

Egean art which developed in the favored vales of Phrygia and Lydia.

Other questions, of broader scope, are also touched upon by Mr. Evans. Dismissing the 'glamour of the Orient,' rejecting the orthodox notion that the primitive Aryan was some sort of a 'patriarchial missionary of Central Asian culture,' he declares for the greater probability that what the Aryan knew he had learned by study on the spot, and that his lineage is to be traced in European or 'Eurafrican,' surroundings from far back into the darkness of paleolithic times. Even then, in that rude and distant period, he was not of the brutes, brutish; for Mr. Evans relates an unpublished find of a surface burial, dating from Quaternary times, where the corpse had been laid in a position of decent repose, the shell knife, the deer's tooth ornaments and the paint pot by its side.

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#### ASTRONOMICAL NOTES.

DR. SEE's recent discovery of a companion to Sirius has been followed by observations at the Lick Observatory, according to a letter received from Prof. Holden. Profs. Schaeberle and Aitken, observing with the 36-inch, find the position angle of the companion to be about  $189^\circ$ , while Dr. See, Mr. Douglass and Mr. Cogshall, observing with the large telescope of the Lowell Observatory, found  $220^\circ$ . As Dr. Auwers's ephemeris in *Astronomische Nachrichten* No. 3085 gives  $176^\circ$  for this position angle, it is evident that the whole matter will require further elucidation.

THE Saxon Academy of Sciences has published an extended paper by Dr. J. Hartmann on eclipses of the moon. It forms a sequel to the same astronomer's well known work on the best value of the moon's diameter to be used in the prediction of lunar eclipses.

H. J.

#### SCIENTIFIC NOTES AND NEWS.

SCIENCE, DEMOCRACY AND THE UNIVERSITY.

PROFESSOR WOODROW WILSON's oration at the Princeton Sesquicentennial Celebration was admirable as a work of literary art; but as an official address, representing the policy of a great college aiming to become a university, it challenges criticism. Professor Wilson chooses his words carefully and enters caveats against his own conclusions. But on the whole he advocates the monastic ideal for a university; he mistrusts modern democracy and deplores modern science. For him the university is "a place removed—calm Science seated there, recluse, ascetic, like a nun, not knowing that the world passes, not caring if the truth but come in answer to her prayer; and Literature, walking within her open doors in quiet chambers with men of olden time, storied walls about her and calm voices infinitely sweet; here 'magic casements opening on the foam of perilous seas in fairy lands forlorn,' to which you may withdraw and use your youth for pleasure."

For us Science is no 'recluse, ascetic, like a nun,' 'doing us a great disservice, working in us a great degeneracy when it mingles in the affairs of the modern world.' If we must choose a mediæval simile, Science is rather Dürer's Knight, firmly seated on truth, not minding death greatly, looking forward without fear, ready to aid and, if need be, to kill. The democracy of to-day has been made possible by science, and science will control its future. We are not ashamed of the alliance; it is better for some men to think unwisely than for most men not to think at all. Progress can only result from variations, and favorable variations cannot occur apart from such as are harmful. We do not retire from the world to use 'our youth for pleasure' and our age for contemplation. We stand as leaders amidst a conflict whose outcome we shall decide.

Professor Wilson tells us that "the world's memory must be kept alive, or we shall never see the end of its old mistakes. We are in danger to lose our identity and become infantile in every generation. That is the real menace under which we cower everywhere in this age of change." Such utilitarianism is futile. We are the past; it is alive in us and in our enviro-

onment, not stored away in our libraries. Many would find life empty without its inherited wealth of literature and of art, but the function of these is as much to make us forget as to make us remember. If the past could not develop into a present better than itself, it would ill deserve our study and imitation.

Our ideal of a modern university is not a place where the walls of the colleges crumble while the dons drink their port. Rather we admire William Morris, who would leave that place and carry into the midst of the common people the best of literature and of art. True culture comes not from the elaboration of self, but from the devotion of self to useful work. Professor Wilson would have the modern university 'a place removed,' looking 'towards heaven for the confirmation of its hope.' We like to see the modern university in the midst of men, looking towards earth, that it may learn and teach.

#### ACADEMIC FREEDOM IN RUSSIA.

WE referred recently to the enforced retirement of Prof. Erismann (Jerismann) from the University of Moscow. The Russian correspondent of the *Lancet* gives some details from which we may quote.

The facts are briefly as follows: Political dissatisfaction, or rather dissatisfaction with the present régime in Russia, with its anomalies and not infrequent injustices, is not rarely met with among the students of Russian universities. Wherever it is met with it is put down with a very stern hand. Sometimes, however, it happens that the not unnatural aspirations of the students find sympathy and support from the professors. This was the case two years ago in the University of Moscow. A petition was at that time drawn up and signed by forty-two of the University professors and then presented to the authorities. The petition drew attention to certain wrongs suffered by the students, to the harmfulness of the system of so-called 'administrative exile' (that is to say, exile for political opinions without any reasons being given for the exile and without opportunity of appeal from the sentence), and to the fact that the present University Court, or governing body of the University, which is appointed entirely by

the government and not elected by the professors, cannot in all cases be just to the students. The only result of this petition was a formal censure, from the government, of all the forty-two professors who had signed it and a severe reprimand to four, of whom Prof. Erismann was one. The reasons of Prof. Erismann's enforced resignation of his chair are not at present publicly known, but there is little cause to doubt that the incident just narrated—or, rather, the 'liberal' leanings of Prof. Erismann, of which the incident was, perhaps, one out of many proofs—were the real reasons. This explanation, which is the one most generally accepted, is further supported by the rumor that two of the other three professors who were reprimanded at that time have also been requested to resign their chairs. The circumstances of Prof. Erismann's resignation were the following: It is the custom of the Russian government every summer to send a certain number of professors to foreign countries to study foreign methods and systems and so to keep in touch with the progress made in other countries. Among those sent this summer was Prof. Erismann. He visited Berlin and then went to Switzerland. While there he was officially informed that his services in the chair of hygiene were no longer needed, the retirement to date from July 1st. No reasons were given, but three days were allowed during which a voluntary resignation would be accepted.

Prof. Erismann is eminent for his contributions to hygiene and the study of epidemics, and had organized and equipped fine laboratories of pathology and hygiene in the University of Moscow. He was president of the recent Russian Pirogoff Congress, and was to have been general secretary of the International Congress to be held in Moscow next year.

#### SYSTEMATIC ZOOLOGY.

THE editor-in-chief of the *American Naturalist* is a distinguished representative of the union of extensive research in systematic paleontology and zoology combined with wide biological and philosophical interests. We quote from an editorial article in the *Naturalist* an answer to certain captious criticisms of those engaged in the

study of species which have recently appeared in *Natural Science* and in the *Revue Scientifique*:

"We regard the expressions above quoted as an indication of a mild form of megalomania which is not unfrequently found among the users of mechanical appliances in the biological laboratory. The most intelligent cultivators of these important branches of biologic research are, however, well aware that the exact determination of species is fully equal in importance to their own pursuit, for the following reasons, among others: If we regard biology to consist of two branches, evolution and physiology, we define evolution, with Darwin, as the origin of *species*. For physiology the question of species is not so important. Species are, however, what the labors of the ages have produced, and it is necessary to know them in order to pursue any branch of evolution (as embryology or paleontology) intelligently. The work of the embryologist and paleontologist who does not know the species whose origin he seeks to explain is greatly lacking in precision. Linnæus states that the tyro knows the higher divisions, but only the expert knows species. We also especially deny that the discrimination and description of species is within reach of the most mediocre intelligence. On the contrary, no kind of work in biology imposes as much on all the mental faculties which are used in scientific work. Those who have not attempted it have little idea what is involved in a diagnosis or an analytical key. Finally, as regards the mammalogic work of Messrs Merriam and Miller, we consider it of the utmost importance. They are pointing out the results of the evolution of Mammalian life in North America, which it is the business of the embryologist and the paleontologist to explain. And in this field the work of Messrs. Merriam and Miller is the best that has ever been done in any country."

#### GENERAL.

DR. J. A. HUGO GYLDEN, director of the Astronomical Observatory at Stockholm and professor of astronomy at the University, died on November 9th at the age of fifty-five years.

THE seventieth birthday of Dr. Stanislas Cannizzaro, professor of chemistry at Rome, will be celebrated on November 21st, by the presenta-

tion of a gold medal, of congratulatory addresses and of a fund to be used by him for the advancement of chemistry.

THERE will be held at Washington a memorial meeting in honor of the late Dr. G. Brown Goode. Hon. Gardiner G. Hubbard is Chairman of the Committee of Arrangements.

WE learn from *Die Natur* that a monument in honor of K. Th. Liebe, who had made important contributions to geology and ornithology, especially in Thüringen, was dedicated in Gera on October 18th.

THE hundredth anniversary of the birth of the eminent anatomist, anthropologist and naturalist, Anders Adolf Retzius, was celebrated with suitable ceremonies at Stockholm on October 13th.

THE municipality of Paris has changed the name of the Boulevard de Vaurigard to that of Boulevard Pasteur.

THE Berlin Academy of Sciences proposes, as the subject for the Cothenius prize, 'Experiments and observations on the origin and behavior of new varieties of grain during the past twenty years.' The paper, which may be in Latin, German, French, Italian or English, must be presented before the beginning of the year 1899. The prize is of the value of 2,000 M.

MR. R. ETHERIDGE has been awarded by the Royal Geological Society of Cornwall its first Bolitho gold medal.

THE Committee on Science and Arts of the Franklin Institute, of Philadelphia, have awarded the John Scott medal for 1896 to Emile Berliner, of Washington, D. C., for his invention, the gramophone, it being, in their opinion, an invention of great merit and usefulness.

THE managers of the Royal Institution, London, have appointed Prof. A. D. Waller, M. D., F. R. S., to be Fullerian professor of physiology for three years, and Dr. A. Scott to be superintendent of the Davy-Faraday Research Laboratory. The Christmas lectures specially adapted for children will this year be given by Prof. Silvanus P. Thompson, F. R. S., his subject being 'Visible and Invisible Light.'

MAJOR J. W. POWELL will give at the Catholic University a course of six special lectures, reviewing the scope of anthropology and taking up savagery, barbarism, primitive civilization and modern civilization.

FURTHER details regarding the Nansen research fund now being raised in Norway, are quoted by *Nature* from the *Times*. Its object is to commemorate the remarkable Arctic expedition of this explorer by the foundation of a fund called 'The Fridtjof Nansen Fund' for scientific research. It is intended that, by this means, research in various departments of science shall be promoted, and the results published. Dr. Nansen himself may be appointed director, but there will be no salary attached to the office, as the whole of the yearly products of the fund will be devoted to the objects stated. Up to the present no less than 300,000 kroner have been subscribed. Consul A. Herberg, Dr. Nansen's friend, has contributed 50,000 kroner; while others, besides numerous Norwegians, are Baron Oscar Dickson, 25,000 kroner; and Prof. Frankland, 1,000 kroner. It is stated that the fund will probably be placed under the care of the Christiania University, the Norwegian Society of Science, and the Bergen Museum. If any who are admirers of Dr. Nansen care to contribute they should communicate with the Committee of the 'Fridtjof Nansens fond, University of Christiania.'

THE London *Daily Chronicle* published, on November 3, 4 and 5, a detailed and elaborately illustrated series of articles by Dr. Nansen, describing his adventures in the extreme north. The articles have been extensively copied in the daily papers and are of dramatic rather than of scientific interest. Dr. Nansen received about \$20,000 for these articles, and will receive about \$50,000 for his book. The scientific results of the expedition will be presented before the Royal Geographical Society, and doubtless will be published in a suitable form and place.

THE Associated Press reports that Messrs. D. G. Elliott and C. R. Aikley, of the Chicago Field Columbian Museum, left Southampton on November 14th, on their return to the United

States, after a very successful expedition into Somaliland. Mr. Elliott states that the collections are of great value, 58 cases having been shipped from Aden to Chicago.

MR. R. P. CURRIE, of the United States National Museum, left New York on November 14th, ult., for Hamburg, on his way to Liberia, where he will spend several months collecting zoological specimens. He will devote especial attention to insects showing protective mimicry.

*Nature* quotes from the *British Central African Gazette* news of the return of Mr. Alexander Whyte, Sir Harry Johnston's scientific assistant in British Central Africa, from a successful expedition into the Nyika plateau, on the north-eastern shores of Lake Nyasa, where he has made a large collection. The flora of this district proved to be most interesting, resembling that of Mount Milanji, in the south of Nyasaland, but differing from it in many respects. Mr. Whyte failed to find any trace of a conifer, but the range is richer in heaths than Milanji. He obtained 6,000 specimens of plants and a large zoological collection.

PROF. KOCH has been sent to South Africa by the German government to investigate the causes of the *Rinderpest*.

DR. L. A. BAUER, who, as we have already announced, is undertaking a magnetic survey of Maryland, under the recently established State Geological Survey, has taken observations at about 40 stations, or one for about every 250 square miles, which gives Maryland the most detailed magnetic survey yet undertaken in America.

HOUGHTON, MIFFLIN & Co. have in press 'The Life and Letters of Dr. William Martin Rogers,' prepared by Mrs. Rogers, with the assistance of Prof. W. T. Sedgwick.

LOTZE'S *Medicinische Physiologie*, published in 1852, may be regarded as the pioneer work in modern physiological and experimental psychology. It has long been out of print, but a reprint is now announced by the Diedrichsen Buchandlung, Göttingen.

AMONG the large number of books announced by the Clarendon Press, Oxford, as in active preparation there is apparently only one in the

physical and natural sciences: 'Practical Work in Electricity and Magnetism,' by W. G. Woollcombe.

A NEW *Bericht* will hereafter be published by the Nordoberfränkischer Verein for natural history, located at Hof, Bavaria.

MR. ANDREW CARNEGIE has let the contract for building a free library at Homestead at once, and will immediately prepare for similar institutions at Duquesne and Carnegie. He has announced that he will found as many branch libraries in Pittsburg as may be needed.

It is stated in *Nature* that the objects exhibited in the ethnographical section of the Millennial Exhibition at Budapest are to be used as the nucleus of an ethnographical museum. The collection of machines in the special exhibition of the means of transport are to form a railway museum, and the bulk of the exhibits in the agricultural section will be used for the foundation of an agricultural museum.

*The Astrophysical Journal* announces the establishment of a new astrophysical observatory at Rössgen, Mittweide, Saxony. The principal instrument, which was to be ready for use by the middle of October, is a refractor of 170 mm. aperture, made in the workshop of Hans Heele, in Berlin. It is provided with both visual and photographic objectives, and the mounting embodies a number of new features. The program of the work prepared by Dr. Friedrich Krueger, the director of the observatory, includes: (1) The formation of a photometric catalogue of all colored stars within the limits of the director's catalogue of colored stars. (2) Photometric determinations of comparison stars used in the observation of variables, including such stars as are communicated to the director by observers of variables and those which are found in published papers. (3) Construction of star charts by the aid of photography of regions containing variables.

WE called attention to the celebration this year of the 150th anniversary of the Zurich Scientific Society. The Society has now issued, in commemoration of the event, two volumes edited by Dr. F. Rudio, with the cooperation of Drs. A. Heim and A. Lang. The first volume

contains a history of the Society with portraits of some of its distinguished members, and the second volume contains scientific papers.

It is stated in *Cosmos* that the International Geodetic Congress, which met recently at Lausanne, under the presidency of M. Faye, received reports on the organization of the projected four international observatories for the study of small movements of the earth's axis. The statutes adopted last year at Berlin have been ratified by fourteen of the twenty-one states taking part. The ratification of the remaining seven is expected before the close of the year.

THE Massachusetts State Board of Agriculture will hold a public meeting at Greenfield on December 1st, 2d and 3d, when a number of interesting papers will be read. It is expected that the question of prosecuting the work of the extermination of the gypsey moth will be prominently brought forward.

At the Convention of the Agricultural Chemists of the United States, held recently at Washington, officers were elected as follows: President, William Frear, Pennsylvania; Vice-President, A. L. Winton, Connecticut; Secretary, H. W. Wiley, Washington, D. C.; Executive Committee, B. W. Kilgore, North Carolina, and Arthur Goss, New Mexico.

A CONGRESS of Medical Climatology and Hydrology, to be held at Brussels in connection with the exhibition of 1897, is being organized under the auspices of the Belgian Royal Society of State Medicine.

THE Paris Society of Hypnology and Psychology has decided to hold an International Congress of Experimental and Therapeutic Hypnotism in Paris in 1900.

THE repeal of the law practically forbidding the use of motor carriages in Great Britain was celebrated on November 14th by a race from London to Brighton. Fifty carriages took part in the race, it being won by a Duryea motor, which traversed the distance of 47 miles in four hours.

PHYSIOLOGICAL effects caused by the Röntgen rays were, we believe, first reported in this

JOURNAL (April 10, 1896), by Prof. John Daniel. It was at the time regarded as extraordinary by others working with the Röntgen rays, but has since been fully confirmed. Cases of loss of hair, of finger nails and of dermatitis have been reported, and physicians making use of the rays should be careful that the time of exposure is not too long and that the vacuum tubes are not brought too near the body.

It is stated in *Electricity* that Herr Dormann, of Bremen, has succeeded in photographing objects, by Röntgen's method, through iron plates 22 centimeters thick. He has already taken more than fifty such photographs.

IN their reports of the recent elections the daily papers almost failed to notice that the forestry amendment to the Constitution of the State of New York was defeated. This amendment permitted the leasing of small plots and certain exchanges and sales of land, and its defeat is gratifying to those interested in the forest preserve. Even the placing of the reservation under a system of scientific forestry management, as advocated by *Garden and Forest*, seems questionable. Part of the preserve might be so treated, if it were possible to depend on the good faith of the management, but there are many reasons, some of them of considerable scientific importance, for allowing part of the preserve to remain as primeval forest.

THE *Nation* says: "The recent adverse decision of the Court of Appeal at Rouen in the now famous case of scientific plagiarism, Cremieux-Jamin *vs.* Lombroso, reinforces a good idea that comes from Prof. Michael Foster, Secretary of the Royal Society. Prof. Foster suggests an international organization of scientific men for the purpose of registering at frequent intervals the results of contemporary investigation. Such a body would serve not only to protect the investigator from prosecution, but also to prevent him from going over ground already trodden. For the world of science at large, it could perform a valuable service by discriminating what has become common property from what is still in the possession of the original author." The *Nation* may know of some plan other than that of the recent Inter-

national Bibliographical Conference. But it is not evident what 'valuable service' a body would perform 'by discriminating what has become common property from what is still in the possession of the original author.'

OEDAM, the head Sundanese gardner in the Botanic Gardens of Buitenzorg, Java, has just been decorated, by the government of Netherlands India, with the *Zilveren Ster van Verdienste* (Silver star of merit), as a tribute to over 50 years of faithful service in the Gardens. The decoration services and the presentation address in Malay, by Director Treub, took place on the 16th of September, with all the befitting ceremony so agreeable to the natives. This is the first time the silver star, which is strictly designed for native civil employes, has been accorded to one of the native gardeners. Every botanist visiting the Gardens comes to know and appreciate the value of this old man's astonishing knowledge of tropical plants. His acquaintance not only with the scientific and native names of the plants, but his acute sense of their natural relationships has made his services of inestimable value. He is a member of one of those native families from which the Gardens have drawn so many of their best collectors and gardeners. His father occupied the position of chief overseer or mandor of the coolies under the directorship of Dr. Teysmann, and his son has already fitted himself to fill the position of chief gardener, or *mantri*, on his father's retirement. This is probably the highest tribute ever paid to Sundanese botanical intelligence.

D. G. F.

IN a recent paper on the distribution of certain mammals in New England and northern New York, Mr. C. F. Batchelder notes the direct connection between agriculture and the distribution of the red-backed mouse (*Evotomys gapperi*), a species eminently characteristic of the Boreal zone. This species is chiefly found in New England in sphagnum swamps, and as these are drained the animal is deprived of the territory suited to its needs. In Cape Cod of late years the cedar swamps have been stripped of their trees and turned into cranberry bogs to such an extent that, if this industry should increase but a little more, there is every proba-

bility that *Evotomys* would cease to exist within the limits of Barnstable county.

#### UNIVERSITY AND EDUCATIONAL NEWS.

THE corner stones of the Havemeyer Hall of Chemistry and of the Engineering Building of Columbia University have been informally laid. The buildings are already further advanced than might be supposed from the fact that the corner stones have just been laid, and it is hoped that these, as well as the Library, Schermerhorn Hall for the Natural Sciences and the Physical Building, will be ready for occupancy in the summer of 1897. The excavations, which are the most extensive hitherto undertaken in New York, for the University Hall are nearly completed. This building will contain the Academic Theatre, the Gymnasium and the Dining Hall.

THE Yale Alumni Association of California, following the example of the Harvard Alumni of the same State, has established a graduate scholarship at Yale University, yielding an income of \$300, to be awarded to a graduate of one of the California colleges on nomination by the Association.

THE present registration at the University of Pennsylvania now amounts to 2,752, which is a gain of 130 over last year, although the requirements for admission have been raised.

THE number of students in German universities last summer is reported to have been 29,802; in 1895 it was 28,709, so that the numerical increase for the present year is 993, or 3.5 per cent. The distribution of the students among the various universities was as follows: 4,649 in Berlin, 3,777 in Munich, 2,876 in Leipzig, 1,863 in Bonn, 1,425 in Breslau, 1,415 in Halle, 1,379 in Freiburg, 1,339 in Würzburg, 1,172 in Tübingen, 1,164 in Heidelberg, 1,138 in Erlangen, 1,007 in Göttingen, 965 in Marburg, 948 in Greifswald, 938 in Strassburg, 761 in Jena, 708 in Kiel, 700 in Königsberg, 630 in Giessen, 500 in Rostock, and 420 in Münster. The number of students at Vienna was 2,228, but only 1,370 of these were regular students.

THE Right Hon. Joseph Chamberlain has been elected Lord Rector of the University of

Glasgow, having a majority of 234 votes over his opponent, Mr. Augustine Birrell.

#### DISCUSSION AND CORRESPONDENCE.

##### AGE OF THE ISLAND SERIES.

IN my paper on '*The Potomac Formation*' in the Fifteenth Annual Report of the United States Geological Survey, describing the section along the Raritan River, I remarked (pp. 335-336) that "from Morgan, the most easterly point, the formation may be traced northward across Staten Island and the northern shore of Long Island, and it reappears on Martha's Vineyard in the celebrated cliffs of Gay Head. \* \* \* Along this most eastern line a new phase is seen, viz., the occurrence of concretions in the variegated clays, in the form of hard ironstones, which, when broken open, are found to contain vegetable remains in an admirable state of preservation. I am, therefore, disposed to regard these ferruginous, concretionary beds, extending from Staten Island to Martha's Vineyard, as the very latest phase of the Potomac formation, which I shall call the Island Series, although, from the similarity in the flora, I am disposed to include them, along with the Raritan and Amboy Clays, in the Alburip Series."

Later in the same paper (pp. 373-382) the nature of the flora of this series was set forth, and it was shown that, so far as known at the time that paper was written, it consisted of 133 species, 52 of which were also found in the Amboy Clays, and the great preponderance of which were well developed dicotyledonous forms. The nearest affinities to these plants are afforded by the Atane beds of Greenland, which have always been correlated with the Cenomanian of Europe. Dr. Newberry regarded the Amboy Clays as representing that age and therefore as belonging to the Upper Cretaceous. In his monograph of the '*Flora of the Amboy Clays*,' soon to appear posthumously, he gives his argument in full. He thought them of about the age of the Dakota Group. My opinion that they were somewhat lower, and should be placed at the summit of the Lower Cretaceous, having been called in question, I defended it in the paper referred to (pp. 373-374), as I think successfully. I had