and *about the same time* be shown them paralyzed by both a lower and upper motor neuron lesion. The X-ray department can be used to supplement physiological demonstration of digestion and heart mechanism. The instruments of clinical precision should be familiar and usable long before they are employed to detect the presence of disease.

The ophthalmoscope, the stethoscope, the laryngoscope, the otoscope, the blood-pressure apparatus, give up physiological secrets which must be mastered before those of medicine can be comprehended. Neurological cases often afford better examples of normal and abnormal function than any animal experiment in a laboratory—and coordinated education can make readily available all such material for students of the basic sciences.

The undergraduate in medicine then would have more time in the hospital to learn the very difficult art of history taking; the probing of the earliest manifestation of disease; he would grow more easy in the handling of his human charges—he would in short be more valuable in the search after first causes —more able to play his part in the open mobile warfare of the present day medicine and less of a static cataloguing agent in the trench warfare of the past. We don't yet know if man is energy or a machine. We compromise between the ideas of Plato and Aristotle and call him a transformer of power. His nervous system is three dimensional—and some of us suspect it may yet be four! Dreams though compounded of past experiences may be shot through with aspiration; the discontent of man with himself and his works forever scourging him upward can not yet be seen with stains of gold and silver, though we know some of the defects of structure which forbid the expression and perhaps existence of such torturing impulses. The study of the brain tells the tale of our painful climbing from the depths, of the building and controlling our powers of perception and adaptation—and may be from these neuronic origins spring man's nobility and lyric ecstasy as well. You will learn in this university something of the substantial workings of human powers and processes, their continuity with those of all living creatures, and, may be, you will find that control of human breedings must precede betterment in human brains.

We bid you welcome as our comrades to carry on the torch given us by our teachers—the torch that lets us see clearly—Man, half brute, half angel, most wonderfully made in mechanism, whose spirit denies the universe itself as boundary.

FOSTER KENNEDY
CORNELL UNIVERSITY MEDICAL COLLEGE

THE CELEBRATION OF THE CENTENARY OF MARCELIN BERTHELOT[1]

ONE of the axioms frequently expressed by Marcelin Berthelot is that "Science is essentially a collective endeavor and owes its progress to the efforts of a multitude of workers in all periods and of all nationalities, who by common agreement are associated in the search for truth and its application to the improvement of the conditions of man." A more succinct expression of this idea is that "Science reveals the persistence and the necessity of human collaboration. It impresses our heart and spirit with the vivifying notion of solidarity."

He advocated repeatedly the advantages to the progress of science of cordial relations among scientists and a mutual appreciation of the efforts of each. It was this precept which stimulated the common generous spirit exhibited at this first gathering in so many years of the chemists of all nations.

The organizers of the celebration desired that it should not be simply a passing ceremony without beneficial consequences. They wished to honor the memory of Berthelot in a manner which would prepetuate his ideals of service and the promotion of more friendly relations between all chemists. It was believed that the most fitting monument to him would be a house of chemistry which would serve as a meeting place not only for the chemists of France but for those of every country.

It was realized that an invitation to all nations to participate in its accomplishment would give to each a more personal interest in the enterprise. Furthermore, it was desired that those who might enjoy the benefits of the undertaking should regard themselves as constituent members and not as invited guests. This broad-minded point of view is more clearly appreciated when one considers the difference between an invitation to make use of the facilities provided by an organization and an offer of the privileges of membership in it.

Invitations were, therefore, addressed to all countries of the world to unite with France in celebrating the one hundredth anniversary of the birth of Marcelin Berthelot and to contribute any sum they might desire towards erecting a memorial to him in the form of an international house of chemistry. This invitation was accepted in the spirit in which it was sent by practically every nation and the ceremonies which I wish briefly to describe were held in Paris on October 24–26 last.

It is fitting, however, that attention should first be

[1] Address delivered before the meeting of the Chemical Society of Washington, January 12, 1928.

directed to the thoroughness with which the celebration was planned. The Berthelot committee was formed a year or more in advance and the leading men of science and of the government accepted prominent places on it. There are probably few countries in the world where science is so highly appreciated as in France and the most complete support that a nation could give such a movement was obtained.

The French subscription to the undertaking was officially opened at a ceremony held at the Sorbonne on May 5. At that time representatives of the leading scientific and other national organizations pledged the support of each to the undertaking. Shortly thereafter the central committee began issuing regular bulletins to the press reporting the subscriptions received. The total grew gradually from a few million francs to more than ten millions and at the time of the ceremonies in October it had reached fifteen and a half millions, of which nearly seven had been received from countries other than France.

Those who have aided in preparing for national meetings know something of the difficulties which are encountered. The impossibility of correctly estimating in advance the number likely to be present is very much greater in the case of an international gathering. Furthermore, the misunderstanding resulting from difference in customs in different countries are much more pronounced, and the consequence of any possible neglect of attention to a guest is far more serious than to a fellow countryman. Hence, one can readily imagine the exceptional qualifications the Berthelot committee was called upon to exhibit. That they succeeded admirably in their efforts is certainly the consensus of opinion of all who were fortunate enough to be present.

The opening function was a reception in the salons of the Sorbonne. Here one met previous acquaintances and quickly made new ones. The following day the delegates were invited to visit, at the École de Pharmacie, a collection of mementoes of Berthelot. Here was assembled the apparatus used by him in some of his most notable investigations, his manuscripts, note books and in general all kinds of souvenirs of his scientific activity.

From the École de Pharmacie every one proceeded to the Collège de France to visit the laboratory occupied by Berthelot during the last years of his life. Here the delegates were welcomed by M. Croiset, the administrator of the Collège de France. Since the laboratory and lecture hall were too small to contain the hundreds who were present the speakers addressed the assembly from a stand erected in the court yard. M Croiset said, "You have come to the Collège de France like pilgrims of the middle ages came to sanctuaries renowned by the virtues of a patron saint. As pilgrims of modern science you come to this house which has listened to the teachings of Marcelin Berthelot and which has been the witness of his fruitful meditations. You come both to render homage to a grand memory and to be inspired by a great example. The life of Berthelot is one on which it is particularly profitable to meditate." In continuing the speaker pointed out that Berthelot knew how greatly the exchange of ideas, intellectual collaboration and communications between scientists contribute to the development of the spirit of peace and friendship which is the guarantee of real progress.

Following M. Croiset, Professor Schlenck, director of the Chemical Institute of the University of Berlin, responded in the name of the German delegation. It should be remarked that Germany accepted in a very cordial manner the invitation to participate in the celebration and sent twelve of its leading chemists. Among these may be mentioned Nernst, Haber, Willstätter, Neuberg, Bodenstein, Wieland, Markwald, Huttig and others whose names I failed to note. Professor Schlenck, speaking for the first time in France since the war, said that "Genius has its own roads which are indeed those of natural science and philosophy and all lead to the same end which is the ennobling of humanity. This high aim is the object of all the sciences. It makes of the scientists of all lands the priests of the same temple and should unite them more ideally than any other human interest. This is why I see in the sciences a basis particularly favorable for the mutual understanding of peoples and for the profound comprehension of the soul of each. The genius of Berthelot has had an incontestable influence in this direction and it is for this reason particularly that the German delegation renders special homage to his memory."

Following Professor Schlenck, our own Professor Bogert spoke in the name of all other foreign delegates. He said, "We are here as at the table of our older brother. The scientists of all countries are united thus as members of the same family and their only rivalry should be to do more and better work. Scientists have often been reproached for being a little detached from terrestrial things. However, it is in their work that the material and ideal unite and often the most complicated problems are solved in the most elementary manner. The straight route followed by Berthelot does not deviate far from the throne of God."

The large gathering then paid a visit to the laboratory, which will celebrate in three years the four hundredth anniversary of its founding. The amphitheater where Berthelot taught is an incomplete semi-circle with benches without backs rising in tiers. The wormholed stairs give and squeak at each step. According

to present-day standards the laboratory is far from adequate for its purpose, but M. Moureu and his staff and students numbering about twenty still use it for research of a very high type. Like so many long-established laboratories in European countries the inspiration of historical associations compensates for the lack of modern conveniences.

After the visit to the laboratory, Dr. Baker, president of the Chemical Society of London, placed a wreath at the base of the statue of Berthelot which stands in front of the Collège de France.

There next followed the dedication of a tablet erected on the house in the rue Saint Martin where Berthelot lived from 1852–1861. The house, not far away, where he was born on October 25, 1827, had been demolished in city improvements and could not receive the distinction now paid to this later abode of the great scientist.

In the afternoon the city of Paris joined in the general homage paid to Berthelot by means of a reception held in the great halls of the Hotel de Ville. The addresses there emphasized the gratitude of the city to one of its most illustrious children. Son of a Parisian, born in the shadow of the city hall and passing his entire life in Paris, made it particularly fitting that the city should honor his memory.

In the evening there was held the most solemn function of all. This was the ceremony in the grand amphitheater of the Sorbonne, at which the contributions of Berthelot to science were extolled and the engrossed addresses of appreciation brought by the delegates from the learned institutions of the world were formally handed to M. Painlevé, the president of the Berthelot committee.

One half of the main central portion of the hall was occupied by the delegates from France and the other by those from foreign countries. The larger number were in their academic robes and wore their decorations. The various brilliant colors of these, the uniforms and glistening helmets of the municipal guard, the striking green costumes of the members of the academies, the elegant dresses of the ladies in the galleries and the flowers, flags and decorations, of which the central feature was a magnificent bust of Berthelot, all combined to make a wonderful scene. At nine o'clock, to the strains of the "Marseillaise," President Doumergue, of France, and his staff entered and took seats immediately in front of the estrade.

M. Painlevé first called upon M. Charles Moureu, who is the successor of Berthelot in the chair of chemistry at the Collège de France. He described in a most beautiful manner the chemical work of Berthelot. Tributes were then paid to Berthelot by M. Georges Lecomte, director of the French Academy; M. Lacroix, perpetual secretary of the Academy of Science; M. Wéry, president of the Academy of Agriculture, and M. Glay, president of the Academy of Medicine. Attention was especially directed to Berthelot's conception of science as a collective endeavor, an endless chain of which each one forges a link.

M. Hozda, Minister of Public Instruction of Czecho-Slovakia, next spoke in the name of the foreign delegations. In concluding his brilliant address he said, "From age to age France has emitted an enormous quantity of light, the reflection of which is seen on the faces of all nations. To this it should be added that the hearts of all nations radiate towards France the warmth of their admiration and appreciation."

After the music which followed the address of M. Hozda the list of the names of delegates who were bearers of addresses from the learned institutions of the world was read. These were called according to the alphabetical order of the names of each country and unexpectedly began with Abyssinia, Afghanistan, Algeria and later others, which one did not expect to find associated with the rest of the world in honoring a great chemist. When the name of the United States was reached addresses were carried forward for the American Chemical Society by Dr. Bogert, for the Washington Academy of Sciences by Dr. Tisdale, for Princeton University by Dr. Trowbridge, for Harvard University by Dr. James H. Woods, for the Mellon Institute by Dr. Weidlein and for the Johns Hopkins University by myself. There was indeed a very long procession and many brought voluminous testimonials and unusual marks of their esteem.

When the last bearer of an address had given it into the hands of M. Painlevé, he expressed in a most beautiful manner the thanks of France and of French science to the sixty nations for their collaboration in paying honor to Berthelot. In continuing, he said, the organizers of the centenary celebration in desiring to prolong the work and hopes of the grand departed have requested the aid of all the world in a humane enterprise, the erection of a house of chemistry, open to investigators of all countries and of all origins, where all might assemble and discuss freely their doctrines and find there collected the documents pertaining to every chemical question which might engage their attention.

In response to criticisms that had no doubt been brought to his attention, he said:

> Have I need to rectify certain interpretations, certain misunderstandings which this generous project has provoked? Has one not accused the initiators of pretending to impose upon the development of chemistry a sort of domination which will be exercised by the medium of the center thus created? Ah! in what brain

of an infant could have been born this ambition of greatness, which would have been the laughing stock of the scientific world if ever it had been conceived? The activity of the Maison de la Chimie will be more modest and otherwise fruitful. It will permit the doctrines, the theories, the schools the most diverse and the farthest separated, to know each other and to mix together for the greatest good of all, instead of inclosing themselves in an isolation resulting from ignorance and pride.

The Maison de la Chimie will respond to the noble ideal of solidarity and will be at the same time a factor in scientific progress and the bringing together of peoples. It will recall to those who may forget, that chemistry is not a destructive force but a benefactress. Consecrated to the science which received so vigorous an impulse from him and to which he devoted his life, erected under his shield, the Maison de la Chimie will bear at its summit the name of Marcelin Berthelot. It is an honor of which he was worthy, and of a grander one he did not dream.

The next morning at 10 o'clock a commemorative ceremony was held at the Pantheon. This magnificent building is the hall of fame of France and in it are interred the ashes of Marcelin Berthelot and his wife. Two addresses were given. The first of these was by the Prime Minister of France, M. Raymond Poincaré, who is also a distinguished mathematician and a member of the institute. This address exhibited a detailed knowledge of Berthelot's works, which would have done credit to a chemist. I regret that there is not time to quote it all because it exposes even more clearly than has been done by many of the chemists who have attempted it the brilliant researches of Berthelot. The portion referring to the Maison de la Chimie is, however, particularly beautiful and is as follows:

In this Maison which we are going to erect in honor and for the benefit of chemistry, the scientists of all lands will meet and learn to know each other better. They will find there a fireside where future civilization will be elaborated. To the science which they will there serve together they will open each day a larger field of experiences. They will demand of it an increase of the productivity of the soil, the amelioration of the conditions of agriculture and enrichment of the countryside. They will command it to make nutrition more healthful and normal, they will make of it an auxiliary of medicine and pharmacy, the councilor of therapeutics and of the clinic, the enlightened collaborator of public hygiene. They will enlarge its industrial mission, open the factories to it, assign to it the task of remaking and coloring textiles, of composing essences and carburants, of augmenting the general prosperity by the multiplication of indispensable products.

Many times it has come to me, I confess, to celebrate the disinterested character of science and even to extol research where all thought of practical application is eliminated. I am aware that there is nothing more beautiful than the continued effort of a scientist who pursues the truth, without personal preoccupation and who expects nothing from science but the satisfaction of cultivating it. But a scientist has also the duty of being a citizen in his country and a man in humanity. He should not withdraw himself from the society which surrounds him. He should not turn from those who suffer and who hope. The Maison de la Chimie will have its windows on the people in the street and will not shut its doors either to misery or to suffering. It will not be the abode of silence and of solitary thought; it will be the great workshop of life, of action, and of progress.

The other address was given by M. Gallardo, the Minister of Foreign Affairs of the Argentine Republic, who responded in the name of the foreign delegations. He extolled in the highest terms Berthelot's contributions to science and his noble character.

The ceremonies were interspersed with music and the entire setting and decorations, consisting of a large background bearing the name of Berthelot and flanked by two great illuminated torches, were most impressive. On leaving the Pantheon the delegates were transported in large motor cars to Versailles, where a banquet of 1,200 covers was held in the hall of battles of the palace and presided over by M. Herriot, Minister of Public Instruction in France.

The response in the name of the foreign delegates was here given by Professor Amé Pictet, of Switzerland. He expressed the gratitude felt by all towards French chemists and their government for the invitation to participate in the magnificent undertaking in honor of Berthelot. He expressed the sense of obligation universally felt for the benefactions which have come to all from the work of Berthelot. He called attention particularly to the fact that Berthelot had never drawn any personal benefit from his numerous discoveries. He likened Berthelot to a powerful lamp, such as is erected in large cities at the intersection of streets, in such a manner that each of the different arteries and those who live and work or pass through them may be benefitted by the light given out. "This is the rôle which Marcelin Berthelot has played in the great city of chemists. By the side, however, of the precious light there is a little free space, large enough that one has dreamed of constructing there a house, of which the corner-stone will be laid to-morrow. A better location could not have been chosen. Placed thus in full light, situated at the extremity of the roads which converge toward it, this house will be seen by all. By all the arteries which lead to it will arrive the materials needed for its construction and later there will arrive those who will occupy this sanctuary of science." Professor Pictet emphasized particularly that all countries had responded to the appeal of French science and that the assemblage was truly international. This he considered a capital point and a precious guarantee of the future of our sci-

ence. He concluded by saying, "I come in the name of all the foreign delegates to express to you our hopes for the success and prosperity of the future Maison de la Chimie."

M. Herriot then delivered a discourse which was frequently interrupted by the heartiest applause. He mentioned that of all the works of Berthelot, the most beautiful, without doubt, was his life. It abounded in seductive pictures. He referred to the comradeship between Berthelot and Renan, the great French writer and philosopher. His address described the work of Berthelot in the most poetical manner. It is remarkable that a person so occupied with the affairs of state as M. Herriot could have such a profound knowledge and appreciation of science. One of the most striking of his remarks was, "We thank him with respect for having proclaimed and demonstrated the candid sovereignty of the intelligence."

After the banquet the palace and gardens of Versailles were visited by the delegates and the grand fountains made to play especially for their pleasure.

In the evening the delegates were entertained at a gala performance at the opera.

The third day of the ceremonies, Wednesday, October 26, began at 10 o'clock with the laying of the corner-stone of the Maison de la Chimie.

The site which has been donated by the French government consists of a triangle bounded by the Avenue du President Wilson, the Avenue d'Jena and the Gardens of the Trocadero. The magnificent equestrian statue of George Washington is at the intersection of the two broad avenues. The beautiful Place des États Unis is a short distance away and the palatial new embassy purchased by the United States is directly across the Avenue d'Jena from the site. In the matter of the choice of a location a more delicate attention to the United States could not have been shown. The site is one of the most beautiful in the world and it is certain that the magnificent building to be erected on it will constitute a monument to chemistry such as has not hitherto been conceived.

The ceremonies were dignified and impressive. The first address was that of M. Donat Agache, president of the Société de Chimie industrielle, who spoke in the name of the French subscribers. He emphasized particularly the profoundly useful character of the undertaking. He pointed out that "In constructing the Maison de la Chimie, France sought no kind of hegemony, even scientific, but by the mutual aid and human collaboration in the domain of science wishes to realize the dream of Berthelot, that all the chemists of the world should unite their efforts and work to ameliorate the conditions of living, that their discoveries should lighten the physical efforts of work in the fields, the mines and factories, that their science would not again seek to produce toxic gases or horrible explosives; the chemistry of war, which if we do not take care might destroy civilization itself; but the pacific bodies: fertilizers, colors, fats, rubber, oils, fuels, all of which produced in abundance would make life more comfortable."

The next speaker was M. Zumeta, Minister to France from Venezuela, who spoke in the name of the foreign subscribers. Among the thoughts to which he gave expression was that "We take part in the laying of this first stone of a monument which is erected by the peoples of the earth, as an arch of alliance and as a fireside for investigators of all nations interested in the secrets of matter and desirous of unraveling them for the elevation, the glory and happiness of the human race." He also pointed out that the great thinker who is the object of this commemoration condensed in the most happy synthesis of his life the thought that "The triumph of science is to assure to men the maximum of morality and of happiness."

M. Ernst Cohen, president of the International Union of Pure and Applied Chemistry, said, "We other foreign chemists have been profoundly touched by these ceremonies. We will return to our countries persuaded that science is an endeavor essentially collective." He then translated into several languages the words of Berthelot expressing this idea, and terminated by the hope that this noble thought of a French scientist might be engraved in our souls as well as on the façade of the Maison de la Chimie.

M. Jean Gérard, secretary of the Berthelot committee, then read the list of subscriptions received from 41 countries, showing a total of 15,538,940 francs.

M. Herriot in his final remarks thanked the donors and mentioned that international conciliations founded on science are in the image of those which Berthelot wished to see realized for the happiness of men. Chemistry, he said, is an all-powerful science which even encircles the mystery of life. The advancement of chemistry is not an academic divertisement but the affirmation of the profound ties which unite peoples. He pointed out that this reunion in its simplicity marks a date in the history of humanity. It is an act of faith.

Those present then gathered around the block of stone which was to be the first of the Maison de la Chimie and M. Herriot carefully sealed in it the iron box containing the manuscripts which, as said by a writer in one of the newspapers of Paris, would show to future generations that there was an hour when men swore to love each other.

Following the laying of the corner-stone the delegates were invited to Chantilly for luncheon and a visit to the magnificent Chateau which is now the property of the Institute of France. The ceremonies

were brought to a close by a reception in the evening at the Elysée Palace tendered by M. Doumergue, the President of France.

In conclusion I regret to mention that the pleasure of the American delegates in their participation in the ceremonies was marred somewhat by the action which had been taken in September by the Council of the American Chemical Society in regard to the Maison de la Chimie. Although this was evidently based upon a misunderstanding, it was rightly regarded as an unjust criticism of the project. The mistaken basis of that action was undoubtedly a confusion in the minds of some between the proposed International Office of Chemistry and the Maison de la Chimie. The two are not identical.

Although from the American point of view there may be worthy arguments against participation in an international office of chemistry, there can certainly be no just criticism of the kind of Maison de la Chimie which is to be erected in honor of Marcelin Berthelot. This, as repeatedly emphasized by its sponsors and many friends, is a beneficent enterprise having for its object the advancement of chemistry and the promotion of good-will between the nations of the world.

ATHERTON SEIDELL

HYGIENIC LABORATORY,
WASHINGTON, D. C.

SCIENTIFIC EVENTS

AN INTERNATIONAL CONVENTION ON CANCER RESEARCH

AT the quarterly meeting of the grand council of the British Empire Cancer Campaign, held on January 10, under the presidency of Sir John Bland-Sutton, it was announced that an International Convention on Cancer Research was being convened for next July in London, and that the Royal Society of Medicine had placed their headquarters at the disposal of the British Empire Cancer Campaign for the purposes of the meetings of the convention. Sir J. Bland-Sutton, past-president of the Royal College of Surgeons and vice-chairman of the campaign, has been appointed president of the convention.

The London *Times* reports that the convention committee, charged with the arrangements, informed the grand council that the work of the convention would be divided into the following sections: Pathological, diagnosis, medical treatment, surgical treatment, radiological treatment and public health and statistics. Chairmen had been appointed for some of these sections: Sir Thomas Horder, with Sir William Willcox as vice-chairman, of diagnosis section; Professor Lazarus-Barlow, pathological section; Sir Charles Gordon-Watson, surgical treatment section; Professor Sidney Russ, with Dr. Robert Knox as vice-chairman, radiological treatment section, and Lieutenant-Colonel F. E. Fremantle, public health and statistics section.

Invitations are being sent to all parts of the world to those whose names are closely associated with modern research into the cancer problem, and all the universities and medical schools of the United Kingdom will be invited to send delegates to the convention. The chairman of the convention committee, Mr. J. P. Lockhart-Mummery, reported that Sir Richard Garton, chairman of the finance committee, was making a generous donation towards the expenses of the convention and that no part of the campaign's funds would be used in connection with it.

Sir Richard Garton, in submitting the report of the finance committee, announced that a trust fund had been created by the executors of the late Mr. William Johnston, of Liverpool, to be known as "the Aileen Congreve Memorial Fund," which amounted to a sum of £18,147. Of this amount £16,000 will become a permanent trust, the interest on it being applied to cancer research work in Liverpool, through the scientific committee set up in connection with the Lancashire, Cheshire and North Wales Council of the British Empire Cancer Campaign, now in process of formation. The chairman of the finance committee also reported that an anonymous donation of £10,000 had been received by the campaign through Sir Basil Mayhew, auditor to the campaign, and that the interest on such fund would be available for the general research work fund of the campaign.

THE PROPOSED PAN-AMERICAN GEODETIC INSTITUTE

THE Mexican delegation to the Pan-American Conference has submitted a plan for the organization of a Pan-American Geodetic Institute.

In a review of the history of the science of geography the Mexican delegation introduced a report prepared by the department of agriculture and public works of the government of Mexico in which great emphasis is placed on the fact that the existing world geographical institution, known as the International Council of Investigators, does not suffice for solution of the localized problems of America.

Functions of the proposed institute, the location of which is to be later decided by the nations, are detailed as follows:

1. The coordination, distribution and propagation of geographical studies in American states.
2. It shall serve as an organization of cooperation among the geographical institutes of America, in order to facilitate the study of geographical problems.
3. It shall carry out and coordinate investigations call-