stroke, adopted by British oarsmen, and imported into the United States by Yale, to be proof of its efficiency as against the stroke adopted by Cornell for short races.

The friends of the latter deny this, and state that their crew left America in fine condition, having beaten Henley time on their own Cayuga Lake course; that they continued in excellent condition, on this side the Atlantic, making in trial races the best records of the season. Their best figure for 1 mile 550 yards was 7 m. 4½ sec., as against Leander's 7 m. 14 sec. Trinity finally beat them in 7 m. 15 sec., 'easily,' although the 'Yankees' held the lead for half the course. In the last two weeks of their stay the Cornell crew had suffered from the enervating effect of the unaccustomed climate, and suddenly lost their staying power. The event was anticipated by those who watched them most closely days before the races. The men themselves say they have lost no faith in boats, stroke or coaching system, and when in condition are ready to meet any crew which appeared at Henley. They had made better time and held their speed on much longer courses.

The matter has some scientific interest and even importance. Improved oarsmanship means much outside athletic circles. There is certainly a stroke of maximum efficiency which will, with a stated expenditure of muscular power, give the greatest possible work in the line of the boat's keel. It is this really important problem that is likely now to be solved on our home waters; for no change is likely to occur on British waters. Yale and Cornell will perhaps finally settle the question by fighting to a conclusion at home.

*The London Times* has been recently publishing letters from its correspondent at Kiel, in which are criticised, by a naval expert, the warships of various nationalities there represented. He considers the 'Columbia' defective in offensive and defensive power, although a marvel of speed, and likely to prove a success in our special province, that of 'commerce-destroyer.' He thinks the French iron-clad 'Dupuy de Lõrne' their best approximation to British standards, and speaks very lightly of the ships built by the Russians for their Baltic fleet. The U. S. S. 'New York' is classed with the best.

I had the pleasure of meeting Lord Kelvin last week for the first time since the meeting of the British Association of 1884 at Montreal. He bears the added years remarkably well and appears quite as much interested as ever in America, Americans and scientific work on the other side of the Atlantic. He is engaged, with Sir John Lubbock, Lord Rayleigh and other distinguished men of science, in a movement having for its object the erection of a memorial to the late Professor Huxley, whose death, on the 29th ultimo, was a source of grief to all scientific men, and many divines as well, on both sides of the Atlantic.

R. H. T.

London, July 16, 1895.

## *SCIENTIFIC NOTES AND NEWS.*

### FOSSIL MAMMALS OF PATAGONIA.

Dr. Florentino Ameghino, of La Plata, has recently published an important pamphlet, '*Sur les ongulés fossiles de l'Argentine*,' which includes an exhaustive criticism of the recent memoirs of Mr. Lydekker entitled 'A Study of the Extinct Ungulates of Argentina,' recently noticed in Science. Dr. Ameghino goes over Mr. Lydekker's work page by page and points out a number of grave errors arising from the fact that the author confined his studies entirely to the collections in the National Museum and did not examine the very rich private collection of Dr. Ameghino. We noted as a special feature of Mr. Lydekker's handsome memoirs that the English and Span-

ish texts are placed in parallel columns. Dr. Ameghino shows that the Spanish translation is full of errors and frequently directly contradicts the statements made in the English text. Most of the criticisms seem to be thoroughly justified. In conclusion Dr. Ameghino says: "It only remains for Mr. Lydekker to recommence his work with more deliberation and more material. If he should decide to do this I offer him my assistance without any reference to his previous oversight of my researches. My collection of fossil mammals of Argentina contains about 750 species, represented by 50,000 specimens, which I place at his disposal with all the accompanying catalogues and notes."

IT is very significant that the most striking studies in paleontology at the present time are among the Theromora, or mammalian-like reptiles which Professor Seely is describing from South Africa, and among this rich, true mammalian fauna of South America. Both the South American and South African continents terminate at present in restricted land areas, but both give evidence of a highly varied and rich land vertebrate fauna in Mesozoic and early Tertiary times. These facts alone point to a far greater former extension of these land areas, and even to extensive connections of the southern continents, similar to those which existed in former times between the northern continents. Dr. Ameghino has referred a large number of the Patagonian mammals to the Marsupialia, and they certainly present many striking resemblances to the Australian marsupials, but none which appear to us absolutely demonstrative of marsupial descent.

A STILL later bulletin from Dr. Ameghino contains a notice of the '*Pyrotherium Beds*' which were discovered in 1888 in western Patagonia, in the province of Neuquen. The last expedition made by M. Carlos Ameghino was especially directed to determining the geological and faunal characters of this formation. From the geological point of view the results obtained are of the greatest importance. The Pyrotherium beds are of lacustrine origin and lie in a vast cretaceous basin which is full of remains of Dinosauria. At several points these beds are found to underlie the Patagonian deposits, which are generally considered contemporaneous with our lower Miocene. The region where the beds are exposed is very similar to that of the Rocky Mountain lake basins, absolutely desert, deeply eroded, and almost everywhere so dry that it is necessary to transport the water supply long distances by muleback. The most abundant and characteristic mammal of these beds is Pyrotherium. It is referred by Dr. Ameghino to a sub-order of ungulates which he considers as the direct source of the Proboscidia: "If this large mammal had been found in Europe or Asia no one would have hesitated to regard it as uniting the characteristics of the Dinotherium and Mastodon. The structure of the lower teeth, of the mandible and of the femur is purely proboscidian; the astragalus, however, is of a profoundly different type, and to a certain degree is comparable to that of the marsupials." He considers that the Pyrotheria represent a group of ungulates which have relations to the marsupials, but none the less represent the ancestors of the Proboscidia. It is impossible to accept such a conclusion, and it seems difficult to determine from Dr. Ameghino's figures whether this large mammal represents a gigantic marsupial related to the kangaroo or whether it is the long sought placental ancestor of the Proboscidia. It presents a single pair of lower incisors, like those of the diprotodont marsupials, but also somewhat similar to those of the oldest types of Mastodon, such as *M. angustigenis*.

COMPARATIVE NEUROLOGY.

We have just received Dr. Ludwig Edinger's *Bericht über die Leistungen auf dem Gebiete der Anatomie des Centralnervensystems*, 1893, 1894. (Schmidt's Jahrbücher d. Ges. Medicin.) These reviews began in 1885 and the rapid advance of comparative neurology is well indicated by the 345 titles in the present *Bericht*. Dr. Edinger sums up the present tendencies of research as follows:

"It is a special subject of congratulation that investigations are increasing upon the anatomy of the simpler types of brains and upon certain fibre tracts in the lower orders of mammals, in which these tracts are much better displayed than in the higher mammalia, which have been chiefly investigated hitherto. In general, as a result of this work, we have gained a deeper insight, and have placed the relations of certain tracts upon a firmer comparative basis. The admirable method of Marchi has come into more frequent use than heretofore, especially in the study of secondary degeneration in the hemispheres, in the thalami, crura cerebri, and a great many new facts have thus been brought out. Study upon the olfactory fibre tracts has been renewed with great success, after a long interval in which these tracts have been somewhat neglected; in fact, research in this region was completely stagnant until the discovery of the 'glomerular structure' finally made it possible to determine the separate regions of the olfactory system more accurately. This discovery also made it possible to unify the results obtained in comparative anatomy, and to separate a distinct portion of the forebrain with its tracts as part of the olfactory apparatus proper. This discovery also threw new light upon the development of the mantle of the hemispheres, a region in which far more progress has been made since it has been found that there are certain clearly defined cortical regions with as clearly defined anatomical relations.

"Numerous researches upon the arrangement of the cells in special 'nuclei' of the nervous system give a constantly increasing insight into their finer structure. It should also be specially noticed that during the last two years has been renewed the study of the changes which take place in the ganglion cells during periods of function and rest; in old age, death and in disease. Here is also a field which promises very rich results. * * With the above grounds for satisfaction, I still cannot let the report of this year go by without expressing a regret for the custom, which seems to be constantly increasing, of rapidly publishing isolated and small observations, while longer and more thorough researches are becoming more infrequent. It would be a serious blow to this branch of research, which has hitherto been followed with scientific exactness, if the large number of hastily prepared researches of beginners should gain the preponderance. My warning is especially directed against conclusions of a far-reaching character which are founded upon a limited number of observations."

THE AMERICAN MICROSCOPICAL SOCIETY.

The eighteenth annual meeting of the Society will be held at Cornell University, Ithaca, N. Y., for three days, beginning on the morning of August 21st. The accommodations afforded by the University buildings, and their equipment for carrying on all lines of microscopical work, add very materially to the attractiveness of Ithaca as a place of meeting. Add to this the richness of both terrestrial and aquatic fauna and flora, and it is almost an ideal place, both to the student of natural history and to those who love beautiful scenery. A large and influential local committee, with Professor W. W. Rowlee as chairman, has

been formed, and everything will be done within its power that will contribute to the comfort and enjoyment of the members and their friends.

The address of the President, Professor S. H. Gage, on 'The Processes of Life Revealed by the Microscope,' will be given on the evening of August 21st, and the preliminary list of papers promised for the meeting already includes twenty-seven titles.

### AMERICAN MATHEMATICAL SOCIETY.

THE Society will hold its second summer meeting at Springfield, Mass., on August 27th and 28th, 1895, under the auspices of the American Association for the Advancement of Science. There will be four sessions, two on each day, beginning respectively at 10 a. m. and 2:30 p. m.

Papers are promised by Dr. G. W. Hill, Prof. E. H. Moore, Prof. G. B. Halsted, Prof. J. B. Shaw, Prof. F. Morley, Prof. A. L. Baker, Dr. A. Martin, Prof. J. McMahon, Prof. W. H. Echols and Mr. P. A. Lambert. At the session in the afternoon of the second day, two topics will be open to the Society for general discussion, viz.: (1.) A general subject catalogue or index of mathematical literature. (2.) The mathematical curriculum of the college and scientific school.

Programs of the meeting may be obtained from the Secretary, Prof. Thomas S. Fiske, Columbia College, New York.

### THE HELMHOLTZ MEMORIAL.

CONTRIBUTIONS from Princeton to the Helmholtz Memorial, collected by Professor J. Mark Baldwin, are as follows, amounting to $138:

| | |
|---|---|
| F. L. Patton, | $10 |
| W. M. Sloane, | 10 |
| C. W. Shields, | 10 |
| C. A. Young, | 5 |
| A. F. West, | 5 |
| Woodrow Wilson, | $5 |
| W. M. Daniels, | 5 |
| Allen Marquand, | 5 |
| H. C. O. Huss, | 3 |
| J. H. Westcott, | 5 |
| E. C. Richardson, | 5 |
| H. C. Warren, | 3 |
| W. Humphreys, | 3 |
| F. N. Wilson, | 3 |
| Charles McMillen, | 3 |
| C. F. Brackett, | 5 |
| W. F. Magie, | 5 |
| E. H. Loomis, | 5 |
| H. S. S. Smith, | 5 |
| C. R. Rockwood, | 5 |
| L. W. McCay, | 5 |
| Taylor Reed, | 5 |
| H. B. Fine, | 5 |
| W. Libbey, Jr., | 5 |
| Geo. Macloskie, | 3 |
| J. Mark Baldwin, | 10 |
| Total, | $138 |

### GENERAL.

THE tenth number of the excellent series of bulletins issued by the department of geology of the University of California is on *Lowsonite, a New-Rock-Forming Mineral from the Tiburon Peninsula, Marion county, Cal.* The author, Mr. F. Leslie Ransome, describes the crystal form, the optical properties, the chemical composition and the general physical properties and blow-pipe reactions of the mineral. It occurs in the form of white crystals projecting from an outcrop of crystalline chist and also in veins traversing the chist.

AN international congress for the protection of birds useful in agriculture was held recently in Paris, attended by delegates from France, Great Britain, Germany, Austria, Russia, Switzerland, Holland, Italy, Greece and Spain. The congress defined the birds injurious and useful to agriculture and requested all the nations taking part in the congress should pass within three years

laws absolutely protecting useful birds. They are to be neither killed nor taken alive under any circumstances.

According to *The Lancet* the number of cases treated gratuitously in the London clinics rose from about two and a-half millions in 1890 to more than four millions in 1894.

As far as can be judged from the cable dispatches, the topic which attracted most attention at the International Geographical Congress was polar exploration. A resolution was passed affirming that the greatest geographical exploration yet to be undertaken was to be pursued in Antarctic fields, in view of great additions to geographical knowledge which must result from such exploration. It was therefore recommended that the assembled scientific societies throughout the world urge in whatever way seems to them most effective that this work be undertaken before the close of the century. The Congress adopted the resolution of the Vice-Presidents recommending Berlin as the place for the meeting of 1896.

Prof. S. J. Brown, of the United States Naval Observatory, has been sent on a mission with instructions to visit the observatories at Greenwich, Paris and Berlin, and report to the department on their operations and administration.

It is proposed to erect a statue of the anatomist Corydon L. Ford, on the campus of the University of Michigan. Subscriptions are invited for this purpose, which may be sent to Dr. C. E. Stroud, Sandusky, Ohio.

The revised edition of von Helmholtz's great work, 'Handbuch der physiologischen Optik,' is now approaching completion, the 12th part having just been issued. The publication of the new edition was begun in 1885, but proceeded slowly, von Helmholtz being occupied with other work. The eighth part was issued in 1894, but since the death of von Helmholtz four parts have been published under the editorship of Prof. Arthur König. The part now issued contains sections on binocular vision, on rivalry of the fields of vision and the beginning of a discussion on the psychological theories of binocular vision.

Mr. John K. Hillers, photographer of the Geological Survey, has prepared, under the supervision of Mr. Charles D. Walcott, Director of the Survey, a collection of photographic transparencies for the Atlanta Exposition.

A number of transfers and promotions have been made in the Weather Bureau by order of Secretary Morton, among which we may note that Edward E. Gerriot has been placed in charge of the Station at Chicago with a salary of $2,500 per annum, succeeding Willis N. Moore, now Chief of the Weather Bureau, and that Mr. Alexander McAdie has been transferred from Washington to San Francisco.

*The Literary Digest* is doing excellent work in the popularization of science by publishing each week four pages which contain abstracts and quotations, selected and edited with much skill, in reference to the more generally interesting aspects of scientific progress.

According to the Washington *Star* a new departure has been made in the publication work of the Agricultural Department. Hereafter it will call upon specialists in certain lines of agricultural work, though not connected with the office, to make investigations of importance to agricultural interests and to prepare brief papers or articles embracing the results of the work. These will be paid for at rates which the Department regards as reasonable, the funds being provided for in the Congressional appropriations. Many persons well known here and abroad will be asked to contribute.

DR. WILLIAM C. JARVIS, professor of diseases of the throat at the University of New York, died at Willett's Point on July 30th.

DANIEL G. HATCH, of the Bureau of Animal Industry of the Department of Agriculture, died on August 1st.

PROFESSOR G. F. W. SPÖRER, astronomer in the astrophysical observatory at Potsdam, died on July 7th at the age of 73, and Dr. Josef Loschmidt, professor of physics in Vienna, died on July 8th at the age of 74.

PROFESSOR HEINRICH VON SYBEL, the historian, died at Marburg on August 1st at the age of 78 years.

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*UNIVERSITY AND EDUCATIONAL NEWS.*

THE Berlin correspondent of the New York *Evening Post* states that there are an unusually large number of American students now studying in Germany. 109 Americans are matriculated in the University of Berlin, and there are a large number of others pursuing special studies in clinics and other institutions. The total number of American students in the German universities is estimated at 340; it is said that in some of the laboratories nearly half the research work is being done by American students. The fact that the Summer Semester in Germany continues in session until the first of August gives American students an excellent opportunity to become acquainted with German university life and methods without interrupting their academic course at home.

The number of American students studying in Germany far exceeds the number studying in France. This is partly owing to the fact that the German university is more liberal in the admission of foreign students and in the conferring of degrees. A meeting has, however, recently been held at the Sorbonne, under the presidency of M. Gréard, with a view to making modifications in the rules governing the conferment of academic degrees and other regulations, so that more foreign students may be attracted to Paris.

WE learn from the *Naturwissenschaftliche Rundschau* that Dr. Fr. Richart, *Privat Docent* in Bonn, has been elected full professor of physics in the University of Greifswald, as successor to Professor Overbeck. Dr. O. Wiener has been called to the chair of physics in the University of Giessen. Dr. H. Lenk has been made assistant professor of geology in the University of Leipzig, and Dr. Stäckel, of Halle, assistant professor of mathematics in the University of Königsberg.

THE University of Edinburgh has conferred the degree of LL.D. upon Dr. S. Weir Mitchell.

THE Princeton preparatory school, of which Professor John B. Fine is head master, has been purchased by a number of the alumni of Princeton College and incorporated under the laws of New Jersey.

IT is reported by cable from Dublin that it is probable that the government will shortly bring forward a plan to establish and endow a Catholic university in Ireland.

THE will of the late Thomas O. P. Burnham gives nearly $400,000 to charitable and public purposes, including $20,000 to the Massachusetts Institute of Technology and $10,000 to Tufts College. The will of the late Dr. Edward Spalding gives $5,000 to Dartmouth College; $3,000 has reverted to Dartmouth College as provided for in the will of the late Sophronia C. Thompson.

A COMMITTEE from the Legislature of the State of Kansas finds that nearly $200,000 of the State School Fund has been lost through mismanagement. The fund now amounts to between six and seven million dollars.

THE State Department has received a report from the consul at Stuttgart, in which