that spot, and whose example, he hoped, would stimulate and inspire every one who came to work under that roof. The laboratory is open to persons of either sex and of any nationality who can satisfy the laboratory committee that they are fully qualified to undertake original scientific research in pure or physical chemistry, preference being given to those who have already published original work. The directors of the laboratory are Lord Rayleigh and Professor Dewar.

In the *Comptes Rendus* for December 2d Stanislas Meunier recorded observations on some asphaltic rocks and on the origin of asphalt. From the behavior of bitumenous rocks towards solvents the conclusion is drawn that bitumen is the result of purely mineral reactions, as of the double decomposition of metallic carbids and water.

J. L. H.

ASTRONOMICAL NOTES.

The *Astronomische Nachrichten* of January 4th contains a description by Professor Deichmüller, of a new instrument devised by him for fixing the position of the zenith with a meridian circle. The telescope is pointed approximately at the zenith, and the new instrument is mounted above the object glass. It consists of a circular disc of parallel surfaced glass floating in mercury. The vessel containing the mercury is so shaped that the glass is supported at its edges only, so that it is possible to get an unobstructed view of the sky through the middle portion of the glass. It is thus possible to observe the reflected image of the wires, and then to transfer the position of the zenith to the sky without the use of any graduated circle. The instrument is ingenious, and the principle is novel. Prof. Deichmüller gives some very accordant observations made with it. As in the case of all the floating collimators, however, it will be necessary to make sure that the opposite sides of the mercury do not differ in temperature.

The December Monthly Notices of the Royal Astronomical Society contains an interesting article by Prof. Rambaut, of Dublin, on a method of correcting the rate of an equatorial clock, so as to make the telescope follow very nearly the motion of the stars for the purposes of photography. Professor Rambaut gives formulæ for calculating the effect of refraction upon the apparent rate of diurnal motion of the stars, and shows how this effect can be very nearly compensated by varying the clock rate. In this way the work of the observer can be made much easier.

The Washburn Observatory of the University of Wisconsin has issued Vol. X., Part I., of its Publications. It contains a series of double-star observations by Professor Geo. C. Comstock.

The director's report of the Harvard College Observatory for the year 1896 has appeared. From it we learn that the new Bruce photographic telescope has been transported to Peru, and successfully mounted at Arequipa.

H. J.

SCIENTIFIC NOTES AND NEWS.

Mr. Charles D. Walcott, the Director of the United States Geological Survey, has been appointed Acting Assistant Secretary of the Smithsonian Institution, with duties confined to the charge of the National Museum. It is understood that Mr. Walcott has not taken the new office permanently and that he does not expect to give his full time to the duties of administration of the affairs of the Museum, these being left largely to the present permanent staff of that institution. He will exercise a general supervision and direction of the affairs of the Museum in addition to his present duties as Director of the Geological Survey. Mr. Walcott is well acquainted with the administration of the National Museum. For the past twelve years he has held the position of Honorary Curator in the Museum and for

eight years had his laboratory as paleontologist of the Geological Survey in the Museum building. The interests of the Museum and of the Geological Survey are very closely connected. Mr. Walcott's selection for this post seems an eminently fitting one in view of the unusual executive abilities which he has shown himself to possess since he assumed the Directorship of the Geological Survey in 1894. Mr. Walcott is a native of New York State and has been connected with the Geological Survey since 1879.

IT is reported in *The British Medical Journal* that the sum received by the Huxley Memorial Committee now amounts to nearly £3,000. Mr. Onslow Ford, R. A., has nearly completed the full-size model of the statue which is to be placed in the central hall of the Museum of Natural History at South Kensington. The dies for the Royal College of Science medal are now being prepared by Mr. L. Bowcher.

THE funeral ceremonies of du Bois-Reymond took place on December 29th in the lecture hall of the physiological laboratory, Berlin. Dr. Bosse, the Prussian Minister of Education, represented the government, and there were delegates from many scientific and learned societies. The Reverend Professor Scholz made the chief address; and other speeches were made by Professors Warburg, Munk, Rosenthal, Fritsch and Pictet.

WE regret to notice the deaths of Dr. Aug. Streng, professor of mineralogy at the University of Giessen; of Professor Saccardo, of the Analino School of Viticulture, Italy, and of Frederic John Mouat, who had made contributions to medical and statistical science.

THE following further corresponding members have been elected to the St. Petersburg Academy: Sophus Lie, professor of mathematics in Leipzig; W. Ostwald, professor of chemistry in Leipzig; M. Landolt, professor of chemistry in Berlin; Karl Zittel, professor of paleontology in Munich.

PROFESSOR PAUL HARZER, director of the observatory near Gotha, Saxony, has been appointed director of the observatory at Kiel and professor of astronomy in the University in the place of the late Professor Krüger.

PROFESSOR VIRCHOW has been reelected President of the Berlin Medical Society.

LEOPOLD VOSS, of Hamburg, announces as in preparation von Helmholtz's *Vorlesungen über theoretische Physik*, edited by Arthur König, Otto Krigar-Menzel and Carl Runge, to be published in six volumes.

FRANCIS P. HARPER will publish the journals of Alexander Henry the younger and David Thompson, the former a fur trader and the latter a geographer, edited by Dr. Elliott Coues.

SECRETARY MORTON, in his recent report, calls attention to the inadequacy of the salaries paid to higher officials in the Department of Agriculture. The salary of a chief is now $2,500, and that of an assistant $1,800. The Secretary has recommended, in the estimates for the next fiscal year, that the salaries of chiefs of divisions be increased to $3,000 and those of assistant chiefs to $2,000. He calls attention to the fact that on account of the low salaries paid for scientific and skilled services, the Department is constantly losing some of its ablest and best workers. The universities, colleges, and experiment stations, paying better salaries and offering equal opportunities for useful work and the acquirement of national reputation, are frequently taking the best men. Thirty-two leading scientific experts have left the Department during the last few years to take positions in other institutions, at a rate of remuneration averaging fully 50 per cent. more than they received from the government of the United States.

THE reports regarding the bequest of Alfred Nobel have been meager and conflicting. The London *Times* and other journals stated that the fourth prize was for a compilation in physiology or medicine, but the foreign journals now state that this prize is for a work of literary art. The prizes in physics and chemistry will be awarded by the Academy of Sciences of Sweden; the one for work in physiology or medicine by the Carolus Institute of Stockholm; the literary prize by the Swedish Academy, and the one for the furtherance of peace by a committee of five members chosen by the Norwegian Storthing.

WE have published an account of the report of the Committee of the British Asso-

ciation for the Advancement of Science on the establishment of a national physical laboratory. It is reported that the Council of the Association will take steps to bring the matter before the government, and to invite the cooperation of the Royal Society of London, the Royal Society of Edinburgh, the Royal Astronomical Society, the Physical Society, and other cognate associations, in securing the foundation of the laboratory.

Mr. C. G. Pringle, says the *Botanical Gazette*, has returned from his annual trip to the more unknown regions of Mexico with 20,000 specimens.

Dr. Dahl, says *Die Natur*, has sent from Ralum, in the Bismarck Archipelago, a collection made from the fauna and flora of that little-known region to the Museum in Berlin.

There is, it appears, in San Francisco, an incorporated Atlantic and Pacific Aerial Navigation Co., which proposes to build a large airship and has, at all events, purchased from the Pittsburg Reduction Company a quantity of aluminium.

Prometheus, in the issues of January, 1897, is publishing illustrated articles on German industries (*Die Heimstätten der modernen Industrie*), which have considerable interest to our own manufacturers, especially in departments in which exportation is a matter of actual or potential importance.

The estimates of the Russian Minister of Finance include about 64,500,000 roubles for the construction of the Siberian Railway and over 33,500,000 roubles for the construction of other railways. It also appears from the statement of the Minister that the manufactured products of Russia greatly exceed in value those of agriculture.

According to the official report issued on January 28th, there have been 4,396 cases of the plague in Bombay, and 3,275 deaths from that disease. At Kurrachee 694 cases and 644 deaths have been recorded. At Poonah there have been 65 cases and 60 deaths, and a few cases have occurred at Surat, Baroda, Ahmadabad, Kathiawar and Cutch.

According to *Industries* the trials of H. M. S. 'Terrible' has resulted in proving her to be the fastest cruiser afloat. Admirable as were the trials of the 'Powerful,' those of the 'Terrible' are even more satisfactory, a mean speed of no less than 22.41 knots being obtained under very adverse circumstances, the sea being rough and the wind having a velocity of 26 miles an hour, with an indicated horse-power of 25,572. With an indicated horse-power of 25,069 a speed of 22.24 knots was obtained against the wind; with the wind the 23 knots of the course was accomplished in just over the hour, the actual figures obtained being 22.873 knots. The coal consumption, with partially untrained stokers, was 1.71 lb. per indicated horse-power per hour.

The leading article in the current number of *Appleton's Popular Science Monthly* is entitled 'Herbert Spencer, the Man and his Work,' and is by Professor W. H. Hudson, of Stanford University, who was at one time closely associated with Mr. Spencer in his work. Dr. E. L. Youmans and the *Popular Science Monthly* accomplished much to establish Mr. Spencer's reputation, and it is fitting that the completion of the system of Synthetic Philosophy, should be signalized by the publication of this article. The series of articles by Professor W. R. Newbold concludes with one on the interpretation of automatism, and Professor W. Z. Ripley begins a series of articles on the Racial Geography of Europe, which were delivered as Lowell Institute lectures, in 1892. In the first article the relation of language to race and nationality is especially considered. There are also articles by the late Horatio Hale on Indian Wampum Belts; on Some Primitive Californians, by Mary Sheldon Barnes; on How Plants and Animals Spend the Winter, by W. S. Blatchley, and Condemnation of Criminals not Punishment, by Edward F. Brush. There are biographical sketches of W. D. Gunning and Maria Mitchell, both with portraits

According to the present law scientific books and periodicals devoted to scientific research are admitted free of duty. The New York *Medical Record* states that the Treasury Department has recently issued a circular to the Collectors of Customs in which it is said that certain books have been admitted under a too

liberal construction of the law, and the customs officers are notified that the words 'scientific books and periodicals devoted to original scientific research' relate to new discoveries in the field of science, and do not include textbooks, compilations, and discussions of scientific subjects already understood. It is still uncertain how much original matter will entitle a book to free entry as one 'devoted to original research,' but a case which has come up recently in Philadelphia concerning the importation of a medical work has been appealed to the Circuit Court and may bring about a settlement of the question.

UNIVERSITY AND EDUCATIONAL NEWS.

THE annual report of the Provost of the University of Pennsylvania, with the appended documents, makes a volume extending to 248 pages. It covers, however, a period of more than two years, from June 9, 1894, when Mr. Harrison assumed the duties of acting Provost, to September 1, 1896. This will probably always be regarded as one of the most important periods in the history of the University. The preceding Provost, Dr. Pepper, had used his great energy and abilities to expand the University in every direction. Mr. Harrison has placed the external and internal affairs of the university on a firm basis. He has supplemented his own executive ability by a Vice-Provost, Professor Fullerton, whose knowledge of educational matters has greatly aided the reorganization of the University. This work has extended to every school and department, the standards having been raised throughout and the correlations improved. The chief losses to the scientific departments have been the death of Professor J. A. Ryder, and the resignations of Dr. John S. Billings and Dr. Harrison Allen; the chief gains have been the appointments of Professor C. A. Doolittle, in astronomy; Professor E. G. Conklin, in comparative embryology, and Professor A. C. Abbott, in hygiene. Of advances in the University the next noteworthy has been the gift of $500,000 by the Provost for the encouragement of liberal studies and the advancement of knowledge. Of nearly equal importance has been the erection of dormitories, and of Houston Hall, an admirable club house for students. In the scientific departments attention should be called especially to the work of the Wistar Institute and of the department of archæology and paleontology, and to the establishment of the Flower Astronomical Observatory and the Botanic Garden.

GENERAL J. WATTS DE PEYSTER will erect for Franklin and Marshall College, Lancaster, Pa., a library building with a capacity for 75,000 volumes.

PRESIDENT GILMAN, of John Hopkins University, has accepted the presidency of the Baltimore School Board.

FRANCIS E. LLOYD, professor of biology in the Pacific University, Forest Grove, Oregon, has been appointed professor of biological science in the Teachers' College, New York.

DR. ALEXANDER P. ANDERSON has been appointed professor of botany at Clemson College, S. C.

DR. JAMES WARD, fellow and one of the tutors of Trinity College, Cambridge, has been appointed to the newly established chair of mental philosophy and logic. The new University statutes passed in 1881 provided that professorships should be established in physiology, in pathology and in mental philosophy and logic as soon as sufficient funds could be provided from the common University fund and other sources. Accordingly a professor in physiology was appointed in 1883 and a professor in pathology in 1884. Owing to the decrease in the college revenues, the common University fund was found insufficient to justify the annual charge of £700, the stipend of the professor of mental philosophy and logic. As we have already reported that the chair was at last established by the Senate on December 10th with the assistance of a subscription from Professor Sidgwick.

PROFESSOR ALFRED HUGHES has resigned the chair of anatomy in the University College, Cardiff. He has granted to the College the free use of his anatomical collections, on which he has spent large sums of money and many years of labor. In the event of his wishing to remove these at some future period, he has placed at the disposal of the College a sum of money sufficient to replace them.