marked, with some justice, that in the formation of an English government, from political and party considerations, the round men get put into the square holes, and *vice versa*. In the present appointment it is pre-eminently a case of the round man being fitted into the round hole. Probably no man in the house, with the possible exception of Sir John Lubbock, M.P. for the University of London, is listened to with more respect on educational questions than Sir Lyon Playfair.

Mr. D. Morris has been appointed to the post of assistant director of the Royal gardens, Kew, as successor to Prof. W. T. Thistleton Dyer, who became director on the resignation of Sir Joseph Hooker. Mr. Morris has spent some years in Jamaica as director of the public gardens and plantations, and has brought both the gardens at Kingston, and the cinchona plantations, to a very high state of efficiency.

Two new lectureships in biology have been lately established at the University of Edinburgh. The present occupant of the natural history chair is Prof. J. Corsar Ewart, whose work in connection with the fishery board for Scotland is well known; and Mr. George Brook, who has for some time past been making investigations upon fish ova for the same board, has been appointed as lecturer upon comparative embryology. Still more recently another lectureship has been endowed by Lord Rosebery. Mr. E. J. Romanes, F.R.S., has accepted the post, and in the course of the next five years will deliver thirty lectures on the philosophy of natural history. The University of Aberdeen is losing its professor of physiology, Dr. William Sterling having been called to Owens college, Manchester, as the successor of Dr. Gamgee, who is about to devote himself to professional work in a more southern climate than that of Manchester. Mr. Gilbert C. Bourne has just returned from the Chagos Archipelago, where he has been spending the last six months in zoölogical work. He has made extensive collections of the terrestrial fauna and flora, and also of the corals, some of which are probably new, while he has also devoted some time to embryological research.

At the last meeting of the Society of telegraph engineers and electricians, a very remarkable paper was read by the president, Prof. D. E. Hughes, F.R.S., as his inaugural address, on "Self-induction of an electric current in relation to the nature and form of its conductor." The researches were made with a combination of the author's induction-balance, with a Wheatstone bridge, called an 'induction bridge.' Among the practical points resulting from these researches may be mentioned a very decided verdict in favor of the ribbon form of lightning conductor, a solid rod of iron being regarded by the author as the worst possible form. Another point hitherto little understood, but first pointed out by Mr. W. H. Preece at the Aberdeen (1885) meeting of the British association, was cleared up; viz., why, when an iron and a copper wire of equal resistance and static capacity were used for telegraphing between London and Newcastle, 278 miles, there was an increase of speed in the copper line of 12.9 per cent as compared with the iron. The discussion on this paper tomorrow evening is looked forward to with great interest. W.

London, Feb. 10.

NOTES AND NEWS.

IN order to give an opportunity for definite and systematic effort by all those who believe that our birds ought to be protected, the *Forest and stream* has recently founded the Audubon society. Membership in this society is to be free to everyone who is willing to assist in forwarding any one of the three objects for which it is established. These objects are to prevent so far as possible (1) the killing of any wild bird not used for food, (2) the destruction of the nests or eggs of any wild bird, and (3) the wearing of feathers as ornaments. The work to be done by the Audubon society is auxiliary to that which is being done by the American ornithologists' union committee, and will consist largely of matters of detail, to which this committee could not attend. The management of the society for the present will be in the hands of a member of this committee. Branches of this association will be established all over the country. The work of the *Forest and stream* is only preliminary. As soon as the society shall have attained a respectable membership, and be on a firm footing, it will be turned over to its members for final organization. In order that this may take place as speedily as possible, it is hoped that all interested in bird-protection will send in for membership their own names, as well as those of any others whom they think likely to assist. To all such, free circulars containing information will be sent for distribution. Names should be sent without delay to *Forest and stream*, 40 Park Row, New York, N.Y.

— The commission appointed to consider the question of consolidating several of the scientific bureaus of the government are progressing slowly with their work, and a report is not looked for within several months. It is authoritatively learned that the signal office is the chief obstacle in the way of any proposed change, and of an early settlement of this important question. A

strenuous effort will be made by those interested in this service, to prevent a consolidation, or any curtailment of its powers. The temper of the commission is decidedly in favor of consolidating some of the scientific bureaus, and a recommendation to this effect may confidently be looked for.

— It is proposed to establish a permanent exposition in Washington, preparatory to a world's exposition in 1892 to celebrate the fourth centennial of the discovery of America.

— A bill is now before congress to extend the reports of the signal service for the relief of farmers. It is proposed to forecast "cold waves, rains, storms, and marked inclemencies" of the weather, by establishing danger-signals at telegraph-stations all over the country.

— The exploration of the ancient mounds in Manitoba promises interesting results. It appears from surveys made during the past summer that the northern limits of the mound-builders lie beyond the Red River of the North. Along this river and Lake Winnipeg, mounds were found identical in structure with the famous ones of the Ohio and Mississippi valleys.

— An act of incorporation, establishing a zoölogical society in Washington, was passed in 1870; but nothing, so far, has been accomplished toward carrying into effect the provisions of its charter. Mr. P. T. Barnum now proposes to establish a zoölogical garden there, if congress will grant the use of thirty acres of the reclaimed lands on the flats for the purpose, and the privileges vested in this society. He offers to expend $200,000 in improving and beautifying the garden.

— The mineralogical collection of Mr. C. S. Bement of Philadelphia is said, by Professor Rath of Germany, to be undoubtedly the most remarkable private one in existence. It is especially valuable for the richness and perfection of its rarer forms, and for its completeness of authentic species. It includes, according to Mr. Kunz, over 10,500 specimens.

— It appears that Columbia college was not the first to act upon the Tyndall scholarship (not 'fellowship'), as stated in the last issue of *Science*. Harvard college took action in regard to the matter nearly three months ago, and at that time appointed Mr. H. H. Brogan, of the class of 1885, as the first incumbent. He was in Europe at the time, and began his studies immediately.

— Jacob v. Tschudi, the well-known South American traveller, archeologist, and naturalist, died Jan. 25, at St. Gall, Switzerland, aged sixty-eight.

— Preparations for the international horticultural exposition at Dresden, Germany, which will be held next May, are progressing rapidly. The chief exhibition-hall will comprise nearly 24,000 square feet of space; and there will be, in addition, another building, with more than double the superficial area, to contain the more delicate plants.

— An interesting fact in connection with the trephining of an Inca skull, recently described in the Proceedings of the national museum, is recalled by Mr. J. W. Taylor of Roxbury, Mass., who states that Dr. Rink, during his travels in Labrador, recorded the story of an Eskimo family that lived near a people who built their houses of bowlders. The latter were hostile to the Eskimo, and, when they took them prisoners, they put them to death by boring a hole in their foreheads with these stones.

— The importance of bacteriological studies has been recognized by the U. S. army and medical museum by the institution of extended laboratory work in the cultivation of the various forms and varieties of these microscopic organisms. Especial pains have been taken by Dr. Billings, the curator, to introduce all the latest methods and apparatus, so that the facilities are now quite equal to those of foreign laboratories. Solid culture media only are employed, as gelatine, blood-serum, potato, bread, and agar agar; and excellent results have been attained in the culture of the principal pathogenic forms. Many specimens are on exhibition, illustrating the germs of various diseases. The chromogenic forms are seen growing upon slices of potato, and represent almost every tint of the rainbow. The value of such laboratory work at the present time is unquestionably great.

— The entire number of books published in the United States during 1885, as compiled by the *Publishers' weekly*, amounts to 4,030, a decrease of about 50 from that of 1884. In education and language there were 225, a decrease of 2; medical science and hygiene, 188, a decrease of 21; social and political science, 163, a decrease of 5; physical and mathematical science, 92, a decrease of 42; mental and moral philosophy, 25, an increase of 6. The loss has been greatest in works on science and the useful arts, and the greatest gains were on religious, theological, and juvenile works. The largest number of works, 934, as usual, were of fiction, with theological, law, and juvenile books coming next, each with about 400.

— The Museum of hygiene at Washington contains a metallic burial-casket similar to that sent to Siberia to receive the body of Captain De Long, who perished at the Lena in October, 1881. These

caskets are designed to preserve the body in nearly a natural state by excluding the air. The body is surrounded with ground cork, and the lid of the casket is carefully cemented with white lead ; it is then wrapped in a layer of thick felt, and placed in a tightly constructed pine case, which is completely filled with the ground cork. The seams of the pine box are carefully covered with white lead, and the whole is enveloped in another thick wrapping of felt ; over the latter is a covering of burlap, secured by stout cords ; outside is a pine crate. These caskets are believed to be the best ever made for the preservation of the dead ; and the great success achieved in the transportation of the remains of De Long and his companions would seem to indicate their entire feasibility for general use in similar instances, or where bodies are to be transported long distances through many climatic changes.

— The herbarium of the national museum at Washington now embraces over 25,000 specimens, representing 17,000 species, and is established upon a broad basis, which admits of almost unlimited expansion. The North American flora is represented by about 7,000 species, contributed by Ward, Canby, Havard, and others, and is constantly increasing. The herbarium is also rich in European species, the gift for the most part of the authorities at Kew, and chiefly from the collections of George Curling Joad and J. Gay. This material, however. represents only a small portion of the national herbarium, the greater part of which is yet at the department of agriculture, where the government collections were formerly deposited before the erection of the national museum building. Case-room is provided, and the specimens are permanently mounted and systematically arranged according to the system adopted by Bentham and Hooker in their 'Genera plantarum.' The collection is rendered easily accessible by means of a card catalogue, and Roman and Arabic label numbers for order and genus on each genus-cover. The herbarium is placed in immediate connection with the department of fossil plants, and under the same curatorship. It is intended that all duplicate material shall represent either additional parts of plants or widely different localities, as illustrating their geographical range, local variation, etc. Other duplicates will, however. be utilized in effecting exchanges for species not represented.

— The *Berichte der deutschen botanischen gesellschaft* contains the interesting results of a number of experiments recently made by Strasburg upon the grafting of solanaceous plants. Jimson-weed (Datura stramonium) and 'wintercherry' (Physalis alkengi) were ingrafted upon potato-stocks, with immediate union ; and with the tobacco-plant less speedy though equally successful results were derived. Grafting deadly nightshade (Atropa belladonna) and henbane (Hyoscyamus niger) was accomplished with more difficulty. Other attempts also succeeded in ingrafting the potato upon the nightshade (Solanum nigrum), tobacco, and wintercherry, though with less ease. Not only were union and growth secured between these different solanaceous plants, but also between the potato and Schizanthus Grahami, a Chilian scrophularian plant, upon which the potato-fungus grows. The development in this last, however, was feeble. In none of these experiments did there appear to result any modifying influence upon the stock. The potato produced tubers as usual, though there appears to have been a greater number of irregular forms. With the jimson-weed the tubers were well developed, but no seeds were produced. On the other hand, tobacco-plants fructified abundantly, with only a sparse growth of tubers. Reserve material does not seem to be sufficient to admit of both seeds and tubers together. Potato-plants grafted on others seemed to possess a superabundance of reserve material, however, resulting in the growth of tubers of the size of a walnut, in the axils of the leaves. The 'eyes' of these tubers, it is interesting to state, developed leaves of considerable size. This growth of tubers above ground has been previously observed in the potato-plant, where the stem had been crushed close to the surface.

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.*

Sea level and ocean-currents.

ACCORDING to Zöppritz, the winds were thousands of years in overcoming the inertia of the water, and causing the present ocean-currents. Of course, during the latter part of this long period, after their effect had extended down to the bottom of the ocean, a part of their force was spent in overcoming the friction over the bottom, and toward the last a very small part only in accelerating the motion. But according to the same authority, after 239 years, while the whole force of the winds was spent upon the inertia of the water, only one-half the surface velocity was communicated to the stratum at the depth of 100 metres ; and so at the depth of a few hundred metres there was yet very little velocity. The greatest surface velocities in the open sea, supposed to be due to the winds, are, on the average, not more than ten miles per day. The whole amount of momentum, therefore, caused by the action of the winds, is only about equal to that of a stratum 100 metres in depth, with a velocity of ten miles per day, the amount of momentum below 100 metres in depth being about necessary to reduce that above 100 metres to the mo-