Since the book is only a year old, and since its title is rather misleading, it may not be out of place here to give a short account of it. Its strong point is that along with the study of the morphology of the seed, the root, the stem, the leaf, the flower, the fruit, there is an excellent course of physiological work indicated. Indeed, the whole subject is discussed on the life side, and, although in spite of its title, it is a book adapted to the needs of rather advanced students, yet such a student could easily adapt it to work even in primary schools, according to the most modern pedagogical ideas.

After the general discussion of the life history of the plant, follows a similar work with each of the natural group of flowering plants, the Algæ, Fungi, Mosses, Ferns, Equiseta, and the Club mosses, conducted on the same genaral plan. Then follow the Pines, the Monocotyledons and the Dicotyledons, a special point being made of the relationship of the orders to each other. In this, as in the physiology, a thorough knowledge of the latest thought on the subject is shown, and more than this, the knowledge is given to the student often in a much more logical and understandable way than by consulting the original sources.

Altogether it is the best of the modern text-books on the subject, both in matter and method, and is admirably adapted for use in colleges, either as a basis for advanced work or to give the undergraduate a good general knowledge of the subject.

W. P. WILSON.

UNIVERSITY OF PENNSYLVANIA.

NOTES AND NEWS.

FOSSIL VERTEBRATES OF ARGENTINA.

WE have recently received Part II. of the *Paleontología Argentina*, forming a continuation of the *Anales del Museo de la Plata*, published under the direction of Francisco P. Moreno, Director of the Museum. This sumptuous Memoir in royal quarto size consists of '*Contributions to a Knowledge of the Fossil Vertebrates of Argentina*, by R. Lydekker, in three parts covering the Dinosaurs and Cetacea of Patagonia and the Ungulates of the Argentine. The text is in English and Spanish in parallel columns, and is accompanied by thirty-two large plates which give us some conception of the superb collection of fossils in this Museum. In the first section the author describes the Dinosaurs from Patagonia belonging to Marsh's division of Sauropoda, which have not hitherto been described from South America. The agreement of some of these animals with the North American Dinosaurs seems to be strikingly close, so far as can be judged from Mr. Lydekker's description. The remains, however, are not well preserved. There are several plates principally illustrating the family Titanosauridæ. The Cetacea come from a marine deposit in the Territory of Chubet, and embrace especially three skulls which are far more complete than any of their European congeners and represent the Physodontidæ, Squalodontidæ, Argyrocetidæ and Platanistidæ. The most important section of the Memoir, however, is that relating to the extinct ungulates which are described from the superb collection in the La Plata Museum, belonging to the aberrant Toxodontia and Litopterna, besides the typical Artiodactyla and Perissodactyla. The author gives a clear and concise description of the principal characters of each family and of each genus, and has shown considerable skill and great clearness in matters of priority, for the confusion in South American palæontological literature and reduplication of terms is second only to that which prevails in our own country, and has arisen from the simultaneous and independent publications of Ameghino, Moreno and Mercerat. The author has not gone into the labyrinthine problems of specific priority, but has en-

deavored to clear up the genera with what appears to be considerable success. Palæontologists everywhere are placed under a great debt both to the author for his most timely review of these forms and to the Argentine Government for the liberal style in which these Memoirs have been published.

VARIATION IN CRABS.

The English monthly, *Natural Science*, under its recent change of publishers, has not lost any of the vigor which has characterized it since its establishment three years ago, and continues to be one of the most interesting of the reviews of progress in biology and geology which come before us. The general editorial attitude is that of entire independence of all traditional theories and authorities. There is shown no bias in the present evolution controversy, either towards the Darwinian or the Lamarckian side, but an impartial consideration of each. In the April number are some comments upon the recent discussion in the Royal Society of the facts brought out by Professor W. T. Weldon's extensive statistical investigation of variations in the shore crabs, from which we take the following: "Although Professor Weldon did not say so, it must have occurred to many listeners that this first result of statistical inquiry upon variation was in direct contradiction to those who asserted that variation is not a matter of 'chance,' but has its course in determined directions. . . . . His results have already established the importance of these methods, and we cannot doubt that wherever the methods are applied with discrimination equally important results will be obtained. . . . . Pending such inquiry, he may be taken to have shown that there is a relation between selection and minute variation, not that selection operates upon minute variations."

It seems to us too early even to make such guarded inductions as these from these researches, for their significance is very largely diminished, if not completely destroyed by our absence of a knowledge of the conditions under which these seven thousand crabs developed. If the variations were due to congenital tendencies then their selection has a bearing upon the evolution problem, but if the variations were due to varying conditions of development, as is more than probable in a large percentage of cases, their selection has no bearing whatever upon the evolution problem. This is the uncertainty which vitiates this method, and is strangely overlooked by the editors of *Natural Science* as well as by others. None the less, this investigation is a step in the right direction towards a sound inductive basis for the solution of this most pressing biological problem of the day.

REGRESSION AND ORGANIC STABILITY.

Mr. Francis Galton (42 Rutland Gate, London W.) would be glad to receive information regarding:

(1) Instances of such strongly marked peculiarities, whether in form, in color or in habit, as have occasionally appeared in a single or in a few individuals among a brood; but no record is wanted of monstrosities, or of such other characteristics as are clearly inconsistent with health and vigor.

(2) Instances in which any one of the above peculiarities has appeared in the broods of different parents. In replying to this question, it will be hardly worth while to record the sudden appearance of either albinism or melanism, as both are well known to be of frequent occurrence.

(3) Instances in which any of these peculiarly characterised individuals have transmitted their peculiarities, hereditarily, to one or more generations. Especial mention should be made whether the peculiarity was in any case transmitted in all its original intensity, and numerical data would be particularly acceptable, that showed the fre-

quency of its transmission (*a*) in an undiluted form, (*b*) in one that was more or less diluted, and (*c*) of its non-transmission in any perceptible degree.

GENERAL.

AT a meeting of the secretaries of the Scientific Societies of Washington on April 18th, Hon. Gardiner G. Hubbard, President of the Joint Committee, presiding, it was decided to print in SCIENCE regular reports of the meetings of all the societies.

PHILADELPHIA has been selected as the place for the next meeting of the Society of American Naturalists. In conjunction with it will meet the affiliated societies—the American Morphological Society and the American Physiological Society, and probably the Geological Society of America, the Association of American Anatomists and the American Psychological Association.

PROFESSOR WOLCOTT GIBBS, President of the National Academy of Sciences, Professor Herman Knapp of Columbia College and Professor Hugo Münsterberg of Harvard University have been appointed an American committee to collect money for the memorial to Helmholtz to be erected in Berlin.

DR. LOUIS-FLORENTIN-CAMEIL died at Fontenay-sous-Bois on March 11th, at the great age of ninety-seven. He was for many years head physician of the Asylum for the Insane of Charenton, being the successor of Royer Collard and Esquirol.

MR. J. C. SUMNER, of the Royal College of Science, has been appointed Curator of the Port Erin Biological Station.

DR. JOHN FISKE gave, during April, at the Berkeley Lyceum, New York, a course of lectures on 'Lessons of Evolution in Relation to Man.'

THE 'Mazamas,' a society of mountain climbers organized in Oregon last year, propose sending by heliograph a message and reply from British Columbia to Mexico on July 10th. The coöperation of societies and individuals is requested in order that all the intervening mountain peaks may be occupied. Communications should be addressed to Mr. T. Brook White, Secretary, Portland, Oregon.

A NATIONAL ETHNOLOGICAL EXPOSITION will be held at Prague from May 16th to October 12th.

AMONG the papers read at the annual spring meeting of the Institution of Naval Architects on April 3d, 4th and 5th, at London, were 'Notes on Further Experience with First-class Battleships,' by Sir William White; 'On Solid Stream Forms,' by D. W. Taylor, U. S. Navy, and 'On the Method of Initial Condensation and Heat Waste in Steam Engine Cylinders,' by Professor R. H. Thurston.

MR. CHRISTOPHER HEATH, of University College, has been elected President of the Royal College of Surgeons, to fill the vacancy caused by the death of Mr. J. W. Hulke.

MR. HERBERT SPENCER has begun a new series of articles in *The Popular Science Monthly* for May. His general subject is 'Professional Institutions,' one of the divisions of his Synthetic Philosophy, and he will aim to show how each of the professions has been developed out of the functions of the priest or medicine-man.

THE New York Legislature has appropriated $16,000 for scientific work in horticulture. The work will be under the immediate charge of Professor L. H. Bailey of Cornell University.

THE Legislature of California has appropriated $250,000 to erect a building in San Francisco for the professional departments of the University of California.

THE international importance of the work done at the Columbia College Observatory in investigating the subject of variation of

latitude has been recently indicated by an offer, from the Royal Geodetic Institute at Potsdam, of a considerable sum of money to be used in employing computers to reduce the results.

A society has been incorporated in the State of New York for the preservation of scenic and historic places and objects. Mr. Andrew H. Greene, to whom the movement is chiefly due, is president of the society, which includes among its trustees a number of the leading citizens of New York.

The University of Kansas will send into the field the present season five different scientific expeditions. Professor Dyche leaves the first of May to collect and study the birds and mammals of Greenland and adjacent regions; Professor Williston will have two expeditions for the collection of vertebrate fossils, one in Western Kansas and one in Wyoming; Chancellor Snow, it is expected will spend the summer in the Southwest with a party collectiug entomological specimens; a fifth party under Professor Haworth will be in the field during the next six months engaged in mapping the Tertiary outcrops of the State. The cost of the three geological expeditions is borne by special appropriations from the State Legislature.

Mr. Mark W. Harrington, Chief of the Weather Bureau, has issued a circular stating that a periodical is proposed, devoted to Climatology and its relation to health and disease, similar in size and general appearance to the monthly weather review. The coöperation is requested of sanitary boards and societies, and of individuals interested in this work.

The Italian Botanical Society met this year at Palermo on the 13th and 26th of April. The German Zoölogical Society will meet at Strasburg on the 4th to the 6th of June.

According to the *Zeitschrift für Luftschriftfahrt* and the *Revue Scientifique*, Herr Berson, on December 4, made the highest baloon ascent on record, attaining an altitude of 9,100 metres. The temperature at this altitude was — 47.8° C. The highest temperature, 6.1° C., was at a height of 1,400 metres.

The death is announced of Dr. Peck, director of the Museum of Natural History in Gorlitz.

Among recent new appointments in Germany we note that Dr. Himstedt, professor of physics in Giessen, has been called to Freiburg; Dr. Czermak, professor of ophthalmology in Innsbruck, to Prague, and Dr. Steinmann, professor of minerology in Freiburg, to Tübingen. Dr. Minkowski has been made professor of mathematics in Königsberg.

The mathematician, Dr. E. D. F. Meissel, died at Kiel, on March 11, at the age of sixty-eight years.

The Revue Scientifique of April 13th reports the speeches made at the banquet given in honor of M. Berthelot on April 4th. Speeches were made by MM. Poincaré, Brisson, Perrier, Richet, Zola and M. Berthelot himself.

Professor Ryder at the time of his death had nearly completed the MS. of a book, and left other scientific work of importance which will probably be published shortly under very competent editorship.

The Prince of Wales has formally presented to Sir Joseph Lister the Albert Medal of the Society of Arts for "the discovery and establishment of the antiseptic method of treating wounds and injuries, by which not only has the art of surgery been greatly promoted and human life saved in all parts of the world, but extensive industries have also been created for the supply of materials required for carrying the treatment into effect."

The American Naturalist for March contains illustrations of some remarkable forms of deep sea fishes dredged by the U. S. Steamer Albatross at depths varying from 700 to 1500 fathoms and recently described by Dr. G. Brown Goode and Mr. Tarleton H. Bean in the Proceedings of the U. S. National Museum. The genera have been named Hariotta, Rondletia and Cetomimus.

M. L'ABBÉ MAZE has communicated to the Paris Academy an account of the earliest meteorological observations made in France. They were carried out by the astronomer Boulliau from the 25th of May, 1658, to 19th of September, 1660. The winter was unusually cold, whereas April was warmer than in any recent year, excepting April, 1865. M. Maze also shows that Boulliau used a mercury thermometer 62 years before Fahrenheit's invention.

SOCIETIES AND ACADEMIES.

NATIONAL GEOGRAPHIC SOCIETY.

AT the regular meeting of the National Geographic Society in the large hall of Cosmos Club, Washington, D. C., Friday evening, April 19, Mr. Robert T. Hill, of the U. S. Geological Survey, delivered an address upon the Geography and Geology of Costa Rica and Panama. The fact that he has only recently returned from a tour of scientific investigation of the region, during which he saw a good deal of the prevailing revolutionary spirit, gave special interest to his remarks.

Grateful acknowledgment was made for the opportunity to study the geology of the adjacent continental and island areas furnished the speaker by the enlightened liberality of Prof. Agassiz.

Mr. Hill's lecture, illustrated by a large number of very interesting lantern slides, mostly from photographs taken by him during his recent trip, was partly popular and partly technical in character, descriptive of the topography, vegetation, products, architecture and customs of the widely contrasting regions of the Isthmus of Panama and the modern Spanish American Republic of Costa Rica to the northward.

The Isthmus was discussed as a type of the low-lying costal lands of the tropical region, where Caucasian population could only be maintained by constant immigration, and which would be uninhabited did it not lie in the track of commerce between two oceans. All of its population, except a few unconquered Indian tribes, is concentrated in the two seaports of Colon and Panama, or along the right of way of the railway and canal. On either side it is still an unconquered jungle. The important commercial and political American interests in this region were discussed, showing that its traffic is entirely in the control of Americans, and that it is an important point between our Atlantic and Pacific sea-ports.

Costa Rica, on the other hand, is an example of the higher and better climatic conditions existing in the Tropical American region, where indigenous civilization flourishes under healthy climate conditions. Mr. Hill spoke of this as an ideal country and praised the hospitality and progressive spirit of the people. Illustrations were given of the entire course of the Panama canal, showing the topography, cuttings, machinery and laborers at present working upon the construction. While not committing himself to any preference of canal routes, he said that the affairs of the Panama Canal Company had been painted in this country much darker than they deserved. A far greater amount of work had been accomplished than is supposed. The machinery instead of rotting is kept in the best of condition and the affairs of the Company are not as hopelessly involved as represented. A liberal sum is still in the treasury, and while the concern is in the hands of the courts, it looks as if the French had no intention, after having completed