the Bohemian Academy of Sciences, 1898, under the title 'Hethiter und Skythen.'

From a thorough study of sources he shows that the Scythians were an Aryan and especially an Iranian folk. It is clear that a portion of them lived in Cilicia and Cappadocia, where other authorities locate the Hittites; and in Mitanni certainly some Aryan blood must have entered, for the Amarna tablets speak of the Mitanni princess as 'blue-eyed.' Also the Amorites were blonde and blue-eyed. To these facts of a physical character Hommel adds a lengthy investigation into proper names, all tending to illustrate a deep Iranian influence in eastern Anatolia. This does not exclude, but much modifies, the 'Alarodian' hypothesis of Sayce and others. Of course, that the Hittites were Aryan has already been asserted by other writers, but not in the form here presented.

D. G. Brinton.

University of Pennsylvania.

SCIENTIFIC NOTES AND NEWS.

The death of Dr. James Hall, which occurred at Echo Hill, Bethlehem, N. H., on August 7th, at the age of eighty-seven years, will cause universal regret among men of science. Since Dr. Hall's return from the International Geological Congress, last year, his health has been failing somewhat, but he fully intended to attend the approaching fiftieth anniversary meeting of the American Association, of which he was one of the founders. It will be remembered that at the meeting of the Association at Buffalo, two years ago, a special session was devoted to appreciations of Dr. Hall's scientific and official work as Geologist of the State of New York for fifty years. Portraits of Dr. Hall were included in the full report that appeared in Science at the time.

Professor Edwin Ray Lankester, Linacre professor of comparative anatomy at Oxford, has been appointed Director of the Natural History Museum, South Kensington, in succession to Sir William Henry Flower.

Professor Mosso, of Turin, has been elected a correspondent of the Paris Academy of Sciences in the section of medicine and surgery. Twenty-six votes were cast for Professor Mosso and ten for Professor Zambaco, of Constantinople.

Dr. Carl I. Cori, of the German University at Prague, has been elected Director of the Zoological Station at Trieste.

Dr. F. J. V. Skiff, Director of the Field Columbian Museum, Chicago, has been appointed Director of Mining and Mineralogy at the Paris Exposition of 1900.

Lord Peel has been appointed a trustee of the British Museum in the place of the late Mr. Spencer Walpole.

It is proposed to erect a bust of Victor Meyer in the chemical laboratory at Heidelberg, and should sufficient money be collected a scholarship for the advancement of chemistry will be established.

The monument to Charcot will be formally unveiled in the Saltpêtrière in Paris on October 23d.

Professor Park Morrill, Chief of the Forecast Division of the Weather Bureau, died at Washington on August 8th of typhoid fever.

The death is announced of Dr. E. B. Aveling, in London, on August 4th, at the age of 47 years. He had been assistant in physiology at Cambridge and professor of chemistry and physiology at New College, and had written on scientific topics, especially in the direction of the popularization of the doctrine of evolution. He was, however, best known as a lecturer and writer on socialism.

M. Paul Sevret, the mathematician, member of the Paris Academy of Sciences, died in Paris on June 24th, aged seventy years.

We regret further to record the death of Professor W. F. R. Suringar, professor of botany in the University of Leyden and Director of the Botanical Garden and Herbarium.

A Fourth International Congress of Agriculture will meet at Lausanne from the 12th to the 17th of September.

Dr. Henry Bessemer has presented to the

British Astronomical Association the observatory erected by the late Sir Henry Bessemer.

MR. BALFOUR, leader of the British House of Commons, recently made an interesting address on the subject of research on the occasion of the distribution of prizes at the medical school of Guy's Hospital, which led a member of the audience to send an anonymous gift of $6,000 for the endowment of medical research.

M. A. GAUDRY recently stated before the Paris Academy of Sciences that Victor Lemoine had bequeathed his valuable paleontological collection to the Paris Museum of Natural History. His widow has given to the Museum the land at Cernay, near Reims, whence the fossils had been obtained.

THE annual meeting of the Corporation and Board of Trustees of the Marine Biological Laboratory was held at Woods Holl, Mass., on August 9, 1898. The report of the Director showed the Laboratory to be in a flourishing condition and the attendance large. The following is a list of the Board of Trustees and the officers for the ensuing year: *President*, H. F. Osborn; *Director*, C. O. Whitman; *Assistant Director*, J. I. Peck; *Secretary*, H. C. Bumpus; *Treasurer*, D. Blakely Hoar. *Trustees*, to serve four years: E. G. Conklin, Camillus G. Kidder, M. M. Metcalf, William Patten, D. P. Penhallow, W. B. Scott. To serve three years: S. F. Clarke, E. G. Gardiner, J. P. McMurrich, L. L. Nunn, H. F. Osborn, E. B. Wilson. To serve two years: William Libbey, W. T. Sedgwick, W. K. Brooks, William Trelease, W. P. Wilson, R. Ramsay Wright. To serve one year: J. H. Macfarlane, F. P. Hall, Jacques Loeb, T. H. Morgan, W. A. Locy.

THE second report of the select committee of the British House of Commons appointed to inquire into the administration and cost of the museums of the Science and Art Department was finally adopted on July 29th by 7 to 3. Perhaps the most important recommendation is to the effect that with a view to the efficient and economical management of the museums in London, to say nothing of other educational advantages not within the order of reference, the committee deem it of paramount importance that there be an Education Minister of Cabinet rank having a seat in the legislature aided by a Parliamentary Secretary. It is recommended that the Geological Museum in Jermyn-street be not occupied as now, but that the collections there exhibited be removed to the west side of Exhibition-road as a science collection.

THE Manitou and Pike's Peak Railroad has arranged to build an observatory on Pike's Peak, but it does not appear at present to be intended to be used for scientific purposes.

THE dedication of the new biological and dairy building at the New York Agricultural Experiment Station at Geneva will take place on or about September 14th.

THE British government has been asked by the Royal Scottish Aboricultural Society for a grant of $200,000 for the establishment of a State Forest near Edinburgh, which it is intended to cultivate according to the methods of modern forestry as an example to landed proprietors. It would also be used for research in forestry.

PROFESSOR BEHRING has secured a patent on the manufacture of diphtheria antitoxin in the United States. This appears to be an unfortunate exception to the moral code which prevents medical men from making monopolies of the remedies they discover. Still it must be remembered that such a patent permits the preparation of the antitoxin under standard conditions and will not of necessity increase the price. The remarks of the medical journals seem rather extreme, as witness the following from the *Medical Record*: "Professor Behring * * * now thinks he is in position, with loaded syringe, to demand of every defenceless babe its money or its life. We do not believe the courts will legalize any such impudent attempt at brigandage."

THE Congress of the Royal Institute of Public Health, under the presidency of Sir Charles Cameron, M.D., is now being held in Dublin. The *British Medical Journal* states that the local preparations are on an extensive scale. The local committee is large and representative, and the subscriptions so far received are generous enough to make it certain that the entertainments will be exceptionally good. The meet-

ings of the various sections take place in Trinity College; the Health Exhibition is held in the buildings of the Royal University, and a banquet in the Royal College of Surgeons. There are four sections—Preventive Medicine and Vital Statistics, Chemistry and Meteorology, Engineering and Building Construction, and Municipal and Parliamentary. In addition, there is a conference of army medical officers on Enteric Fever in the Army, and by medical officers of health on the Housing of the Poor and the Prevention of Tuberculosis. Among the general subjects discussed in the various sections are: The Treatment of Infectious Diseases in General Hospitals, the Increase of Lunacy in Ireland, the Management of the Sick in Workhouse Hospitals, Pollution of Rivers and Treatment of Sewage, and Designing and Construction of Hospitals.

It is announced that the steamship *Valdivia*, with the German deep-sea expedition will leave Hamburg immediately.

Mr. W. C. Andrews, whose expedition to Christmas Island was reported sometime since, is now returning, having made a careful study of the geology of the island and exhaustive collections of its animals and plants.

Fears are entertained in regard to the steamship *Belgica* which sailed for the Antarctic regions last year.

Professor Salisbury, of the University of Chicago, has taken a party of ten students on a geological expedition to the Yellowstone Park.

The London *Times* reports that the government of the Independent State has just sanctioned an important measure for the advancement of scientific knowledge on the Congo. The despatch last spring of the expedition under Lieutenant Lemaire was a commencement in this direction, but, whereas his explorations will be chiefly in the Tanganyika region, the new measure will apply to the whole of the State. Twenty posts which are to form the centers of observation, and also the bases for the collection of flora, fauna and mineralogical specimens, have been decided upon, and are now being carefully organized under the supervision of the proper officers at Brussels. As soon as the posts are in working order a publication will be issued at Brussels for the purpose of recording the results of these experiments. It will be issued every six weeks, under the title of 'Scientific Annals.'

Mr. Akers-Douglas stated recently in the British House of Commons that the Director of Kew Gardens had informed him in April last that volume 4 of the Flora of Tropical Africa was in an advanced state of preparation, but very little of it appears to be yet in type. Two other volumes, Nos. 7 and 5, are being printed first. The third and last part of volume 7 is nearly ready. There have been certain difficulties as to the printing of volume 5, but the publishers have now declared themselves ready to proceed with it.

We learn from *Literature* that Mr. G. Boulger, professor of botany and geology at the City of London College, in addition to his work for the 'Dictionary of National Biography,' in which the Tradescants have occupied him a good deal of late, has been engaged in seeing through the press a new and rewritten edition of the Rev. C. A. Johns' 'Flowers of the Field.' Professor Boulger is also at work upon a new book, a manual on 'Wood' for Mr. Edward Arnold's 'Practical Science Series,' and, in conjunction with Mr. James Britten, he is publishing in *The Journal of Botany*, for subsequent issue in separate form, a supplement to their 'Biographical Index of British and Irish Botanists.'

Messrs. D. C. Heath & Co. announce a book on 'American Indians' by Professor Frederick Starr, of the University of Chicago.

The following regulations have been announced in regard to workers in the Lancashire Sea-Fisheries Hatchery and Laboratory at Piel, Barrow-in-Furness, Lancashire: (1) Biologists and students desiring to work at the Piel Hatchery should apply to the honorary Director (Professor Herdman), who, if there is room, will allot them work places in the Laboratory in the order of application. (2) In the absence of the Director, the Resident Assistant (Mr. Andrew Scott), will determine which places in the Laboratory workers are to occupy, and to what extent the instruments in the Laboratory (microscopes, microtomes, etc.) and the boats and collecting apparatus may be used by workers.

(3) The aquaria in the tank house are intended for experiments in fish hatching and fish rearing, and it is only by express permission of the Director or the Resident Assistant that that they may be used for private investigations. (4) Laboratory accommodation and lodging in the house are given free of charge to those duly qualified workers or students whose applications have been accepted, and who have been assigned a place in the Laboratory. Meals are provided for those working in the Hatchery at at a fixed charge. (5) The Resident Assistant will be ready to give assistance to workers at the Hatchery, and to provide them with material for their investigations so far as it does not interfere with his routine duties and his 'fisheries' work. (6) All dishes, jars, bottles, tubes and other vessels in the Laboratory may be used freely, but must not be taken away from the Laboratory. If any workers desire to make, preserve and take away collections of marine animals and plants they must provide their own bottles and preservatives for the purpose. (7) The fish and other specimens in the tank room are the property of the institution and must not be used or disturbed by workers in the Laboratory. (8) Each worker in the Laboratory is required to send a short account of his work done at the institution, and of the results he has attained, to the Director before the 1st of December (at latest), in order that it may be entered in the Annual Report to the Sea-Fisheries Committee.

AT the summer meeting of the British Institution of Mechanical Engineers, which commenced at Derby on July 26th, Mr. E. Ristori read a paper on aluminum manufacture, with a description of the rolling mills at Milton, Staffordshire. According to the report in the London *Times*, the writer of the paper stated that at the Belfast meeting in 1896 a paper was read which fully described the method adopted for the preparation of pure alumina (oxide of aluminium) from bauxite. Since that time the British Aluminium Company had enlarged their works at Larne, and great improvements had been introduced into the process of manufacture. The finished product was a very finely divided powder, and in order to ship it to Foyers it had been found advisable to pack the alumina in hermetically-sealed steel drums. The oxide was reduced by the Héroult process and the metal run out of the electrolytic baths into ingot moulds. In this form the aluminium was quite pure enough for certain purposes, and much of it was therefore sold without further treatment; but it was not suitable for the production of tubes, rods, etc. The crude ingots were therefore sent to Milton, where they were refined until the metal attained a purity of 99.6 per cent. With certain limitations imposed by the chemical and physical peculiarities of the material, aluminium could be worked much like the other industrial metals handled at the present day. Aluminium could be forged hot or cold, and, in comparison with other metals, it ranked third in order for malleability and sixth for ductility. Sheets had been hammered as thin as one forty-thousandth of an inch. In turning the edge of the tool soon became blunt, and the cutting speed should be high. In its purest form aluminium was very soft, and not of great service in those arts in which much rigidity and strength were required. One casting alloy having a specific gravity of 2.9 was largely used just now, and its composition was still kept secret. It had been found to produce remarkably clean castings which required very little machining to finish up, and it took a high polish. Another alloy contained nothing but aluminium and a small proportion of copper, but it was not one of the materials generally recommended. The two alloys particularly recommended as among the best yet made were both ternary alloys, and next to the aluminium tungsten was the leading ingredient in each. In one of them copper was present to a small extent, and in the other nickel, and both had given astonishing results as regards strength and elongation. Samples of rolled sheets or rods made of these alloys had shown as much as 20 to 22 tons tensile strength per square inch, with 5 to 10 per cent. elongation in four inches. Aluminium bronzes were undoubtedly superior in strength and they were especially suitable for marine engineering. The writer gave a great many illustrations of the uses of aluminium, and, speaking broadly, he said that the metal or one of its light alloys should, to a large

extent, replace copper, tin and nickel. Its use in shipbuilding was growing rapidly.

THE report has been issued as a Parliamentary paper of a visit of inspection made to French matchworks at Aubervilliers, Pantin and Marseilles during June by Dr. Thomas Oliver, of Newcastle, one of the experts appointed by the Home Secretary to inquire into the matter of lead poisoning in the potteries and also into the dangers incidental to lucifer match making. The following are Dr. Oliver's general impressions and deductions: (1) Until recently the match-makers in certain of the French factories suffered severely from phosphorus poisoning; that at the present time there is apparently a reduction in the severer forms of the illness. (2) That the reduction in the amount of illness is attributable to greater care exercised in the selection of the workpeople; raising the age of their admission into the factory; medical examination on entrance; subsequent close supervision; repeated dental examination; personal cleanliness on the part of the workers; early suspension on the appearance of symptoms of ill-health; improved methods of manufacture. (3) That the French government, aware of the dangers of match-making, is furthering, by all possible means, new methods of manufacture, and, with this object in view, retains in its service chemists and inventors who are continually making experiments. (4) That the government has to some extent already succeeded in manufacturing a match capable of striking anywhere, yet free from white phosphorus, but that until now the manufacture of this match is not an industry.

THE London *Times* gave last year an account of some satisfactory tests carried out on wood which, by a process of American origin, had been rendered incombustible, or, at least, incapable of sustaining and conveying flame. It now states that the first works in Europe for the application of this process, erected by the British Non-Flammable Wood Company near the Middlesex end of Wandsworth-bridge, were recently opened, when a number of visitors witnessed another practical demonstration of the enormous power to resist fire possessed by 'non-flammable' wood in comparison with ordinary timber. The process may be said, roughly, to consist of removing the natural juices of the wood and replacing them with certain substances which not only make it fireproof, but also have antiseptic properties that prevent decay. The operation is effected in retorts or cylinders, the largest of which are 105 feet long by 7 feet in diameter. The wood having been run in on trollies, the air-tight door is closed and the contents subjected to heat and the action of a high vacuum. This treatment is continued till the volatile and fermentable constituents have been withdrawn, the time required to attain this result varying with the character of the wood. The next step is to fill the cylinder with the fire-proofing solution, the exact composition of which is kept secret, and force it into the wood under hydraulic pressure, the amount of which again differs for different woods, but may reach 150 pounds to the square inch or more. When thoroughly impregnated with the salts the timber is taken out of the cylinders, restacked on the trollies, and put into the drying-kiln—a room through which hot air is continually circulated by powerful fans, and which is fitted with apparatus to condense the vapors given off by the wood. Here it remains till it is thoroughly dried—in the case of a load of average thickness about a month. It is then ready for delivery and use. It may be mentioned that the British company claims, as the result of exhaustive experiment, to have improved materially on the original American process by getting rid of certain disadvantages connected with moisture and corrosion.

A SELECT committee of the House of Commons has been appointed to inquire into the working of the telephone service. It appears from testimony given before the committee that, while as a whole Great Britain is in advance of Germany in the use of the telephone, many German cities use the instrument more than cities of the same size in Great Britain. Thus Glasgow, with a population of 656,000, had 7,612 telephone instruments; Cologne, with a population of 292,887, had 4,113 instruments; Liverpool, with a population of 860,000, had 10,935 instruments; and Hamburg, with a population of 573,792, had 13,561 instruments.

to London and Berlin, the population of London within the municipal area was 4,200,000, and there were 25,724 instruments, while in Berlin, with a population of 1,578,794, there were 36,620 instruments.

UNIVERSITY AND EDUCATIONAL NEWS.

THE University of Chicago has established a College for Teachers, which has been endowed by Mrs. Emmons Blaine with $250,000.

PROFESSOR W. LE CONTE STEVENS, of the Rensselaer Polytechnic Institute, has accepted the chair of physics in Washington and Lee University.

DR. CLEVELAND ABBE, JR., has resigned a fellowship in the Teachers College, Columbia University, to accept a chair in Western Maryland College, Westminster, Maryland. Dr. C. C. O'Hara has been elected professor of geology and mineralogy in the South Dakota School of Mines. Mr. Wm. H. Butts and Mr. A. W. Whitney have been appointed instructors in mathematics in the University of Michigan.

DR. ZOGRAF has been elected extraordinary professor of zoology, and Dr. Mrensbier, extraordinary professor of comparative anatomy in the University of Moscow.

DISCUSSION AND CORRESPONDENCE.

OBSERVATIONS ON BLUE JAYS.

TO THE EDITOR OF SCIENCE: The nest of an English sparrow was broken up, and four fledglings, nearly ready to fly, were thrown to the ground. A blue jay seized on one and devoured it. One young sparrow was then placed in the nest of the blue jay—presumably the same—along with its own young, and was tolerated, but not fed, by the parent jays. On the second day, however, I observed the jay once feed, perhaps by mistake, the sparrow. For two days the parent sparrows watched their chance when the old jays were away from the nest and came hastily and fed their sparrow, but not the young jays. On the third day the young sparrow flew away from the jay's nest.

While a single incident can hardly form the basis for generalization, yet, as has been suggested to me, the origin of rites of hospitality may be hinted at here. A blue jay devours a a young sparrow outside its nest, but tolerates and may even adopt the sparrow placed in its nest. Once within the home nest there is a certain hospitality, which biologically means protection to its own young, for the jay might readily acquire a habit of devouring its own young, if the nest-life did not mean protection. We may surmise that the right of hospitality has its biological significance as a home protection act of the greatest service to the species.

The nest was studied through a telescope placed in a window, and as the eye was brougbt within a few inches of the nest without disturbing the birds, a little foliage having been removed, a very close study was possible. The male often turned food over to the female to be given to the young. With one beakful several young were fed, the beak being thrust far down the throat and a portion of the food pinched off, and then another portion pinched off in another's throat. The *excreta* were constantly removed, in one case the parent taking *excreta* directly issuing from the young. The parent sometimes took *excreta* far into the mouth and held it for some minutes. The jay often stands on the nest half brooding, and in full brooding it slips its feet to the bottom of the nest with exceeding deftness. A common warning cry is sharp metallic mouí, mouí, in energetically producing which the jay sways his body up and down, vibrating its perch. In excitement it pecks aimlessly at its perch.

The telescopic method might well be used in getting complete studies of nest life. From a house window, or from a platform in a tree, a continuous study of nesting could be made and experiments tried for instinct and intelligence. Certainly for psychological study the method is invaluable, since it gives the close unhampered observation of expression which is the only key to the mind of the bird. A binocular magnifying about fifty times would be generally convenient, though higher and lower powers would often be useful. Leaves, etc., which screen the nest at the point desired, should be removed at night. A powerful glass might reveal the home life of eagles, vultures and beasts of prey. As