portant changes in its observation work about the first of January. The most notable is the introduction at the most important stations, and as rapidly as possible throughout the whole service, of the whirling psychrometer instead of the still wet and dry bulb now in use. An entirely new set of hygrometric tables has been computed for the reduction of observations made by the new method, a suitable whirling-machine has been devised and adopted, and machines for station use are now being constructed. It is also understood that the service has determined to use for this instrument thermometers with cylindrical bulbs, instead of the spherical bulbs at present used, on account of the greater sensitiveness of the former. The introduction of these improvements constitutes a decided advance in the hygrometric methods of the service. Z.

Washington, D.C., Dec. 14.

LONDON LETTER.

AT the election of the council and officers of the Royal society, which took place on St. Andrew's day, Prof. G. G. Stokes, the senior secretary of the society, was unanimously chosen as Professor Huxley's successor. He graduated at Cambridge in 1841 as senior wrangler and first Smith's prizeman, and was elected to his present office, the Lucasian professorship of mathematics, eight years afterwards. He was elected into the Royal society in 1851, and became its secretary in 1854. Professor Stokes's successor as secretary to the Royal society is Lord Rayleigh.

The award of one of the royal medals to Prof. E. Ray Lankester by the council of the Royal society will meet with the warm approval of all English biologists, and is a fitting recognition of his many contributions to zoölogical science, which range over a great variety of subjects, the earliest of them being now some twenty years old. Professor Lankester was for some years the only representative at Oxford of the modern school of zoölogy, and since his appointment to the zoölogical chair at University college he has trained several students of the greatest promise. He is also well known as the editor of the *Quarterly journal of microscopical science*, which, owing in great measure to his influence, has risen from being an organ of almost pure microscopy to the position of a first-class zoölogical journal. It is a good sign of the activity of the young biologists who are now being turned out from the universities of Oxford and Cambridge, London and Manchester, that the supply of contributions during this year has been more than sufficient for the regular quarterly issue of the journal. A supplemental number was published in July, and the first part of a new volume has just appeared, bringing up the total issue for the whole year to six parts instead of four, as has hitherto been the rule. The journal will in future appear at irregular intervals, just as the German zoölogical serials do, according to the amount of material in the editor's hands.

The 30th of November (St. Andrew's day), which closed Professor Huxley's term of office as president of the Royal society, has witnessed the retirement of Sir Joseph Dalton Hooker, a former occupant of the presidential chair, from the directorship of the Royal gardens, Kew. He was appointed assistant director in 1855, and succeeded to his present office ten years later, on the death of his father, the late Sir William Hooker. His administrative work has been well described as "performed in such wise as to win, along with national applause, the gratitude of the scientific world." It may almost be considered as certain that the vacancy will be filled by the promotion of his son-in-law, Prof. W. T. Thisleton Dyer, who is the present assistant director, and has been largely instrumental in bringing about the revolution in botanical teaching which has taken place in this country of late years.

As in the case of Professor Huxley, Sir Joseph Hooker's retirement from the routine of official duties will enable him to devote more time to purely scientific work than he has hitherto been able to give; and he will therefore be able to hasten the completion of his great monograph on the flora of British India.

At a recent lecture on the electric telegraph, delivered to the members of the Birkbeck institute, in London, by William Lant Carpenter, the following figures were given on the authority of the British general post-office, to indicate the increase of the use of the telegraph since the adoption of the 'twelve words for sixpence' (address included) rate: The total present mileage is 156,000 miles, and the number of instruments employed is 17,100, of which 26,000 miles and 900 instruments are due to the increase. In the week ending Nov. 14, 1885, 895,781 messages were sent, showing an increase of 40.3 per cent over the corresponding week of 1884. In London, however, the increase is 60 per cent; and in that city alone the 'registered addresses' have increased from 2,000 to 9,000. The average price of messages is 8d., as compared with 13d. under the old tariff. When the lines were purchased by the government in 1870, the average number of messages weekly was only 126,000, and the press messages, then barely 5,000 words per day, now exceed 1,000,000.

The electric lighting industry in England has been, as is generally known, almost throttled in its

infancy by legislative restrictions. Under the rules of the electric lighting act of 1882, no commercial company could light a district successfully, in a financial sense. In the new parliament, this, among other matters, calls for urgent notice and remedy. Meantime the Anglo-American Brush corporation is endeavoring to induce small groups of house-holders, four, six, or more, to unite in a joint local installation, at an initial cost of about $500 for an average-sized house. The plant proposed for such a group is either a steam or gas engine, dynamo, and secondary batteries, whose great use in domestic lighting has been repeatedly demonstrated by Mr. Preece, Mr. Swan, and many others interested in the matter.

At the recent opening of the session of the Society of arts, the president, Sir Frederick Abel, F.R.S., directed attention to machinery and appliances used in mines, and, contrary to general expectation, showed that explosions were not the greatest cause of loss of life in coal-mines. In the ten years 1875–1884, out of 11,165 deaths from accidents of all kinds in coal-mines, only 2,562, or roughly one-fourth, were due to fire-damp explosions; the remainder being caused in about equal shares by, 1°, falling in of roof and sides, and, 2°, other causes. The address, which is replete with interest, and can be read in full in the journal of the society for Nov. 20, concludes with some strong comments upon the part taken by the *Times* in regard to the delay in the report of the royal commission (of which the speaker was a member) upon the whole subject.

Two other presidential addresses lately delivered need a word of notice. The Marquis of Lorne (late governor-general of Canada), the president of the Royal geographical society, referred in some detail to the discoveries made in the basin of the river Kongo, in Africa, by Rev. G. Grenfell (a Baptist missionary) and Lieutenant Wissmann, as well as by Portuguese travellers. He then called attention to the recent endeavors of the society to improve geographical education in English schools and colleges, and to the exhibition, shortly to be held, of appliances and methods of teaching it, collected by the society's special commissioner, Mr. J. S. Keltie, in a recent continental tour.

During November a meeting was held in London to celebrate the granting of a royal charter to the Institute of chemistry, a body which has been at work for some years, with the avowed object of raising the status of analytical chemists, and doing for them what the College of surgeons, the old guilds, and the modern trades-unions, do for their respective professions and trades. An address was delivered on the occasion by Professor Odling, the president, who holds the chemical chair in the University of Oxford. He began with a history of the movement, and the increasing need of 'professional services,' and then considered the position of 'experts' as witnesses in the law-courts. The part of his address, however, most criticised, is that in which he dealt with the vexed question of the endowment of research and the pursuit of research, on the one hand, for its own sake alone; on the other, for the pecuniary rewards which are sometimes the result of it. *Nature* concludes a long article upon it in the words, "We wish it to be known, therefore, that the spirit it (Professor Odling's address) breathes is an alien spirit, repugnant to students of pure science in this country." W.

London, Dec. 1.

LETTERS TO THE EDITOR.

*** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

Newcomb's 'Political economy.'

Mr. James has quite misunderstood my remark about bimetallism. I admitted that the word *assume* did not correctly convey Professor Newcomb's idea; and I thought I sufficiently indicated that Professor Newcomb's sole intention, in the passage in question, evidently was to tell the student what was *meant* by a system of unlimited bimetallism. In other words, his sentence (which I admitted was unfortunately worded) was simply meant to state that the government *chose* a fixed ratio of values in their system of coinage. Newcomb says nothing at this point in the way of discussion; in a later part of the work he devotes a considerable amount of space to an examination of the arguments on both sides, and does not find that we can positively declare either that the bimetallists are wrong, or that they are right. Under these circumstances, I leave it to the reader to decide whether Professor James has dealt fairly with his author in insinuating that he caricatured the views of bimetallists.

As to the rest of Professor James's reply, I shall permit myself only one remark. He, in common with many of his school, seems to identify English political economy with *laissez-faire*, and persistently confuses the question of scientific method with that of practical conclusions. This is illustrated by what he says about Sidgwick. He does not deny — what is obvious to every reader, and what Sidgwick expressly asserts — that Sidgwick's method is essentially that of the earlier English economists; and this was the only relevant question. Of course, Sidgwick's book shows marks of his indebtedness to German writers, when he explicitly acknowledges (as I mentioned) his special obligations to Held and Wagner; but this does not in the least modify the fact that his method of investigation (or 'style of reasoning,' to quote Professor James) is quite unaffected by these writers; and this was the only point at issue. But with a writer who sees no distinction between an adherence to the methods of Mill (which was what I spoke of) and an adherence to his 'methods and system' (whatever that may be), it is hardly profitable to carry on a controversy. Fabian Franklin.

Baltimore, Dec. 11.