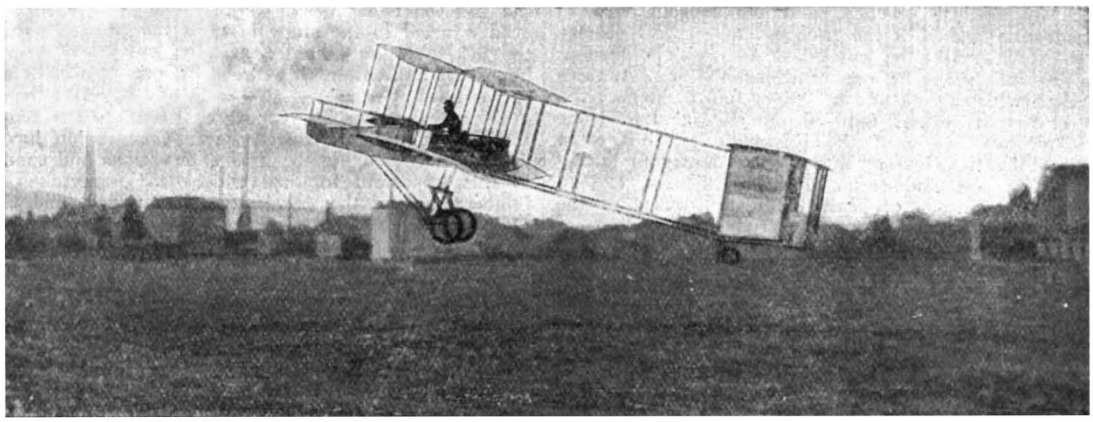
metres the machine fell vertically on the ground, and was damaged.

An aeroplane constructed on the other side of the Atlantic is described in the *Scientific American* for November 16 as "a heavier than air flying machine which lacks the faults of former similar devices according to its inventor, J. W. Roshon, of Harrisburg, Pa. . . ." This machine, which has not yet been tried, is characterised by its complexity to much the same extent that the monoplane is characterised by its simplicity. It has three principal supporting planes, the bottom and middle plane measuring 24 feet transversely by 8 feet longitudinally, while the top plane has only a transverse measurement of 12 feet. Between these three planes, which are placed one above the other, giving a total height of 17 feet, there are 26 narrow flat planes placed transversely at the front and rear of the larger planes. The total wing surface is 900 square feet, say 80 square metres, and the weight with an operator is estimated at 600lb., say 270 kilograms. To launch this large machine into the air an inclined plane has been specially constructed curving up at the bottom in order to start the machine with its rider skyward, but for the first test a bag of sand is to take the place of the latter.



Mr. Farman's aeroplane in full flight. From *La Nature*.

A further departure from the present fashion of machine is the gyroplane of Messrs. Breguet, which revives interest in the attempt to overcome gravity by vertical screw propellers. As at present designed, it is supported by four propellers placed at the corners of a square, each propeller having four revolving vanes, and each vane carrying a pair of superposed planes. The machine, which with its operator would weigh 540 kilograms, was found to hover successfully in the air at a height of a few feet for a minute, this representing the limit of the experiment, and the machine being held down to prevent any accident. It is thus claimed that aerial navigation by vertical screws is possible.

It is interesting to record the fact that the *Scientific American* estimates Mr. Farman's longest flight on October 26 as 2529·52 feet, and his longest measured flight on November 7 as 2624·66 feet. The French records are 771 and 800 metres respectively. Thus, by the use of English units, the American correspondent would appear to claim, if the results are correct, to have estimated these long-distance flights to within an eighth of an inch. But unless the figures represent the results of actual exact measurements (and of this no evidence is given), their accuracy cannot be admitted.

ANNIVERSARY MEETING OF THE ROYAL SOCIETY.

THE anniversary meeting of the Royal Society was held on Saturday, November 30, St. Andrew's Day. Lord Rayleigh, the president, was in the chair. Among the subjects referred to in the report of the council are the publication of the National Antarctic Expedition results, the International Catalogue of Scientific Literature, Royal Society's Catalogue of Scientific Papers, International Association of Academies, sleeping sickness, and Malta fever. The following statement, drawn up by the council, was presented to the Royal Commission on Vivisection in March last :—

The Royal Society, from its age and the position accorded to it among scientific institutions, feels its responsibility as a guardian of the general interests of science in this country. Founded as it was for the promotion of natural knowledge, whenever from time to time legislative changes have been proposed which might seem likely to affect the advancement of that knowledge, the society has desired to make its voice heard on behalf of scientific progress. The recent appointment of a Royal Commission on the subject of experiments on animals has been deemed by the president and council of the Royal Society to be an occasion when they may ask to be allowed to lay before that Commission a statement of their views on the broad scientific bearings of the question.

There can be no doubt that the main cause of the remarkable development of science in modern times has been the adoption of the experimental method of investigating nature. In every department of research this method has led to the most important advances, both in questions of theory and in practical applications to the useful purposes of life. From the beginning of its history the Royal Society has fostered the prosecution of experiment, not only in physical and chemical, but in biological inquiry, and its publications are full of records of the discoveries which have consequently been made.

In no branches of investigation have the theoretical and practical successes of experimental work been more conspicuous in recent years than in physiology and its practical applications in medicine and surgery. In medicine, the careful and patient testing of the effects of drugs on the lower animals has not only led to an accurate knowledge, not otherwise attainable, of these effects as produced on the human body, but has greatly increased the number of substances now available to the physician in the treatment of disease. Without this method of investigation the progress of pharmacology, in recent years so astonishing and beneficent, would be arrested, and diseases, which may in time be successfully combated, would continue their ravages unchecked. In modern surgery the application of similar experimental work has been attended

with brilliant success. Most delicate and fundamental operations on the human body have been made possible by the knowledge obtained from the treatment of animals.

The president and council of the Royal Society claim that since the continued advancement of science in every department depends so largely upon the use of the experimental method, the utmost caution should be observed in any proposals for legislation whereby the prosecution of the method might be unduly limited. So much has already been gained from the application of experiments on animals, both for the progress of physiology and for the alleviation of human suffering, and so much more may be confidently expected in the future, that the president and council trust that nothing will be done that would hamper the legitimate employment of the method.

While precautions should undoubtedly be taken against improper use of experiment on living animals, it is not the province of the society to suggest what safeguards should be adopted. It is, however, the bounden duty of the president and council to urge that those safeguards should be so framed as not unnecessarily to interfere with that advancement of knowledge to promote which the society exists.

Such restriction would not only cripple or arrest the growth in this country of an important branch of biological science, but in so doing would reduce the efficiency of both physician and surgeon to mitigate or cure disease. It might then become no longer possible to maintain the high position which this country has gained in researches necessary for the advancement of knowledge and for the guidance of medical practice, and the investigators to whose devotion and skill the progress of medical science owes so much might be compelled to seek in foreign universities and scientific organisations the opportunities for research which they could no longer find at home.

This statement is not founded on general knowledge alone. The cooperation of the Royal Society has often been sought by the Government of this country in taking measures to arrest the spread of deadly disease, and to improve the conditions of health in distant parts of the British Empire. Without the ungrudging services of physiologists and pathologists, many of whom the society is proud to count among its fellows, the services thus solicited could not have been given. The president and council gladly avail themselves of this opportunity of testifying to the laborious and unselfish devotion, often in most dangerous conditions, with which the necessary experimental researches have been carried on, and to the value of these researches, not only in enlarging our biological conceptions, but in alleviating the sufferings of mankind.

A further sum of 350*l.* has been voted by the council from the Government grant towards a fund of 2000*l.* which Sir David Gill is endeavouring to raise for the purpose of extending the work of measuring the great African geodetic arc. The grant was voted conditionally upon the 2000*l.* referred to being obtained.

The main part of Lord Rayleigh's presidential address is reprinted below.

An important feature in the work of the Royal Society consists of various inquiries, undertaken for different departments of Government, in regard to diseases which affect the tropical portions of our foreign possessions and dependencies. Among these diseases the attention of the civilised world has been for some years directed to the malady known as sleeping sickness. The first concerted action for the study and combating of this appalling scourge arose out of a representation made by the Royal Society to the Foreign Office in the spring of 1902, in consequence of which, at the request of the Treasury, the society's Malaria Committee organised and dispatched a small scientific commission to Uganda. In the course of a short time the source of the disease was traced by this Commission to the presence of a trypanosome in the blood and cerebro-spinal fluid of the victims, and the further discovery was also made by the same Commission that the trypanosomes are carried by a species of biting tsetse-fly. These important revelations were followed up by detailed studies of the character and distribution both of the disease and of the fly. Besides sending out a succession of observers to prosecute the investigations of its Commission at Entebbe, the Royal Society urged upon the Colonial Office the necessity of organising, and under an increased medical staff, a more comprehensive inquiry into the local conditions under which the disease is propagated. This recommendation was carried out, and some valuable information on the subject has been obtained. Meanwhile, though various drugs had been tried with at best only temporary success, no lasting remedy had been found for the malady, which has continued to be fatal and to spread steadily over Central and East Africa.

The various European Governments which have possessions in those regions have at last determined to make a united effort to cope with sleeping sickness through the instrumentality of an International Conference having a separate bureau in each country concerned and a central bureau in London. The object of this cooperation will be to collect information bearing on the disease, to devise and carry out such scientific researches as may seem to be necessary, and to concert measures for dealing with the disease and the populations affected or likely to be affected by it. The Royal Society, having led the way in this subject, has been invited to give the proposed combined international action its support. The society welcomes the proposal, and will be prepared to render every assistance in its power. In the meantime, our Tropical Diseases Committee is continuously and actively engaged in the endeavour to discover a drug that may prove effective in the treatment of the disease. Their investigations have been directed to the study of trypanosomiasis in rats, and the latest results obtained are such as to encourage the hope that at least in this direction their labours have been successful.

During the present year three parts of the reports of the society's Mediterranean Fever Commission have been published, embodying the final observations and conclusions in this important inquiry, which was undertaken at the joint request of the Admiralty, War Office, and Colonial Office. The members of the Commission have shown how the scourge of fever, which has been so long rife in Malta, and has so seriously reduced the strength of our garrison there, may be eventually banished from the island. Already their recommendations, so far as they have been followed, have reduced the amount of fever to trifling proportions. It now remains for the authorities to adopt the further precautions pointed out to them, which will probably banish the disease altogether.

Progress has been made with the National Physical Laboratory's buildings at Eskdale Muir, some of which are now ready for occupation. It was hoped that the work might have begun this summer, and the Treasury has provided a sum of 750*l.* for the expenses during three-quarters of the current financial year. Owing to the bad weather in the early summer this anticipation has not been realised, but a start will be made very shortly. The buildings are admirably adapted for their purpose, and will render possible the study of terrestrial magnetism under the undisturbed conditions which used to exist at Kew.

The completion of the work on the electrical units will be satisfactory to those who have been interested in this question. At the time of my own researches, about twenty-five years ago, the ohm and the ampere were uncertain to 2 per cent. or 3 per cent., and I then scarcely hoped to get nearer than one part in a thousand. The recent work carried on at Bushey would seem to indicate that an accuracy of one part in ten thousand may have been attained. The possibility of such a refinement depends largely upon the use in the instruments of coils composed of a single layer of wire, the position of every turn of which is open to exact determination. The importance of this feature was insisted upon by the late Prof. Jones.

Accuracy of measurement appeals less to the lay and scientific public than discoveries promising to open up new fields; but though its importance at any particular stage may be overrated, it promotes a much needed consolidation and security in the scientific edifice. A remarkable example of enhanced accuracy is afforded by modern measurements of luminous wave-lengths, for which we are

mainly indebted to our Copley medallist. Not only did he introduce the vacuum tube charged with mercury or cadmium as the best source of homogeneous light, but by a most able use of an ingenious method he determined, with the highest precision, the values of the cadmium red, green, and blue wave-lengths in terms of one another, and of the metre. His work has been skilfully followed up by Fabry and Perot, and numerous wave-lengths are now known with a relative accuracy of one millionth part. When we reflect upon the almost ultra-microscopic magnitude of a wave-length of light, the possibility of such an achievement may well excite our astonishment.

For the advancement of science the main requirement is, of course, original work of a high standard, adequately explained and published; but this is not enough. The advances so made must be secured, and this can hardly be unless they are appreciated by the scientific public.

In all the principal countries of the world we have now a body of men professionally connected with science in its various departments. No doubt the attention of many of these is so engrossed by teaching that it would be hard to expect much more from them, though we must remember that teaching itself takes on a new life when touched with the spirit of original inquiry; but in the older universities, at any rate, the advancement of science is one of the first duties of professors. Actual additions to knowledge occupy here the first place; but there must be many who, from advancing years or for other reasons, find themselves unable to do much more work of this kind. It is these I would exhort that they may fulfil their function in another way. If each man would mark out for himself a field—it need not be more than a small one—and make it his business to be thoroughly conversant with all things, new and old, that fall within it, the danger of which I have spoken would be largely obviated. A short paper, a letter to a scientific newspaper, or even conversation with friends and pupils, would rescue from oblivion writings that had been temporarily overlooked, thereby advancing knowledge generally, and sometimes saving from discouragement an unknown worker capable of further achievements. Another service such experts might render would be to furnish advice to younger men desirous of pursuing their special subject.

A movement is on foot, and has already received valuable support, to promote the publication of standard scientific works in embossed type suitable for the use of the blind. Mr. H. M. Taylor tells me that in the course of the last twelve months he has written out the whole of Mr. C. Smith's "Elementary Algebra" in Braille type, has afterwards read the copy with his fingers, and again, later, read the whole in proof. There can be no doubt that books in embossed type on such subjects as mechanics, physics, astronomy, geology, not to mention the various biological sciences, would be an immense boon to many blind readers. I commend the proposal heartily to your notice.

Another remedy for the confusion into which scientific literature is liable to fall may lie in the direction of restricting the amount of unessential detail that is sometimes prevalent in the publication of scientific results. In comparing the outputs of the present time and of, say, thirty years ago, the most striking feature that appears is doubtless the increase of bulk, in recent years coming especially from young workers stimulated by the healthy encouragement of direct research as a part of scientific education. But I think it may also be observed, and not alone in the case of such early dissertations, that there is, on the whole, less care taken for the concise presentation of results, and that the main principles are often submerged under a flood of experimental detail. When the author himself has not taken the trouble to digest his material or to prepare it properly for the press, the reader may be tempted to judge of the care taken in the work from the pains taken in its presentation. The tendency in some subjects to submit for immediate publication the undigested contents of note-books is one that we hear much of at the present time. It is a matter that is difficult for publishing bodies to deal with, except by simple refusal of imperfectly prepared material, with its danger of giving offence to authors of recognised standing, but it seems not unlikely that at present public scientific opinion would endorse such a course of action. A related difficulty, and one that contributes to this trouble, is the tendency, noticeable in some public scientific organisations, to imagine that their activity is estimated by the number of pages of printed matter they can produce in the year. Probably no consideration is further removed than this from the minds of the educated public, whose judgment is alone worth considering.

COPLEY MEDAL.

The Copley medal is awarded to Prof. Albert Abraham Michelson, For.Mem.R.S., on the ground of his experimental investigations in optics.

In 1879 Michelson brought out a determination of the velocity of light by an improved method, based on Foucault's, which gave 299,980 kilometres per second. Three years later, by means of a modification of the method, capable of even greater precision, he found for this constant, of fundamental importance for electric as well as optical science, the value of 299,853 kilometres.

Michelson has been a pioneer in the construction of interferometers, which are now indispensable in optics and metrology. With his new instrument, at Paris, he determined the absolute wave-lengths of the red, green, and blue lines of cadmium by counting the number of fringes (twice the number of wave-lengths) corresponding to the length of the standard metre of the Bureau International des Poids et Mesures. He found the metre to be 1,553,164 times the wave-length of the red line of cadmium, a result which is almost in exact agreement with the re-determination last year by Perot and Fabry. Michelson thus proved the feasibility of an absolute standard of length, in wave-lengths, of such accuracy, that if the standard metre were lost or destroyed it could be replaced by duplicates which could not be distinguished from the original.

He had the greatest share in the elaboration of precise experiments on the relative motion of ether and matter. He repeated in an improved form Fresnel's experiment of the speed of light in moving media, using water and sulphide of carbon. He found that the fraction of the velocity of the water by which the velocity of light is increased is 0·434, with a possible error of $\pm 0{\cdot}02$. The fact that the speed is less in water than in air shows experimentally that the corpuscular theory is erroneous; but his results, moreover, established the correctness of Fresnel's formula for the effect, the theory of which has since become well understood.

In conjunction with E. W. Morley, he devised and carried out a very remarkable method by which, on the assumption of ether at rest, an effect depending on quantities of the order $(v/V)^2$ would appear to be appreciable. No displacement of the fringes was found. Of this result the simplest explanation would be that the ether near the earth partakes fully in its orbital motion; but modern electric and optical science appears to demand a quiescent ether, and the existence of this and similar null results is fundamental for its theory.

He has shown the possible application of the interferometer method to astronomy, by himself measuring the diameters of the four satellites of Jupiter, which are only about one second of arc. He suggests the further application of the instrument to such of the fixed stars as may not subtend less than one-hundredth of a second of arc.

In 1898 Michelson constructed a spectroscope which enables us to make use of the great resolving powers of the very high orders of spectra which are absent in the use of the ordinary grating, and with the added advantage of having most of the light in one spectrum. The echelon consists of a pile of glass plates of precisely equal thickness, which overlap by an equal amount; with it spectral lines which appear single with the most powerful gratings can be resolved into components. This instrument has been especially useful for the direct observation of the important, because definite, influence of magnetism on light, discovered by Zeeman. With thirty plates, and using the 25,000th spectrum, the echelon has a resolving power of 750,000, while the most powerful gratings do not exceed 100,000.

In connection with the analysis of radiations, he has constructed and used various machines for the analysis of periodic motions. For example, in conjunction with

Stratton, he perfected a remarkable machine which is based on the equilibrium of a rigid body under the action of springs.

Prof. Michelson has also investigated by his interferometer the important subject, both theoretically and practically, of the breadth and the structure of spectral lines, including the effect of a magnetic field, and in various other ways his genius has opened up new ground in experimental optics.

ROYAL MEDALS.

One of the Royal medals has been awarded, with the approval of His Majesty, to Dr. Ernest William Hobson, F.R.S.

During the last twenty years Dr. E. W. Hobson has been distinguished for the fundamental character of his contributions to mathematics and mathematical physics. His earlier published work, from 1888 onwards, deals largely with the so-called harmonic analysis, which embraces many topics having for their common aim the solution of the potential equation in forms suitable for application to the problems of physics. The exhaustive examination of the general types of harmonic functions contained in his paper in the Phil. Trans., 1896, has been found to be of high utility for this application. He was led by these researches, and particularly by the difficulty of describing in general terms the characteristics of a function capable of being represented by Fourier's series, to take part in the revision of the logical basis of differential and integral calculus which is now in progress; his presidential address to the London Mathematical Society in 1902 on the questions here arising aroused general interest among mathematicians, and he has recently (1907) published an extensive volume dealing with the whole matter and its applications to the theory of Fourier's series, which is of great importance for the history and development of mathematics.

His Majesty has also approved the award of a Royal medal to Dr. Ramsay H. Traquair, F.R.S. Dr. Traquair is honoured on the ground of his long-continued researches on the fossil fishes of Palæozoic strata, which have culminated, within the past ten years, in his discovery of new groups of Silurian and Devonian fishes, and in his complete exposition of the structure of Drepanaspis, Phlyctenaspis, and other remarkable forms.

For nearly forty years Dr. Traquair has been busy with the description of fossil fishes, mostly from the Palæozoic rocks of Scotland, and he is deservedly held to be one of the most eminent palæontologists of the day. He has been highly successful in the interpretation of the often very obscure and fragmentary remains which he has had to elucidate, and his restorations of fishes have won such credit as to appear in all modern text-books of palæontology. It may be said that his work, notwithstanding the great difficulties of the subject, has well stood the test of time.

Dr. Traquair has done much to advance our knowledge of the osteology of fishes generally. His earliest memoirs on the asymmetrical skull of flat-fishes and on the skull of Polypterus remain models of exactness. His acquaintance with osteology enabled him to show how former superficial examination of the Palæozoic fishes had led to wrong interpretations. He demonstrated that Chirolepis was not an Acanthodian, as previously supposed, but a true Palæoniscid. In 1877 he satisfactorily defined the Palæoniscidæ and their genera for the first time, and conclusively proved them to be more nearly related to the sturgeons than to any of the other modern ganoids with which they had been associated. He thus made an entirely new departure in the interpretation of extinct fishes, replacing an artificial classification by one based on phylogenetic relationship. His later memoir on the Platysomidæ was equally fundamental and of the same nature.

All subsequent discoveries, many made by Traquair himself, have confirmed these conclusions, which are now universally accepted.

In 1878 Dr. Traquair demonstrated the dipneustan nature of the Devonian Dipterus, and somewhat later he began the detailed study of the Devonian fishes. His latest researches on the Upper Silurian fishes of Scotland are equally important, and provide a mass of new knowledge for which we are indebted to his exceptional skill and judgment in unravelling the mysteries of early vertebrate life.

DAVY MEDAL.

The Davy medal is awarded to Prof. Edward Williams Morley. Prof. Edward W. Morley is well known both to chemists and to physicists for his work in the application of optical interferences and other physical phenomena to increase the accuracy of measurement. Numerous valuable papers have appeared, either in collaboration with Prof. Michelson and others, or in his own name, on such subjects. Special reference may be made to his experiments, in conjunction with Prof. Michelson, on the fundamental question of the absence of effect of translatory motion of material bodies on luminous phenomena.

His claim to the Davy medal rests on grounds closely related to these researches, for he has combined thorough mastery of accurate measurement with an intimate knowledge of modern chemistry, and has utilised them in his attempt to solve one of the most difficult and fundamental problems of chemical science. The special problem to which he has consecrated many years of his life is the determination of the relative atomic weights of hydrogen and oxygen; it has been attacked by him with rare insight and skill, and with indomitable perseverance, and he seems to have settled it for many years to come, if not permanently. All the recent work devoted to this problem, and there has been much, has tended to establish more firmly the ratio arrived at by Prof. Morley.

His determinations of the absolute weights of a litre of hydrogen and of oxygen, and his investigations of the amounts of moisture retained by gases dried by various desiccating agents, are of the very greatest importance for scientific progress.

SYLVESTER MEDAL.

Prof. Wilhelm Wirtinger, of Vienna, is the recipient of the Sylvester medal. He is distinguished for the importance and wide scope of his contributions to the general theory of functions. Our knowledge of the general properties and characteristics of functions of any number of independent variables, and our ideas for the further investigation of such functions, are, for the most part, at present bound up with the theory of multiply-periodic functions, and this theory is of as great importance for general solid geometry as the ideas of Abel have proved to be for the theory of plane curves. Prof. Wirtinger has applied himself for many years to the study of the general problems here involved. A general summary of his researches is given by him in the Abel centenary volume (xxvi., 1902) of the "Acta Mathematica." Two of his papers may be particularly referred to, both of 1895. One of these deals with the reduction of the theory and general multiply-periodic functions to the theory of algebraic functions, with a view to their expression by Theta functions; this was one of the life problems of Weierstrass, who did not, however, during his lifetime, publish anything more than several brief indications of a method of solution. Prof. Wirtinger's memoir obtains a solution, and is, moreover, characterised throughout by most stimulating depth and grasp of general principles. This paper was followed by two others, one continuing the matter in detail, the other making an application of its principles to the general theory of automorphic functions. Another extensive paper, which obtained the Beneke prize of the Royal Society of Göttingen, deals with the general theory of Theta functions. In it he obtained results of far-reaching importance, for geometry as well as for the theory of functions, the full development of which will require many years of work.

HUGHES MEDAL.

The Hughes medal is awarded to Principal Ernest Howard Griffiths. Principal Griffiths has conferred great benefit on physical science by his series of measurements of fundamental constants, mainly in the domain of thermal and electric energy. At a time when the equivalent of the thermal unit in mechanical energy stood urgently in need of revision, he devoted himself to the problem with all the refinements and patient manipulation that could be devised, the result being a value for Joule's equivalent which at once acquired authority in the light of the

evidence produced, and largely confirmed the corrections already advanced by Rowland and others. A main cause of discrepancy had been found to be the variation of the thermal capacity of water with the temperature; and by an investigation in which this variation was determined, Griffiths elucidated and correlated fundamentally the work of previous observers, from Joule onward. Of special importance also, in the domain of chemical physics, was an investigation of the depression of the freezing point of water by very dilute admixture of dissolved substances, wherein he verified, with all the refinement of absolute physical determinations, that the change of freezing point ran exactly parallel to the electric conductivity when the dilution of the electrolysable salt was comparable to that of gases, being twice as much per molecule as the standard value of the depression for non-electrolytes.

BUCHANAN MEDAL.

The Buchanan medal is awarded to Mr. William Henry Power, C.B., F.R.S. Mr. Power's services to hygienic science and practice have extended over a period of more than thirty years, and have been of the most distinguished kind. He has himself personally conducted successful inquiries into the causes of the spread of various diseases, and has obtained results which have proved of the greatest benefit to mankind. Moreover, in his long connection with the medical department of the Local Government Board he has planned and directed numerous general and local investigations whereby our knowledge of disease, and of the methods of coping with it, have been greatly increased. The medical reports issued by the Local Government Board, which are universally regarded as among the most important contributions of our time to this subject, have for many years past been either written by him or owe much to his editorial criticism and supervision. It is not too much to say that no living man in this country has advanced the cause of scientific hygiene more than Mr. Power, or is more worthy of the distinction of the Buchanan medal.

In the evening of the anniversary meeting, the fellows of the society and their guests dined together at the Whitehall Rooms of the Hôtel Métropole. Lord Rayleigh was in the chair, and responded to the toast of the Royal Society proposed by Lord Dunedin. Speeches were also made by several of the medallists, and by Lord Fitzmaurice and the Dean of Westminster.

NOTES.

IN proposing the toast of "The Royal Society" at the anniversary dinner on Saturday last, Lord Dunedin referred to the popularisation of science as one of the functions of a society which exists for the promotion of natural knowledge. This remark provides the subject of a letter by an anonymous correspondent in Tuesday's *Times*. The writer urges that the neglect of science in this country is largely due to the indifference shown by scientific men to the intellectual interests of the average reader. Few men of science make any attempt to describe their investigations in language which can be understood by men of culture without special scientific knowledge, and it is scarcely too much to say that most investigators are so closely absorbed in their particular researches that whether the world in general knows anything of the results or not is regarded as no concern of theirs. This spirit, and the obscure and diffuse manner in which scientific investigations are often described are to be deplored. Lord Rayleigh, in the presidential address which appears elsewhere in this issue, directs attention to the undigested material often presented as papers to scientific societies; and it seems as if the zeal for research is rarely accompanied by the aspiration for simplicity of expression. Prof. M. E. Sadler suggests in Wednesday's *Times* that the neglect of the teaching of the mother tongue in our schools provides a reason "why so many Englishmen of learning and high scientific attainment are unable to express themselves in a lucid and stimulating way." It may be pointed out, however, that though rhetoric receives more attention in the United States than it does in this country, the style of scientific papers and other works from America is not superior to that of our own scientific literature. But whatever the explanation may be, there can be only one opinion as to the advantage of increasing interest in scientific work by making the results as widely known as possible.

THE formation of the Royal Society of Medicine has already been the subject of a congratulatory note in these columns. The inaugural dinner of the society, held on Tuesday last, December 3, was a remarkable testimony to the successful establishment of what Sir Ray Lankester described on that occasion as the National Academy of Medicine. The society consists of thirteen federated sections, representing fifteen pre-existing societies, and it is hoped that other sections will be included before long, so that no branch of medical knowledge will be unrepresented in the society. The number of fellows is upwards of 1800, and of members above 600, and there is every reason to anticipate that these numbers will be considerably increased now that the society is in full working order. The library, which has been strengthened by the inclusion of those of the Odontological and Obstetrical Societies with that of the Royal Medical and Chirurgical, now consists of upwards of 70,000 volumes, and in the reading-room of the society no fewer than eighty-nine British and 180 foreign periodicals can be consulted. Sir W. Church, president of the society, who presided at the dinner on Tuesday, bore testimony to the manner in which the various bodies now forming the Royal Society of Medicine have been willing to sacrifice somewhat of their independence and individual prestige for the common good. Never in the history of medicine has there been a time in which so wide a field has engaged the attention of medical men as the present. In every department of medicine, science has placed at the disposal of medical men new methods and fresh means, not only for the investigation, but also for the treatment of disease, and the ground to be covered in each branch of medicine must as time goes on necessarily increase. To provide every facility for diffusing the increased knowledge which is being gained and enable the profession to keep in touch with what is going on is perhaps at the present time the main object of the society; but the time will come, and that soon, when the Royal Society of Medicine will be in a position, not only to discuss the value of the researches brought to its notice, but also, through the appointment of scientific committees, to add to knowledge.

THE Lalande medal has been awarded by the Paris Academy of Sciences to Mr. Thomas Lewis, of the Greenwich Observatory, and secretary of the Royal Astronomical Society.

SIR W. H. BENNETT, K.C.V.O., has been elected president of the Incorporated Institute of Hygiene in succession to the late Sir W. H. Broadbent, F.R.S.

AN experiment in the breeding of Maine lobsters in the Pacific Ocean is about to be tried by the U.S. Commission of Sea and Shore Fisheries. A car-load of seed lobsters has already been dispatched by a fast express from the Government hatchery at Boothbay to the western coast.

BY the death of Mr. M. Walton Brown, which occurred on November 22, the Institution of Mining Engineers loses an indefatigable secretary and the profession of coal mining one of its most useful representatives. Mr. Walton Brown was the author of numerous papers on mining