On the whole this erruption of 4π's is not a very serious matter, and it is not likely that an international congress will soon take steps to rid us of it.

On the other hand there are some points of advantage in our present definitions of *magnet pole* and *electric charge*. It is all very well to talk of defining electric current, as the curl of magnetic force and of magnetic current as the curl of electric force, indeed it is very simple to think in this way when one has once abstracted his knowledge of electrical things sufficiently to make the images of these things meet—but how about the beginner?

Such things as force, temperature and electric current are measured by their effects. For example force may be measured by its distorting effects on elastic bodies or by its effect in changing the state of motion of a body. One of the most evident effects of a magnet pole is its attraction for other poles and the present writer knows of no simpler way to establish a quantitative basis for the discussion of magnetism than to agree at once to measure a magnetic pole in terms of its attraction for a unit pole, the unit pole being that pole which repels an equal pole at unit distance with unit force. Then the force of attraction of any two poles is $F = \frac{m'm''}{d^2}$. Now it leads eventually to simpler equations to so define the unit pole that $F = \frac{m'm''}{4\pi d^2}$ but the present writer, for one, would have some hesitation in presenting the matter to a class in this initially more complicated way with no other excuse than that a certain remote advantage will come of it. Perhaps the present writer, who finds his greatest trials in teaching, is unreasonably timid.

The most valid objection, however, to the present recasting of our systems of electrical units—for we are at present burdened with two systems, not including the entirely useless practical system—is that we have no assurance that a new system would stand. For, in the first place, a new electrical relation must be discovered before we can settle upon *one* system of units; and in the second place we do not know even whether electric current and curl of magnetic field are identical or merely proportional, as has been pointed out by J. J. Thomson.

W. S. F.

SCIENTIFIC NOTES AND NEWS.

On the occasion of the bi-centenary celebration of the Academy of Sciences at Berlin, Lord Kelvin and Professor Max Müller were elected foreign members. Professor Willard Gibbs, Professor H. A. Rowland, and Professor William James were among those elected Corresponding Members.

The marble statue of Huxley, which the Memorial Committee has given to the Natural History Museum at South Kensington, will be unveiled on April 28th. It is expected that Sir Joseph Hooker will make an address on Huxley, and that the statue will be received by the Prince of Wales on behalf of the trustees of the British Museum.

President Gilbert of the American Association for the Advancement of Science has authorized a meeting of the Council at the Assembly Hall of the Cosmos Club, Washington, D. C., at 4:30 p. m., on Thursday, April 19th.

Dr. Wm. Luther has been appointed director of the observatory at Düsseldorf, in succession to his father, Dr. Robert Luther, whose death we were recently compelled to record.

Professor S. W. Johnson has resigned the directorship of the Connecticut Agricultural Experiment Station after service of over twenty-two years, and is succeeded by Professor E. H. Jenkins, the vice-director.

Professor Silas W. Holman, emeritus professor of physics at the Massachusetts Institute of Technology, died on April 2d.

Professor St. George Mivart, the well-known writer on scientific subjects, died in London on April 1st, at the age of seventy-three years.

There died recently Major Fred. Mather, one of the most prominent of American fish-culturists. He was the author of many notable contributions to the Reports of the Fisheries of State and Government, long time an assistant of the U. S. Fish Commission, indeed

one of its originators. He was the inventor of several valuable forms of fish-hatching apparatus, especially for the treatment of adhesive eggs, and of the well-known 'refrigerating box' by which he solved successfully the problem of transporting fish-spawn across the ocean. He was several times employed on foreign missions connected with the fisheries. Under the N. Y. State Fish Commission he established the station at Cold Spring Harbor, and directed its operations for nearly fifteen years. He will also be remembered in themes of fish and fishing as a popular writer of rare talent. Born near Albany, N. Y., in 1833, he died at Cedar Island, on the Brule river, Wisconsin, on February 14th.

DR. EMANUEL LIAIS, the astronomer, has died at Cherbourg at the age of seventy-four years.

THE death is announced of Professor John Henry Pepper, an analytic chemist and public analyst in Brisbane, Queensland, at the age of 79 years.

PROFESSOR G. E. MORROW died, on March 27th, at the age of 60 years. He was for about 20 years professor of agriculture in the University of Illinois.

DR. ZUKAL, associate professor of botany in the Agricultural Institute at Vienna, died on the 15th of February, aged 55 years.

BY the generosity of Mr. William H. Crocker, of San Francisco, the Lick Observatory will be able, as we announced last week, to send a party to Georgia, to observe the total solar eclipse of May 28th. Only two observers, Messrs. W. W. Campbell and C. D. Perrine, will be sent out from the observatory; but several European astronomers have expressed a desire to join the party, and similar requests have also been received from astronomers connected with American colleges, which do not intend to send out expeditions of their own. The instrumental equipment of the expedition will be quite complete. The principal instrument for photographing the corona will be the 5-inch telescope of 40 feet focal length, used by the Lick Observatory parties in South America and India. For photographing the corona on a smaller scale there will be several cameras of from five to six inches aperture, and others of smaller size. One slit spectrograph, and two objective spectrographs arranged to give a continuous record of the changing spectrum at the beginning and end of totality, are also included in the equipment. Observations of contacts will be made. Any observers, having experience in astronomical or physical work, who wish to join the party at their own expense, like the gentlemen referred to above, are invited to communicate with the Director of the Lick Observatory before April 20th, and after that date with Professor W. W. Campbell, Lick Observatory Eclipse Expedition, Atlanta, Georgia.

SINCE September, the collections at the Gray herbarium of Harvard University have been increased to the extent of several thousand specimens from various parts of the world. Among the acquisitions is a collection of Central American plants, 875 in number, presented by Captain J. Donnell Smith, of Baltimore. Another, consisting of some 900 specimens, has come from Puerto Rico. The United States Department of Agriculture has sent 621 specimens of American grasses, the botanic garden of the University of Vienna, 877 Austrian plants, and the New York botanical garden, 561 plants from Idaho and Montana. In addition, 852 specimens from the Galapagos Islands have been received for the purpose of critical study. The staff is giving considerable attention to the continuation of the Synoptical Flora of North America, begun by Dr. Gray, and now being edited by Professor Benjamin L. Robinson. The usual amount of research work is in progress. Among those engaged in it are Professor Piper of the Washington Agricultural College and Professor Henderson of the Idaho Agricultural College, who are studying the type specimens of Western plants in the herbarium.

A CIVIL service examination will be held on April 17th to 18th to fill two vacancies in the position of cartographic draftsman in the Hydrographic Office, Navy Department.

A NEW York State Civil Service examination will be held on or about April 18th for the position of electrical engineer, with a salary of $900 and maintenance; and for the position of

physician in the State Hospitals and Institutions, with a salary of $600–$900 and maintenance.

WE learn from the *Annals of the Deaf* that at the public session of the French Academy held November 24, 1890, Mr. Ferdinand Brunetière announced that the Montyon prize of $400 had been awarded for that year to Mrs. Marie Germaine, in religion Sister Sainte-Marguerite of the Daughters of Wisdom, for the successful education of two deaf-blind girls, Marthe Obrecht, who lost sight and hearing at the age of four, and Marie Heurtin, who was deaf-blind from birth. Both these girls had been taught to read, write, speak, and work.

THE Council of the Royal College of Surgeons of England has appointed a Committee to adjudicate on the Walker Prize. This prize, which is open to investigators of all nationalities, is given for the best work in advancing the knowledge and therapeutics of cancer during the past five years ending December 31, 1900, and amounts to the sum of £100.

MR. GEORGE EASTMAN, of Rochester, N. Y., has given $200,000 to the Mechanics Institute of that city. The money will be used to enlarge the present building.

THE Baroness von Hirsch-Gerenth, who died recently, has bequeathed 50,000 francs for the establishment of a physiological and pathological laboratory on the Congo. Leopoldsville, the terminus of the Congo railway, has been chosen as the place where the laboratory is to be established.

IT is proposed to introduce a bill into Congress appropriating $250,000 for the establishment at Paris, of an American Institute for the study of the fine arts. The plan has been presented to President McKinley by Ambassador Chambon and Senator Depew, and is said to have the approval of the Secretary of State. If the Government were to support institutes for applied science in foreign countries they would doubtless more than repay their cost.

THE late Governor J. G. Smith has left $10,000 for a library at St. Albans, Vt.

THE second malarial expedition, promoted by the Liverpool School of Tropical Medicine, left Liverpool on March 21st in the steamship *Olenda* for Old Calabar and South Nigeria. The object of the expedition is to study the cause, spread and the treatment of malaria and tropical diseases generally. The expedition consists of Dr. H. E. Annett Elliott (Toronto) and Dr. J. E. Dutton. Investigations and experiments will be made in accordance with the mosquito theory of Major Ross. In encouragement of the expedition the Colonial Secretary wrote expressing his appreciation of its objects, and said that he would do all in his power to secure the assistance of government officials in the West African settlements.

A CABLEGRAM has been received from Wellington, New Zealand, stating that the *Southern Cross* reached that city on April 1st. The Expedition, fitted out by Sir George Newnes and headed by Mr. C. E. Borchgrevink, sailed from London in August, 1898, and left Hobart, Tasmania, December 19, 1898. During the latter part of February the members landed from the *Southern Cross*, near Cape Adare, Victoria Land, on the Antarctic Continent. Mr. Borchgrevinck reports that he has found the position of the southern Magnetic Pole. Mr. N. Hansen, one of the zoologists of the expedition, died on the voyage.

THE London *Times* gives some further details in regard to the Scottish-Antarctic expedition about to be organized to work in conjunction with the British and German Antarctic expeditions. It fills up a gap in the Antarctic regions, which neither the British expedition at present being organized by the Royal and Royal Geographical Societies of London nor the German national Antarctic expedition intends to explore. The Weddell sea quadrant, south of the Atlantic Ocean, will be the sphere of the Scottish expedition, while the British expedition will explore to the south of the Pacific Ocean and the Germans to the south of the Indian Ocean. This Weddell sea route, it may be mentioned, has been taken before by Weddell, Bellingshausen, and Ross in sailing ships, but has not yet been tried seriously with a steamer. The leader will be Mr. William S. Bruce, who visited the Antarctic regions in 1892 and 1893, and who has since made five

voyages to the Arctic regions. It is intended that the expedition should return in 1903, but if funds hold out, a year later.

THE annual Field Meeting or long distance excursion of the National Geographic Society has been arranged so that the members of the Society may have an opportunity to observe the total eclipse of the sun, which takes place on Monday, May 28th. As the center of the belt of totality will pass near Norfolk, Virginia, the board of managers of the Society have made a conditional contract with the Norfolk and Washington Steamboat Company for an excursion to that city and vicinity. The party will leave Washington by the Norfolk and Washington steamer at 7 o'clock, p. m., Sunday, May 27th. Returning, leave Norfolk at 6 o'clock Monday afternoon, reaching Washington on Tuesday morning in time for breakfast at home. The total duration of the eclipse will be 2 hours, 34 minutes and 6 seconds, of which 1 minute and 26 seconds will be total. The eclipse will be entirely over at 10:15.6 a. m., and from that hour until 6 o'clock the steamer will be at the disposal of the party for a cruise around the harbor and visits to the many points of interest around Norfolk, such as the Navy Yard, Portsmouth, Newport News, Fortress Monroe, the Indian Industrial School at Hampton, etc.

THE first volume of the scientific results of the Norwegian Polar Expedition, edited by Dr. Fridjof Nansen, is about to be issued by Messrs. Longmans, Green & Co. In addition to an account of the *Fram* by Mr. Collin Archer, the builder, the volume contains memoirs on the geology of Cape Flora in Franz Josef Land, by Dr. Pompeckj and Dr. Nansen; the fossil plants from Franz Josef Land, by Dr. A. G. Nathorst; the birds collected during the expedition, by Mr. Collett and Dr. Nansen; and the crustacea, by Professor G. O. Sars. It is expected that five or six volumes in all will be published.

THE Croonian Lecture before the Royal Society will be delivered on March 22d by Professor Paul Ehrlich. The subject of the lecture will be Immunity, with special reference to cell life.

THE Institution of Civil Engineers, London held its annual dinner on March 21st. Sir William Preece presided, and speeches were made by Lord Ashbourne, Lieutenant General Geary, Lord Welby and Lord Balfour of Burleigh. Sir William Preece stated that arrangements had been made to entertain American visitors at the Guildhall on July 5th.

The Annual Report of the Director of the Field Columbian Museum for the year 1898–99 shows a steady increase of the material in its various departments, most noticeable perhaps, in the way of fossil vertebrates, some fine specimens of the large Dinosaurs having been obtained in Wyoming. Good progress has been made in the Department of Anthropology, while the herbarium is now considered the best in the Central United States. While there has been a slight falling off in the total attendance, yet many more school children have visited the museum than ever before, and the courses of lectures have been deservedly popular. The report is illustrated by a number of plates showing some of Mr. Akeley's fine mammal groups and some of the anthropological exhibits, as well as a view of a remarkably fine skull of *Titanotherium*, considered as *T. ingens*.

The following letter has been addressed to Sir Michael Foster on the occasion of his entering Parliament by a number of his former pupils at Cambridge.

We, a few of your Cambridge friends, take the opportunity given by your entering Parliament to express our loyalty, respect, and cordial friendship towards you. Though we regret anything which takes you from among us, yet we cannot but rejoice that the cause of learning has gained so strong an advocate in Parliament. The work you have done in Cambridge during the last 30 years seems to us of unique value. You have taught us to recognize what is worth learning, and you have taught us how to learn. If we in Cambridge now value and seek after the advancement of natural knowledge, we owe it to you more than to any man living. We beg you to believe that we are grateful, and we shall rejoice if we can in any way prove our sincerity. We can ill afford to lose either the weight of your name or your guidance at our councils; we can, indeed, hardly imagine a greater misfortune than the breaking of the bond between you and us. But we cannnot complain if, after many years of service, you have found it necessary to loosen

your official ties to the University. We regret that your enlarged liberty has not come to you in a form which would have marked our sense of what we owe to you. But we rejoice that an arrangement has been arrived at which will allow your interests still to centre in Cambridge, giving you, at the same time, the opportunity of working in a wider field, where you may do for England what you have already done for Cambridge, and where your services to learning may benefit, not only England, but the whole English-speaking race.—We are proud to sign ourselves your friends and pupils—FRANCIS DARWIN, A. G. DEW-SMITH, WALTER GARDINER, W. H. GASKELL, ALFRED C. HADDEN, W. B. HARDY, S. F. HARMER, WALTER HEAPE, J. N. LANGLEY, J. J. LISTER, A. SEDGWICK, A. C. SEWARD, ARTHUR E. SHIPLEY, L. E. SHORE, H. MARSHALL WARD, H. K. ANDERSON, A. S. LEA. March 9, 1900."

THE *British Medical Journal* states that a Medical Congress of the Island of Cuba is now being organized. It is to be held at Havana, and will open on February 24, 1901. The president of the organizing committee is Dr. Vicente B. Valdés. The subjects with which the Congress will deal in are the following: (1) Local Anthropology; (2) Medical Topography and Statistics; (3) Yellow Fever; (4) Paludism; (5) *Biebre de borras;* (6) Chronic Enteritis of Hot Countries; (7) Febrile Conditions of Infancy which do not correspond to Definite Clinical Types; (8) Treatment of Pulmonary Phthisis by Local Climatotheraphy; (9) Medical Hydrology of Cuba; (10) Therapeutic Uses of some Indigenous Plants.

THE New York *Evening Post* states that the scientific museum of Princeton University has received a collection of Indian pottery, stone axes, and articles used in religious ceremonies of the Hopi Indians of Arizona. This gift is the first installment of a series from Stanley R. McCormick, '95. The present collection consists very largely of pieces of recent manufacture, which represent the methods of modelling and decoration employed by this tribe of Indians. This McCormick collection will have special value as supplementing the large collections already possessed of Mexican and Peruvian pottery and the extensive Sheldon Jackson ethnological collection from Alaska and New Mexico.

AN exhibit from the United States Patent Office has been sent to the Paris Exposition. It is confined to models representing the applications of electricity to which American inventers have contributed so much. There is a law forbidding the taking of models of patents from the country, but a special Act of Congress was enacted permitting it in this case. This was accomplished, however, so late as to interfere somewhat with the completeness of the exhibit.

UNIVERSITY AND EDUCATIONAL NEWS.

DR. HENRY S. PRITCHETT, Superintendent of the U. S. Coast and Geodetic Survey, has been elected president of the Massachusetts Institute of Technology.

THE Maryland Legislature has voted against the continuation of an annual appropriation to the Johns Hopkins University.

SIR WILLIAM C. MACDONALD has made a further gift of $200,000 to McGill University for the work in mining and chemistry.

MERTON COLLEGE, Oxford, has offered to contribute, out of its University Purposes Fund, £700 towards the cost of fitting up, and £500 towards that of maintaining for two years, a new electrical laboratory.

THE New York *Evening Post* states that the sophomore class, of Yale University, which by the catalogue of this year contains 305 students, has made choice of studies under the new elective system as follows: Greek has been chosen by 124, Latin by 203, chemistry by 48, physics by 202, English by 259, French by 117, German by 178, history by 202, and mathematics by 159. It will be remembered that last year the members of the sophomore class were required to elect five of six subjects. This year additional electives in chemistry, history, modern languages, and mathematics have been provided.

A CHAIR of intertropical pathology has been established in the University of Havana for Dr. J. Guiteras, formerly professor of pathology in the University of Pennsylvania.

PROFESSOR JACQUES LOEB, of the University of Chicago, has been appointed professor of physiology in the Rush Medical College, recently affiliated with the University. It is understood that the junior work in physiology will be carried out at the University of Chicago.