A PROPOSAL FOR AN "AMERICAN INSTITUTE FOR SCIENTIFIC RESEARCH."

Scientists on both sides of the Atlantic have at last become seriously interested in the prosecution of studies in psychic phenomena, which Spiritualists during the past half-century have carried on in spite of the scorn and ridicule of the very class which now seeks by means of a large endowment to take up work which our brave pioneers have been doing for the last 50 years, simply for the sake of truth. Their labours have in every case been given ungrudgingly, without hope of fee or reward, and too often to the detriment of their own worldly interests. When the investigations of such eminent scientific men as Alfred Russel Wallace, Professor Sir William Crookes, Cromwell Varley, Hare, Zollner, F. W. H. Myers, and a host of others is remembered who have subjected the phenomena to the most rigid tests that their high scientific training could suggest, it seems almost an insult to their unselfish labours to ask for funds to make a fresh start while ignoring or refusing to take as a basis the valuable foundation already laid. For it must be remembered that without Modern Spiritualistic phenomena there would have been no Psychical Research Societies either in England or America, and that the latest, most brilliant convert to Spiritualism, F. W. H. Myers, acknowledges in a valuable autobiographical fragment published since his death by his widow, that it was the derided phenomena that first gave him a hope that he might find therein a clue to the long searched for proof of immortality. "I had at first," Mr. Myers says, "great repugnance to studying the phenomena alleged by Spiritualists—to re-entering by the scullery window the heavenly mansion out of which I had been kicked through the front door,"—a statement that very forcibly expresses the feeling of most scientists, and also shows that the pride of so-called intellectual acquirements has to be humbled and the
learner to begin at the A.B.C. of spiritual knowledge if he is to gain entry to the mysteries of the Psychic Universe. "Except ye become as a little child ye cannot enter the Kingdom of God," is as true now as in Gospel times. There are, doubtless, men enough to be found who, for the sake of a fixed income, would devote the whole of their time to so-called investigations. But the spirit has to be touched with a divine impulse to obtain results of any value, and unless the right men are at work their efforts would be as nugatory and worthless as the observations of an untrained, unobservant eye at the end of the finest telescope in the world.

It will be noticed that in the following "General Plan" and "Charter" supplied by Professor Hyslop, and forwarded by last American mail to Mr. T. W. Stanford, of the lines on which the proposed "American Institute of Scientific Research" is to be worked, that "functional and other forms of insanity" are to be investigated in connection with hallucination, illusion and so forth—a branch of inquiry for which Spiritualists have been long seeking to educate the public mind. It will only be by a knowledge of the dangers of obsession and the modes of cure as set forth by prominent Spiritualistic writers that the great scourge of lunacy will be adequately treated, and any well-directed scientific inquiry into the subject will be hailed by all well-wishers of humanity.

GENERAL PLAN.
519 West 149th-st., New York.

My Dear Sir,—I wish here to present for consideration a plan of investigation, a part of which leads into philanthropic work, and that is much in need of an endowment. It may be said to cover the whole field of abnormal psychology, which comprehends everything between functional insanity and the allegations in favor of the supernormal. The nature of the work is such that colleges and universities cannot easily undertake it, since they are mainly teaching and not investigating bodies, while the general subject has a technical interest
only for the physician and the psychologist. It should, therefore, be organised for investigation in a manner to both meet the demands of scientific method and to apply results without invoking any of the spirit or objects of propagandism. Something has already been done in the work, but not in any form thoroughly systematic and co-operative, except as the Society for Psychical Research has organised one branch of it.

The work to which I refer divides itself into two related but distinct fields of inquiry. They are what has been called Psychopathology, on the one hand, and what has been called Psychical Research, on the other. They require to be studied together and treated separately under the same general supervision, partly for tactical and partly for scientific reasons. The two fields consist of the study psychologically and the cure of certain types of insanity, at least so diagnosed, and the investigation of certain psychological phenomena at least stimulating and probably often realising the supernormal acquisition of knowledge. It is not important to give any technical name to this research, and it might even be difficult to decide upon a name for it between the quackery that flourishes under terms trying to escape the associations of conservative science and the normal psychology which should not be confused with the abnormal field. The important object is the investigation and we may leave to diplomatic consideration the choice of a name for the work. I shall define the two fields a little more fully and refer to some historical incidents that will exhibit what has already been accomplished and what still needs to be done.

The first type of phenomena, known as the psychopathological, consists of such cases as the loss of the sense of personal identity, secondary personality, persistent hallucination purely functional, amnesia or loss of memory, which might be mistaken for a deeper insanity, psychic epilepsy, certain cases of apparent melancholia and paranoia, and all functional mental difficulties which may require treatment supplementary to that of the ordinary medical methods. I mean also to include the scientific study and therapeutic application of
hypnosis, especially in its psychological aspects, we have not been an object of scientific investigation psychologically, hitherto in this country, but only a method of therapeutic utility in less systematic scientific ways than are necessary. This field of study has been prosecuted most carefully in France and to some extent in Germany. The Salpetrière under Charcot and Pierre Janet is an example of what we should have in this country both as a scientific investigation and a method of philanthropy. Brought into notice a century ago, repudiated at first by science, and then accepted under compulsion, hypnotism and the study of abnormal mental phenomena have reached a stage of importance that requires as much attention to them as to problems of physiology.

To indicate the economies with which such work can be prosecuted, I may say that no part of the funds will be immediately needed for putting up buildings. It is a work that can be partly carried on by the rental of a suitable building until results can attract funds for a suitable edifice, and partly by the use of hospitals and asylums already in existence. It is probable that sometime in the future a large building will be required, but this is not a part of the plan at present contemplated. What is mainly required is the men to do the work and the means to give the results scientific form and influence, and this cannot be done by the administrative type of man or mere medical practitioner. We must have the scientific investigator besides the practitioner at the work.

The work which I wish to articulate with this investigation and treatment of insanity in certain forms, though not organically related to it but only in its psychological aspects, is the work of psychical research, as the usual name for it. This field comprehends such alleged phenomena as telepathy, clairvoyance, phantasms of the dead or apparitions of dying persons, mediumistic phenomena that have a fair claim to serious attention whether they are more than secondary personalities imitative of so-called spiritistic phenomena, or not, and all claims to the supernatural acquisition of knowledge.
The fraudulent side of the subject requires no further attention on the part of scientific men except to educate still more a gullible public and to protect legitimate inquiry. The ordinary frauds have been fairly well exposed and the phenomena actually deserving consideration clearly marked off from those that are illegitimate. The facilities for studying the genuine phenomena claiming to represent supernormal powers for the human mind, and possibly the survival of bodily death, have been too few to give the work its necessary scientific form. It was organised rather imperfectly some twenty years ago, but at no time has it possessed the funds to deal with its investigations and results as scientifically as the subject demands. Only a few men with their own personal means to sacrifice have been able to do such respectable work as has actually been done. The membership of the organisation has not sufficed, by its fees, to more than pay office expenses, while the data demanding record and investigation have multiplied beyond all possibility of scientifically handling it with the means and men at command. It is now absolutely necessary to have the work put upon a secure basis, and this for more reasons than one. The results already achieved have had an effect upon the public that makes it imperative to be in a position to direct its intellectual tendencies wisely and to protect it from the illusions that so quickly and easily attach themselves to this subject. Whether an investigation of this kind succeeds in supporting what the natural interests of men incline them to hope for is not so important as the regulation of unbridled passions in the direction of "otherworldiness" to the neglect of present duties, and as the cultivation of the scientific spirit in a field which requires a delicate hand for the discrimination between truth and illusion. It will be extremely important to conduct the work with great caution and circumspection, both for its scientific value and for the saving of expense. It should be free from all advertising methods and publicity or promise of sensational results, content with any outcome that represents truth though it only protect us from hallucination, and hence should be carried on with all the tact,
prudence and regard for scientific traditions that are possible. Something like the following stipulations should perhaps be made, or at least, considered, as conditions of its endowment:—

1. That no teaching shall be in any way connected with it in any of its official functions, and that there shall be no propagandism of any sort associated with it, and no official recognition of doctrines involving the suspicion of other than strictly scientific objects.

2. That the work shall be done by the methods and in the spirit of the best traditions of science.

3. That as little publicity as possible, other than through scientific publications, shall be given to the organisation and management of this branch of the work.

4. That the endowment for it be placed in the hands of a Board of Trustees rather than a society, and to whom the investigation officers shall be made responsible in every way.

5. That the publication of results shall take the form of reports, reviews, and discussions consistent with scientific objects.

Again, no buildings will be required for this branch of the work. All that funds are needed for is the expense of investigations and publications, with a small sum for office rents, though it is possible to imitate the organisation of the Carnegie Institute and utilise the membership fees of the Society for Psychical Research to pay rents. The peculiar nature of the work and the necessity of satisfying the most stringent scientific methods, the diversity of the phenomena with which the work deals and the portion of good wheat amid the chaff, are such that the investigations are especially expensive, until the scientific men are convinced that the phenomena are genuine, and hence it will be necessary to have a considerable fund for the prosecution of the work.

There are two reasons for thus articulating the two fields of investigation. Firstly, the study of pathological mental phenomena is important in the prosecution of psychical research, because it helps to resolve the perplexities of phenomena which are neither supernormal nor fraudulent and whose superficial character scandalises the man of average intelligence.
Secondly, it enables us, if further developments show an attainable limit to psychical research, which may not be reached for centuries, to appropriate the funds without legal difficulties to philanthropic work in psychopathology which will always be needed.

JAMES HARVEY HYSLOP.

CERTIFICATE OF INCORPORATION.

County of New York (SS.
State of New York)

We, the undersigned, all being persons of full age, citizens of the United States, and four of us being residents of the State of New York, and all of us being desirous to establish and maintain an Institution for promoting original research in the field of psychology, normal and abnormal, and for promoting philanthropic treatment of mental diseases, and desiring to form a Membership Corporation pursuant to the provisions of the Membership Corporation Law of the State of New York, with a view to accomplish the desires aforesaid, do hereby make, sign, acknowledge and file this Certificate in duplicate for that purpose as follows:

First.—The name of the proposed corporation is to be "American Institute for Scientific Research."

Second.—The object and purpose for which said corporation is to be formed are the promotion of study and research, with power—

(a) To acquire, hold, and convey real estate or other property, and to erect a building or buildings necessary for the purposes of the Institute as herein stated, and to establish general and special funds.

(b) To conduct, endow, and assist investigation into the phenomena of hypnosis, with practical therapeutics, in this field; special attention to be given to their psychological aspects.

(c) To conduct, endow, and assist investigation into the phenomena of hallucinations and illusions, functional and other forms of insanity, secondary, personality, and all psychopathic phenomena requiring special study and investigation.
(d) To conduct, endow, and assist investigation of all alleged telepathy, alleged apparitions of the dead, mediumistic phenomena, alleged clairvoyance, and all facts claiming to represent supernormal acquisition of knowledge, or the supernormal production of the physical effects.

(e) To publish, and to aid in the publication of, documents and reports representing the work of the Institute, or of such persons as are approved by said Institute, whose work cannot obtain the acceptance of ordinary publishers.

(f) To appoint committees to direct special lines of cases of research within the fields prescribed by the above subdivisions.

(g) In general, to do and perform all things necessary to promote the object of said Institute, provided they be not repugant to the laws of the State of New York, nor to the laws of the United States.

Third.—The location of the principal office of the proposed Corporation shall be the City of New York.

Fourth.—The duration of the proposed Corporation shall be perpetual.

Fifth.—The territory in which its operations are to be principally conducted is the City of New York and the vicinity thereof.

Sixth.—The number of Trustees of the proposed Corporation shall be not less than five nor more than fifteen.

Seventh.—The names and places of residence of the persons to be the Trustees of the proposed Corporation until its first annual meeting are:

Charles N. Jones, 452 W. 152nd St., N.Y. City.
William S. Crandall, 221 St. John Place, Brooklyn.
Miles Menander Dawson, 11 Broadway, N.Y. City.
James Harvey Hyslop, 519 W. 149th St., N.Y. City.
Charles L. Bogle, 146 W. 104th St., N.Y. City.

Eighth.—The time for holding the annual meeting of the proposed Corporation shall be the first Tuesday in December of each year.

Ninth.—The Board of Trustees of said Institute shall appoint a person to act as the Director of said Institute.
and who shall exercise or perform the functions of an administrative and executive officer, and shall be an ex officio member of the Board of Trustees, with the right of being present at its deliberations, but without the right of voting at the same.

In witness whereof we have made, signed and acknowledged this Certificate in duplicate this 29th day of June, Nineteen hundred and four.

CHARLES N. JONES (L.S.)
WILLIAM S. CRANDALL (L.S.)
MILES MENANDER DAWSON (L.S.)
JAMES H. HYSLOP (L.S.)
CHARLES L. BOGLE (L.S.)

County of New York (SS.
State of New York (}

On the 29th day of June, 1904, before me personally came
CHARLES N. JONES JAMES HARVEY HYSLOP
WILLIAM S. CRANDALL CHARLES L. BOGLE
MILES MENANDER DAWSON


Professor Hyslop publishes, as addenda to the foregoing, answers that he has received concerning it from Prof. W. James; J. J. Putnam, M.D.; Cyrus Edson; Romaine Newbold, Prof. Phil. Univ. Penn.; H. N. Gardiner, Smith College, Massachusetts; W. M. Butler, Columbia Univ.; F. R. Benedict, Prof. Phil. Univ. Cincinnati; Elias Compton, Prof. Phil. Boston Univ.; J. M. Baldwin, Princeton Univ.; E. H. Finlay, Prof. Phil. Indiana Univ.; G. B. Carpenter, Columbia Univ.; A. H. Pierce, Prof. Psychology Clark Univ., Mass.; J. J. Kemp, N.Y.; Rev. Minot J. Savage, N.Y. "Miscellaneous testimonials" as to the desirability of Psychical Research from men like the late Hon. W. E. Gladstone, Right Hon. A. J. Balfour, Prime Minister of
England, Sir W. Crookes, Professor Oliver Lodge, and Andrew Lang, are added in conclusion. Hudson Tuttle, in a recent issue of "The Progressive Thinker," states very clearly the opinion of advanced Spiritualists on Professor Hyslop’s scheme. He says, "Such an institute as an adjunct to the Psychical Society would be useful, and there is a clear field for research. But instead of leading the spiritual movement, it would be only an auxiliary. Spiritualists will not object to your scientific method. If there is collected an endowment fund, it will come from the 'scientists,' and not from the spiritualists. Henry Seybert’s gift to the University of Pennsylvania illustrates how much spiritualists will gain by substituting the 'scientists.'"

AN APPEAL FOR FUNDS FOR PSYCHICAL RESEARCH IN ENGLAND.

From the other side of the world an appeal on similar grounds to those put forward by Professor Hyslop in the United States, is set forth in an article on "The Progress of Psychical Research," by Mr. F. C. S. Schiller, in the January number of the "Fortnightly Review." This article, which relates chiefly to the effect on public opinion in psychic matters of Myers' "Human Personality," and the need for further research on the same scientific and exhaustive lines, closes with an appeal for funds, to be placed to the credit of the Psychical Research Society of England for this purpose. But the most remarkable thing about the article is that its very appearance in a popular serial, as well as friendly attitude towards spiritualism, shows how public opinion is rapidly veering round to the views that spiritualists have upheld for so long amid general derision and abuse. Psychic studies have already become fashionable, although the spiritualising of men's minds is a far more difficult matter. The writer of the article in the "Fortnightly" is not on the side of critics like Mr. Podmore, who, he says, in his "History of Modern Spiritualism," shows how the facts
look to an intelligent, competent, but intensely sceptical criticism, "while," the writer goes on, "the late Frederick Myers, in his "Human Personality," has made a brilliant and suggestive effort—to look at the same material with a constructive purpose, and to put upon it a coherent interpretation which will convert the whilom playground of the will-o-the-wisps of superstition into a stable habitation of science. . . . Myers' conception of the function of the Society for Psychical Research," the article goes on, "differs widely from that of Mr. Podmore. It is to him, not an organisation for the harrying of spiritual impostors, but a possible training school for the future Columbus of an ultra-terrestrial world. . . . True, the picture Myers presents in Human Personality is impressionist; in some parts it is sketchy; in others its completion was cut short by death; nowhere, perhaps, will it bear a pedantically-microscopic scrutiny. But it is the picture of a master none the less, and takes the place of a mere smear of meaningless detail and shadowy outline. Wherefore it is an achievement, and its scientific value is incontestable, whether or not we are willing to accept it as a real image of the truth."

"One can only say, therefore," the reviewer affirms, "that Myers' interpretation has for the first time rendered a future life scientifically conceivable, and rendered much more probable the other conditions in its favour. And above all it has rendered it definitely probable. How long the 'proof' will be coming, who can say? If we sit down and wait we may wait for ever. Much will depend on the activity of the Society for Psychical Research, more in the attitude of the general world. To work out fully all the rich suggestions of Myers' grandiose scheme might well absorb all the psychological energies of hundreds, nay, at the former rate of progress, of thousands of years. But, short of this, if we tried to verify only the main ideas, it would be a question of whether, say, half-a-dozen first-rate minds could be induced to take up the subject, not (as now) in the scanty leisure of professional pre-occupations, but as their life's work. . . . In psychical, as in all other science, we must get staid professionals to consolidate the work of the enthusiastic amateurs who opened out the way."
Then comes the appeal for an endowment fund, as in the United States. "It is obvious," the reviewer goes on, "that to secure these professionals, funds are needed, and that on a generous scale. In part, perhaps, they may come from a growth in the numbers of the Society. But a total of at least £8,000 is needed in order to subsidize one young psychologist for the work. And for anything like a thorough investigation money will be needed on a far larger scale. A vigilant literary committee to record and probe the spontaneous evidence, and an expensive laboratory for experimental tests are obvious necessaries, and, instead of one, a dozen specialists. For all this £100,000 will scarcely be enough.' The writer adds in a note at the end of the article that "The Hon. Sec. of the Society assures me that he would undertake to find permanent and profitable employment for the income of £500,000. . . . Eventually," the writer concludes, "no doubt the money will be raised. For human reason will surely finally realise how monstrous it is that for our last, our longest and most momentous journey we make no preparation, nor seek to know the dangers of the routes, equipped only with the vaguely-apprehended consolation of a 'faith' we have never dared to verify." The aims of the propounders of the two schemes are, therefore, identical and it remains to be seen how much assistance will be forthcoming from the general public to aid scientific men in inquiries—which, although useful, are merely auxiliary to the unselfish labours of a vast army of investigators, writers and lecturers on spiritual subjects, which have been unreservedly given for the last half-century all over the civilized world.
A NOTABLE BOOK.

"Christianity and Spiritualism."

It is manifestly impossible to do justice in a short review to M. Leon Denis' important work, "Christianity and Spiritualism," an excellent translation of which has just reached us. M. Denis is well known in France as one of the most brilliant exponents of Modern Spiritualism, both by his published works, like Après la Mort and Dans L'Invisible, and his public addresses, and is a representative of the most advanced thought on spiritual matters. A Catholic by birth, he has, while retaining a devout spirit, come to see how Catholic dogmas misrepresent the teachings of the Nazarene, and that Modern Spiritualism is bringing the faith of the world back to the great central truth of Christianity. "We know," he says, "how much that is sublime is contained in the doctrine of Christ; we know that it is above all the doctrine of love, the religion of pity, of mercy, and of fraternity among men. But is it the doctrine of Jesus which is taught by the Church? . . . There is no question," he says, "more serious, more worthy of the attention of thinkers and of all those who love and search for truth than this. . . . One of the most powerful objections addressed by modern criticism to Christianity is that its moral teaching and its doctrine of immortality rest only on a collection of facts, so-called 'miraculous,' which man, enlightened as to the action of the laws of nature, cannot to-day admit. . . . A powerful light will be thrown on this question, and the assertions of Christianity concerning immortality will gain both in force and authority if it is possible to prove that these so-called 'miraculous' facts have been produced in all ages, particularly in our own; that they are the result of free, invisible, and constantly acting causes, subject to

"Christianity and Spiritualism," by Leon Denis. Translated from the French by Helen Draper Speakman. London, Philip Wellby, 6 Henrietta Street, Covent Garden, 1904.
immutable laws; if, in a word, we see in them, not miracles, but natural phenomena, a form of evolution and of the survival of our being after death.” And “these facts,” M. Denis reminds us, “are reproducing themselves around us with renewed intensity. For the last fifty years forms have appeared, voices made themselves heard, messages have come to us by raps as well as by automatic writing. Proofs of identity coming in great number revealed to us the presence of those near to us, of those we have loved on earth, who have been of our own flesh and blood, and from whom death had temporarily separated us. By their communications, their teachings, we learn something of that mysterious hereafter, the object of so many dreams, disputes, and contradictions. . . . Thus Spiritualism brings us the natural and tangible proofs of immortality, and thereby carries us back to the pure Christian doctrines, to the very foundation of the Gospel, which Catholicism, with its ever-multiplying dogmas, has buried under a mass of varied and foreign elements. . . . The faith of the future, which is already rising out of the shadow, will be neither Catholic nor Protestant; it will be the universal faith of souls, and through which will cease the antagonism which at present separates science from religion. For by and bye science will become religious, and religion scientific. By showing us the objective realities of the spirit world, it will dissolve our doubts and remove our uncertainties. . . . Spiritualism resumes in itself the beliefs of the sages and the ancient Initiates . . . it reappears under a more powerful form to direct a new and higher stage of the march of humanity.”

In the first hundred pages of the volume, M. Denis enters into the history of ecclesiastical Christianity, and shows like Annie Besant in Esoteric Christianity, how the spirit has been lost in material surroundings and Church paraphernalia, and in a more simple, though not less scholarly fashion, explains the growth of dogmas and the “mysteries” which are simply the present day phenomena of Modern Spiritualism. The “mysteries” relate also to the laws of intercourse between the two worlds—an intercourse which, on a higher plane than
any yet known, will increase and gradually become the possession of the race. By far the most important and interesting chapter to those who are already familiar with the history of the so-called Christianity of the churches is that on “The New Revelation—Spiritualism and Science,” which with a second on “The Doctrine of the Spirits” under the same caption takes up over a quarter of the book. Of the growth of Modern Spiritualism, M. Denis says:—"About the middle of the last century, man, disappointed by all the contradictory theories and incomplete systems which had been offered him was giving way to doubt; he was losing more and more the idea of a future life. It was then that the invisible world came to him, and pursued him even into his home. By different means the dead manifested themselves to the living. The voices from beyond the tomb spoke. . . . It was beyond the seas, in a world young, rich in vital energy, in ardent growth, less subject than old Europe to the spirit of routine and to the prejudices of the past; it was in the United States of America that the first manifestations of Modern Spiritualism took place. From thence they spread over the entire globe. The point of departure was wisely chosen. Free America was the most propitious centre for a work of renovation. To-day we find there more than twenty millions of modern Spiritualists. . . . At first strange things happened: things which were spoken of with bated breath and in private. Men of talent, scientific men, whose names were a guarantee of honour and sincerity, dared to speak aloud of these facts and to affirm them. . . . After the first material and gross plane, the manifestations took on another character. . . . The possibility of intercourse between the visible and invisible worlds became a gigantic fact. . . . At last the inhabitants of space, clothing themselves in temporary envelopes, came and mixed with men, living for a moment their material and earthly lives, allowing themselves to be seen, touched, photographed, leaving imprints of their hands, their faces and then fading away again to return to their ethereal life.”

Then M. Denis passes in review all the marvellous
discoveries in science which reveal a world that passes beyond our mortal eyes and ears. Sir W. Crookes' discovery over twenty years ago of "radiant matter" being the precursor of all those glimpses into the Unseen which are afforded now by the X-rays, the N-rays and other forms of matter at high vibrations, all showing that these vibrations, which at their lowest velocity reveal a matter cognisable to our mortal senses, pass on by vibrations of almost incalculable rapidity to a psychic universe where the fluidic body which leaves its mortal envelope at the change called death still lives, and in a world as real as the one which it has passed out of. Following the lines set forth by Sir W. Crookes in his "Law of Vibrations," which he believes to be the basis of all physical and psychical phenomena, M. Denis declares that "our senses only reveal to us a restricted portion of the universe. It would suffice for us to have one more sense, one new psychic faculty for unknown worlds of life to open before us and to see revealed the marvels of the invisible world." These faculties, he says, "which will one day belong to all, are possessed even now by some people in varying degrees, who are in consequence called mediums." For M. Denis modern Spiritualism possesses, as it does for great intellects like Alfred Russel Wallace, Sir W. Crookes, Myers, and a whole army of believers all the world over, the elements of a soul-satisfying religion. "Even to-day," M. Denis says, "people are beginning to understand that the growth of Spiritualism is one of the most important events of modern times and contains the germs of one of the greatest moral revolutions the world has ever seen. Whatever mockery it has been the object of, it must be acknowledged that to Spiritualism is due the new psychic science of to-day, for without it and the impetus given by it, all the discoveries due to this science would be still in the future."

A. B.