the presence or absence of carbon dioxide has no direct connection with the phenomena in question. The well-established fact that by far the greater part of the oxidations of the animal body occur outside the blood-vessels and within the living cells and fibres of the tissues, is apparently quite unknown to our author. One hardly knows how to characterize the treatise: if written for the laity, it is charlatanry; if for pathologists and physicians, an impertinence.

## WASHINGTON LETTER.

THE past fortnight has been a period of considerable activity, not to say anxiety, in the national capital. The pursuit of science withdraws men to a great degree from 'the madding crowd's ignoble strife,' and it is supposed to go on undisturbed and uninterrupted by affairs political or social. But the science of Washington is, in one way or another, almost entirely government science; and for its support, extension, contraction, indeed for its very existence, it must depend on the favor with which it is looked upon by a somewhat vacillating and fickle body of statesmen. The organization of a new congress is always a matter of much interest; but just now this is greatly enhanced by the consideration that the new body is to receive the first message from the head of a new administration, from which communication the attitude to be assumed by the ruling party towards science may possibly be inferred. This document has been before the public for several days, and comment is unnecessary; but it is not too much to say, that, in its references to the scientific work of the government, the general impression seems to be that it is not unsatisfactory on the whole, although in certain particulars it is not in agreement with the prevailing sentiment among scientific men.

The reports of cabinet officers are also looked for with interest, as they almost invariably contain recommendations, which, if carried out, affect the science of the government favorably or unfavorably. The reports just issued are, in the main, favorable to a liberal support of the scientific bureaus, and in one or two instances indications are shown of a disposition to correct certain evils which have long been recognized.

Under these circumstances, it is not surprising that scientific men should themselves be tempted to bestow more or less thought and attention upon the somewhat uncertain relation which they and their work bear to the government. The retiring president of the philosophical society, Prof. Asaph Hall, only incidentally yielded to this temptation in his address, delivered before the members of the society and invited guests, on the evening of Dec. 5. Professor Hall's topic was the scientific societies of America, and his treatment of it gave great satisfaction to his hearers. He spoke of the organization and history of some of the older and more important societies of the country, beginning, of course, with the American philosophical society, with Ben Franklin for its first president. The National academy came in for a good share of the discussion, and in this connection the general question of the relation of the academy to the government was considered, as well as that of the position of the 'government scientist.' He paid the society over which he has so satisfactorily presided the deserved compliment of declaring it to be first in importance among the local societies of America.

Only a few days later, the chemical society, a young and vigorous organization, listened to the address of its retiring president, Prof. F. W. Clarke. It was an able and entertaining *résumé* of the growth of chemistry in Washington during the past twelve or fifteen years, and it concluded with a plea for the establishment of a national laboratory, which, in its dimensions and equipment, should be commensurate with the importance and dignity of the science. Arguments to show the economy in and the necessity for such an establishment were not lacking, either in number or force. Examples of duplication or useless repetition of work, multiplication of instruments and facilities with no increase in efficiency, and frittering away time and energy on work properly belonging elsewhere, were given with a convincing emphasis, which made it a little difficult, at the close of the address, to believe that there were two sides to the question.

With the assembling of congress, the committee appointed by that body to report upon the advisability of a union of the scientific bureaus of the government has taken up its work again. Two or three meetings have been held, at which one or more officers of the signal corps have been examined. Most of the evidence obtained by this committee prior to the current session has been widely published, and read by many with much interest. It may be inferred, from the promptness with which the committee has begun the collection of testimony at the opening of the session, that it is desirous of making its report at an early day: indeed, it is generally thought that not much more will be done in the way of examination of witnesses.

The signal service, which has received much attention during the past year at the hands of this committee, as well as from the general public, is preparing for the introduction of one or two im-

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