

The shortest tribes are the African pygmies, who stand about 1.30 meters. In America no tribe is mentioned with an average under 1.60. The tallest are undoubtedly American, some (doubtful) Caribs of the Orinoco at 1.84, and the Tehuelche, of Patagonia, at 1.78.

The article on the weight gives abundant information about the relative weight of the brain and other organs.

Both articles contain a very complete bibliography of the recent scientific literature of the subjects.

THE NATIONAL MUSEUM OF COSTA RICA.

LARGELY owing to the energy of the Director Señor Anastasio Alfaro, the large archæological and ethnographic collection brought together by the government of Costa Rica has now been commodiously installed in a building erected for the purpose at San José de Costa Rica. A photograph of it is reproduced in *La Revista Nueva* for October last.

Few localities on our continent offer better specimens of aboriginal pottery and stone work that are discovered within the area of Costa Rica, as was abundantly illustrated at the Columbian Exposition at Madrid. A beautiful example of a decorated jar is given in the journal of the date mentioned, and also the outlines of a number of others.

In spite of the careful studies of Manuel de Peralta on the ancient tribes of Costa Rica, we still remain ignorant of the language and affinities of the tribe which seems to have left the most abundant remains—the Guetares.

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NOTES ON INORGANIC CHEMISTRY.

In the last *Berichte* F. Giesel describes an interesting instance of what are probably solid solutions. A little more than a year ago Goldstein showed that the halid

salts of the alkali metals take on a more or less intensive color under the influence of kathode rays. Giesel obtains the same result by heating the salts in closed glass tubes at a very low red heat in sodium or potassium vapor. Bromid and iodid of potassium are colored a beautiful blue, chlorid of potassium or sylvine a dark heliotrope, chlorid of sodium or rock salt yellow or brown. The color is not superficial, as clear crystals of potassium bromid a centimeter cube are uniformly colored. The coloration seems to be due to the solution of the metallic sodium or potassium in the solid salt. It is thought probable by Giesel that the blue coloration of rock salt is due to dissolved sodium. Attempts to color in a similar way clear crystals of fluorspar were not successful.

IN continuing his investigations into the occurrence of gold in nature, Professor Liversidge finds the metal in all natural saline deposits. Rock salt and other natural salts contain from one to two grains of gold per ton, while bittern waters and kelps furnished in some cases from fourteen to twenty grains.

Professor Liversidge has also examined the structure of gold nuggets from many different sources, by polishing and etching sections. He finds that all nuggets possess a well-marked crystalline structure and usually contain foreign substances. He suggests that the gold has been slowly deposited from aqueous solution and that the nuggets are more or less rolled masses of gold which have been set free from disintegrated veins.

J. L. H.

SCIENTIFIC NOTES AND NEWS.

RESEARCH AND THE UNIVERSITY.

AN editorial note in the February number of the *American Naturalist* has been quoted with approval in several journals. We also reproduce this note, partly in order to give it such

currency as we can, and partly in order to comment upon it:

"While the primary object of the University is instruction, there are several reasons why original research is of more than incidental importance to its prosperity. The mastery of his subject, which is characteristic of the man who advances the knowledge of it, is an essential of a good teacher. The belief in this truth is so general that the teacher who is known as a discoverer will more successfully attract students to his classes than he who is not so known. But, apart from this, the general reputation of a school before the public is more surely affected by the research work that issues from its faculty than the managing bodies of some of them seem willing to admit. As an advertisement, successful original work is incomparable. It serves this purpose in quarters where the detailed work of the university is of necessity unknown. We know how it is with our estimate of institutions of foreign lands; we know them by the work of their professors in original research. We believe that those universities which permit of the production of original work by those of its professors who have proven themselves competent for it are wise above those who do not do so. Those who load such men with teaching, so as to forbid such work, reduce their prosperity. We regret to learn that a tendency to the latter course is increasingly evident in some of our great schools. Who, in the chemical world, does not think the more highly of Harvard on account of the work of a Gibbs; how much better is Brown known through the work of a Packard, and so on? Chicago, Pennsylvania and Cornell profit greatly in various fields by the work turned out by certain members of their faculties. Who does not know Columbia, Princeton and Johns Hopkins as the seat of the labors of men whose names are familiar to every American? Yet, in a few of these institutions the prosperity brought by these very men is becoming the means of choking the vitality of these, their life centers, by the increase of drudgery which it brings. The managers will be wise to preserve for these men sufficient leisure to enable them to advance the frontiers of the known, and thus to obtain juster views of things as they are, and to bring us ever nearer to a comprehension of the great laws whose expressions it is their business to teach to the growing intelligences of the nation. By all means nourish the nuclei of the mental life, which will thus preserve the vitality of the cytoplasm of society and protect them from being smothered by it into stagnation and ultimate crystallization."

We quite believe that research work advertises a university, and in a more effective man-

ner than athletic contests. But we do not think that research is chiefly useful as an advertisement, nor that instruction is 'the primary object of the university.' Instruction, or better training, is the primary object of the college and professional school. Research is not only the primary object of the university; it is the university itself. Further, we think that this is the view of President Eliot, President Low, President Gilman, Provost Harrison and the other able leaders who are now laying the foundations of our universities. We do not see any tendency 'increasingly evident in some of our great schools to load men with teaching so as to forbid' original work and 'choke their vitality.' Rather it is only within the past few years that the university, as we understand it, has been developed. A professorship, such as the editor of the *Naturalist* holds at the University of Pennsylvania, would not have been possible twenty years ago. The university professor must indeed learn that he may teach and teach that he may learn. It would, perhaps, be well if he more often gave a small part of his time to carrying the spirit of the university to the lower classes of the college. But research is the university; when both teachers and students are not advancing knowledge and applying it for the welfare of society, or learning how to do these things, they are only part of the university as its *impedimenta*.

SCIENCE IN THE NEWSPAPERS.

THE last number of *Nature* contains a leader traversing an editorial in a recent issue of the *London Times*. That journal is accused of an 'outburst' displaying 'misrepresentations' and 'absolute ignorance.' It is scarcely needful to say that in the question at issue—the desirability of establishing a National Physical Laboratory that will do for Great Britain what the *Reichsanstalt* does for Germany—we entirely agree with *Nature*. But the same number of the *Times* that the editor of *Nature* finds 'painful reading' set the writer of this note to wonder why the English daily press is so superior to our own. Of the four editorial articles in the *Times* of that issue, three were devoted to subjects that might be regarded as belonging to science. The point of view was, doubtless, that

of middle class Toryism, but the questions were discussed in a manner that appealed to an intelligent interest on the part of the readers. When the British Association meets, the address of the President is given in full, not only in the London dailies, but also in the provincial press, and pages are devoted to the sectional meetings. The New York papers contained one short note on the Buffalo meeting of the American Association for the Advancement of Science, and the local press confined its attention to our *enfant terrible*, Section I. The Boston *Transcript* probably gives more space to science than any other American daily and is one of the most respectable of our newspapers, yet it describes to its readers how the soul has been photographed by 'a member of the Paris Academy of Medicine' and how 'Sir' Francis Galton has established communication with the inhabitants of the planet Mars. There are often in the daily papers items of scientific news that should be of interest, but their 'probable error' is about ∞ . While some of our newspapers are reverting to the pictograph stage of culture, will not one or two of them omit a few items of local and transient gossip and give a little space to subjects of permanent and universal importance?

GENERAL.

THE Berlin Academy of Sciences has made an appropriation of 2,400 Marks to Professor Harnack for the expenses of the preparation of a history of the Academy to be published on the occasion of the two hundredth anniversary of its foundation.

AT its last meeting, March 10th, the American Academy of Arts and Sciences elected as foreign honorary members Ludwig Boltzmann, of Vienna; Wilhelm Pfeffer, of Leipzig, and Wilhelm Dörfeld, of Athens.

MR. GASTON DARBOUX, professor of geometry at the University of Paris, has been elected a corresponding member of the Berlin Academy of Sciences.

THE Zoological Society of New York has received official notification from the Board of Park Commissioners consenting to allot for a Zoological Park the portion of Bronx Park which the Society desired. The land designated is the

southern portion of the park lying between Kingsbridge road and Pelham avenue and extending eastward from the southern boulevard so as to include the Bronx Lake and enclose two hundred and sixty-one acres of land. The largest Zoological Garden of Europe, that of Berlin, is only one-fourth this size.

THE Royal Botanic Society of London is considering the establishment of a Botanical Institute for the study and teaching of botany in its gardens. The subject was brought before the Society by Mr. William Martindale at a meeting of the fellows on February 27th, and the plan was favored by all who took part in the discussion.

SIR J. BLUNDELL MAPLE has given University College, London, £100,000 for the rebuilding of the hospital. Lady Wallace has bequeathed to the British nation the finest private collection of paintings and objects of art in the world, valued at between \$5,000,000 and \$10,000,000.

M. VIOLLE, of the École normale Supérieure, has been elected in the room of Fizeau, member of the section of physics of the Paris Academy.

JOSEPH JAMES SYLVESTER, the great mathematician, Savilian professor of geometry at Oxford, formerly professor at Johns Hopkins University, and in 1841 at the University of Virginia, died at London on March 15th, aged eighty-three years.

THE eminent mathematician, Dr. Karl Weierstrass, died at Berlin on February 19th, aged eighty-one years.

PROFESSOR HENRY DRUMMOND, of the Free Church College, Glasgow, died on March 11th, at the age of forty-six years. He had published interesting accounts of his travels in tropical Africa and elsewhere, but was best known for his 'Natural Law in the Spiritual World,' which has been published in many editions and in several languages. Professor Drummond gave the Lowell Lectures in Boston in 1893 which were published under the title 'The Ascent of Man.'

WE regret also to record the deaths of M. Georges Ville, the chemist, professor in the Paris Museum of Natural History; of Dr. Timothée Rothen, known for his contributions

to telegraphy; of Dr. Peter D. Keyser, an eminent ophthalmologist of Philadelphia, formerly professor of this subject at the Medical Chirurgical College and surgeon to the Wills Eye Hospital; of Dr. Olaus Dahl, professor of Scandinavian languages in the University of Chicago; and of Mr. Luther H. Tucker, editor of *The Cultivator and Country Gentleman*.

THE late Professor Tilanus founded a gold medal, to be given every five years by the University of Amsterdam for a contribution to medicine or natural science. It was conferred this year for the first time on Dr. Zwaardemaker, of Utrecht, for his work on 'Physiology of Smell.'

THE Paris Faculty of Medicine has awarded the Lacaze Prize of 10,000 francs to Professor Nocard, of Alfort, for his researches on tuberculosis.

PROFESSOR OSCAR LIEBREICH, director of the pharmacological laboratory of Berlin University, has received the officer's cross of the French Légion d'Honneur.

THE following further awards of medals are recorded in *Nature*: The Albert Medal of the Society of Arts to Professor David Edward Hughes, F.R.S., "in recognition of the services he has rendered to arts, manufactures and commerce by his numerous inventions in electricity and magnetism, especially the printing telegraph and the microphone;" and a gold medal of the Société Industrielle du Nord de la France to M. Moissan, in recognition of his scientific investigations. The Royal Academy of Belgium has awarded gold medals, of the value of 600 francs, to Dr. C. De Bruyne, of Ghent, for his essay on the influence of phagocytes in the development of the invertebrata; to M. G. Cesàro, of Trooz (Liège), for his essay on Belgian minerals; to MM. J. F. Heymans and O. Van der Stricht, of Ghent, for their conjoint paper on the peripheric nervous system of *Amphioxus*; and to M. Jean Massart, for his essay on the cicatrisation of plants.

PROFESSOR E. E. BARNARD gave an illustrated lecture at Oxford University on March 1st. Sir Clements Markham will lecture before the London Royal Geographical Society on March 22d, on 'Some Considerations in Polar Explorations.'

PROFESSOR W. LECONTE STEVENS, of the Rensselaer Polytechnic Institute, has written to Professor J. K. Rees, of Columbia University, Secretary of Metrological Society: "For reasons which have been fully set forth orally, I regret that it will not be possible for me to accept the Secretaryship of the Metrological Society. My interest in the objects which the Society is endeavoring to attain is not on this account in the least diminished, and I shall continue to spend such time and exert such influence as I may be able to command in furthering these objects."

THE German government has appropriated 20,000 Marks for the investigation of the foot and mouth disease, and the work has been entrusted to Professor Loeffler, of Greifswald, and Dr. Frosch, of the Koch Institute.

PROFESSOR BENO ERDMANN, of Halle, has been awarded 600 Marks by the Berlin Academy of Sciences for researches in experimental psychology.

THE trustees of Cornell University will build for Professor Harris a naphtha launch to be used for the transportation of students studying paleontology. It is expected to use the boat during the summer holidays for field work.

It is reported in the *Engineering News* that the largest spectroscope in the world has just been completed by John A. Brashear, of Allegheny, Pa., the well-known astronomical instrument maker. It was made for the private research laboratory of Dr. Hans Hauswaldt, of Magdeburg, Germany. The instrument contains a concave diffraction grating with 110,000 lines per inch, made on the famous ruling machine of Professor Henry A. Rowland, of the Johns Hopkins University.

ANOTHER secret method of color photography has been recently exhibited in London, the exhibitor being this time an Englishman, Mr. Bennetto. The pictures are said to show colors very well, but until the nature of the process is explained the matter is scarcely one coming within the range of scientific discussion.

A BILL has been introduced into the Minnesota Legislature providing for the appointment of a State phrenologist, who must examine not less than 2,000 Minnesota heads annually!

THE Torrey Botanical Club and the College of Pharmacy of the City of New York offer two summer courses in botany: one on the general morphology of plants by Dr. W. Arthur Bastedo; the other on cryptogamic botany by Dr. Smith Ely Jelliffe. The courses will be given at the College of Pharmacy, beginning March 25th and 26th, respectively, and in connection with them weekly field excursions have been arranged, lasting from April 24th to June 12th.

FOUR hundred Cossacks have been sent to the Russo-Persian frontier to establish a military cordon for the enforcement of quarantine to prevent the introduction of the plague into Asiatic Russia.

A SECOND international Congress of Sanitation and Hygiene of Railways and Navigation will be held at Brussels during September, 1897. The preceding Congress at Amsterdam was of scientific interest, and the next Congress has the support of the Belgium government. Those wishing to attend the Congress or obtain information regarding it should apply to Dr. J. de Lantsheere, rue de l'Association 56, Brussels.

THE Council of the American Geographical Society has adopted the report of a committee consisting of Judge Charles P. Daly, Admiral Gherardi and Mr. Chandler Robbins, endorsing the plan of Lieutenant R. E. Peary, proposing to devote a number of years to complete the exploration of the unknown region between Greenland and the North Pole. The Council recommends that the Society subscribe toward the expense of his next expedition, provided that such subscription is needed, and the full amount to carry out the enterprise is subscribed.

THE Geographical Club, now the Geographical Society of Philadelphia, during the month of February, 1896, transferred all its books and exchanges to a large room it had rented for a library. But a few days later the building was entirely destroyed by fire, and the Club lost all its possessions. It has only now been possible to make a fresh start, and all the books and exchanges which have been received since the fire and have been stored away have been transferred to the new rooms at 1520 Chestnut street. The Society would be glad to receive publications bearing upon geography.

Nature reports that Dr. Arthur Willey, who worked out the later development of *Amphioxus* when he was a pupil of Professor Ray Lankester at University College, London, has just made a most important discovery. He has succeeded in obtaining the ripe eggs of the Pearly Nautilus, and is now at work on the development of that most interesting animal. Two and a half years ago Dr. Willey gave up a position in Columbia University and accepted the Balfour Studentship of the University of Cambridge, in order to proceed to the coast of New Guinea and neighboring islands in quest of the embryological history of the Pearly Nautilus. He has had great numbers of live nautilus, but, in spite of all efforts, had, till December 5th last, failed to obtain the eggs. Specimens which he was keeping in a large cage, sunk in the sea at a suitable spot in the Loyalty Islands, were found by him on that day to have spawned. Dr. Willey's indomitable perseverance and devotion to his task have thus been at last crowned by success. Dr. Willey has been assisted in his arduous and dangerous enterprise—amongst the savage people of those remote islands—by grants of money from the Government Grant Fund administered by the Royal Society.

MR. PALMER, the New York Secretary of State, has drawn up a report showing that the total number of convictions in the New York courts was 66,420 in 1896, as compared with 71,480 in 1895 and 68,146 in 1894.

ACCORDING to the *British Medical Journal* the medical faculty of Montpellier is authorized to accept the important legacy bequeathed to it by the widow of Dr. Bouisson, which is as follows: The Grammont chateau and grounds to be devoted to the creation of a scientific and humanitarian establishment; also the furniture and linen belonging to the chateau; the interest of \$60,000 to be applied to defray the expenses of the establishment; a chapel to be built under the supervision of the executors; the interest of \$9,000 to be given as a salary to the priest attached to the establishment. All the instruments, and the drawers containing them, likenesses, manuscripts belonging to the late Dr. Bouisson and Dr. Bertrand, the husband and father of Mme. Bouisson, and a marble bust of

Dr. Bertrand, are likewise included in the legacy.

UNIVERSITY AND EDUCATIONAL NEWS.

MRS. E. A. STEVENS, widow of the founder of the Stevens Institute of Technology, has given the Institute land adjacent to it valued at \$30,000.

THE Trustees of the University of Pennsylvania have petitioned the Legislature for an appropriation of \$1,000,000 in aid of the University, conditional upon the raising of an equal amount by the friends of the institution.

EUREKA COLLEGE, in Illinois, is said to have received in subscriptions \$150,000, of which some \$20,000 was given by Mr. T. E. Bonduant, of Deland, Ill.

THE annual catalogue of Princeton University shows that the number of students is 1,045, as compared with 1,088 last year. There are 548 students in the academic department, 374 in the school of science, 115 graduate students and eight fellows.

THE following promotions have been made at Cornell University: Louis M. Dennis has been appointed professor of analytical chemistry; Walter F. Willcox, professor of sociology; Henry S. Jacoby, professor of civil engineering; John Henry Barr, professor of machine design, and Joseph E. Trevor, professor of physical chemistry.

CHRISTOPHER W. HALL, professor of geology and mineralogy and Dean of the College of Engineering, Metallurgy and the Mechanic Arts in the University of Minnesota, has been granted a leave of absence for the year beginning next September. Professor Hall has resigned the office of Dean, which will be abolished. A reorganization of the College has been voted; the departments of civil, mechanical and electrical engineering will constitute the College of Engineering and Mechanic Arts; the departments of mining and metallurgy will constitute the Minnesota School of Mines, and the course in chemical engineering will become a course in pure and applied chemistry in the College of Science, Literature and the Arts, for which the degree of B. S. will be given.

A MEETING of the delegates from the institutions named in the report of the Cowper Commission was held on March 25th. Lord Lister, the President of the Royal Society, moved the following resolution: "That this meeting of delegates represents to her majesty's government the great injury caused to the educational interests of the metropolis by the delay in establishing a teaching university for London, and urges upon them the necessity of taking immediate steps for the constitution of a statutory commission for the reconstruction of the University of London on the lines of the recommendations of the Cowper Commission." The motion was seconded by Professor Rücker and carried unanimously. Remarks in support of the resolution were made by Lord Lister, Sir George Young, Sir Henry Roscoe, Rev. Dr. Wace and Lord Reay. The latter said, according to the report in the *London Times*, that it was most disheartening that the delegates should have to meet again. In no other country in Europe would such a company of distinguished men of science and of learning have urged on its government the necessity of founding a teaching university without its at once acceding to their wishes. We in England were being watched from abroad. Foreign nations formed their opinion regarding our advance in civilization by the action of Parliament in reference to the reconstruction of the University of London. The House of Lords had done its duty; last year the bill was passed unanimously. The mischief was done in the other House. The government had appointed a chairman to the proposed commission; its honor and that of the country was engaged in bringing the matter to a successful issue. It was a court of arbitration that was required, a court which would tend as much towards the progress and honor of the country as the recently formed court of arbitration with the United States.

DR. KARL KAISER has been promoted to an associate professorship of physiology in the University of Heidelberg, and Dr. Karl Fütterer to an associate professorship of mineralogy and geology in the Polytechnic Institute at Karlsruhe.