den, Assistant in the Zoological Institute at Tübingen, repels with a keen pen and abundant knowledge an attempt of an anthropologist to shove her sex into the background by an appeal to 'the laws of nature.

ON STONE PENDANTS.

THERE is a class of stone relics polished on the surface and pierced with an orifice. They were evidently intended to be worn around the neck. For this reason they are in Europe classed as amulets, with us as 'gorgets.' In the *Prähistorische Blätter*, No. 3, Professor Mehlis describes and figures several found in the Palatinate. They closely resemble American types, and are about two inches in length.

In an excellent article by Professor Sophus Müller in the Mémoires of the Royal Society of Danish Antiquaries, 1897, the author reviews a number of new types of artefacts from the Stone Age. Among them is a series in amber of perforated objects evidently intended to be worn by suspension. The two most remarkable identified by him as amulets are faithful copies of the stone axe of the period; and Professor Müller considers them 'of particular importance as showing that the axe served as a symbol during the Stone Age."

The same fact has been recently demonstrated of some American stone pendants by Mr. F. H. Cushing, quite independently of Professor Müller's observations.

D. G. BRINTON.
UNIVERSITY OF PENNSYLVANIA.

SCIENTIFIC NOTES AND NEWS.

SCIENTIFIC SOCIETIES AFFILIATED WITH THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

THE scientific societies meeting before or simultaneously with the Association and more or less closely affiliated with it are as follows:

The American Mathematical Society will meet on Friday and Saturday, August 19th and 20th, in room 11, Rogers Building, Massachusetts Institute of Technology. F. N. Cole, Columbia University, Secretary.

The American Forestry Association will meet on Tuesday and Wednesday, August 23d and 24th, in Horticultural Hall, 101 Tremont street, Boston, the official headquarters of this Association. Francis H. Appleton, Boston, Mass., President.

The Geological Society of America will meet on Tuesday, August 23d, at the same time and place with Section E. J. J. Stevenson, New York, N. Y., President; H. L. Fairchild, Rochester, N. Y., Secretary.

The American Chemical Society will hold its seventeenth general meeting on Monday and Tuesday, August 22d and 23d. The first session will convene immediately after the organization of Section C of the A. A. A. S., and in the same room, on Monday morning. On Monday afternoon at 4.30 the Society will give place to Section C, in order that the chemists may all have the opportunity of listening to the Vice-President's address before that body. The whole of Tuesday will be devoted to the American Chemical Society, and the remainder of the week to Section C. Charles E. Munroe, Columbian University, Washington, D. C., President; Albert C. Hale, 551 Putnam avenue, Brooklyn, N. Y., Secretary.

The Society for the Promotion of Agricultural Science will meet in Horticultural Hall, 101 Tremont street, on Friday and Saturday, August 19th and 20th; C. S. Plumb, Lafayette, Ind., Secretary.

The Association of Economic Entomologists will hold its tenth annual meeting in the Natural History Building on August 19th and 20th. Herbert Osborn, Ames, Iowa, President; C. L. Marlatt, Washington, D. C., Secretary.

The Botanical Club of the Association will meet at a time to be announced.

The Society for the Promotion of Engineering Education will hold its fifth meeting in room 22 of the Walker Building of the Massachusetts Institute of Technology, August 18th, 19th and 20th. J. B. Johnson, St. Louis, Mo., President; Albert Kingsbury, Durham, N. H., Secretary.

The American Folk-Lore Society will meet

with Section H on Thursday, August 25th. W. W. Newell, Cambridge, Mass., Secretary.

The American Psychological Association will meet with Section H on Thursday, August 25th. Professor Hugo Münsterberg, Harvard University, President; Dr. Livingston Farrand, Columbia University, Secretary.

The National Geographic Society will meet with Section E in the Natural History Building on Thursday, August 25th.

The Botanical Society of America will meet in 26, Rogers Building, on Friday and Saturday, August 19th and 20th. On Friday, at 8 p. m. Professor John M. Coulter will give the address of the retiring President; on Saturday, at 9:30 a. m. and 2 p. m., there will be sessions for reading papers.

A Conference of Astronomers and Physicists, similar to that at the dedication of the Yerkes Observatory, will be held at the Harvard College Observatory on Thursday, Friday and Saturday, August 18th, 19th and 20th.

THE CORAL-BORING EXPEDITION TO FUNAFUTI.

Natural Science takes from the Sydney *Daily Telegraph* the following information regarding the coral-boring expedition to Funafuti which will this summer resume work at the old bore at a depth of 698 feet. Lining pipes, which were on the former occasion lowered to a depth of 650 feet, will be reinserted and extended to the full depth. Boring can be begun on the unproved rock, which is expected to be similar to that met with during the previous 30 feet of the old bore, namely, a white calcareous rock of about the consistency of hard chalk. Professor David expects that the bed-rock will be reached within a depth of 200–300 feet from the bottom of the old bore. Early in August it is hoped that H.M.S. 'Porpoise' will bring from Samoa apparatus for putting down a bore in the bottom of the Funafuti lagoon. Commander F. C. D. Sturdee intends to moor his ship taut at low tide at a spot in the lagoon, which will be about a mile and a-half westward from the main village. A boring platform will be fixed at the bows, whence pipes will be let down to the bottom of the lagoon, which at the spot selected is about 100 feet deep. As soon as the pipes strike the bottom of the lagoon a powerful stream of water will be forced down by means of a flexible hose connected with a large Worthington steam pump. It is hoped that then, if the bottom of the lagoon consists, as is thought probable, of soft and loose sedimentary material, a fair depth may be attained in the few days available for the use of the warship for the purpose. Work will be carried on at the lagoon day and night. It should be possible from time to time, by shutting off the water jet and lowering a sand pump inside the pipes, to obtain small samples of the formation which is being penetrated. If this bore in the lagoon is successful it will much enhance the value of the main bore put down with the diamond drill. The reason why it is proposed that the bore in the lagoon shall be situated only a mile and a-half from the shore, instead of near the center, is that one of the chief difficulties will be the danger of the ship dragging at her moorings. This would be intensified near the center of the lagoon, where the full force of the squalls, trade winds and strong currents would be experienced. At the spot contemplated, however, the warship should be not only out of the main current, but also somewhat sheltered on the coast by the thick belt of cocoanut palms and other trees with which the main island is densely wooded. After finishing the boring experiment in the lagoon, the 'Porpoise' will proceed to the Gilbert Islands, and on her return, early in September, she will be ready to pick up the diamond drill party and convey them to Suva. Should, however, the main diamond drill bore not have been bottomed up to the date of the return of the warship to Funafuti, arrangements have been made by the London Missionary Society which will admit of their steamer, the 'John Williams,' due at Funafuti in November, carrying the party either to Suva or New Guinea, whence they would return to Sydney.

DIETARY STUDIES.

PROFESSOR W. O. ATWATER and Mr. C. D. Woods have published, through the Department of Agriculture, interesting studies of the diets of families living in a congested portion of New York City, together with studies at a mission and a day nursery in the same region. The abstract of their 117-page paper in

the *Experiment Station Record* states that the families were selected as typical of the so-called poor classes usually encountered by philanthropists and mission workers in the congested districts of large cities.

Tables are given showing the kind and amount of food purchased, wasted and eaten, and its cost, composition and fuel value. The results are briefly summmarized as follows:

possible to supply a more nutritious diet at less cost. In many instances, while the foods chosen were inexpensive, they were of such a character that they contained a small percentage of nutrients. Purchasing in quantity, where possible, would also have diminished the cost. Some of the families studied had a sufficient income to enable them to live comfortably if care had been exercised in its expenditure. The

Results of dietary studies—cost and composition of food eaten per person per day.

	Cost.	Protein.	Fat.	Carbohydrates.	Fuel Value.
	Cents.	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Mechanic's family	31	149	128	526	3,955
Carpenter's family	23	148	144	458	3,825
Jeweler's family	18	99	104	296	2,595
Sailor's family	26	139	143	558	4,170
Watchman's family	13	84	92	292	2,400
Carpet dyer's family	16	71	93	310	2,430
Family of carver in a restaurant	13	85	88	261	2,235
Sailors' boarding house	17	95	125	181	2,295
Truckman's family	22	100	129	325	2,935
Sewing woman's family	9	54	41	219	1,500
Shopkeeper's family	15	80	109	351	2,780
Housekeeper's (widow) family	18	93	104	509	3,435
Laborer's family	23	139	119	345	3,090
Porter's family	28	142	142	444	3,720
Printer's family	22	116	124	364	3,120
Truckman's family	22	136	135	595	4,250
Family of caretaker at a day nursery	23	122	158	394	3,585
Builder's family	41	187	219	723	5,770
Do	42	204	264	714	6,220
Salesman's family	16	79	125	347	2,910
Tin roofer's family	20	99	123	327	2,910
Do	16	84	114	227	2,335
Family at a mission	37	143	205	545	4,725
Children at a day nursery (per child per day)	4	30	20	120	800

From the data available the authors do not feel justified in drawing specific deductions. Some general suggestions for the improvement of the dietaries are, however, made. By the selection of cheaper though equally nutritious articles of food, it would as a rule have been

authors believe that permanent improvement must come through education. The people must be taught to select food wisely, and to cook it and serve it in an acceptable manner.

With these results may be compared the report on the dietaries of nine institutions of

Calculated amount and cost of nutrients consumed per person daily.

	Number of persons fed.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
		Cents.	*Grams.*	*Grams.*	*Grams.*	*Calories.*
South Boston House of Correction	523	9.89	153	78	501	3,406
Deer Island House of Correction	1,754	7.34	122	69	624	3,700
Rainsford Island House of Reformation	125	8.07	103	60	414	2,677
Parental School	125	5.29	70	40	346	2,078
Marcella Street Home	333	8.37	95	55	380	2,459
Long Island Almshouse and Hospital	833	7.73	109	48	554	3,164
Charlestown Almshouse and Hospital	145	7.54	71	72	355	2,415
Austin Farm (inmates and employees)	375	12.94	110	114	449	3,327
Pierce Farm (inmates and employees)	194	18.85	138	180	471	4,171

the City of Boston, compiled by Ellen H. Richards and Sarah E. Wentworth (*Institutions Comm., Boston, Rpt., 1896, pp. 206–219*). On the basis of raw materials furnished and number of persons fed the above data were secured.

SCIENCE AND INDUSTRIAL SUPREMACY.

A RECENT writer in the *Revue des Deux Mondes*, M. Raphaël-Georges Lévy, draws a comparison between the chemical industries of Germany and France which is greatly to the disadvantage of the latter, says the *British Medical Journal*. Thus it is stated that the total annual European production of coal-tar derivatives reaches the value of 125 million francs. This is divided up in the following proportions: Germany, 90 millions; Switzerland, 16 millions; France, 10 millions, and England, 9 millions. A single factory at Ludwigshafen employs more technical chemists than are working at the same branch in the whole of England, while the attempts at organized teaching of technical chemistry here have hitherto been ludicrously inadequate. This is wherein our defect mainly lies. The industrious Teuton fastens upon the discoveries of chemists and physicists, and extracts from them the maximum of practical utility. Thus the secret of the aniline dyes was discovered in England; France took up the investigations; but it was in Germany that particular attention was first paid to their mercantile perfection as regards brilliancy, permanence and cheapness. As a natural result, Germany now almost monopolizes their production. The same is true in respect of electricity; the monetary benefit of the researches of Lord Kelvin and the late Professor Clark Maxwell is mainly reaped by the Allgemeine Elektrische Gesellschaft, and the great firms of Siemens, Loewe and Schuckert, which have a combined capital of over 15 million pounds. Almost the only chemical industry which holds its own in England is the manufacture of alkali, and this owes its success to a distinguished pupil of Bunsen's, Mr. Ludwig Mond. M. Lévy, in the article to which reference has already been made, points out that Bunsen and Liebig were the founders of German chemical industry. It was Liebig who devoted his energy and influence to obtaining state aid for laboratories of technical science. From these laboratories issue annually some 800 doctors of science to undertake the direction of factories or the investigation of new products of commercial value. Their education has been assisted by the state, and the knowledge they have acquired will he devoted to increasing, by the surest of all means, the wealth of the nation.

GENERAL.

THE new observatory at Heidelberg, on the Königsstuhl, was dedicated on May 20th. Addresses were made by Professor Kehrer, Prorector of the University, and by the Directors of the Observatory, Professors Valentiner and Wolf. The Observatory belongs to the State and is not a part of the University, but opportunities are offered to students for study and research.

THE Göttingen Academy of Sciences has received from the Emperor's special fund $25,000 for gravity determinations in East Africa.

THE French Conservatoire Nationale des Arts et Métiers celebrated, on June 26th, the centenary of its foundation.

THE Physical-mathematical Section of the Berlin Academy of Sciences has made the following grants: 2,000 Marks to Professor Engler, of Berlin, for the continuation of his monograph on East African plants; 1,500 Marks to Professor Schultze, of Berlin, for the publication of a work on American Hektinellidæ; 1,000 Marks to Professor Brandt, of Kiel, to enable him to accompany the Prince of Monaco in his investigations in the Atlantic Ocean; 1,000 Marks to Professor Burckhardt, of Basle, for investigations on the comparative anatomy of the brain; 1,000 Marks to Professor Kohen, of Greifswald, for the continuation of his investigations on meteoric iron; 600 Marks to Professor Graebner, of Berlin, for the continuation, of his investigations of the formation of the German heaths; 500 Marks to Dr. Kruger, of Charlottenburg, for investigations on the urine; 500 Marks to Dr. Küster, of Tübingen, for his investigations for the coloring matter of the blood and bile; 500 Marks to Dr. Loesner, of Berlin, for the completion of a monograph on the Aquifoliaceæ; 5,000 Marks to Dr. F. Ristenpart, of Kiel, for preliminary studies for

a 'Thesaurus positionum stellarum fixarum;' 1,000 Marks to Dr. Adolph Sauer, of Heidelberg, for the geological investigation of the Aar region; 1,000 Marks to Dr. Schellwien, of Königsberg, for an investigation of the Paleozoic Eastern Alps.

M. Fouqué, professor of 'the natural history of inorganic bodies' in the Collège de France, has been elected a foreign member of the Vienna Academy of Sciences.

Oxford University has given the honorary degree of D.C.L. to Sir John Kirk, F.R.S., known for his administrative work in Central Africa, and to F. C. Penrose, F.R.S., the archæologist.

A portrait of Robert Brown has been presented to Kew Gardens by the Bentham trustees.

Professor Ferdinand Cohn, the eminent botanist, died suddenly at Breslau, on June 25th, of heart disease. He was born in 1828, and obtained a chair of botany at Breslau University in 1859. He was the author of a well-known work entitled 'Die Pflanze.' He had made important contributions to bacteriology, and he wrote a book on 'The Development of Microscopic Algæ and Fungi.'

The *Akademische Revue* reports the suicide, in Comfort, Texas, of Dr. A. Böcking, formerly privat-docent for zoology at Bonn, and known for his explorations in South America. Dr. Böcking had, however, for many years, given up scientific investigation and appears to have suffered many hardships during his life in the West.

Dr. Gümbel, professor of geology, died at Munich, on June 18th, aged seventy-five years.

We called attention to the program of the first Scientific Congress of South America, which was opened at Buenos Ayres on April 11th. We have not received any account of the proceedings of the Congress, but it appears from a brief notice in the *Lancet* that it was highly successful, being attended by some 600 delegates, representing all the countries of South America.

A conference of peers, members of Parliament and representatives of associations interested was held in one of the committee-rooms of the House of Commons on June 23d, on the initiative of Mr. Bryce and Mr. Boulnois, to consider the desirability of making some permanent arrangement for concerted action upon questions relating to: (*a*) the protection of rural scenes and landscapes and town prospects from such disfigurement or repairment as is not justified by consideratians of public utility; (*b*) the provision and maintenance of commons, open spaces, public parks and gardens; (*c*) the preservation of buildings and places which are of peculiar interest by age, beauty or association, whether historical or literary; (*d*) the conservation of wild animals and plants; and generally for 'asserting the importance, on broad grounds of public policy, of maintaining beauty, simplicity, dignity and interest in the aspect of out-of-doors Britain.'

The Italian government has receded from its action of forbidding foreign physicians to practice in Italy unless they acquire a diploma from an Italian university, to the extent of permitting them to treat their own countrymen.

Attention has been called to the fact that plumes worn in the British army are a cause of the destruction of birds. In answer to Sir J. Lubbock, Mr. Brodrick said recently, in the British House of Commons, that orders have been given that plumes composed otherwise than of so-called 'osprey' feathers shall be prepared with a view to obtaining the sanction of Her Majesty to the abolition of the 'osprey' plumes worn by the commissioned officers in certain regiments. The selection of a satisfactory substitute is difficult, and some delay may occur in effecting the change.

Mr. Edward Stanford, London, has published a relief map, prepared by Mr. James B. Jordan, representing an area of 320 square miles with London as the center; in a horizontal scale of one inch to a mile and a vertical scale of one inch to 1,000 feet. The map is made of a stamped steel plate, and is said to be the first attempt to produce topographical models in this manner.

It is stated in the *Auk* that Mr. and Mrs. Herbert H. Smith, well known as expert natural history collectors, through their labors in Brazil, the West Indies and Mexico, are now in

northern Colombia, with several assistants, working under the joint auspices of the Carnegie Museum of Pittsburg, Pa., and the American Museum of Natural History of New York City. Mr. Smith and his party will give special attention to insects, birds and mammals, and will probably remain for a long time in the field, visiting other portions of northern South America after completing their work in Colombia. Messrs. Outram and E. A. Bangs have also an experienced collector, Mr. W. W. Brown, Jr., in the Santa Marta region of Colombia, from whom they have recently received considerable consignments of birds and mammals, preliminary notices of which have already begun to appear. Mr. George K. Cherrie, known for his work in Costa Rica and San Domingo, has been for some months engaged collecting birds and other specimens for the Hon. Walter Rothschild, in the Orinoco districts of Venezuela, where also the brothers Samuel N. and Edward Klages, of Crafton, Pa., have recently established themselves for natural history exploration, partly under the auspices of the American Museum of Natural History. While they will give their attention primarily to insects, a portion of their time will be devoted to birds and mammals.

THE Report of the Missouri Botanical Garden for 1898 contains two papers by Mr. J. B. S. Norton. In the first of these, entitled 'A Coloring Matter found in some Borraginaceæ,' it is stated that in 1897 a small borage, which proved to be *Plagiobothrys Arizonicus*, was sent to the Garden from New Mexico, with the statement that the sheep feeding on it have their muzzles dyed of an intense red color. On further examination of the plant it proved to be alkannin, a dye produced by a number of borages, several of which are commented on in the paper. The second paper, 'Notes on some Plants Chiefly from the Southern United States,' is an account of an examination of material contained in the herbaria of Joor and Jermy, and a number of smaller collections from the Southwest. Mr. Norton has found species of phanerogams which are believed to be new, which he describes and figures in the article.

THE same Report contains an article by Charles Henry Thompson on 'The Species of Cacti Commonly Cultivated under the Generic Name Anhalonium.' These cacti have of late years come into considerable popularity in the collections of amateurs. Mr. Thompson divides them into two genera, *Ariocarpus* and *Lophophora*, the former including what are commonly known as *A. fissuratum*, *A. sulcatum*, *A. furfuracens* and *A. prismaticum*, while the latter includes what are sometimes treated as two forms or varieties of a single species and sometimes as two species under the names *A. Williamsii* and *A. Lewinii*. A simple key and half-tones prepared from photographs of living specimens render the determination of all of the species quite easy.

COMMENTING on the Annual Report of the Field Columbian Museum in an editorial, *Natural Science* says: "We should like to ask why it is that reports which come to us from American museums are always interesting to read, in strong contrast to the reports which come from most similar establishments in our own country and in Europe. It would seem that the writing of these reports is a labor of love to the Americans, while our own curators only do it as a piece of official routine. The consequence is that, in the present Report, as an example, the curator finds hints, suggestions and actual information of value to himself; whereas the Report of, say, the British Museum, contains little but lists of donations and the numbers of specimens registered during the year, with similar matter of no use to anybody in the wide world.

A REUTER telegram from Tromsö says that Mr. Walter Wellman, the American explorer, left on June 27th on board his ice steamer Frithyof for the North Polar regions. Just before his departure from England Mr. Wellman gave to Reuter's representatives an account of his expedition, in which he said that his aim was to reach the North Pole, and also to explore the still unknown northern parts of Franz Josef Land. The party consists of James H. Gore, Columbian University, a geodesist; Lieutenant Evelyn B. Baldwin, who was on the Greenland ice cap with Lieutenant Peary; Dr. Edward Hofma, naturalist and medical officer;

and Mr. Quirof Harlan, physicist, from the United States Coast and Geodetic Survey. Norwegians experienced in Arctic work make up the remainder of the party of ten. Mr. Wellman proposes to reach the Pole by a sledging expedition over the pack ice. At Archangel 75 sledge dogs, procured in Siberia, will be taken on board. At Cape Flora, on the southern coast of Franz Josef Land, two or three men will be left, while others will search for Andrée before the steamer returns in August. Half-a-dozen of the party, with small canvas boats, sledges and dogs, are to push on at once for the northern parts of the archipelago, passing successively the point reached by Mr. Jackson, the spot where Dr. Nansen and Lieutenant Johansen wintered, and Cape Fligely, lat. 82°, reached by Payer in 1874. Somewhere beyond 82° they intend to build a hut to winter in, shooting polar bear, seal and walrus for food. Next spring they propose to set out on a sledge journey toward the Pole. If the conditions are unfavorable they will wait till the second spring. They will have about 120 days in which to reach the Pole, if possible, and return to the land, requiring an average travel of nine to ten statute miles per day. They take with them a rubber pneumatic boat, which inflates with a pump like a bicycle tire, and also a folding canvas boat, built on Mr. Wellman's designs, also sledges of metal, water-tight, so built that they may turn over and over in rough ice or float in the water without injury to their contents. Each dog is to draw one sledge, practically without assistance or driving by the men.

At a meeting, on April 26th, of the select committee of the British House of Commons, on the Department of Science and Art, Sir J. Norman Lockyer was the principal witness examined. He, as reported in the London *Times*, spoke of the insufficiency of the present collection of scientific objects, having regard to the growing necessity of, and demand for, scientific teaching. The Royal College of Science, he pointed out, only taught pure science. The various applications of science to industry were not represented in their teaching at all, and therefore it was not part of their function to make recommendations with regard to this large area of possible museum representation. He was perfectly aware that there was scarcely any branch of applied science which was not represented, more or less, in the present collection, but what he said was that the schemes of representation were very dissimilar and must necessarily remain so. He desired a considerable extension of the science collection. To him it was unthinkable to separate the schools from the museums. It was a much better education for the student of science to be turned into a laboratory, where he could use the apparatus and see other people use it, than to attend lectures. He had taken very great interest in this matter, and some amount of trouble, because it seemed to him that the truth of what Professor Huxley used to preach was coming home to them more and more every day. That was that they were in front of an industrial war, the result of which would be far more serious to them than a mere national war. In this industrial war it was no longer a question of battleships and cruisers. It was a question of schools. The schools were Germany's battleships; they in England had only cruisers. So far as the British fleet was concerned, it was supposed to be twice as strong as the fleets of any two Powers. That might be so, but educationally they were scarcely on a level with Switzerland. They could not hope to fight this struggle for existence unless they had battleships, by which he meant thoroughly developed scholastic institutions.

UNIVERSITY AND EDUCATIONAL NEWS.

REPORT OF THE COMMISSIONER OF EDUCATION FOR THE YEAR 1896-97.

The first volume of the report of the Commissioner of Education for the year 1896–97 has been published. The Commissioner, Dr. W. T. Harris, in his summary, states that 16,255,093 pupils were enrolled in the schools and colleges, being an increase of 257,896 over the preceding year. This increase was entirely in public institutions, there having been a decrease in the total number attending private schools. The Commissioner attributes this decrease to the continuance of what is called 'hard times,' but it seems rather to be due to the improvement of public institutions. Twenty years ago there