much more stable than the ferrous, for it does not give off the gas on heating nor in a vacuum.

The experiments of Weinland and Lauenstein have shown that in the alkali iodates an atom of oxygen can be replaced by two atoms of fluorin. Further researches on these fluorin salts have been carried out by Weinland and Alfa and are described in the *Zeitschrift für anorganische Chemie*. Quite a series of fluophosphates, fluo-sulfates, fluo-selenates, fluotellurates and fluo-dithionates have been formed. In all of these the fluorin does not directly replace the oxygen, but the P=O, S=O, etc., groups appear to be converted into $P<^{OH}_{F}$, $S<^{OH}_{F}$, etc. Most of these compounds crystallize well and their crystallographic characteristics are described by H. Zirngiebl.

In the *Zeitschrift für angewandte Chemie* the subject of a substitute for gasoline and benzine for many technical purposes is discussed by A. Ganswindt. The great danger from fire and explosion, ignition being caused even by the electric spark, is well known. The use of various chlorinated hydrocarbons is suggested, as carbon tetra-chlorid, which is, indeed, already used to some extent in this country. It is also possible that some of the chlorination products of acetylene may prove of real value along this line.

J. L. H.

RETURN OF THE WELLMANN EXPEDITION.

Reuter's Agency announces that the steamship *Capella* arrived at Tromsö on August 18th from Franz Josef Land. The vessel brought with her Mr. Wellmann's expedition, with which she fell in at Cape Tegetheff. It is reported that the expedition reached the 82d parallel of north latitude. The party bring with them the following remarkable story: In the autumn of 1898 an outpost called Fort McKinley was established in latitude 81, and a house was built of rocks and roofed over with walrus hides. During the voyage of the *Fram* two Norwegians named Paul Bjoervig and Bernt Bentzen remained there. The main party wintered in a canvas-covered hut at Cape Tegethoff, in latitude 80. In the middle of February, before the rise of the sun and in the depth of winter, Mr. Wellmann, with three Norwegians and 45 dogs, started north, this being the earliest sledge journey on record in such a high altitude. On reaching Fort McKinley they found the two men who had been with Nansen. Bentzen had died, and Bjoervig, in accordance with a promise he had made, kept his companion's body in the house, sleeping beside it through two months of Arctic darkness.

Pushing northward through rough ice, with severe storms and, for ten days, a continuous temperature of 40 to 50 degrees below zero, the party discovered men in lands north of the Freeden Islands, where Nansen landed in 1895. In the middle of March, when all hands were confident of reaching latitude 87 or 88, if not the pole itself, Mr. Wellmann, while leading the party, fell into a snow-covered crevasse, seriously injuring his leg, and the party, was therefore, compelled to retreat. Two days later they were roused at midnight by an earthquake, and in a few moments many dogs were crushed and sledges destroyed. The men narrowly escaped with their lives, saving their precious sleeping bags and some dogs and provisions. Mr. Wellmann's condition became alarming on account of inflammation, but his companions dragged him on a sledge, making forced marches for nearly 200 miles to the headquarters of the expedition, where they arrived early in April. Mr. Wellmann was still unable to walk, and he is probably permanently crippled. In subsequent sledge journeys the expedition explored unknown regions, and important scientific work was done by Dr. Hofna, Lieutenant Baldwin, and Mr. Hanlan. The expedition killed 103 walruses and eight bears. No trace of the Andrée expedition was found. The *Capella* picked up the expedition on July 27th and sailed homeward on August 10th. On the 6th inst. the *Stella Polare*, with the party of explorers headed by the Duke of the Abruzzi on board, was sighted in Broejenz Sound, 80° 20′ north latitude. All were well on board.

SCIENTIFIC NOTES AND NEWS.

We are able to publish as a frontispiece to this issue a portrait of Dr. Edward Orton, President of the American Association for the Advancement of Science, through the courtesy of

Messrs. Munn & Co., publishers of the *Scientific American.*

AS is stated elsewhere in this number, Mr. Emerson McMillin, of New York, has generously given $1,000 to the research fund of the American Association. This is especially welcome, as it is now many years since Mrs. Esther Herrman, the only surviving patron, made a similar gift. Mr. McMillin originally sent President Orton $500 to be used by the local committee if needed, and if not to be turned over to the Association. Though in view of their liberal arrangements and entertainments, the expenses of the local committee must have been large, they preferred to pass on the fund to the Association. When Mr. McMillin, who as a member of the Association was present at Columbus, learned that an increase in the research fund was greatly needed he doubled his original gift.

THE British and French Associations for the Advancement of Science will not only interchange visits at the approaching Dover and Boulogne meetings, but there has also been arranged a five days' excursion of members of the British Association through France.

THE British Parliament has sanctioned a grant of £12,000 for a National Physical Laboratory, with an annual appropriation of £4,000, and Mr. R. T. Glazebrook, now Principal of University College, Liverpool, has been appointed director. The establishment of the laboratory is due to action on the part of the British Association.

WE understand that the Boston Public Library will undertake the publication of a card catalogue of physiology, the cards to contain not only the ordinary bibliographical information, but also brief abstracts of the papers. The plan originated in the physiological department of the Harvard Medical School, and Professor W. T. Porter will be responsible for securing or preparing the abstracts.

A NEW regulation on Russian weights and measures was published on August 18th. The current standards are defined in terms of the metric system. The metric system is to be optional, and may be used on a par with the Russian in commerce, in dealing with contracts, accounts, etc., and after mutual agreement by State and municipal authorities. Private persons are, however, to be under no compulsion to use the metric system when dealing with the above-named authorities.

AN International Congress of Physics will be held in connection with the Paris Exposition from the 6th to the 12th of August, 1900. No International Congress of General Physics has yet been held, the present Congress being due to the initiative of the French Society of Physics. The Committee of Organization, of which M. Cornu is President, suggests the following program: (1) reports and discussions on a limited number of subjects arranged in advance, such as 'The definition of units,' 'The bibliography of physics' and 'National laboratories'; (2) visits to the Exposition, laboratories and workshops, and (3) conferences on recent advances. The secretaries of the committee on organization will be glad to receive suggestions in regard to the work of the Congress and will send future programs to those interested. The Secretaries are Ch. Ed. Guillaume, au Pavilon de Breteuil, Sèvres (Seine-et-Oise) and Lucien Poincaré, 105 bis, boulevard Raspail, Paris.

IT is expected that the new lecture hall of the American Musuem of Natural History, with a seating capacity of 1,700, will be ready about November 1st. The exterior of the new east and west wings is also practically completed, but progress on the interior is stopped by complications in city politics through which the payment of appropriations is delayed.

AMBASSADOR WHITE, now at Berlin, General A. W. Greely, Chief of the Signal Service, and Professor Willis L. Moore, Chief of the Weather Bureau, have been appointed delegates from the United States to the International Geographical Congress, meeting in Berlin from September 28th to October 4th.

THE council of the Royal Botanic Society have appointed Mr. James Louis North Curator of the Society's Museum at Regent's Park.

SIGNOR MARCONI, it is said in the daily papers, will visit the United States next month with a view to introducing his methods of wireless telegraphy.

THE Upper Italian Council of Health has awarded a fund to Professor Grassi to aid him in continuing his investigations on malaria.

IN the last report of the Potsdam astrophysical observatory it is stated that the position of assistant, vacant by the removal of Miss Alice Everett to Vassar College, has been filled by the appointment of Dr. Ludendorf, of the Hamburg observatory. Dr. Eberhard has also been appointed an assistant in the place of Dr. Clemens, who has removed to the Bamberg observatory. Professors Wilsig and Scheiner have been promoted to be observers.

DR. L. A. BAUER will leave Washington for Europe early in September, on business for the Coast and Geodetic Survey, and is to be away about three months. He will inspect various magnetic observatories, and compare the Coast and Geodetic Survey instruments with observatory standards. He will also attend the Seventh International Geographical Congress, to be held in Berlin, as delegate from the National Geographic Society of Washington.

MESSRS. J. A. FLEMING and H. W. Vehrenkamp, who graduated this year at the University of Cincinnati, having successfully passed the civil service examination for Aid in the Coast and Geodetic Survey, have been assigned to the Division of Terrestrial Magnetism.

THE death is announced of Alph. de Marbaix, professor of zoology and anatomy in the Agricultural Institute at Loewen.

WE regret also to record the death of Dr. N. Grote, professor of psychology and philosophy at the University of Moscow and editor of the only Russian journal devoted to these subjects.

DR. J. B. HATCHER, of the department of zoology and paleontology of Princeton University, has returned from his expedition to Patagonia. We hope to be able to publish shortly an account of the important scientific work accomplished.

THROUGH a chance meeting with a fishing boat a letter has been received from the steamship *Diana* dated July 24th and stating that all were well and that they were expecting to reach Disco and meet Lieutenant Peary on July 30th.

MR. S. E. CASSINO, Boston, announces that he will publish during the present year a new edition of the *Naturalists' Directory*.

THE Iron and Steel Institute of Great Britain met at Manchester, beginning on August 16th, Sir William Roberts-Austen occupying the chair.

THE American Pharmaceutical Association will meet on September 4th, and the following days at Put-in Bay, Ohio.

THE fifth meeting of the French Congress of Medicine opened at Lille on July 28th under the presidency of Professor Grasset, of Montpellier, who delivered an address on medical progress in France in the nineteenth century.

THE 12th International Congress of Orientalists will be held this year from October 3d to October 15th, at Rome, under the patronage of the King of Italy. The meetings of the Congress will be held in the buildings of the University of Rome, but the inaugural and closing ceremonies will take place in the Capitol. Members, who may secure tickets from the Treasurer of the University of Rome, can obtain a reduction of fifty per cent. while traveling through France and Italy.

AS we have already stated, an International Commercial congress will be held in connection with the Philadelphia Commercial Exposition. It will open on about October 10th, and will include delegates from at least thirty-one foreign governments and 126 foreign chambers of commerce and similar bodies. Many of the topics proposed for discussion are of direct or indirect interest to men of science.

THE plague has been so long prevalent in India that it has ceased to attract a considerable share of public attention. The occurrence of cases in Mauritius and Oporto and the suspicion of their presence in Naples and in other cities should, however, not be disregarded. The death of Dr. Müller at Vienna shows that the disease may be highly contagious in spite of the most careful scientific precautions. An epidemic, such as the 'black death' of earlier centuries may be very improbable, but it cannot be regarded as entirely impossible.

A REUTER'S telegram announces that the expedition of the Liverpool School of Tropical Diseases, under the direction of Major Ronald Ross, I. M. S., has arrived safely at Freetown, Sierra Leone, all well. Major Nathan, the Acting Governor of the Colony, has written to

Mr. Alfred L. Jones, the Chairman of the School, stating that he will do all he can to assist the expedition, and expressing the hope that one result will be the establishment of a bacteriological laboratory in the colony.

THE American word 'scientist' proposed by the late Dr. B. A. Gould is apparently becoming acclimatized in Great Britain. Though *Nature* has stated that the word is excluded from its columns it has occurred in the editorial notes. It will also be found in the *Academy* and in the London *Times*. The latter in the issue of August 15th even uses the word retroactively speaking of 'the great German scientists of the past.' But the best testimony that the word must now be regarded as correct and classical English is the fact that it is to be found in Mr. Thomas Hardy's 'Two on a Tower.'

THE issue of *Nature* for August 10th says: "We have received the number for July 21st of our American contemporary SCIENCE, which contains an elaborate article by Professor Underwood, headed 'The Royal Botanic Gardens at Kew,' in which the features of the garden and its position as a scientific institution—'its beautiful lawns, its delightful shade, its historic associations, its immense collections of plants, and its wonderful activity in the direction of botanical research'—are described and discussed with critical appreciation *apropos* the recent establishment of the Botanic Garden of New York and its capability to become 'even more influential in democratic America than Kew has become throughout the length and breadth of the Queen's dominions.' It is gratifying to have this acknowledgment of the work of Kew; and the tribute paid to the versatility and ability of Sir William Thiselton-Dyer in promoting its devolopment and widening its influence will be everywhere endorsed. There are some blots on the escutcheon in the eyes of Professor Underwood, but we imagine there are many who will not see with him in all the instances he mentions. The crowding of the museum collections he notes is an apparent blemish, and one we may hope to see removed by the provision of increased room for the exhibition of the specimens. A somewhat jealous comparison of Kew and Berlin as centers of botanical work is a jarring note in the article; and Professor Underwood allows, we fear, German bias to weigh with him in making it, for instance, when he writes, 'the principles of plant distribution are not so thoroughly grasped at Kew as they have been brought out at the German Botanical Garden through the skill of Professor Engler and his associates.' Yet Kew is the home of Sir Joseph Hooker!"

WE learn from the London *Times* that the last issue of the Proceedings of the Asiatic Society of Bengal contains a paper by Mr. Oldham, the Superintendent of the Geological Survey of India, on the present system in that country by which every place keeps its own time. Mr. Oldham describes this as a barbarous arrangement, unworthy of a country pretending to civilization. A traveler going from one town to keep an appointment in another must find out how many minutes there is between the times of the two. To some extent a standard time is used, for the railways adopt Madras mean time all over India, and the telegraph department does the same, but the Official Telegraph Guide contains a table of 44 pages giving the difference between local and standard times. The adoption of a single standard time for India would cause inconvenience because of the extent of the empire from east to west; in some places the difference would exceed an hour. This difficulty, Mr. Oldham suggests, would be met by adopting the system in use in Europe and North America of hour zones, by which the region is divided into belts running north and south, each 15° of longitude in width. Over each belt the same time is used, while in belts to the east and west a change of an hour forwards or backwards is made. In India the lines could follow the boundaries of the chief administrative divisions, as is done in the United States, Canada and Russia. After discussing various suggested standards of time, Mr. Oldham recommends the adoption of the hour-zone system, using Greenwich as the starting point. This would give only two different times in India, an eastern time, exactly six hours later than Greenwich time, in use in Bengal, Assam and Burma, and a Western time, exactly five hours later than Greenwich, in use in the rest of India.

The traveller in either group of presidencies or provinces would find the same time in use everywhere, and when he crossed the boundary he would know that the time was an even hour earlier or later according as he was travelling westward or eastward. In practice, in Calcutta all watches would have to be put back six minutes, but, on the other hand, the railway clocks and those in the rest of the town would not show different times. "I have myself," says Mr. Oldham, "recently had to deal with a mass of time records referring to the earthquake of 1897, and found that a large number had to be rejected because it was impossible to ascertain what standard of time had been used, while in many others it was only after a large mass of calculations had been gone through that the relation of observations from different places to each other could be determined." The steps necessary to initiate the changes are stated to be very simple. The first would be to discontinue the 44 pages of variations in the Telegraph Guide, and when local time was no longer obtainable at the telegraph offices standard time would soon come into general use. In the local observatories in the presidency towns the time signals should be converted into Greenwich time; and in all public offices standard time should be used. "If this were done, the experience of other countries has shown that the general public would soon come to adopt the standard time, and having once appreciated its advantages would soon wonder how they had so long endured the old system."

UNIVERSITY AND EDUCATIONAL NEWS.

It is reported that plans are being made for the establishment of a university at Ottawa.

McGill University proposes to erect at the cost of $70,000 a building for its departments of hygiene, pharmacology and medical jurisprudence. In the medical department of this university Dr. T. J. W. Burgess has been appointed professor of mental diseases.

The will of the late Dr. C. J. Stillé, formerly Provost of the University of Pennsylvania, leaves the income of his property to his wife, but on her death the property will be divided equally among Yale University, the Historical Society of Pennsylvania and a Philadelphia Church. The estate is valued at $150,000. The money given to Yale is to be used for undergraduate instruction in history and political science.

Glasgow University has received £10,000 by the will of the late James Brown Thomson, who has bequeathed £80,000 to the educational and benevolent institutions of Glasgow.

In the July intermediate examination of the University of London, for the first time in its history, the number of candidates in science was greater than in arts. It is said that this change in the relative numbers of candidates in the two faculties is attributed to the fact that the demand for science teachers in colleges and schools is now greater than the demand for teachers of classics and mathematics, and that the remuneration of the former is better than that of the latter.

An International Congress of Higher Education will be held at Paris from the 30th of July to the 4th of August, 1900. The committee of organization has decided that the following topics shall be discussed in the general sessions: (1) University extension; (2) measures for the benefit of students; (3) the education of teachers; (4) the place of the university in agricultural, industrial and commercial education; (5) the international relations of universities and their professors; (6) relations between the faculties of laws and of arts. Special sections will be formed for the discussion of: (1) Law, (2) political and social sciences; (3) geography; (4) history and philology; (5) philosophy and related sciences. Tickets of membership cost only 10 francs and may be obtained from M. Larnande at the Sorbonne, Paris.

The Russian authorities seem bent on spreading disaffection among the people. For quite trivial offences the students at the universities and technical schools were imprisoned, and after they had become thoroughly disaffected were dispersed to their homes throughout the country. Now it is announced that students will be punished by compulsory service in the army for from one to three years, which will naturally spread in the most dangerous quarters any revolutionary views they may have formed.