident, that the same course which is calculated to restore health is likewise calculated to prevent disease. To accomplish an object so desirable and important as to prevent disease and preserve health, I have laid down rules in the following pages, founded upon the laws of physiology, and which if strictly adhered to, will be the means, not only of the recovery but likewise the preservation of health, and often without the use of medicine.

“It is not easily to be credited,” says Cheyne, “what wonderful effects, even in the most desperate and universally condemned-to-death diseases, I have seen produced by an exclusively milk and grain diet; and even these, the thinnest and least in quantity, the person could be tolerably easy under from the pain of hunger, and continued for one, two or more years. Epilepsy totally cured;—universal lepers made clean; stone and gravel laid quiet; cancers

healed or palliated; ulcerated lungs made sound; and schirrous livers made pervious; and all accomplished by a total, obstinate, and continued milk and grain or coarse flour diet. I firmly believe, and am as much convinced as I am of any natural effect, that water drinking only with a diet of milk, grain, and fruit duly continued and prudently managed, with proper evacuations, air, and exercise, are the most infallible antidotes for all obstinate diseases of body and mind. This regimen I have for the last twenty years pursued."—*Beach's Family Physician.*

THE MAGNET.

NEW-YORK, APRIL, 1843.

ECSTACY.

This term has been used to signify a fixed state, or trance, in which the mind seems to be arrested and fixed: a state in which the functions of the senses are suspended by the contemplation of some extraordinary or supernatural object. A case of this kind was described in our last. It is a state well known among certain classes of Christians, as we have seen it induced many times by religious excitement; and a case of the kind was said to have occurred in Philadelphia some eighteen or twenty years ago, which lasted nine days, during which time the patient was reported to have neither ate nor drank any thing, and her face was said to have shone with a peculiar and unnatural brightness.

We were once told of a family, including the father, mother, and three or four daughters, who fell into this state frequently, during the seasons of domestic worship. At these times they would, together, sink upon the floor, and their limbs become as rigid as if frozen. Such cases may often be seen at the camp meetings held by the Cumberland Presbyterians, and the Methodists. We have known persons of the first respectability, and of both sexes, and different ages, to fall into this state, and they have described it to us as one of ineffable delight and tranquillity. It comes on by a gradual loss of muscular strength, and sometimes the muscles remain perfectly relaxed; but at other times they acquire a state of rigidity really astonishing. We have seen persons in this state so much affected, that by moving the hand, for instance, you would move the whole body with it, as if the entire system were frozen or petrified.

We do not know whether any cases of ecstasy are on record, of persons not religious; but it is certain, that from time immemorial, persons in different religious sects have been known to fall into this state. The Roman Catholics have for ages manifested great enthusiasm in detailing accounts of what they call miraculous ecstasy; and recently they have published a small pamphlet, purporting to give an account of two Austrian women, whom they denominate "the Virgins of the Tyrol"; and it is plain enough, that these women are in a fair way to become *saints* of the first magnitude in the Papal calendar. If we may believe one-half of the details given of these cases, they are, unquestionably, nothing more nor less than what have been long known as natural somnambulists.

We gave full accounts, in our second and third num-

bers, of a large number of "sleep-wakers," so called, that is, persons of a peculiar temperament, who have been known to fall into a singular kind of sleep, in which they had "vision without the eye," and performed various feats without the use of the ordinary organs of sense. And yet, the author of the pamphlet now under notice, labors hard to make it appear, that these cases have nothing to do with what has been known under the name of mesmerism. But the Earl of Shrewsbury is *deceived* by supposing that no case of what is called mesmerism, could occur in any form, without the agency of an operator to produce it. He might just as well suppose that no physical or mental change could take place in any system without the agency of a second person, by whose influence it must be brought about. We know to the contrary. Cases of somnambulism, partial and complete, have long been known; and that these "virgins of the Tyrol" are persons of what we should call the *sympathetic* temperament, is fully proved by the account given of them in this book. And every person, the world over, who is familiar with this subject, will see at once the striking *resemblance* between the features of these cases, and what we know to be peculiar to the spontaneous sympathetic sleep. We say, sleep; and yet, we do not exactly mean what is understood by the term *sleep*. It is a state which cannot be well explained. An intelligent lady of this city informs us, that she is conscious of being in *two* different states, frequently, though, indeed, not asleep. These states are so unlike each other, that she finds it impossible to describe the one which differs from the ordinary, conscious, waking condition. Natural somnambulism arises from the highest degree of what we should call the *sympathetic* temperament; and from its highest developments there are various degrees, (up or down, as the case may be), to the temperament which is not affected in this manner at all. And a knowledge of this subject, in all its different aspects, will leave no room for the shadow of a doubt, but that the "virgins of the Tyrol" are of the class now under notice; and that their *ecstacies* so much wondered at, and extolled by the papists, throughout the world, just now, are the results of natural causes, just as much so as any ordinary case of catalepsy or hysteria. And, to make this matter appear to those who may not have access to the book above referred to, we will give a few extracts which will, at once, show the features of *resemblance* between their cases, and what is everywhere known of natural sleepwakers, or persons disposed to this state.

1. *Health and Temperament.* It is well known that disease predisposes persons of a certain temperament, to this state; and, accordingly, it is said of Maria Morl, in her "early years had various attacks of illness;" and it would seem, that from 1832 she has been mostly confined to her bed with indisposition. Her temperament, we learn from expressions made of her like the following:—"Her hazel eye," &c. "and her look is so open." Similar expressions are used of the other, Maria Domenica, who enjoyed good health till 1828, since which time she has been indisposed, and for more than eight years *confined to her bed*. Here, then, we see the foundation of all the wonders of their ecstasy.

2. We see other resemblances in *the manner of the*

commencement of these ecstasies. For instance, of Maria Morl it is said,—

“When, in 1832, she had attained her twentieth year, she evinced the first symptoms of ecstasy, falling into that state *each time she received the holy communion.*”

And of Domenica it is also said,—

“In the year 1833, she was first observed to fall into ecstasy *after receiving the holy communion,* but without rising from her bed.”

We have seen scores of persons, after kneeling in prayer, and others, when kneeling at the altar in Methodist churches for receiving the sacrament, fall into this state, and become apparently unconscious, *precisely* like what is said of these two nuns.

3. *Perceptions, without the use of the organs of sight or hearing.* Instances are given, where it is said these nuns had perceptions of the approach of the mass; and one of them, it is said, as it was carried through the town, “turned to it, as the needle turns to the pole.” And this, the pious Catholic is taught to believe, is MIRACULOUS, and demonstrative of the truth of Popery! Now, admitting the account to be true, it proves nothing for or against religion. Examine the second and third numbers of the Magnet, and you will find cases enough of the same power of perception detailed, and which came on, spontaneously, like these now so much wondered at by the Papists, far and near.

4. *State of unconsciousness.* The authors of this book think it quite miraculous, that these “virgins,” during their ecstasy, should have their “eyes wide open,” without seeing; so that when “a candle is held near the eye,” or when a fly lights upon the eye-ball, they do not wink at all!—a phenomenon that every pathetiser has witnessed since the days of Mesmer, and one which we will produce for his Holiness any time, whenever he will do us the honor of a call. Persons in a state of somniphathy, such as may be produced upon a large number of persons, every where to be found, become wholly insensible to pain; and we have published cases where the most difficult surgical operations have been performed, without the patient’s knowing any thing about it at the time.

5. *Surprising positions of the body.* It is mentioned as another miraculous effort of the Divine power, in the case of these virgins, that their bodies frequently assume very singular positions; as, for instance, one says she

“Had seen Maria More raised up in the air so far, at least, as only to touch the bed with the very extremities of the feet.”

The same thing is done by natural somnambulists; and we have made some of our patients, while in a state of somniphathy, assume and maintain the body in a position, which could not be borne in the waking state. In a preceding number we published a letter from a natural sleep-waker, who described feats done by himself in this state, which he was utterly unable to do when wide awake.

6. *Effects of contact with others.* Every pathetist must have noticed the curious effects produced by merely touching persons of this peculiar sensibility, whether they be touched by the operator or any other person. By a mere touch we have, times without number, given to the body of the patient, when awake, any desirable tendency

or motion, or even deprived it of the power of locomotion entirely. So it is said of these virgins:—

“The chaplain desired me to touch her hand, when the slightest pressure of my finger upon hers, made her own fall several inches, and put her into a swinging motion from side to side. This movement was considerably increased by the same person blowing at her gently with his breath, so exceedingly aerial and unsubstantial is her frame.”

The above is a specimen of the manner of experimenting, practised by the Papist priests on the “virgins of the Tyrol.”

Again: we know how instinctively some somniphathists shrink from the touch of persons. Just so these virgins:

“During this period her right arm hung down partly beyond the bed; I touched her hand, when it shrunk from the touch like the leaf of a sensitive plant, and then, like it, remained in the new position which it had assumed.”

7. *Manner of inducing and removing the ecstasy.* We have had numerous patients, who would fall, instantly, into this state, by merely touching them, and some who would sink into it by merely looking at them; others we have had, who fell into it when seated in the same chair where they had frequently been put to sleep before. Precisely so these “Virgins of the Tyrol:”—

“When her confessor [in another place the priests are called “*the keepers of her conscience,*”] sees occasion to require it, she falls *at his bidding* into this state.”

And thus she is brought out of it:

“Yet, with all this, it requires no effort, no noise, nor hardly any ostensible agency, to break the spell; a gentle touch or whisper from her confessor, or any ecclesiastic with whom she is acquainted, is sufficient to dissolve the charm, completely and at once.”

We could trace the *identity* between these cases and the ordinary cases of somnambulism still further, were it necessary. But the above is sufficient to put this fact beyond all doubt, in every candid, unprejudiced mind. But the devoted Papist will remind us, that we have not noticed two of the most remarkable miracles described in these cases; and he will ask how we account for the “Stigmata”? For instance, there are plates giving the appearance of these virgins, and one of them is represented as bleeding in the forehead and temples, the outside and inside of the hands, and in the insteps of the feet, and also in the side, in resemblance of the places in the body of our Lord Jesus Christ, where he was wounded when crucified! And we are told, that the blood is seen to ooze from these wounds *every Friday*, and while the patient lies upon her back, the blood from the insteps actually runs *upwards towards her toes*, instead of following the laws of gravitation downward!!! Nor is this the most of this story, for it is added, that one of these virgins “*has neither eat, nor drank, nor slept, for more than eight years!!!*” And to prove this account true, the book refers to another case, where a Papist *is said* to have lived “*for twenty years in perfect health and strength,*” without tasting food at all!!!

All we have to say to these representations is, to affirm their falsehood. And lies so monstrous, puts the shade of doubt upon the other details in this book, though we can readily admit the truth of many of them, and this, too, without supposing there was any thing of the mira-

culous. For instance: if the blood is seen to appear on the hands, head, feet, and side, as is represented, it may be accounted for in two ways:—

1. It may have been brought there by punctures inflicted on the body by the persons themselves.

2. It may have been produced there by what we know to be the laws of sympathy, in the effects the mind sometimes has over the nervous system. A case in point was given in the papers, some time since. A child was born in Europe, with the words "*Napoleon Empereur*," with an appearance of the Emperor's face, plainly formed in the cornea of each eye. This should certainly have been a *miracle*, according to the assumptions in favor of the Tyrol Virgins. But it came to pass on this wise. On inquiry, it was found that the mother was in a state of extreme mental anxiety for some months before this child was born; and during most of the time of gestation, she was in the habit of gazing at a coin of Napoleon, which had these words upon it.

A state of great mental effort, long continued, by persons of a peculiar temperament, has been known to cause physical changes, remarkable enough to be supposed *miraculous* by those who know no better.

We have stated, that an attempt is made in this book to show that these cases of ecstasy are not produced or modified by the laws of mesmerism, so called; and this attempt is put forth by one who confesses himself ignorant of these laws. But the reasons for this are obvious enough: it is but a short time since the Pope issued his *bull* against what is called "animal magnetism"; and it would explode too many Popish miracles, now to admit that this agency, direct or otherwise, was at all concerned in producing a state which is looked upon with so much awe, by those who have given their "consciences" to the keeping of spiritual "directors."

WHAT IS IT?

We can appreciate the feelings of our correspondent, whose communication will be found on a preceding page, headed "Interesting Experiments," when he observed the results described by him in that article. Having made similar experiments ourself, long ago, we, like him, supposed we had arrived at a knowledge of some important *principles*, until we found our conclusions all dissipated by results of a directly *contrary* character in other different subjects.

Applying a pointed steel instrument to portions of the head, and noticing that one side was repelled, while the opposite would be attracted, first led us to the conclusion, that the different cerebral organs were balanced in opposition to each other, and hence we called them *positive* and *negative*.

It would, perhaps, be assuming too much, for us to suppose we have never been deceived in any of our numerous experiments; but we may state that we do not know an operator who has not been misled, more or less, in his conclusions, with regard to the laws which govern this mysterious agency. Even a learned operator in London, does not seem to have entirely escaped the snare in which this (if we may so call it) bewitching subject has involved most of its votaries; and it has happened, we believe, in one or more cases, that when persons have

fancied themselves the most familiar with its laws, they have been, more than the less venturesome, duped and led astray by the interpretations they have put upon its phenomena.

We not long since, read quite a labored article from the pen of a Philadelphia physician, detailing some thirty conclusions to which he had arrived, as so many laws which governed this subtle agency. But like other experimenters, that same physician will, we doubt not, in time, be as willing to alter his opinions, as he has been, in that article, to state them. The article to which we now allude was read before the college of physicians in Philadelphia, in November last, and published in the Public Ledger for Dec. 22, 1842. With many, if not most of the Dr's. conclusions, we should not, perhaps, wholly disagree; but his article does not seem to have been prepared with that care, which he himself, would assume to be necessary when writing on difficult subjects of this kind. For instance, he says:—

"As we cannot believe in mesmeric '*rapport*,' so we are not able to credit the existence of any peculiar *sympathy* between the operator and subject."

But how does this agree with another part of his article, when he says—"there is sometimes the manifestation of strong personal *sympathy* between mesmerizer and subject."

Dr. Mitchell seems evidently to have been, like many others, misled by what has been supposed to be an effect of the *passes*, when, as we know, persons of the right temperament have been put to sleep by the first trial without any passes at all. We do not mean that any one has ever been put to sleep by a mere *mental* effort, who had never been operated on before, for it is yet to be determined, as to how much the wills of the operator and the patient have to do in bringing about the results under notice. We have frequently known persons to become considerably affected on witnessing for the first time, the process of pathetising on others. This we can easily explain, on the supposition we have before advanced, that this *susceptibility*, and the *agency* by which we operate, are traceable into that state of the system which gives rise to what the physicians have denominated *sympathy*. Some we know, manifest sympathetic phenomena, who were never trained or informed about it in any way; while others manifest nothing of it and for the simple reason, that their susceptibilities are not of the right kind.

Being invited to operate before a private committee, a few weeks since the following case occurred. The chairman had requested a noted physician of this city to inspect the proceeding, and had taken with him a phial of concentrated ammonia. After the patient had been put to sleep, the chairman handed the phial to the physician, and (*supposing* she could hear,) he said to us,—"*Mr. S. let me pinch your hand.*" But instead of pinching our hand, the Dr. held the open phial to the patient's nose for some time, during which she gave no signs of the sensation of smell at all. This experiment was repeated with the same results. We then, (unknown to the patient) took the phial, and on placing it to our own nose, the patient was quite strangled, and thrown into convulsions. Her face became quite colored, and she begged

she might not be compelled to smell that hartshorn again, as it always took away her breath!

This attempt to deceive the patient *should* have been successful, had she not been perfectly asleep; and had there been no real *sympathy* between her nervous system, and that of the operator, no one could be able to account for the manner in which she was affected.

The truth is, no two subject are affected in all respects alike; and hence it is quite easy for an operator to be misled in forming conclusions from experiments, performed on a score or less of individuals. We have found what appeared to be a correspondence, not only in the phenomena which are produced on certain classes of persons, but also a correspondence in the results produced by the same operator on different subjects. And we would suggest to our correspondent in Great Bend, Pa., that if he wishes to avoid the false conclusions to which we have alluded, that he try the effects on his subjects with an ordinary compass or electrometer. That is, let the results he produces, be determined by the magnetic needle. If the effects he describes are *really* produced by what we know to be the electric laws, then his patients would attract or repel the needle, or affect an electrometer just as certainly as that he has not been misled in his conclusions from the experiments described by him.

MAGNETISM.

INDUCTION OF MAGNETISM.

The following extracts are from that excellent work, "Davis's Manual of Magnetism," noticed in our last number.

It was for a long time supposed that the attractive force of the loadstone or any other magnet was exerted upon iron simply as iron; whereas it is now known to be the attraction of one pole of a magnet for the opposite pole of another magnet. In all cases, when a magnet is brought near to or in contact with any magnetisable bodies, as pieces of iron, iron filings, or ferruginous sand, all such bodies, whether large or small, coming thus within the influence of a magnetic pole, become magnetized; the part which is nearest acquiring a polarity opposite to that of the pole of the magnet; while the remote extremity becomes a pole of the same name.

EXP.—If several pieces of iron wire of the same length be suspended from a magnetic pole, they will not hang parallel; but the lower ends will diverge from each other, in consequence of their all receiving the same polarity by induction, while the upper ends will be retained in their places by the attraction of the magnet.

EXP.—Suspend two short pieces of iron wire by threads of equal length, fastened to one end of each piece so that the wires may hang in contact. If now the south pole of a magnet be placed below the wires, the lower ends of both will become north poles, and their upper ends south poles; and the wires will recede from each other. This divergence will increase as the magnet is brought nearer, until it reaches a certain limit, when its attraction for the lower poles will overpower their mutual repulsion and cause them to approach each other; while the repulsion of the upper ends will remain as before.

In former times artificial magnets were always made by induction from strong magnets previously prepared; the original source of the power being

provided by natural magnets. When this was the case, it became important to ascertain what arrangements and what modes of applying a magnet to a bar or needle, were most efficacious in communicating or developing the magnetic virtue; and accordingly various and complicated arrangements and manipulations for this purpose, are detailed in old treatises on this science. Recently, however, other and far more powerful means have been discovered for magnetizing bars of iron or steel, as will be hereafter described; so that all those methods have been in a great measure superseded. The induction of magnetism by the means above referred to, is now only employed for magnetizing needles or small bars.

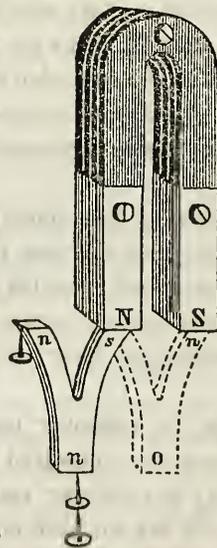
It may however be convenient to know a good process for magnetizing (or *touching*, as it is technically called) by the aid of steel magnets. One of the simplest and best will here be given. A small bar of steel may be magnetized by drawing it across the poles of a magnet in the following manner; place the middle of the bar on one of the poles and then draw one end of it over the pole a number of times; the direction of the motion from the middle to the end. Then turn the bar in the hand, and pass the other half over the other pole of the magnet in the same way. If the bar is thick, the process may be repeated with its different sides. The end which has been drawn over the south pole of the magnet will now possess north polarity, and the other extremity south polarity.

The magnet which is used to induce magnetism loses none of its own power in the process, but often receives a permanent increase by the reaction of the polarities it has induced upon its own.

EXP.—That a magnet possesses greater power while exerting its inductive action, may be shown by suspending from one pole of a bar magnet as much iron as it can hold. If now a bar of iron be applied to the other pole, the first will be found capable of sustaining a greater weight than before.

When the arrangement of the experiment is such that while one extremity of an iron bar is exposed to the influence of one pole of a magnet the other extremity may be acted upon by the other pole, there will be a sort of double induction, and the effect will be increased.

Y ARMATURE.—This consists of a piece of soft iron in the shape of the letter Y. If one of the branches of the fork be applied to the north pole of a



horse-shoe magnet, as seen in fig. 41, the lower end of the armature, and also the other branch of the fork acquire north polarity, and will sustain small pieces of iron. If both branches of the fork be applied, one to each pole of the magnet, as shown by the

dotted lines in the cut, the polarity of the lower end immediately disappears. This is because the two poles tend to induce opposite polarities of equal intensity in the extremity of the armature, which of course neutralize each other. If the branches of the fork are applied to the *similar* poles of two magnets, their influence will conspire in inducing the same polarity in the lower end, and a greater weight will be supported by it, than when one branch is applied to a single pole.

It is not easy to magnetize a bar whose length considerably exceeds its diameter, in such a manner that its two poles may be developed along two opposite sides instead of at its extremities; for the opposite polarities tend to keep as far from each other as possible. The points of greatest intensity in a permanent magnet are not however situated precisely at its ends, but at a little distance from them.

The inductive action of a magnet is not impeded by the interposition of any unmagnetizable body whatever. Thus, if a plate of glass be placed between the magnet and a piece of iron, the iron will be as much influenced, and will be attracted as strongly, as it would be at the same distance with no glass interposed.

FLAT SPIRAL.—Fig. 49 represents a ribbon of sheet copper, coiled into a spiral. This instrument is described here in consequence of its possessing considerable magnetizing power, though its principal uses will not be mentioned till the inductive action of electrical currents comes under consideration,



in chap. III, section 1. The copper ribbon may be an inch wide and one hundred feet long, the strips being cut from a sheet, and soldered together. Being then wound with strips of thin cotton it is coiled upon itself, like the mainspring of a watch; instead of covering it with cotton, it may be coiled with a strip either of cotton or list intervening. Two binding screw cups are soldered to the ends of the ribbon; the internal end, for convenience, is brought from the centre, underneath the spiral, to its outside, care being taken to insure insulation where it passes the coils. The whole may be firmly cemented together, if desired, by a solution of shellac in alcohol. The spiral being connected with the battery, its two faces will exhibit strong polarity; a dipping needle placed on any part of its surface or near it will always direct one of its poles towards the centre, as seen in fig. 49, where a dipping needle N S is represented on the spiral. On reversing the battery current, the other pole of the needle will turn towards the centre. If the spiral be fixed in a vertical position, a horizontal magnetic needle may be used with the same result. When brought near to one side of the coil, it will be found to direct its north pole constantly towards the centre; when on the other side, its south pole. When either the horizontal or dipping needle is placed near the outside, with its axis of motion in the same plane as the spiral, neither pole will be directed towards the centre, but the magnet will place itself at right angles to the plane of the spiral.

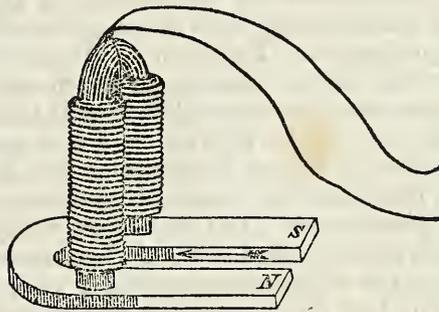
EXP.—The magnetizing power of the spiral may be shown by connecting it with the battery, and

placing a rod of iron or steel in the central opening, or upon it in the direction of a radius, when the iron will become temporarily magnetic, and the steel permanently so. If the bar, when laid upon the coil, extends across the central opening, both ends will become similar poles, and the part over the centre, a pole of the opposite denomination.

If the spiral be of considerable diameter, it will exert a feeble magnetizing power on its outside, and a short rod of soft iron placed near it will become able to sustain a few iron filings; its polarity will be in the reverse direction to that which it would acquire were it placed within. The influence of the earth in inducing magnetism in the iron must not be overlooked; it may be allowed for by observing whether the transmission of the current through the coil causes more or fewer filings to be sustained by the bar, or avoided by placing the spiral in a vertical position with its axis east and west, and the rod horizontally east and west.

COMMUNICATION OF MAGNETISM TO STEEL BY THE ELECTRO-MAGNET.—The great power possessed by the electro-magnet, renders it peculiarly fitted for inducing magnetism in steel; hence it is very convenient for charging permanent magnets. A short steel bar if applied like an armature to the poles of a U shaped electro-magnet, will become strongly magnetic, the end which was in contact with the north pole acquiring, of course, south polarity. A longer bar may be charged, by employing the same process that has been described in § 108, for *touching* by steel magnets.

Bars of the U form are most readily magnetized by drawing them from the bend to the extremities across the poles of the U electro-magnet, in such a way that both halves of the bar may pass at the same time over the poles to which they are applied. This should be repeated several times, recollecting always to draw the bar in the same direction. Then if it has a considerable thickness, turn it in the hand and repeat the process with its opposite surface,



keeping each half applied to the same pole as before. Of course, the result will be the same, if the steel bar is kept stationary and the poles of the electro-magnet passed over it in the proper direction of the arrow in fig. 56.

In order to remove the magnetism of a steel magnet of the U form, it is only necessary to reverse the process just described; that is, placing one pole of the electro-magnet on each of its poles, to draw the electro-magnet over it, towards its bend, in the direction of the arrow in fig. 56. In this way, a steel magnet may often be so completely discharged as to be unable to lift more than a few iron filings. A bar magnet may also be deprived of its magnetism in a great degree by passing the north pole of an electro-magnet over it, from its south pole to its middle, and then lift it off perpendicularly; if, then, the south pole be passed in the same manner, over the other extremity of the steel bar, it will be found to have lost the greater part of its polarity. If necessary, this process may be repeated several times.

A still more effectual mode is to make use of two electro-magnets: place the north pole of one on one end of the bar, and the south pole of the other on its other extremity, and draw the poles along the bar till they meet at its middle; then lift them off. If the steel bar whose polarity is to be removed is of small size, steel magnets may be substituted for the electro-magnets in the above processes, though with less effect.

MOTIONS PRODUCED BY THE MUTUAL ACTION OF
MAGNETS AND CONDUCTORS.

When a wire conveying a current of electricity is brought near to a magnetic pole, the pole tends to revolve around it, as has been explained in § 79. If the current acts equally on both poles, no rotation occurs, because they tend to move in opposite directions; and the magnet rests across the wire in a position of equilibrium between the two forces. But if the action of the current is limited to one pole (which was first effected by Prof. Faraday), a continued revolution is produced. If the magnet has liberty of motion, it will revolve around the wire; if the wire only is free to move, it will rotate round the pole. When both the wire and the magnet are at liberty to move, they will revolve in the same direction round a common centre of motion. A number of instruments have been contrived for exhibiting these movements.

MAGNETISM.

BY RICHARD ADAMS LOCKE.

RICHARD ADAMS LOCKE, Esq., well known among our scientific men for his high ability and distinguished attainments, delivered a very interesting Lecture, at the Society Library on Thursday evening, upon the influence of Terrestrial Magnetism on the past, present, and future condition of this world—embracing the thesis of the alternate creation and dissolution of all natural bodies. He would first call attention to the influence of Magnetism on the natural forms of creation, and then speak of its influence on their reproduction. The view of Magnetism which was confined to its influence on the needle, was by far too narrow—for more substances than one are affected by it. When it exists in a free state, as in iron, possessing regular organization and polarity, it exhibits only a narrow range of comparatively well defined phenomena. But all bodies really possess organized magnetism, and their phenomena vary according to the different characters of their organization. The best way to reach the whole subject is to consider what are the natural forces of the earth. Of one fact we are certain: that *all motion must result from two forces*; we know no motion that is not the result of two forces: All motion is either backward or forward, upward or downward—or between the two, which is the same thing. If there be a force to repel, there must also be a force to attract, else there will be motion forever in one direction, and no motion can exist without a cause. The truth has been known for ages, but was first reduced to a grand postulate by Sir ISAAC NEWTON. It is the third law of his Principia that 'to every action (or motion) there is always an opposite equal re-action or contrary motion; or the natural action of two forces upon each other, or upon a passive body situated equi-distantly between them, is always equal. Thus we shall have an eternity of motion, unless there should be some miracle to stop it. Suppose creation to go on to a certain period and then to be destroyed—and then to be renewed again; through a perpetual series of alternations, the ancient symbol that eternity was a circle, without beginning or end, would be strictly phi-

losophical according to Newton's Principia.

All the forms and modifications of matter are the results of motion. How should bodies be as they are—as we see them in the forms of plants, &c., if there had not been a motion of the particles to bring them where they are? Contemplate the most simple action of two forces upon matter in a free state, say the action upon a quantity of hydrogen of the two wires of the battery? One force repels, the other attracts; one drives from—the other pulls to. Is not the necessary effect the production of a circle? Look at the natural forms of the universe; you are all aware that they are circular, and I might ask any one of you to find a third motion to produce this form. Evidently—even to mathematical demonstration—it must be a circle and nothing else. But provided one of the forces prevail but a little over the other—let the attraction prevail but a little over the repulsion, and what do we then have? The sides of the circle would then accumulate, draw to themselves the other matter in space and become a sphere. The narrow ribbin would become wider, would contract at the edges, and thus we should have a hollow sphere open at both ends, until it was completed. A little attention to the celestial bodies, is sufficient to show that this has been the process of the Divine hand in creation. Some years ago, a European astronomer announced that he had seen a comet with two other comets within it—a conglomeration of three comets; this was considered very marvellous, and I am not aware that any explanation has yet been given in the journals of science. But if this theory be true, the explanation is obvious. If we take this phenomenon in connexion with the well known facts, that there are times when stars of the third magnitude are distinctly seen through the nucleus of the comet, and that there are other times when even a star of the first magnitude cannot be seen, we may see how these facts are to be accounted for. If we suppose the *pole end* of the comet to be presented to the eye, and suppose the comet also to be an unfinished sphere open at the pole, as I have described—the ribbin expanded but not completed—it will not be surprising that we should see a star through it. But suppose the comet to be presented equatorially to the eye—having both its sides between the eye and the star; of course we shall not see it. Now, suppose it to be midway between these two positions, what shall we see? Evidently the two circles will intersect each other, and thus will present the appearance of two comets within the other.

With regard to the nebulous origin of worlds, in reference to our own, I will only say that it seems to rest on the deductions of reason and observation. Look at the Nebulæ which the strongest telescopes cannot magnify. We may perceive in space stars kindling beyond stars, which the boldest wing of imagination may not reach; but can know nothing of these nebulæ beyond what we see with the naked eye. Let me remind you then of the fact, that there is no square or cornered body existing in free space—or any other than a spherical form. And this form the action of two forces, necessarily produces. It is extraordinary that we never meet in nature a square organised body. It may be thought that a few cubic crystals form an exception, and exceptions may also be taken in the cases of certain plants, as hemp, catnip, &c. But these are really no exceptions. For if we look at the corner of these plants we shall find a small circular tube to keep up the universal harmony of nature. So that if these are not circular outside they are in. Thus in the connection between shell fish and animals—in the first they are outside, and in the other inside; plants draw their nourish-

ment from the earth without; animals carry their garden in their own breasts: so that "we are only plants turned outside in, and vegetables are only animals turned inside out." There is no deviation from the general rule that nature produces all her forms reactively. Perhaps I may give a better explanation of this by supposing my two hands to be two magnets: in one the fingers are positive, and the wrist (the other extremity) negative; in the other the wrist is positive and the fingers negative.—Now the fingers of the two if brought near, will attract each other, because their magnetisms are of different denominations; but what is the characteristic of attraction? It is always to contract, and this may be seen by dipping two magnets into steel filings, when the filings, if attracted, will be brought to an angle, but if repelled they will be spread abroad like the leaves of trees in spring. I might refer to the gaseous origin of matter to illustrate this doctrine of contraction and expansion, but it is not necessary.—Suffice it to say that there are no substances with which we are acquainted that may not be reduced to a gaseous form. Even what we call simple or elementary substances, are double in their character. Oxygen is usually considered simple, yet we change it every moment into carbonic gas at every breath we draw. Look at marble and lime-stone in which are great quantities of carbonic gas; of them we build temples that may endure for ages, and yet heat shall cause them to go away into vapor—to that state in which the forces caught them and made them what they are. Nor is there any thing in nature but began in a style still more simple than our gases. Whatever may have been the primeval source of the forces which first acted upon the free matter in space and brought it into a spherical form, we know of no forces which are not derived from the sun. There is a doctrine prevalent among the schools, that there is a reduplicative principle between the planets, to which are attributed what are described as the perturbing forces. But if we view this in a different light, we shall see that there is no need of resorting to a miracle even for the centrifugal force; we may trace all back to the Sun, and we need not resort to this, as I consider it, unnecessary theory. We shall perceive that two forces may come from one Sun, just as two forces may come from one magnet. We might perceive that the sun has two magnetic poles as we know the earth has. If then, the Sun have a North and a South pole, also, and the south pole of the Sun be toward the North pole of the Earth, and the North pole of the Sun be toward the South pole of the Earth—this is all that we require—all that is necessary to keep the planet in the course which it now pursues, and to give the magnetic organization to every particle it contains.

I will not now proceed to geology in verification of this theory—for I have too much to say on other points. But it is well known, as a matter practically ascertained by miners, that the *stratification of the earth is alternately negative and positive*; that if one stratum be negative, the one above and the one below will be positive; the third each way will be negative, and so on. We know that this is the case with the hemispheres of the earth. If we take a knitting needle, magnetise it and give it polarity, and then toss it into the air in this hemisphere, [which is negative] the positive will come to the ground first—because the two magnetisms are of opposite denominations. But if we pass the magnetic equator (which I have shown crosses the common equator at an angle of 23° 28') and then toss up the needle, the other end will first fall to the ground.—This shows most clearly that the forces of the earth

are fairly represented in that artificially magnetised body. In order that these dual forces may act, the matter on which they act must be negative and positive, as we find is the case with the state of the earth. All the matter in the world is mixed with *alkalies* and *acids*; and these opposite substances enter largely into the composition of all animal and vegetable creatures, producing those alternate contractions and expansions which mark the growth and the decay of life. At the point where the attracting and contracting forces cease, the repelling and expanding forces commence; and where these cease the others commence, and thus the course of alternate destruction and reproduction is continued. I need not refer to the seasons:—in the spring the buds begin to swell—the sap rises into the tree—the leaves spread forth, and the flowers come forth, expand and send out their perfume upon the air. Then, when the summer is past, lo! the leaves wither, fade, shrink, and fall to the ground, and leave nothing but incipient buds of promise. Thus is it with ourselves.—In youth, our frame expands, and we grow from infancy to age; then how do we fade and wither and fall! What is the beating of the heart but an alternate contraction and expansion? Why, how do we lift the arm but by the contraction and expansion of the muscles? How can there be any other motion than those which spring from these forces?

We see all plants which grow have a polarity—I will not insist upon magnetic polarity. One thing is obvious—one part of the plant runs into, and the other rises up from the earth; one side contracts and the other expands; one draws nutriment from the earth, and the other throws out the results in the form of leaves and flowers. You are aware of the changes which result from this. We see another operation of these two forces in the human mind, where the law of attraction and repulsion holds good. All of our mental processes without exception, are in obedience to it. Our very ideas are attracted and repelled. All algebraic and arithmetical operations, from the most simple to the most elaborate, are either negative or positive, or both; increasing or decreasing; contracting or expanding, and so with every other exercise of thought or feeling. Shall I speak of the perpetuity of different races? Shall I ask why, if I take an acorn and plant it upon a continent where no oak grows, it will produce an oak—then a forest, and finally plant the whole continent with oaks—and the same character shall be preserved? Shall we ask if the last tree will not have within it a part of the acorn that was first planted, just as we say of the race of men? What is the reason of this definite character? Once crush this acorn, destroy its polarity, and all the men on earth shall not cause an oak to grow out of it. It will die as a man will die, if you destroy the polarity of his brain by knocking him on the head. The brain may be but slightly injured—there shall be no extravasation of blood, or far less than in cases of intoxication or fever when the man survives; and yet if the brain's polarity be destroyed the man dies. He shall die of lockjaw caused by a splinter; and why? Because his polarity is destroyed. Yet as long as this is preserved in the acorn, it shall continue to produce its like until the planet is covered. The different races are kept distinct; but mix them—produce hybrids, and will they breed? They may for a time, but they will soon perish and stop. Nature allows no monstrosities, producing all her transitions from one form or race to another, by regular causes which come into operation at successive period of the earth's existence, and which are defined by the position of its axis towards the sun.

Geology teaches us that there have been six peri-

ods of the earth's existence, and in this it agrees with the Scripture narrative—the only difference being one, which may be easily reconciled—that relating to the destruction of each of these periods. Many persons, who adhere to their own private interpretation, contend that these must have been of the same duration as our days, which are measured by the intervals between morning and evening; and this too in the face of the fact that the sun did not then exist to define the day as it is now defined. Those who insist upon this interpretation would cause the word of God to conflict with his works; and in my judgment, they are not entitled to any greater respect, as men of true faith than as true philosophers. But there is no necessity for thus setting one hand of the Deity against the other. You remember that history tells us of a time when the hand of ecclesiastic authority was so heavy that no man dare say that the earth moved round the sun; and I am not sure that the great man who did say and maintain this, was not put to the rack before he would recant his assertion; for I have seen his signature to that recantation, and it is written in a hand so unlike his usual autograph, there is good reason to believe he was taken from the rack—the iron glove was exchanged for the pen with which he signed the paper declaring that the earth did not move round the sun; and we are told, too, that as he rose from his knees, he exclaimed in a whisper to his friends, 'but it *does* move though;' and now we know that it does. Yet this doctrine was opposed to all the religious prejudices of that day. Let us thank God that we live in an age when we have the right of private thought, even over the Scripture itself.

If we believe the Scriptures to be fully, unerringly inspired, they *must* agree with the irresistible evidences of nature, for these no man can change or cancel. To me they seem to harmonise, not only in reference to the periods of creation, but even in higher and more mysterious doctrines; these periods, called "days," and measured by the "morning and the evening," were as vast as geology shows them to have been, for aught the Scriptures say to the contrary; for how could they have been common days, as brief as ours, when the Scripture itself declares that the sun and moon, by which alone we measure time, were not yet created? And even at the commencement of the sacred history, there is a high doctrine of religion intimated in the word *Elohim*, Gods, designating a plurality in the creative power of the universe, which also agrees with the deductions of philosophy, for two spiritual or immaterial forces acting upon matter, appear not only to be absolutely necessary, but to actually exist, and thus the great doctrine of the Trinity is also one of philosophy. And may I not venture to add that this theory of creation, is beautifully revived and illustrated in the Christian creed of an incarnate principle, proceeding from two spiritual ones, and in the mystical symbol of the equilateral triangle, so profoundly revered by the ancient nations? And the creative and reproductive energies of this trinity of nature, are still in perpetual operation. As we have seen in the example of the acorn, and other seeds, one modification of matter is converted into another, and preserved in a distinctive character and type, through endless multiplications, by the original incarnation of the two creative forces, in matter possessing certain definite proportions. Nor is there a living form in nature which is not reproduced by these forces, from other kinds of matter, as in the original process of creation.

Prior, however, to our tracing the first successive periods of creation, as caused by a change in the position of the earth's axis toward the sun, we may briefly advert to certain minor influences upon cli-

mate, and therefore upon animals and vegetables, arising from another motion of the earth, of narrower limits and consequences. In the previous lectures of this course, I showed you from numerous observations embodied in Dr. Sherwood's Astro-Magnetic Almanac, for 1842, and not yet published, and from a memorial which was presented to Congress in 1839, that the earth is magnetised by the sun in the direction of its path from tropic to tropic, and therefore in the angle of the obliquity of the ecliptic or $23^{\circ} 28'$; that therefore the magnetic poles, or vortices, are situated at the same distance from the terrestrial poles, that the tropics are from the equator, $23^{\circ} 28'$, and therefore in latitude $66^{\circ} 32'$ north and south, which is that of the arctic and antarctic circles. I also proved that these magnetic poles or vortices, revolve in those circles at the rate of $32' 26''$ a year, and therefore perform an entire revolution of 360° in 666 years. Now in thus revolving, they affect not only the needle, causing it in every latitude to exhibit alternately an easterly and westerly variation, but also affect the climate in every latitude.—The magnetic poles or vortices, are the seats of maximum cold; and the line of no variation which runs between them, and which, as I have shown you, encircles the earth at the angle of 6 degrees 28 minutes with the earth's axis of rotation, exhibits the true angle of the isothermal lines of climate.—When the magnetic pole is nearest to any place, then is about the time of the greatest cold of that place; and as it is at opposite points of its circle of revolution in half of its period, or in 333 years, the maximum changes of climate take place in this time. Anciently, we had a climate suited to our latitude, and shall have it again, and we are now actually acquiring it. It was called the land of vines by the Northmen who visited it, and it will again be luxuriant in vegetation. For many years past, our winters of New-York have been more severe than those of London, which is situated in latitude $51^{\circ} 31'$, and therefore, more than ten degrees farther north. But for a few years past, since the year 1791, when the line of no-variation passed over our longitude, our winters have been gradually, though irregularly, growing milder, and those of Europe more severe; and they will continue to get worse there for about 300 years, while ours will improve. The Baltic, which used to be frozen over as our bays were, so as even to bear the transportation of cannon, will be so again. Iceland may be again unapproachable for ice, and sleighs and sledges, now unknown in England, may be familiar there and forgotten here, until the mild period comes round to them, and becomes again lost to us. The ice breaking up in the north-east of Europe, and crossing over toward the south-west, may cause our Springs to be fickle for some years; but after this, our seasons will be regularly graduated according to our highly favorable climate. It is an interesting fact, which I may here incidentally mention, that the track of the magnetic pole from east to west, is indicated by the northern lights, which are occasioned by its action upon a moist atmosphere. The north magnetic pole being a negative force, and water being a negative body, they repel each other, and those diffusions of light, which we see in the Aurora Borealis, are the consequent phenomena, for diffusions are always the result of repulsions, as contractions are of attractions. Hence the greater quantity of water in the southern hemispheres than in the northern, for the south magnetic pole being positive attracts the water which is negative, while the north repels it, for you will remember that forces of opposite denominations attract, while those of the same denomination repel.—Hence while a dry atmosphere is essential to an Au-

rora Borealis, a humid one is necessary to an Aurora Borealis. It is true, Captain Ross speaks of an Aurora Australis in lat. 74 or 75 north, but was beyond the north magnetic pole, which is lat. 68° 32', and although he was on the verge of its vortex, as was shewn by the great dip of his needle, it was thus to the south of him, and he accordingly saw the lights in that direction. When the humidity of the atmosphere extends from the latitude of the magnetic pole to that of the place of observation, the streamers will reach our zenith, and will be more or less gorgeous according to the continuity and quality of that humidity in the intervening degrees of latitude. The inhabitants of closely neighboring latitudes to that in which the pole moves, have often been terrified at the astounding magnificence of these displays. The people of Ireland, in particular, it is said, thought the world was coming to an end, as some of our timid people did when they saw the great shower of meteors, not being aware that it was only the magnetic end of the world that was passing through their arctic region at that time.—And there is very little doubt that the discovery of the latitude and rate of motion of these great controlling vortices of magnetism will evidently reduce the laws of variable climate to a science of great exactness.—*N. Y. Tribune.*

ANTHROPOLOGY.

MAN AND HIS DISEASES.

BY P. CUNNINGHAM, ESQ.

REMEDIES IN DISEASE.

The operation of rotation, so successfully employed by Dr. Cox, in the treatment of mania, I should set down as the most powerful of all general remedies, in the treatment of galvanic disease. It counteracts the central attraction of the electro-magnetism of the body by its centrifugal influence, thereby throwing it toward the surface, and even eventually from the body in proportion to the rapidity of the rotation, and consequently preventing its too powerful operation on the internal parts. It is no doubt through the influence of this rotation, that the electro-magnetism is made to form zones encircling the superficies of the earth, a rotation which is seen, in the experiments upon bodies in the class room, to eventually eject the above from their superficies in shape of sparks. While rapid rotation thus checks diseased action, a milder application must tend to equalise the electro-magnetism throughout the body, and thereby keep it in health. Swinging, cradle-rocking and horse-back exercise, no doubt act beneficially in a similar way, but rotation must be infinitely more powerful than any of them; so powerful indeed, that I have no doubt even death might be occasioned by carrying it on too rapidly and too long.

Sleep is always found to result from a moderate use of it, and vomiting and fainting, when carried to a greater extent; an extent, however, which, in acute diseases, it may be often necessary to proceed to. We see a natural instinct in man to resort to this powerful remedy for relief, in his rolling about when in acute pain, and instinctively turning in bed, when restless and uneasy, for the attaining of ease and sleep; by this not only equalising the body's electro-magnetism, but changing also the poles thereof. Even animals seem well acquainted with its useful effects, always rolling themselves after their day's work, as well as when disease attacks internal parts, particularly in inflammation of the bowels and colic.

BLEEDING.

This is always found to be most effective when carried to vomiting and fainting, by which its primary effects seem assimilated to rotation, from evidently causing the above effects through sudden electro-magnetic subtraction. When bleeding, however, is resorted to in small and repeated quantities, a stimulant effect is the result; a white dry tongue, quick pulse, thirst, flushed face, and all the other usual febrile symptoms ensuing, when this practice is adopted.

Dr. Watts' treatment of diabetes is an exemplification of this; similar ones to which I have witnessed in other diseases subjected to repeated bleedings, and the same must have occurred to every medical man during his practice. This general febrile excitement may be accounted for, by the gradually thinner state of the blood admitting the electro-magnetism to act more and more readily upon it, in the same way as we find the more fluid kinds of food to be more readily acted on in the stomach, or digested than the more solid. It is, indeed, a common custom with farriers to take small bleedings from poor horses, for the purpose of bringing them into good condition, these acting as most useful alteratives when excrementitious disease prevails.

AELUTIONS AND FRICTIONS.

When we contemplate the important offices performed by the skin, of its not only being the medium of transmission of all the electro-magnetism to and from the body, required in the performance of the various functions, but the outlet for one of the principal bodily excrementitious secretions—viz. the perspiration; the necessity, therefore, of keeping this important communicating medium in a state of health is sufficiently obvious. Spongings with water, and frictions with a hard towel, have been, in fact, found to render the most important services to the general health, by every individual who has put this plan in practice, increasing the hilarity of the spirits, giving a comfortable feel to the body, promoting the appetite, and steeling the system against the influence of the various diseases which may be prevalent at the time.

INSULATION AND CAUSTICS.

As electro-magnetism, the food of all diseases, passes to these through the pores of the skin, hence the covering of this with a non-conductor, or the conversion of the skin itself into a non-conductor, must have a powerful influence over disease, by cutting off its electro-magnetic supply. Flannel, cotton and silk padding, flour, various of the metallic oxides, and resin-plasters,—all non-conductors, must owe their beneficial effects principally to this virtue in them; while the mere dyeing of the skin of a dark color will necessarily exercise a similar influence by cutting off the supply of *one*, at least, of the above active bodies, which is no more, probably than what the greater portion of the others perform. This dyeing of the skin I have hitherto effected by a solution of nitrate of silver, and have witnessed from it the most beneficial effects in arresting the progress of incipient tumours; but I doubt not, that the same good would result from a coating of paint, of which colours I conceive white would be the best, from its repelling the electricity and attracting the magnetism by which excrementitious action (the action desired) will be excited, and the excrementitious action consequently arrested. Blisters perform a double office; not only translating the internal galvanic disease to the surface, but, by their oxidating effects upon the skin, preventing the further ingress of electro-magnetism to the disease.

Of all the blisters, nitrate of silver is decidedly the best, because its action commences the moment it is applied, while the action of the common blister does not take place for several hours, during which time the disease within may have made a rapid progress toward an unfavorable crisis. I never witnessed the slightest bad symptom produced, even by the most extensive application of this very active remedy, having been obliged once to cauterise the whole of the abdomen in the course of a few days, to arrest the progress of a violent attack of peritonitis, which continued obstinately spreading beyond the verge of the first partial applications. Whatever insulating coverings are made use of, should embrace the surface closely, so as to prevent the atmospheric air from circulating between them and the skin, otherwise but little comparative benefit will be derived from their application.

SEDATIVES AND NARCOTICS.

During sleep there is a cessation of all the voluntary actions, and a diminution even of the involuntary, as evinced by the slower state of pulse and respiration than when awake. As all the above, therefore, are dependent upon galvanic action, whatever diminishes the activity of the latter, must necessarily conduce to sleep; and as I have previously exemplified that electricity in excess, or magnetism in excess, decrease this activity, and in large amount even cause a total cessation of it, so therefore both electricity in excess and magnetism in excess, must tend to sleep, and even, at last, death itself, when in too great quantity.

This reasoning seems borne out by the effects of electricity or magnetism in excess, upon the human body: great heat or great cold, a large dose of spirits, or a large dose of opium, all exerting a soporific power upon the constitution. The soporific influence of rotation seems referable also to its decreasing the galvanic activity, which it may accomplish in two ways, either by throwing out the electro-magnetism from the system on which the galvanic activity is dependent, or otherwise by causing that on the surface to move in a circular manner thereon, and thereby prevent it from passing inwards to keep up the galvanic activity there. It is in this way that what is called animal magnetism produces, I conceive, its soporific effects, the hands, or whatever other substances are used to excite it, being made to describe circles on the body's superficies, until sleep is induced. I had been accustomed to consider animal magnetism as a mere deceptive quackery, until informed of the extraordinary effects of it publicly exhibited by a Spanish quack at Tacna (Peru), upon a large portion of the population there, and in presence of individuals too acute to be deceived and too honorable to lend their name to any species of imposition; though the operator naturally made himself contemptible in their eyes, by avowing not only its capability of curing diseases but of revealing the situation of hitherto hidden gold and silver mines, during the opiate kind of dreams to which it gave rise. Some who witnessed the facts, ascribed them, as is usually the case, to the imagination; a power, no doubt, possessing immense influence over all the bodily functions; but when we consider that the superficies of the human is covered, like the superficies of every substance, living or dead, by a mass of electro-magnetism, we may presume that the disturbing of the usual motions of the latter, must have considerable influence also over the above functions.

Should the excitation of a circular motion among the currents of the electro-magnetic elements be the real cause of the soporific effects produced by animal magnetism, its failure in many cases may be ascrib-

ed to the part of the human body operated upon, and the operating body, being both in the same state of electricity, and consequently repelling each other. Thus in a human body stretched horizontally in the northern hemisphere, the under part will be magnetic and the upper electric; and should the outspread fingers be made to describe the circles upon it, they will be magnetic when dependent, and electric when elevated; so that to produce currents in the upper parts of the body, the fingers must be magnetic, and *vice versa*, if in the under part of the body; because they will then attract instead of repel the substance they are intended to excite a motion in, and thereby draw a current of it after them. That many of the popular charms cure disease by their influence on the imagination there can be but little doubt, because upon it only can many of them act; but in local diseases the curative effect may, I conceive, be often ascribed to the circular motion given to the electro-magnetism of the superficies, by the circles usually described on such occasions, by the fingers of the operator, round the seat of the disease, during the mumbling over of the mystic words through whose influence the cure is supposed to be effected. Substances are considered narcotics which produce a sedative effect upon the system; an effect arising from a diminution of action in all the bodily functions, whatever the nature of these may be. Now as both electricity and magnetism in excess, as well as electric and magnetic substances in large doses, excite a sedative action; so electricity and magnetism in small quantities, as well as electric and magnetic substances in small doses, may be presumed to excite a stimulant effect, and such indeed seems to be the case; heat and cold in moderation, as well as spirits and opiates in moderation, acting uniformly as stimulants; the effect of the dose, however, being naturally proportioned to the amount of electricity existing in the body at the time.

But as recrementitious diseases, viz. those of a stimulant or electric nature, and excrementitious diseases, or those of a sedative or magnetic nature, are apt to terminate in each other, hence great caution is requisite when such diseases so alternate with each other in the system, as to the mode of treatment pursued; because sedatives in excess during the stimulant paroxysm may excite a too powerful excrementitious action, and in the same way stimulants in excess during the sedative paroxysm may excite a too strong recrementitious action, by either of which, in excess, life may be destroyed. Several of the types of fever afford an illustration of this, but the disease called delirium tremens the best of any; bleeding in some cases of this having been of decided benefit, and in others productive of fatal results, the error arising from being either employed continuously or else carried too far, and hence a medium treatment is, on this account, considered the safest to pursue; namely, the exhibition of purgatives in moderation, to excite a moderate excrementitious action, and that of stimulants in moderation, to excite a moderate recrementitious one, so that by the moderate use of two opposite remedies an equilibrium between the above two actions may be attained.

STIMULANTS.

These may be divided into the active stimulants, producing an immediate stimulant effect, such as food, spirituous liquors, tea, coffee, &c., and slow stimulants producing a slow stimulant effect, such as various of the non-purgative neutral salts, various of the metallic salts and oxides, &c.; the difference of effect between the two being probably owing to the different facilities of their decomposition, so that

the active stimulants being decomposed in the intestines, would naturally produce a quicker excitement than the slow stimulants absorbed into the circulation before decomposition was effected in them. This view seems corroborated by stimulants in excess producing a sedative, or excrementitious action, consequent on the primary stimulant, or recrementitious one, which would naturally be the result when the stimulant substances were in large amount to be *wholly* decomposed in the recrementitious vessels; the undecomposed portion of them now passing into the excrementitious vessels, and consequently causing by its decomposition there an increased galvanic action throughout them, so that their secretions being of a fluid excrementitious nature these would be poured out in greater quantity.

ALTERATIVES.

These may be either stimulants or sedatives, the name signifying simply a capability of altering diseased action, or, in plainer language, translating of it from one class of vessels to another; the stimulants changing the action of the excrementitious to the recrementitious vessels, and the sedatives from the recrementitious to the excrementitious vessels. Proper caution must, however, as I have before remarked, be observed, not to push either course of treatment too far, in case the new action produced should be so powerful as to be equally prejudicial to bodily health with the old one which it succeeded.

I have already exemplified that either electricity or magnetism in excess retard the decomposition of bodies, and to this excess of electricity in the slow stimulants, and of magnetism in the slow sedatives, may probably be ascribed the slower decomposition and consequent tardier action of the above than of the more active; and to this proportionate tardiness of decomposition, indeed, even the recrementitious and excrementitious remedies may, in a great measure, owe their respective effects; because electricity being more powerful in its attractions and repulsions than magnetism, the electric or recrementitious remedies would therefore be decomposed before the magnetic remedies, the latter of which passing into the excrementitious vessels, in which the recrementitious terminate, before decomposition commencing in them, would consequently thus excite an increased galvanic action there.

All sedatives tend to increase the fluid secretions, and to diminish thereby the solid secretions, and consequently the body's solid bulk; while all stimulants tend to increase the solid secretions, and thereby diminish the fluid secretions, and consequently to increase the body's solid bulk; there being little difference between a recrementitious disease excited by mercury, salted, or easily digestible food, or ardent spirits; the same enlargements of the bones and other solid parts, and the same spongy gums, salivation, and fœtid breath, being liable to ensue in all.

POISONS.

The active stimulants and sedatives operate as poisons in large doses, it being only in small doses that they operate as alteratives; producing death in large doses, as I have previously illustrated, by causing a cessation of galvanic action in the system. In medium doses they will cause death again by either the excessive recrementitious, or the excrementitious action which they have respectively the power to excite, both actions being, however, usually blended in the deaths from medium doses, on account of recrementitious and excrementitious disease being so apt to terminate the one in the other; and thickening and redness in the coats of the stomach, as well as ulceration thereof, are generally met with in dissections of deaths from the various poisons.

EMETICS AND PURGATIVES.

Emetics exciting a contraction of the muscles of the stomach, and thereby ejecting its contents, their action must consequently consist in extracting the electro-magnetism from the muscles on which their dilatation depends.

In the motions of the involuntary muscles, as exemplified in the heart and arteries, the extent of their contraction by the withdrawal of electricity seems always to correspond to the extent of their previous dilatation by the electric infusion into them; and hence I conceive that the contraction of all the involuntary muscles, at least, must be induced by a large infusion of electricity into their fibres immediately previous to the above contraction. This view seems collaterally corroborated by the contractions excited by the electric shocks always corresponding in intensity to the intensity of these shocks. That emetics and the stimulant purgatives, therefore, should excite contraction of the muscular fibres of the stomach and intestines by a previous infusion of electricity into them, seems very probable, and is, indeed, in some measure, borne out by the three powerful emetic substances, sulphate of copper, sulphate of zinc, and mustard, giving out heat during their mixture with water, owing, most likely, to their containing greater amount of mass-electricity than of mass-magnetism. The various remedies, again, which give out cold during their mixture with water, must contain a greater amount of mass-magnetism than of mass-electricity, none of such, that I can recollect, acting as emetics, but all operating excrementitiously upon the bowels, the skin, or the kidneys, as we find nitre, glauber, and Epsom salts to do. Hence we have warm and cold purgatives, the first being chiefly indicated in excrementitious diseases, and the latter in recrementitious; the first acting as stimulants before a sedative action can take place, and the second exciting a sedative action eventually followed by a stimulant one, if the primary sedative one is not maintained by a continuance at short intervals of the cold purgative doses.

Some of the stronger poisons, such as arsenic and opium, operate as emetics, in large doses; their action, however, being instantaneous, while that of the common emetics is usually slow; therefore, as the electricity must be extracted from the muscles to cause them to contract, the above poisons must contain a considerable portion of electric attracting matter, in order to excite the above emetic effects. This seems evidently the case, from both arsenic and opium, in small doses, having usually a primary stimulant action; though this stimulant principle is now separated from the narcotic principle of the opium, in the substance known by the name of morphine, whose action seems to be of a directly sedative nature. Emetics, when not operating as such, usually produce a purgative effect, and hence the principal difference of action between the generality of poisons, emetics, and purgatives, seems to be in the comparative facility of their decomposition; poisons and emetics being of easier decomposition, consequently undergo this in a great measure before leaving the stomach, while the more difficult purgatives are enabled to pass onward to the intestines, before decomposition has proceeded far in them, and consequently excite their peculiar actions there. The exact difference between the composition of human food, and of poisons, emetics, and purgatives, as far as regards their comparative electric and magnetic affinities, is an intricate question to decide; but certainly food, instead of affording healthy nutrition, frequently operates as a poison, an emetic or a purgative; of en, indeed, combining more or less the actions of the whole three.

The above effects of food must arise from the disproportion of electricity and magnetism in it or in the atmosphere, but generally from excess of magnetism in the one or the other, from the diseased action produced by bad food being generally of an excrementitious nature. Food in a state of decomposition is apt to produce such effects, though they are equally liable to arise from food not easily decomposable, or taken in greater quantity than the galvanic action in the stomach can digest. The palate here serves as a useful monitor as to what is required to render food wholesome, and if we only attend to its dictates, few bad consequences would accrue from any meal of the usual food to which it is accustomed; the common condiments, pepper, salt, mustard, and vinegar, being all put in requisition by it, according as its judgment dictates; and in quantities, too, to render this food either more digestible or less so, as it finds the peculiar state of the stomach to require. The partial putrescency of food does not render it unwholesome, provided proper condiments be used; it being often necessary to let tough beef, mutton, and fowls hang till this begins to take place in order to make them more tender, and thereby render them more easy of mastication as well as of digestion. Game, indeed, is considered unfit for use until putrescency has considerably advanced in it; fuding, as is the case, that this renders it even more wholesome than in the fresh state, provided a proper mode of cooking be pursued. Hence the immense quantities of meat and fish yearly destroyed in London, might, by very simple means, be converted into wholesome food, and a great waste thereby prevented in the staples of life; boiling it with some lumps of charcoal destroying the fœtor, and salt and pepper rendering it agreeable to the palate, as well as salutary as an article of regimen.

During the prevalence of cholera, many fatal cases are recorded as arising from the use of putrescent food; but the same was also observed from an over indulgence in fruit, and hence it would be unjust to draw general conclusions from the action of either at a solitary period, and thereby set both down as pernicious. When the cholera existed in H. M. S. Tyne, I remarked that the common doses of purgatives, to remove ordinary constipation in persons of full health, produced the most violent cathartic effects; and those accustomed to take occasional purgatives must have often remarked that the same dose which, at one period, may fail, at another operates in the most powerful manner; all doubtless arising from either the peculiar electro-magnetic state of the atmosphere, or of the person's own body.

ELECTRO-MAGNETISM.

This being the exciting cause of all the actions in the human body, hence in some diseases a continued galvanic stream kept up through the body, or any local part thereof, where there was a deficiency of action, might be productive of very useful results; while, in others, a saturation of the body with electricity solely, or with magnetism solely, might be equally beneficial. This saturation could, of course, be only accomplished by placing the patient upon an insulated bed, and connecting him with the electric or magnetic wire, according as either was required; insulating the bed upon both glass and resin, in order to render the process sufficiently secure. In excrementitious diseases the body should, of course, be saturated with electricity, and in recrementitious diseases with magnetism; a suggestion worthy of consideration in those terrible disorders, tetanus and hydrophobia, which have hitherto baffled medical skill. The magnetic wire might probably be also be usefully applied in enlargements

of the solid parts, from the excrementitious action, and consequent diminution of size, to which it would give rise. Iodine, a most successful application in such cases, I doubt not, produces a similar excrementitious action from being a sedative, and consequently a magnetic attractive body; but it is only applicable in external diseases, while the magnetic wire can be readily applied in several of the internal, by constituting it of gold, and insulating it in a caoutchouc bougie, or some other equally effective substance. In enlarged prostate the wire might be introduced through the rectum, into contact with the part, while in enlargements of the liver, the magnetic stream might be directed through the seat of the pain, as showing the channel to the disease. The stone in the bladder may be yet found reducible by galvanic action, either by the application of two wires insulated contiguously in the same substance, or by that of the single wires, according as the stone was affected by acids or alkalies; that is, by magnetic or electric substances. The chief difficulty would be to know which of the two, electricity or magnetism, was most suitable for the decomposition of the stone, or whether it was of such a composition as to require the influence of both the wires. This might be guessed at by the chemical examinations of weak acids and weak alkalies injected into the bladder, the calculous matter soluble in the acids naturally requiring magnetism in excess to decompose it, and that soluble in the alkalies requiring, on the contrary electricity in excess; because whether you introduce magnetism solely or electricity solely, the one introduced would always attract a sufficiency of the other from the human body to enable it to carry on a local galvanic action in the part to which it was applied. The action, however, of the two wires would, I conceive, be the most effectual, provided the point of the bougie containing them could be applied directly to the stone, which would not be a difficult matter to those accustomed to use the sound; the bladder being necessarily filled in such cases with some imperfect conducting fluid capable of protecting its coats from the action of the wires. My friend Mr. Copland Hutchison, in an ingenious paper upon calculus, has proved the extreme rarity, if not actual non-existence, of calculus among seafaring men, which he attributes to the quantity of alkaline matter in their food. This alkaline matter being the muriate of soda, an active recrementitious substance, the active recrementitious action produced by it would tend to prevent excrementitious action, and the depositions consequently resulting therefrom; as a too high recrementitious action in all female animals is shown to prevent the generation of their species, which not being a substance requisite for the sustainment of any of the actions by which the female body is kept in health and vigour, is therefore an excrementitious substance as relates to the female body, as its ultimate ejection therefrom sufficiently proves.

PARTICULAR DISEASES.

PREFATORY REMARKS.

In both recrementitious and excrementitious diseases, rotation and insulation will be equally beneficial. Indeed, we often see nature attempt the latter by the formation of an oxidated crust, or scale upon the skin, in various cutaneous complaints, through which the progress of the complaint is checked. As a general rule, I think it must be beneficial to insulate the brain, in all acute diseases, seeing the powerful influence, either direct or indirect, which it exercises over every part and function of the body. This point was strongly impressed upon

me in case of an inflamed bladder on board the Tyne; the patient's great relish for vegetable acids assured me that the action was recrementitious; and after bleeding, insulating, and other requisite treatment, he was at length enabled to pass his urine freely. Two relapses, however, induced me to consider the disease more particularly, and finding that the attacks always commenced when he attempted to pass his urine, and were preceded by great pain in the back, where the nerves of the bladder have their origin, I concluded, therefore, that the volition to contract the bladder was too intense for its irritable state, and that the brain must be consequently insulated also. After effecting this by means of a tightly bound silk handkerchief, and directing not to urge too strongly the urinary flow, but await patiently nature's milder efforts, no further relapses took place, and a speedy convalescence succeeded.

MADNESS AND MELANCHOLY.

Both of these being diseases of the mental functions, consequently point out the brain as the active seat thereof; the increased excitement in the first showing it to be an electric, or recrementitious disease; and the diminished excitement in the second, that it is a magnetic, or excrementitious one. As, however, recrementitious and excrementitious diseases so often alternate with each other, it is a great point to ascertain in compound diseases, if I may so term them, which of the two is the primary or principal affection, because to this the leading points of treatment should be mainly directed.

Rotation, that active remedy so successfully employed by Dr. Cox, as well as partial or complete insulation of the head, would, I conceive, be equally useful in both diseases: the first by equalising the electro-magnetism of the body, and the second by preventing a morbid application of it to local parts, while swinging in bed, to moderate the above morbid electro-magnetic introduction, and purgatives to promote the healthy state of the excrementitious bowel discharges, must be also beneficial in both, when due caution is observed. Ablution and friction of the skin should, also, never be lost sight of, because on an unhealthy state thereof disease must be more or less dependent, from its being the great medium through which the whole of the electro-magnetism, retaining the body in health, or throwing it into disease, is conveyed. The clearing of the skin, therefore, from morbid excrementitious matter, I should conceive to be quite as necessary to bodily health, as the clearing the intestines therefrom, seeing that the functions of both are upon a par as to their relative importance in sustaining the animal machine in a sound and vigorous state.

The science of phrenology seems destined to be of great service in the treatment of mental affections, because, when only one of the mental organs is diseased, the local remedies required may be applied solely thereto, without making the same general to the whole of the head, which in some cases may be of doubtful utility, particularly such where there is an increase of excitation in one organ, and a diminution thereof in another.

FEVER.

As far as my own observation extends, the brain seems to be the primary part affected in continued fever, and therefore insulation of the head after effective rotation will, I conceive, generally check it at the commencement. I found, indeed, insulation of the pained parts of the head alone, by means of lunar caustic, to accomplish this in five cases consequent on cholera, where the forehead pain, flushed face, peculiar excitability of the eye, hot skin, and quick pulse, predicted an incipient typhus; sound

sleep, and a speedy cessation of all the above symptoms, ensuing therefrom. Swinging in a cot in the interval between the rotations, must be evidently of infinite service in all general diseases, and hence should never be omitted in acute ones. Ablutions, frictions of the skin, and purgatives, I have, in a preceding chapter, already sufficiently expatiated upon as remedies in general disease. All the above, when used with judgment, must be equally beneficial in both the recrementitious and excrementitious fever; but as I have never seen any species of continued fever that was not of a mixed nature, therefore the primary or leading action of the two must be the one to which attention should be chiefly directed.

Recrementitious action has always appeared to me to be the leading action in the various fevers I have met with; acid fruits and drinks being as much relished during the continuance of the fever, as salted and high-seasoned substances were after its cessation, when the excrementitious action by which the previous recrementitious fever had been cured was proceeding to too great an excess, and thereby made premonitory demands upon the palate for articles capable of checking its further increase. Cold affusion, as a general remedy, must be as often hurtful as beneficial in recrementitious disease, from its temporary sedative effects being speedily followed by those of a stimulant nature; so that when recrementitious action is the leading disease, the cold applications must be *constant* (at least while the recrementitious action exists) to insure a beneficial result. When these cannot be made constant to the whole of the body, or it might appear injudicious so to apply them, the keeping up of a continued evaporation from the hands and feet might answer all useful purposes, seeing that the temperature of the whole body is so readily affected through them.

The period when cold affusion is most likely to be of service, is during the excrementitious portion of the febrile paroxysm, when a sudden dash of a bucket of cold water over the body, followed by brisk dry frictions with towels, might cut the paroxysm short by the subsequent stimulant action which it would create. In a former chapter I have exemplified the fact of electricity in great excess acting as a sedative like magnetism; and hence, when such is the case in the human body, a moderate application of cold or other sedative remedy will act as a stimulant, by reducing the electric excess causing the above sedative effect.

When, therefore, excessive depression in the nervous and vascular system exists, it is an important point to decide whether excess of electricity or excess of magnetism be the cause thereof, from magnetic remedies being required in the former, and electric remedies in the latter. In the violent febrile affections where excessive recrementitious and excrementitious action alternate rapidly with each other, fatal consequences, however, must frequently ensue from excrementitious remedies being applied in excess in the former period of the febrile paroxysm, or recrementitious remedies in excess in the latter, in consequence of the excess of an opposite action to that which these remedies were intended to counteract, being induced by an excessive application of them singly. Thus, in many febrile diseases, where the great fulness of pulse, heat of skin, and apoplectic torpor of the brain, indicated an excessive stimulant or recrementitious action, a large bleeding, though affording instant relief, has often been the cause of death, from the excessive sedative or recrementitious collapse to which it has eventually given rise. In such cases, therefore, the bleedings must be small, to be safe; the securest way of proceeding, however, being to reduce the excessive stimulant action by the

cautious application of cold, or by a gentle dose of some directly sedative remedy, in a similar way as we gradually reduce excessive magnetic collapse in a frozen limb by the cautious application of stimulant remedies, which applied in excess would insure its destruction by the excessive electric or stimulant action to which they would eventually give rise.

Charcoal being a highly combustible body, and a good electric conductor, as well as the most efficient substance known for preserving dead matter from putrefaction, or of checking this when it has commenced, hence I would consider charcoal powder as the most powerful stimulant or recrementitious remedy that could be administered in the excrementitious stage of fever, particularly in the advanced state, when excrementitious action begins to exceed the recrementitious, and thereby eventually either cures or kills.

The as great regularity in the return of intermittent paroxysms as the revolutions in the planetary and cometary bodies round the sun, point to something like an analogy between the causes upon which both are dependent for this coincident uniformity, and I conceive the regularity of the intermittent revolutions to be explainable on principles assimilating to the planetary revolutions, viz. by the magnetic currents ushering in the primary cold paroxysm, circling in a definite period round some of the surfaces of the body. There are three surfaces where the mass-electricity and magnetism could be contained, for each to follow the respective courses of motion I have ascribed to them, viz. the skin, the peritoneal lining of the abdominal parietes, and the peritoneal covering of the intestines. The greater the predominance of electricity, or heat, upon a surface, the more rapid will naturally be the electric and magnetic motions thereon; so that I would attribute quotidian to the magnetic current circling round the intestines, tertians to that circling round the internal abdominal parietes, and quartans to that circling round the skin. From the feelings in my own case, as well as of those laboring under intermittent disease, the cold paroxysm seems to be induced on those currents reaching the spine (the origin of many important nerves), from the first sensation of cold being experienced there. It is a curious fact, that the internal or external application to the body of any substance exciting galvanic action, will bring on an intermittent paroxysm earlier than usual, when the above is applied near to the period of the paroxysm's expected return. I have observed eating frequently produce this effect; and in my own case, the first premonitory symptoms experienced were on taking a glass of Madeira and a biscuit at luncheon time. The Peruvians, from having intermittent paroxysms so often brought on by washing or shaving, cannot therefore be persuaded to attempt either when laboring under this complaint, and any medical man who advised these would risk the loss of his practice.

MISCELLANEOUS.

MEDICAL THEORIES.

If it require the establishment of first principles to constitute a science, it would seem to follow, that this is a distinction to which medicine is not yet entitled, inasmuch as we know, that in the various medical theories more things are assumed, than in almost any other department of scientific investigation.

As a matter of curiosity, we give the following from the *Medical Reformer*, as specimens of the various medical theories which have their advocates at the present time.

DR. BROWN'S THEORY.

1st. To every animate being is allotted a certain portion of the principle on which the phenomena of life depend. This principle is denominated excitability. 2d. The exciting powers are external and internal stimuli. The former are heat, food, wine, poisons, contagions; the latter, the functions of the body itself—contractibility, thought, emotion and passion. 3d. Excitement is the *effect* produced by the action of the exciting powers, or excitability. 4th. Life is a *forced state*. If the existing powers are withdrawn, death ensues, with as much certainty as if the excitability was gone. 5th. By too great excitement, weakness is produced, because the excitability becomes defective. This is *indirect debility*. Here the excitability is in excess. Ergo, when the excitability is *defective*, it produces *indirect debility*; but when the excitability is *deficient*, it then produces direct debility. 6th. Every power that acts upon the living frame is a stimulant. 7th. Excitability is seated in the medullary portion of the nerves, and in the muscles. Dr. Christie has illustrated this theory, by a familiar similitude. Suppose a fire to be made up in a grate filled with fuel, not very combustible, and a machine placed before it, containing several tubes pouring constant streams of fresh air upon it. Suppose another pipe, fixed at the back of the grate, through which a constant supply of fresh fuel was poured into it, to supply the waste occasioned by the flame. The grate is the human frame; the fuel in it, the matter or principle of life; the excitability of Dr. Brown, and the *sensorial power* of Dr. Darwin. The pipe behind the grate, pouring in fuel, is the power of the living system to Regenerate itself, or re-produce excitability; the air machine with several tubes, is the various stimuli acting on the body, and the flame is the phenomenon of life. Thus the curious and comprehensive system of Dr. Brown is summed up briefly in this plain similitude, to which is added this further illustration: "As life is a forced state, according to the doctor, it is said, when one tube of the machine pours in pure air, this signifies the highest degree of stimulant; when common atmospheric air, the common stimulants of food, drink, &c., and when impure air, it indicates the sedative powers, as poisons, putrefactions, marsh miasmata, foul air, stagnant water, &c. From these few examples, it is an easy matter to understand Dr. Brown's Theory. The more a spark is blown, the brighter it burns, and the sooner it is spent. This sage saying exemplifies what is remarked by Dr. Brown, when he affirms that the stimulating powers support life, and at the same time consume it, because they waste the excitability; therefore, the necessity of sleep, when all the exciting powers are withdrawn, to give the living principle time to accumulate its excitability.

DR. RUSH'S THEORY.

With Dr. Brown, he affirmed, 1st. Life to be a forced state. 2d. Life, as applied to the human body, included motion, heat, sensation and thought; these four when united, compose perfect life. 3d. Every part of the human body, nails and hair excepted, is endowed with excitability. *Sensibility* means, the power of having sensation excited by the action of impressions; *excitability*, the power of having motion excited by means of impressions. 4th. The human body is so formed, that if impressions be made upon it, in its healthy state, in one part, it will excite sensation, or motion, or both, in every other part; hence the body is a *unit*; ergo, disease is a *unit*. 5th. Life is the effect of stimuli acting on the excitability and sensibility, which are

extended in different degrees over every part of the body. Dr. Rush agrees with Dr. Brown, that life is a forced state, and the effect of stimuli. He divides these the same as Brown, into external and internal. But for the matter or principle of life itself, he adds sensibility to Brown's excitability. He will not admit with Brown, that debility is disease, but only a predisposing cause of disease. Disease consists of a morbid excitement, and the cure of disease consists in restoring the equal diffusion over the whole body. Air, by exciting respiration, gave the first impulse of life. When man was formed, God breathed into him the breath of life; that is, says the doctor, atmospheric air, dilating his nostrils, inflating his lungs, and thus excited in him the whole phenomena of animal, intellectual and spiritual life. And hence, life is the effect of stimuli acting on an organized body.

DR. THOMSON'S THEORY.

All bodies are composed of the four elements, *earth, air, fire and water*. Earth and water constitute the solids, and air and fire the fluids of the body. The healthy state consists in the proper balance and distribution of these four elements, and disease by their disarrangement. All disease is caused by obstruction; the mode of cure is to remove it by diffusing heat over the system; for *heat* is life and *cold* is death. All diseases are the effect of one general cause, and therefore require a general remedy. Whatever supports the internal heat and directs the determining powers to the surface, will expel the disease and save the patient. Through the long experience of fifty years, Dr. Thomson thinks he has discovered those medicines and that mode of practice, which will accomplish this object. He has tried them on the most hopeless cases, and still found them effectual. Indeed, such was the nature of his trials and difficulties, that he was only called in to the aid of the patient, when given over to death by the other physicians. The progress of his skill was therefore *tested* by a succession of the most desperate and deadly maladies. If it be objected to his system, that the four elements composing the human body, are not a correct enumeration of primary substances, I would reply, that it is the most simple, obvious and ancient distribution of the primary elements. It was Aristotle's division, and that of many other celebrated philosophers. Indeed, it is not long since the physiologists and chemists began to add to the number of primary elements. From 7 to 9 and 46, they have summed up the number at different times; but they are not now sure whether this last number should be enlarged or diminished. Indeed, they confess that the real, simple, elementary principles of matter, will never be discovered. The natural division of Thomson answers all the purposes of his system, and the operations of the healing art. The assertion, that *heat is life*, is at least, as philosophical as the affirmation of Dr. Rush, that *motion, heat, sensation and thought*, when united, compose perfect life. His cause of disease, being ascribed to obstruction, seems to amount to the same as Dr. Rush's morbid excitement; and that *cold is death*, is about equal to the extinguished excitability of Dr. Brown. The conclusion of the whole matter is, that Dr. Brown perceived that the systems of medicine were too complicated, and therefore, uncertain and false in many of their principles. He by a close attention to facts in his own case, discovered a method of curing disease, at once simple and comprehensive, extending to all cases. Dr. Rush understood well, the value of his mode of reasoning, and though he has added sensibility to the system, he has not much improved it. Brown is more phil-

osophical than Rush, for he gives the principle of life merely a name, which serves his purpose—excitability, without pretending to say what it is, whether a substance or a quality of substance. He says it is somewhat which he cannot pretend to explain. And this is surely better than to make life the mere effect of the united action of organization and stimuli. Dr. Thomson might only intend, like Dr. Brown, to express the phrase, *heat is life*, the unknown *somewhat* which he could not describe, and that *cold is death*, he might only mean the effect of death. *Cold* is generally considered a negative term, to express the absence of heat. Dr. Raye says, it is the effect of a condensed or cold ether, from which heat has been expelled. Plato calls it a fluid of gross particles, which presses upon and stops the pores of the body, excluding heat. Life is a metaphysical subject and cannot be investigated by the laws of physics. Dr. Thomson in calling heat life, has more philosophy on his side than people imagine. Light, heat and fire, are only the same substance in different states or conditions, and acting in a different manner. They are all signified by the same word in Hebrew, Greek, and Latin. "Some of the ancients affirmed, that light gave an organization, sensation and thought, to the primitive chaos, and is the pabulum of all living things. It is the purest, brightest and most beautiful of all that we behold, of the worlds of the creation." Plato, in *Timæus*, asserts that fire and heat beget and govern all things. He accounts for the animal functions, from air and fire joined, acting through the whole body; fire expanding within and fire compressing without. The Abbe le Pluche says there are but three fluids, which by their continued activity cause all motion; these are, fire, light, air, and they are the breath of life. These active agents, the heathen held to be intelligent, and the gods that govern the whole universe. Fire and air, they called the active moving powers, and earth and water the passive elements. These opinions correspond with Dr. Thomson, who thinks with them, that the circulation of the blood is caused by the expanding power of heat within, and the compression of air without. The activity he has assigned to them, agrees with the most reputed systems of ancient philosophy. An egg cannot hatch, says Dr. Ray, without air and heat. They have absolute dominion over all things. The circulation of the blood is from internal heat, and the external air pressing into the lungs, they serve as a pump to draw the blood from the heart, and the air keeps this pump in motion. The air is to the body, what the weight is to the clock, and the heart with its valves as a pendulum to regulate its motions. Dr. Brown, by reducing all diseases into two classes, *sthenic* and *asthenic*, ascertained, at once, to which class the complaint belonged, and proceeded accordingly to remove the debility. Dr. Rush, by making disease a unit, caused by morbid excitement, and its *state* or condition, to be ascertained by the pulse, would decide with equal facility, on the mode of cure; equalize the excitement. Dr. Thomson, by making disease the general effect of one general cause, *obstruction*, has fixed his remedy, like the others. Remove the *obstruction*, is his cure. Remove the *debility*, was Dr. Brown's cure. Remove the *morbid excitement*, was Dr. Rush's cure; and all diffusive stimulants. The *debility* was removed by diffusive stimulants; the *morbid excitement*, by diffusive stimulants; the *obstruction*, by diffusive stimulants. These gentlemen, though they have travelled in far diverging paths, yet at the end of their journey, they have met almost in a single point. They began their career together, about the end of the last century, and before the

middle of the present, it is impossible to say what may be the estimation in which they may be held by the world, or cures effected by their discoveries.

INFLUENCE OF SOLAR ECLIPSES ON ANIMALS.—M. Arago, in his account to the Academy of Sciences of the solar eclipse of 8th July last, stated that he had often heard accounts of birds dying from the mere influence of an eclipse of the sun, but could scarcely credit the statement, as they could only die from fear, and the discharge of a gun ought to frighten them much more, and yet it is certain that it does not kill them, unless they are actually hit. One of M. Arago's friends made the following experiment: He placed five linnets in a cage, that were lively and active, and fed up to the moment of the eclipse; when the eclipse had terminated, three of them were dead.

A dog was kept fasting from morning; immediately before the eclipse he was offered food and fell on it greedily; but when the dusk commenced, he suddenly ceased eating.

The horned cattle in the fields seemed affected with a kind of vague terror; during the eclipse they lay down in a circle, their heads being arranged towards the circumference, as if to face a common danger.

The darkness influenced even the smallest animals. M. Fraisse observed a number of mice which were running briskly, become suddenly still when the eclipse began.

PLANTS GROWING IN ANIMALS.

Numerous microscopic researches lately made by Dr. Bennet, have led to some important discoveries in pathetology. That gentlemen in a communication read at the last meeting of the Royal Society, has shown that several diseases have long been known to physicians, who, however, have not been acquainted with their real nature. Dr. Bennet has discovered plants growing in the lungs, which are sometimes expectorated by individuals laboring under consumption. Other vegetations have been found in the inferior animals, as in birds, reptiles, fishes, insects and mollusca. The facts now announced, are likely to cause important changes with regard to the nature and treatment of certain disorders.

TRIUMPH OF PATHETISM.—The accredited agent by which spirit acts upon matter, the mind upon the body,—the immediate source of life, animal and vegetable,—the means by which one portion of matter attracts or repels another,—the basis of all medicinal remedies, the cause of disease and death,—this surely is a subject worthy of our most ardent study. Shall we then any longer be deterred from openly espousing the cause, and devotedly applying ourselves to the study, of Pathetism, by the scoffs and sneers of those, who, having eyes will not see, and ears will not hear, the truth, simply because it transcends *their* attainments, or apparently contradicts their adopted theories? Let those who will hug their ignorance, and choose darkness rather than light: we hope to see, at no distant day, the science of Pathetism every where received and cherished, its claims acknowledged, and its wonderful teachings understood and appreciated. We hope to see Pathetic Societies formed here and elsewhere, to concentrate efforts, collect facts, procure books and other means of information, and regulate the course of public instruction.

As the best, readiest, and cheapest means of information at present attainable, we beg leave again to recommend the **MAGNET**, a monthly magazine published in the city of New York by the Rev. La Roy

Sunderland. The public are beginning to appreciate their obligations to this bold pioneer in the cause of science and truth against ignorance, error and incredulity. To the **Magnet** is justly attributable, in a great measure, the wonderful change in public opinion on this subject, within the last year. To the **Magnet** do we owe no small share of the pleasure we enjoyed, and the knowledge imparted by means of the late lectures and experiments in our village. In spite of the ridicule and contempt so liberally showered upon it, and in spite of the sacrifices attending a scanty subscription list, the **Magnet** has pursued the even tenor of its way, embodying facts, and publishing well conducted experiments and well attested cures, till prejudice is beginning to give way and the public mind becoming disposed to acknowledge its claims. Let then we repeat, every one who has not already done so, immediately procure the **Magnet**, commencing back if possible, with the first number. He will find the numbers already published (10) contain a vast amount of interesting facts, communications from learned and practising physicians, and essays on electricity, magnetism and physical temperament from foreign works never before published in this country, at least in so cheap a form.—*Skaneateles Democrat*.

MEAT EATERS.—The consumption of butchers' meat in Paris during the month of April last amounted to 6,417 oxen, 1,410 cows, 6,631 calves, and 38,072 sheep. As compared with the consumption of the corresponding month in 1841, there was an increase, in 1842, of 359 oxen, 521 calves, and 1,631 sheep, and a diminution of 488 cows.

BLEEDING AT THE NOSE.—A communication on Nasal Hemorrhage was lately read at the Academy of Sciences at Paris. The author, M. Negrier, announces, that bleeding from the nose may be almost instantaneously checked by raising the arm on the same side as that of the nostril from which the blood flows. It is well known that such hemorrhages are often formidable, and sometimes fatal. This as the *Washington Spectator* remarks, is important, if true.

FISH WITHOUT EYES.—Mr. J. F. Hanks in describing the Mammoth Cave in Edmonson county, Ky. mentions the fact that many fishes *without eyes*, have been taken in the river Styx, which runs through the cave. "We were not fortunate enough to see one," says he, "as none had been caught for several weeks. I conversed with Dr. Porter, of Bowling Green, on the subject, who informed me that he had one of them in his possession; that he had dissected the head, and examined every part of it with a microscope, and no trace of any organs of vision could be detected. They are called *blind fish*, are about four or five inches long, and are white and transparent. The bones, circulation, &c. are readily discerned by the naked eye, through their whole substance." Doubt not, reader! for "there are more wonders, in heaven and earth, than were ever dreamed of in your philosophy"—*Nashville Whig*.

A friend of ours has often visited the Mammoth Cave, and says that the fish found in it are without eyes, as above described. Eyes would be of no use, if they had them; it being total darkness.—*Journal of Commerce*.

CURE FOR HYDROPHOBIA.—At Udinas, in Friule, a man was cured of hydrophobia by some draughts of vinegar, given him by mistake. A physician at Padua tried the same remedy upon a patient, giving him a pound of vinegar in the morning, another at noon, and a third at sunset: the man was perfectly cured.