The Presidency of the Royal Society of London
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THE RECENTLY ANNOUNCED FAILURE of the natural gas-wells of Champaign, Ill., indicates that the supply in the vicinity of Pittsburgh and elsewhere may not be inexhaustible, and may have aroused anxiety in the minds of those who have invested in this new form of enterprise. There is a great deal to be learned in regard to petroleum and natural gas, but a few points as to their origin and mode of accumulation may be counted settled. They are derived from organic matter distributed through the rocks in which they occur: in other words, they are fossil fuel, as really as coal or lignite. They were accumulated in subterranean reservoirs, which are mainly porous sandstones or limestones, covered with impervious shales; and there is no reason to believe that these accumulations are of recent date. A gas-well or oil-well can no more be 'inexhaustible' than a coal-mine. While oil is mobile, and can be drawn through the rocks for some distance to the point of delivery, gas is still more mobile, and may travel farther; but the supply of either or both from a given area is limited and definite. Single gas-wells will fail like single mines, but the *field* may last for a long time. The first anthracite mined in Pennsylvania was opened in a pocket of large extent. The proprietors counted it 'inexhaustible,' and a panic seized them when they found the rock floor beneath it, at no great depth. But a good deal of anthracite has been discovered since. The failure of one set of gas-wells has but little bearing on the life of another set, with other sources of supply, with other sorts of reservoirs, and with other conditions as to depth and geological structure.

THE PRESIDENCY OF THE ROYAL SOCIETY OF LONDON.

THE announcement in *Nature* (Nov. 5) that Professor Huxley has definitely resigned his position as president of the Royal society of London, and therefore as *official* leader of British scientific workers, will cause much regret not only in Great Britain and Ireland, but on this side of the Atlantic. This regret is increased by the further statement that the resignation was due to ill health, which made complete freedom from official cares desirable. The president of the Royal society has manifold and anxious duties. It devolves on him to present the claims of British science to the government, and he is officially responsible for the proper expenditure of the annual grant made by the nation to the Royal society, for the furtherance of scientific research. He is, moreover, in a certain sense, the official adviser of the government in matters which involve scientific questions. Not technically a secretary of state, and fortunately without any political affiliations, upon him devolves, nevertheless, the duty of advising the cabinet on matters pertaining to science, and as to the selection of *regius* professors in scientific subjects in English, Scotch, and Irish universities. Of late years such official duties have been made more onerous by the anti-vivisection act, which names the president of the Royal society as one of the few persons who are entitled to certify that they believe the performance of experiments on the lower animals is justified by the aim of a particular research, and the character and training of the person who desires to make it.

In addition to the above official duties and anxieties, the president of the Royal society has exacting social claims. It devolves on him to see that distinguished foreign scientific men who may visit London are suitably entertained, and introduced to those whom they may desire to meet. The position, though, we believe, unpaid, is one of great responsibility, and involves much labor; and it is an open secret that Professor Huxley assumed it on the understanding that the secretaries should take the main bulk of the necessary work off his shoulders. His researches, his eloquence, his great 'common sense,' made him the natural head of British scientific men; and we trust that the day is far off when we shall cease to learn from him. We expect, now that he is set free from all routine duty, that we shall find him even more a protagonist than we have in the past. We hope that the newspaper rumor is true, and that he is coming to the United States to study the collections of fossil birds and reptiles gathered by Professor Marsh of Yale college, and give us, as no other is so competent to give, a statement of the bearing of these collections on the general doctrine of evolution. Should the master come to rest and work among us, he will surely meet a hearty greeting.

Professor Huxley was for several years the biological secretary of the Royal society. According to *Nature*, his successor is to be Professor Stokes of Cambridge, who has for many years been the mathematico-physical secretary. Who is to be the successor of Professor Stokes as secretary we do not know; but it is interesting to note that

as the Royal society started with a close affiliation to Oxford, then became, as regards its officers, for many years a London society, it now returns from London to one of the older universities for its officers. If Professor Stokes be made president (an honor which is certainly due him), the president and one of the two secretaries will be Cambridge men. This is an interesting example of the fact that the older English universities, now that they have been legally set free from ecclesiastical control, are coming to the front in scientific research. It gives point to the agitation now in progress in London for a 'teaching' university, and shows, that, once ecclesiastical fetters are removed, even the most ancient educational endowments can produce national leaders in the physical and biological sciences.

THE NOVEMBER MEETING OF THE NATIONAL ACADEMY OF SCIENCES.

THE meeting of the National academy of sciences, held this autumn in Albany, though even smaller than usual at this season, was interesting and successful. The meeting began on Nov. 10, and lasted four days. Only 18 of the 97 members were present, and 22 papers were read, 16 of them by members of the academy. The papers elicited an unusual amount of interesting discussion, and the sessions, held in the new and cheery assembly parlor at the capitol, were largely attended by the citizens, who, indeed, did every thing to make the meeting of the academy a pleasant one, with dinners and evening receptions. The local scientific institutions combined to receive the academy on the first evening, and the assemblage at Geological hall was a large and distinguished one.

Although the papers were divided almost equally between the physical and natural sciences, those in the former department were, generally speaking, both more important and of wider interest. They were almost exclusively astronomical; and prominent among them, as opening new fields of research, were the papers of Professors E. C. Pickering and S. P. Langley.

The former presented to the academy the results of researches he had undertaken in stellar photography in connection with his brother, Mr. W. H. Pickering, aided by a grant from the Bache fund of the academy. He clearly proved that owing to the recent improvements in photographic methods, and particularly by the advances in dry-plate manufacture, we had now a new tool in astronomy of the utmost importance. The first stellar photographs ever taken were those of a Lyrae by the elder Bond, at the Harvard observatory, in 1850. In 1857 his son carried similar investigations much further. At first, however, they had been unable to obtain clear images of stars of the second magnitude, while now it was possible to print those of the fourteenth, or, in other words, to transfer to paper an image produced by an object only a hundred-thousandth part as bright as formerly. Professor Pickering's researches were carried on by means of a new instrument he had devised and constructed from the Bache fund, in which a photographic lens of eight inches aperture and forty-four inches focus is mounted equatorially, and moved by clock-work. By disconnecting the clock-work, photographs of several different regions may be taken upon the same plate, and the stars distinguished by varying the exposures.

Three different fields of investigation were here opened, each of which had been traced somewhat by way of exploration. One was a map of the heavens; a second, the study of atmospheric absorption; and the third, the study of stellar spectra, which, by these methods, may now be pursued with comparative ease. It was found that the negatives would show the lines of stars of the eighth magnitude perfectly, and that these spectra would even bear enlargement upon paper with clear definition. As the only limit of the further extension of stellar photography is the sensitiveness of the dry plate, and as this limit is plainly not yet reached, even better results may be expected.

Many photographs were exhibited, and great interest was manifested in this new departure, as well as in the simple, effective, and time-saving devices of the author for direct comparison on the same plate of a large number of objects for photometric purposes.

Professor Langley's paper related to 'obscure heat,' and continued, as was expected, his remarkable researches with the bolometer, by which he has so greatly extended our notions of the invisible spectrum. This time he dealt with the lunar spectrum, and estimated the heat derived from the unillumined moon. Rosse had estimated the temperature of the moon's surface as from 200 to 500° F. By studying the moon at its full with a rock-salt prism obtained only after repeated failures, and which, from its nature, had already required repolishing seven times, each time necessitating a new determination of its constants, he had succeeded on repeated occasions in securing a spectrum which showed two curves, — one according with that previously obtained in the infra red region beyond the visible portion of the solar spectrum, and clearly due to reflection; and another, lying entirely beyond that, as clearly due to the moon itself, and revealing its real temperature.