spired you. We bring to you the meed of honor which is due to preeminence in science, scholarship, research and humanitarianism. But with it all we bring something more. We lay at your feet the testimony of that love which all the generation of men have been wont to bestow upon the noble woman, the unselfish wife, the devoted mother. If, indeed, these simpler and commoner relations of life could not keep you from attainments in the realms of science and intellect, it is also true that the zeal, ambition and unswerving purpose of a lofty career could not bar you from splendidly doing all the plain but worthy tasks which fall to every woman's lot.

A number of years ago a reader of one of your earlier works on radioactive substances noted the observation that there was much divergence of opinion as to whether the energy of radioactive substances is created within those substances themselves, or is gathered to them from outside sources and then diffused from them. The question suggested an answer which is doubtless hopelessly unscientific. I have liked to believe in an analogy between the spiritual and the physical world. I have been very sure that that which I may call the radioactive soul, or spirit, or intellect—call it what you choose—must first gather to itself, from its surroundings, the power that it afterward radiates in beneficence to those near it. I believe it is the sum of many inspirations, borne in on great souls, which enables them to warm, to scintillate, to radiate, to illumine and serve those about them. I am so sure of this explanation for the radioactive personality that I feel somehow a conviction that science will one day establish a like explanation for radioactivity among inanimate substances.

Perhaps, in my innocence of science, I am airily rushing in where scientists fear to tread. But I am trying to express to you my conviction that the great things achieved by great minds would never have been wrought without the inspiration of an appealing need for them. That appeal comes as inspiration to successful effort, and success in turn enables the outgiving of benefits to millions whose only contribution has been the power of their united appeal.

Let me press the analogy a little further. The world to-day is appealing to its statesmen, its sociologists, its humanitarians and its religious leaders for solution of appalling problems. I want to hope that the power and universality of that appeal will inspire strong, devout, consecrated men and women to seek out the solution, and, in the light of their wisdom, to carry it to all mankind. I have faith to believe that precisely that will happen, and in your own career of fine achievement I find heartening justification for my faith.

In testimony of the affection of the American people, of their confidence in your scientific work, and of their earnest wish that your genius and energy may receive all encouragement to carry forward your efforts for the advance of science and conquest of disease, I have been commissioned to present to you this little phial of radium. To you we owe our knowledge and possession of it, and so to you we give it, confident that in your possession it will be the means further to unveil the fascinating secrets of nature, to widen the field of useful knowledge, to alleviate suffering among the children of man. Take it to use as your wisdom shall direct and your purpose of service shall incline you. Be sure that we esteem it but a small earnest of the sentiments for which it stands. It betokens the affection of one great people for another. It will remind you of the love of a grateful people for yourself; and it will testify in the useful work to which you will devote it, the reverence of mankind for one of its foremost benefactors and most beloved of women.

HENRY PLATT CUSHING

The death of Professor Cushing in the month of April last at his home in Cleveland, has already been announced in these columns. His colleagues on the Geological Survey of New York wish to pay the following brief tribute to his friendship and worth. His scientific work is a part of the enduring records of the survey with which he was associated for twenty-eight years. His name will be forever

associated with the scientific exploration of the Adirondack Mountains, the most picturesque part of the State of New York, the great playground of the people of this and other states. In 1893 Cushing, with James F. Kemp and C. H. Smyth, Jr., entered this difficult field for the purpose of intensive investigation of its geological structure. For more than one generation it had been a common remark among intelligent people that the Adirondacks were "the oldest rocks on earth," but except in broadest features their structures were not understood or the relations of their mountain-making rock masses, one to another, comprehended. Professor Kemp, conceiving the importance of a systematic attack on this resistant field where geological information had lagged so far behind the rest of the state, brought together this little trinity of workers under the auspices of the state survey and its joint activity continued for many years; and though the attack eventually became a desultory one by two of the three, Cushing's part went on without interruption. He was a fine geologist in a difficult field, keen, patient, with the factors of his problem fully in hand; an excellent petrologist with a perfectly competent understanding of the dynamics of the Precambrian rocks. His grasp of the complicated Precambrian history of New York and the succession of events composing it finally enabled him to tell the story in his "Geology of the Northern Adirondacks." From the beginning of his field work in New York Professor Cushing showed that he was quite as competent to carry on the work in the unaltered sedimentary rocks, even in the intensive way which present requirements demand. He was a manly, frank, open-hearted and devoted student of his science, who challenged respect for his work and engaged the deep attachment of those who were admitted to his friendship.

JOHN M. CLARKE

WHEN Cushing began his work in the Adirondack region in 1893 the pre-Cambrian rocks, excepting the area in which Kemp was working, had been studied only very locally or by the aid of antiquated methods which led to quite erroneous conclusions. An assemblage of crystalline limestone, quartzites, schists and gneisses was clearly of sedimentary origin, while certain massive rocks were as clearly igneous. There were also extensive areas of gneisses and schists of doubtful origin. To determine the origin of these rocks, together with the structural and age relations of the various formations, was the fundamental problem. Working at first in the northeastern part of the region, Cushing had to deal mainly with rocks that proved to be igneous, and he was able to establish not only their origin but also, to a large extent, their time relations, and particularly that of the very extensive anorthosites and syenites. The work was later extended to the southern edge of the Adirondacks and, finally, to the northwestern part, his last paper being a report on the Gouverneur quadrangle, now in press.

In this district he came in contact with extensive areas of the Grenville sedimentary series, and worked out in detail their relations to the granites, syenites and gabbros. In this work he emphasized the relatively slight erosion of the crystalline rocks as compared with districts to the east, with the resultant partial, or complete, survival of the roofs of batholiths. In the course of these years of field and laboratory study he gathered a great mass of data which afforded the basis for important papers dealing with differentiation, assimilation, and other petrologic problems. In this work he was greatly aided by a series of highly accurate analyses of rocks made for him by his friend, Dr. E. W. Morley.

One can not look over Cushing's publications on the Adirondack region, even casually, without being impressed by the great volume of work represented, and the wide range of problems treated. The more carefully his papers are studied, the more evident is the wealth of accurate observation and carefully reasoned conclusions contained in them. They constitute a brilliant record of achievement in a difficult field of research.

C. H. SMYTH, JR.

Although Professor Cushing was primarily interested in Precambrian lithology and stratigraphy, he was led into stratigraphic investigation of the Paleozoic formations by his work along the margin of the Adirondack massive and his desire to read the history of this region from the overlapping and surrounding Paleozoic rocks. He was a pioneer in this work, and by his method of carefully noting and comparing the lithologic characters, relative thicknesses and amounts of overlap on the Precambrian, as well as the fossil contents of the various Paleozoic formations, he was able to trace the unequal emergences and submergences of the different sides of the Adirondack massive.

He began at the northeast corner of the Adirondacks, in Clinton county, where he early recognized the great thicknesses of the Potsdam and Beekmantown formations and their thinning westward and southward, implying the more rapid and steady subsidence of the northeastern part of the Adirondacks in Late Cambrian and Early Ordovician time. Then at the southwest corner he found the successive overlap of the Ordovician formations, notably of the Beekmantown and Trenton, upon the comparatively even Precambrian floor and thus inferred a relatively even sinking of this side of the Adirondacks in Early and Middle Ordovician time, interrupted by an elevation in Chazy time.

In the "Geology of the Northern Adirondack Region" the Paleozoic history of the Adirondacks is for the first time treated logically by a comparison of the Paleozoic deposits on all four sides. This work also showed Cushing where correct data were still lacking for a more comprehensive treatment of his subject. These data were supplied by his later work (jointly with Ulrich and Ruedemann) on the Paleozoics of the Thousand Islands (northwest corner), Saratoga Springs (northeast corner) and Ogdensburg (north side) regions. It was his intention to continue the work in the Watertown region together with Ruedemann. Jointly with these co-workers he reached the conclusion that the Paleozoic rocks which rim the Adirondacks consist largely of the thinner, near-shore edges of a great number of formations, and that there is a great lack of correspondence between the formations on the different sides. This conclusion found its expression in a more refined distinction and correlation of formational units in the Paleozoic rocks surrounding the Adirondacks.

Cushing's stratigraphic work has left its indelible impress upon the elaboration of the geologic history of New York. He was equally keen and enthusiastic in studying the lithologic and structural, as well as the stratigraphic and faunistic characters of the formations; and those who had the good fortune to be associated with him in the field will never forget his vigorous sterling character, cautious and fair weighing of all evidence, and his fine sense of humor.

R. Ruedemann

SCIENTIFIC EVENTS

AN ENGLISH HOSPITAL FOR NERVOUS DISORDERS

We learn from the London *Times* that Sir Ernest Cassel has given £225,000 to found and endow a hospital or sanatorium for the treatment of functional nervous disorders, and the King and Queen have consented to become patrons of the new institution. Sir Ernest Cassel has purchased a fine mansion and park in ideal surroundings at Penshurst, Kent, for the purpose. The house, which has been reconstructed, will accommodate about 60 patients, and was opened on May 23.

By the term "functional nervous disorders" will be understood those common but complex and distressing conditions which are not the direct outcome of organic disease. Among such may be named neurasthenia, nervous break-down, loss of power not associated with evident structural changes, together with those manifold kindred troubles which are loosely termed "nervous." Largely the result of the stress and turmoil of modern life, they are unfortunately of great frequency and are accompanied by much suffering, and followed, not uncommonly, by disastrous mental and physical consequences. Subjects of these dis-