lar instruction—and if it is to be efficient its collections must be arranged with reference to the special function regarded as its primary end. It is absurd to set before the ordinary visitor a long series of specimens only differing in the most minute details, while it is equally absurd to ask a student engaged in writing a monograph on some obscure morphological point to be satisfied with a selection of typical forms such as the former would find infinitely more instructive. These views he had an opportunity of putting into practice during the time he was head of the Natural History Museum at South Kensington. The numerous alterations he there carried out in the arrangement and nomenclature of the specimens were attended with excellent results, and the adoption of improved principles of classification, together with the relegation to store-rooms of objects which, though of value for purposes of study, were superfluous in exhibition cases, had the effect of greatly increasing the interest of the museum as well as enhancing its educational usefulness.

During the time he was in charge of the Hunterian Museum Sir William did a great deal to supply the deficiency which existed in this country of materials for studying the physical characteristics of the different races of men, and under his care the collections of the College of Surgeons increased enormously, both in extent and usefulness. For instance, in 1884 they contained 89 more or less complete skeletons and 1,380 crania (not including the Davis collection purchased in 1880), whereas 20 years before they had only 18 skeletons and 242 skulls. To him must be ascribed much of the credit of the increased opportunities thus afforded for the study of the osteological variations of man, for it was largely owing to his alertness and watchfulness that the College seized every opportunity of acquiring specimens, thus in many cases saving them from the destruction and neglect which too often is the fate of small private collections. It need scarcely be added that the objects were arranged and looked after in the most approved manner, an instance of the time and labor he spent on them being afforded by the osteological catalogue he published with carefully verified measurements of no less than 1,300 human skulls.

SCIENTIFIC NOTES AND NEWS.

AT its recent decennial celebration Clark University conferred the degree of LL.D. on the foreign lecturers, Professors Boltzmann, Picard, Mosso, Ramon y Cajal and Forel.

THE Albert Medal of the Society of Arts has been awarded to Sir William Crookes, F.R.S., "for his extensive and laborious researches in chemistry and in physics, researches which have, in many instances, developed into useful and practical applications in the arts and manufactures."

PROFESSOR KARL VON ZITTEL has been elected President of the Munich Academy of Sciences in succession to Professor von Pettenkofer.

SIR GEORGE STOKES has been elected a foreign member of the Berlin Academy of Sciences.

WE learn from *Nature* that a civil list pension of 60*l.* per annum has been granted to Mrs. Kanthack "in consideration of the eminent services rendered to science by her late husband, Dr. A. A. Kanthack, professor of pathology in Cambridge University."

THE French Minister of the Interior has sent Dr. Vignes to Great Britain to report upon the ophthalmological methods of that country.

GLASGOW University has conferred the degree of LL.D. on Mr. R. L. Jack, Government Geologist of Queensland.

THE Adams Prize of the University of Cambridge has been awarded to Dr. J. Larmor and Mr. G. T. Walker.

DR. F. KLEIN, professor of mathematics at Göttingen, and Dr. W. Nernst, professor of chemistry at the same university, have been elected foreign members of the Academy of Sciences at Buda-Pesth.

MR. D. L. WILDER has been appointed Assistant on the Iowa Geological Survey.

MAJOR-GENERAL SIR JOHN F. D. DONNELLY, K.C.B., retired on July 3d from the secretaryship of the British Science and Art Department, after 40 years in the public service. In consequence of Sir J. Donnelly's retirement, the Duke of Devonshire, Lord President of the Council, has made the following appointments: Sir George W. Kekewich, K.C.B., the present Secretary of the Education Department, to be

also Secretary of the Science and Art Department; Captain W. de W. Abney, C. B., to be the Principal Assistant-Secretary of the Science and Art Department; Mr. W. Tucker, C.B., to to be the Principal Assistant-Secretary of the Education Department.

Dr. E. von Lommel, professor of physics in the University of Munich, died on June 19th, aged 62 years.

Mr. Richard Congreve, a well-known writer on Comte's philosophy and on social and political subjects, died in London on July 5th.

An International Conference of Horticulturists was opened last week in London. Among American delegates were Professor L. H. Bailey, of Cornell University, and Mr. T. G. Fairchild and Mr. H. J. Webber, of the Department of Agriculture.

Nature states that the prize of 500 guineas, offered by the Sulphate of Ammonia Committee for the best essay on 'the utility of sulphate of ammonia in agriculture,' has been awarded by the judges—Mr. J. Bowen-Jones, of Shrewsbury, and Dr. J. Augustus Voelcker, of London—to Mr. James Muir, County Instructor in Agriculture to the Somerset County Council. Seventy-three essays were sent in.

It is expected the Queensland Parliament will grant £1,000 towards the British Antarctic Expedition.

The estate of late Samuel J. Tilden has finally been settled. The report of the referees shows that the New York Public Library, composed of the Astor, Lennox and Tilden foundations, has received $2,859,000. This is about one-third the sum Mr. Tilden wished to devote to the foundation of a public library.

The Dismal Swamp, 143,000 acres in extent, partly in Virginia and partly in North Carolina, has been bought by lumber merchants who propose to drain it. This would greatly alter the fauna and flora of a region of much scientific interest.

The State Zoologist of Minnesota, Professor Henry F. Nachtrieb, has equipped a houseboat for the study of the fauna of the Minnesota and Mississippi Rivers, particularly the fishes. The houseboat was built at Mankato and started down the river about the middle of May. The party is in charge of Professor U. O. Cox, of Mankato Normal School, and expects to reach the southern border of the State by the first of September. The data and material thus far collected are very satisfactory and encouraging. It is the hope of those interested in the work that this may become the beginning of a permanent station. The party consists of Professor Cox, J. E. Guthrie, Chas. Zeleny, Wm. Kienholz, and occasionally also of Professor Nachtrieb.

The *Botanical Gazette* contains news in regard to botanical excursions as follows: Dr. Charles E. Bessey proposed to visit the foot hills of western Nebraska, collecting specimens and making phytogeographical notes in the region above 1,200 m. altitude. Professor John Macoun is engaged in field work upon Sable Island, 'The Graveyard of the Atlantic.' Later in the season he will examine botanically some of the remote parts of New Brunswick. Dr. J. N. Rose is making explorations in central and southern Mexico. He proposes to make a special study of the genus *Agave* and an investigation of the Tampico hemp industry.

Professor E. M. Shepard, of Drury College, and lately of the Missouri Geological Survey, has returned, says the *American Geologist*, from a trip to the Hawaiian Islands, New Zealand and Australia. He has secured numerous and fine photographs of active volcanoes, coral islands and glaciers.

The steamship *Diana* was expected to sail from Sydney, Cape Breton, yesterday. As we have already stated, it carries supplies to Lieutenant Peary, under the direction of Mr. Herbert L. Bridgeman, New York, and in addition takes three scientific parties: One under the direction of Dr. Robert Stein, which will remain in Ellesmere Land; one under Professor William Libbey, of Princeton University, equipped especially for deep-sea exploration, and one under Mr. Russell W. Porter, of Boston, in the first instance a hunting party.

On behalf of the British government Mr. Francis Mowatt has written to Lord Lister in regard to the National Antarctic Expedition as follows: I am directed by the Lords Commis-

sioners of her Majesty's Treasury to inform you that the First Lord has laid before the Board the memorial signed by your lordship as President of the Royal Society, by the President of the Royal Geographical Society and by other distinguished representatives of various branches of science, by which memorial application is made for a government grant in aid of the expedition now being organized by the Royal Society and the Royal Geographical Society for the exploration of the Antarctic regions. This application has received the careful consideration of her Majesty's government, and I am directed to inform you that they are prepared to ask Parliament for grants amounting, in all, to £45,000 towards the expense of the proposed expedition, provided you are able to assure them that no less than equal amounts will be forthcoming from other sources, so as to enable the scheme to be efficiently carried out. In making this announcement I am to call attention to the latter part of the speech of the First Lord to the deputation which waited on him on this subject, as indicating that her Majesty's government must not be regarded, in making this promise, as inaugurating a new era of more extensive grants than formerly from the Exchequer in aid of scientific enterprises. Rather, it is to be understood that the very exceptional importance of the present scheme, so strongly represented by the deputation, is being recognized by the promise of a special grant. At the present time it is only necessary to add that the applications to Parliament for instalments of the grant will be spread over four years, of which 1900–1901 will be the first.

ALTHOUGH the Paris municipality voted to dismiss M. Bertillon from the Anthropometric Bureau on account of his testimony in the Dreyfus case, the Prefect of Police maintains that this ought not to affect his position as a municipal officer, and it is understood that the resolution will not take effect.

THE anti-vivisection people are arranging an exhibit for the Paris exposition. From a booth documents will be distributed and petitions circulated. It has been proposed to exhibit instruments used in vivisection and models of animals under vivisection.

A DINNER was given by the Folk-lore Society of Great Britain on June 26th, in honor of Professor Frederick Starr, of the University of Chicago. The London *Times* states that Mr. E. S. Hartland, Chairman of the Society, presided, and among others present were Mr. Bryce, M.P., Mr. Andrew Lang, Miss Kingsley, Sir R. Temple, Professor Rhys Davids, Professor and Mrs. Haddon, Mr. Edward Clodd and Professor Ridgway. The toasts 'The Queen' and 'The President of the United States' having been honored, Mr. Lang proposed the health of the guest of the evening. Professor Starr, he said, had conducted several expeditions into the heart of Mexico. He congratulated the University of Chicago on its possession of a professor of anthropology. He confessed that the University of St. Andrews had never yet had a professor of anthropology and was not likely to have one, though Chicago was not founded, like St. Andrews, in the interests of culture. No saint ever dwelt there, so far as he knew, and its University was not the original center of the city. Chicago, had, however, 'taken hold of' culture, and one of the indications of its intention to do so thoroughly was its possession of Mr. Starr as a professor of anthropology. He concluded by proposing the toast with Highland honors, which were duly accorded, amid considerable laughter at the complete incongruity of the preceedings. The chairman announced that the committee of the Folk-lore Society had unanimously elected Professor Starr as honorary member of the Society, and had resolved to ask his acceptance of a set of the Society's publications. Professor Starr responded, expressing his high appreciation of the honor that had been accorded him. Mr. Clodd proposed 'Our Kindred Societies,' Professor Haddon replying for the Royal Society and Mr. C. H. Read for the Society of Antiquaries and the Anthropological Institute. 'The Folk-lore Society' was proposed by Sir Richard Temple; the Chairman, Mr. Alfred Nutt, responding. During the evening Mrs. Kate Lee, Hon. Secretary of the Folk-song Society, sang some folk-songs which she had recently collected.

THE second of the receptions held annually by the Royal Society took place on June 21st.

The exhibits were, to a large extent, the same as those which were shown at the May *soirée*, and which we have already mentioned. Of additional exhibits the *Times* notes a series of Japanese paintings exhibited by Mr. W. Gowland which were an interesting novelty, showing as they do the different modes of depicting animal and plant life practiced by some of the great masters of the art of painting in Japan. So, too, were Sir Martin Conway's views in the Bolivian Andes, which were also exhibited during the evening on the screen by means of the lantern. Dr. Francisco Moreno showed a superb series of photographs and photographic panoramas illustrative of scenery in Patagonia. The models of the *Turbinia*, of a torpedo-boat destroyer and an Atlantic liner of 38,000 i. h. p. were of special interest. For more reasons than one Mrs. Ayrton's experiments on the hissing of the electric arc attracted considerable attention. Quite a novelty was Professor Haddon's collection of polished stone implements from the Baram district, Sarawak, Borneo. This is the first fruit, so far as public exhibition goes, of the important expedition to Torres Straits and Borneo, from which Professor Haddon has just returned. The Milne horizontal-pendulum seismograph, with specimens of the seismograms yielded by it, exhibited by the Seismological Committee of the British Association, was also new. It is a specimen of the earthquake records which are now being kept at a considerable number of stations established at widely-separated localities. In addition to the Andean views of Sir Martin Conway, Dr. Tempest Anderson exhibited, in the lecture-room, by means of the lantern, some very striking views of Vesuvius in eruption, and Mr. Herbert Jackson showed experiments displaying some new phenomena of phosphorescence.

In the House of Commons Sir S. Montague recently called the attention of the President of the Board of Trade to a paragraph in the sixth report of Mr. T. Worthington on British trade in South America to the following effect: That the metric system is the only one recognized; that an English foot-rule cannot be legally imported, and that the trade of Great Britain suffers greatly by not adopting compulsorily the metric system used by almost all the the civilized nations of the world. He also referred to the Consular report on the trade of Amsterdam issued last month to the effect that, unless Great Britain adopted the metric system of weights and measures, it might look on the Continental and perhaps on other markets as lost to it; and asked whether Mr. Ritchie would facilitate the adoption of the metrical system in Great Britain by using metrical weights and measures in the government departments. Mr. Ritchie replied that there is now no reason why any manufacturer or trader in Great Britain may not carry on his foreign trade in terms of metric weights and measures. He stated that he was in communication with some government departments on the concluding paragraph of the question.

The Volta centenary exhibiton at Como, to which we have already called attention, includes some interesting relics of Volta. These are contained, according to Mr. G. H. Bryan, (*Nature*) in one room in the exhibition buildings set apart for the 'Cimelii di Volta,' under which head are comprised Volta's physical apparatus, original manuscripts of his papers, his letters, diplomas and many of his personal effects. The greater part of these relics are exhibited by the Reale Istituto Lombardo, under whose auspices the collection was formed by public subscription in the years 1861 to 1864; for this collection one of the rooms belonging to the Society at Milan has been specially set apart. Other relics, chiefly personal, are exhibited by Professor Alessandro Volta and Professor Zanino Volta. The University of Pavia exhibits several electroscopes, condensers and similar electrostatic apparatus; and other exhibits are lent by the Como Museum. The manuscripts include the following: (1) A letter to Volta from the French physicist Nollet, dated September 18, 1767; (2) A letter from Volta to Professor Barletti, of Pavia, dated April 18, 1879, containing an anticipation of the electric telegraph. Volta suggests the possibility of connecting Milan and Como with a wire suspended from poles, so that an operator at one end of the line could fire an electric pistol at the other. (3) A manuscript dated May 14, 1782, dealing with animal electricity.

(4) Volta's paper of March 29, 1800, announcing his discovery of the electric pile to Sir Joseph Banks, President of the Royal Society. (5) Volta's monograph on the formation of hail, published about 1806. The apparatus exhibited illustrates Volta's inventions of the electrophorus and the 'electric pistol'; his application of gas to lamps, combined with an electric gas-lighting apparatus; his invention of the eudiometer; his researches on the capacity of condensers; his condensing electroscope; his investigations; on the law of electrostatic force involving the use of the electric balances and the electrometer; his researches on atmospheric electricity; his studies on the expansion of gases; his first forms of voltaic pile, including the columnar pile represented by several examples; also the 'crown of cups,' and his early experiments on electrolysis. A number of batteries of Leyden jars, electrostatic machines and other apparatus used by Volta in his experiments, while not referring to any special advancements in science, go far towards giving us an insight into the thoughts and pursuits of a physicist of a century ago of whom the people of Como feel justly proud.

ACCORDING to Reuter's agency the Governor of Algeria has received very favorable news regarding the Coppolani mission. After crossing the Niger bend and traversing the Arubruda the mission proceeded in a northeasterly direction as far as Baddab, receiving on the way the submission of several rebel tribes and entering into relations with the chief of the Awelimmiden. On returning to Timbuktu, M. Coppolani again set out with an escort composed of natives and Moors. This time he followed a northerly route. Telegrams received via Timbuktu during the last few days from him and his companion, Robert Aricand, state that they are the first two Frenchmen since René Caillie to explore that part of the country, and that they have reached Aruan, which serves as entrepot for the salt mines of Tauden. The journey through the country peopled by Moors was peacefully carried out and gave the best results.

THE Director of the Mint has issued the following figures regarding the production of gold in the United States during the year 1899:

	Gold	*Silver in fine ounces.*
Alabama	5,000	100
Alaska	2,525,800	92,400
Arizona	2,465,100	2,246,800
California	15,637,900	642,300
Colorado	23,195,300	22,815,600
Georgia	128,600	500
Idaho	1,716,900	5,073,800
Iowa	100	....
Maryland	600	....
Michigan	100	32,400
Minnesota	100	....
Montana	5,126,900	14,807,200
Nevada	2,994,500	805,000
New Mexico	539,000	425,000
North Carolina	84,000	700
Oregon	1,177,600	130,000
South Carolina	104,200	300
South Dakota	5,699,700	152,300
Tennessee	900	....
Texas	300	472,900
Utah	2,285,400	6,485,900
Virginia	4,500	...
Washington	766,200	254,400
Wyoming	5,300	100
Total	$64,463,000	54,438,000
Totals for 1897	57,363,000	53,860,000

THE annual general meeting of the Marine Biological Association was held, says *Nature*, in the rooms of the Royal Society on June 28th. The Council reported that the laboratory at Plymouth continued in a state of efficiency, and was adequately equipped with the most modern requirements for marine biological research. The investigation of the natural history of the mackerel, commenced last year by Mr. Garstang, had been continued, and a report on the variations, races and migrations of this fish had been published. A systematic study of the physical and biological conditions prevailing in the waters at the mouth of the English Channel had also been commenced, which it was hoped would throw light on the causes which determine the movements of migratory fishes. The examination of the fauna and bottom deposits between the Eddystone and Start Point had been concluded by Mr. Allen, the director of the laboratory. Seventeen naturalists and eleven students had worked in the laboratory, in addition to the members of the regular staff.