

Biological society, Washington.

May 31. — Mr. James E. Benedict described the recent cruise of the steamer Albatross in the Gulf of Mexico and the Caribbean Sea, and exhibited some of the most remarkable objects collected. — Ensign E. E. Hayden, U.S.N., read a paper on a new method of figuring fossil leaves and other objects by the aid of photography, with a saving of time, and increase of accuracy; the method consisting of drawing in India ink, upon a silver-print photograph, the outline of the object to be figured, the defects of the photograph being supplied by the draughtsman through comparison with the specimen. The photograph is then dismissed, and a photo-engraving is made by the ordinary method from the black lines of the sketch which remains. In the discussion which followed, it was shown that this process was novel only in its successful application by the author to the illustration of fossil leaves. — Mr. J. A. Ryder spoke of the development of viviparous minnows, and particularly of *Gambusia patruelis* B. & G. The young fish develop within the body of the female parent, and within the follicles in which the eggs themselves were developed. These follicles, which were covered with a rich network of fine capillary vessels, assumed the office of a respiratory apparatus, by which the gases were interchanged between the embryo and the parent fish. This follicle also acted as an egg-membrane, being actually perforated by a round opening, which the speaker termed the 'follicular pore,' and which was analogous to the micropyle of the ordinary fish-egg. The arrangement of the follicles of the ovary within the body of the female was described at some length, and the peculiar differences between the two sexes in the arrangement of the viscera were pointed out. The fibrous bands, which act as supports or stays to the basal portion of the anal fin of the male, which is modified as an intromittent organ, were also described. The great difference in the sizes of the sexes was also referred to, the female weighing over six times as much as the male. The speaker concluded by expressing his earnest desire to investigate the other known forms of viviparous fishes, such as the Embiotocoids of the west coast, the viviparous blenny, and other bony fishes which have this habit, and which, in his opinion, would throw considerable light upon some of the peculiar physiological processes involved in the viviparous methods of development. — Mr. Romya Hitchcock exhibited a collection of Foraminifera belonging to the genus *Lagena*, and explained the relations between this genus and the *Nodosarina* group; these briefly being that *Lagena* may be taken as the type of the group, passing through various stages of complexity, through *Nodosaria*, and ending in *Cristellaria* as the most complete manifestation of its method of growth.

Natural-history society of New Brunswick, St. John.

May 6. — Mr. R. Chalmers read a paper on the history of the Grand Falls of the St. John River, explaining its origin and features. Like Niagara Falls, it was shown to be the result of geographical changes in the quaternary era, causing the damming-up of a

more ancient channel, and the consequent erosion of a new one. Facts bearing upon the nature and rate of change were at the same time given.

June 4. — Mr. C. F. Matthew gave an account of the late meeting of the Royal society of Canada, in Ottawa, reviewing the papers read in the natural-history section, and especially remarking on the importance of Dr. G. M. Dawson's discovery of evidences of an interglacial era in the north-west. — Dr. L. Allison read a paper on the structure and habits of rhizopods, with special reference to local forms.

NOTES AND NEWS.

ONE of the best results of the polar exploration congress, held at Vienna in April, was a resolution that the observations of all the polar stations should be published not only in the language in which they were written, but in German, English, or French as well. Neumayer of Hamburg appealed to the congress for aid in his endeavors to make hydrographic charts of the South Atlantic Ocean. The chiefs of the different stations reported their observations. The scale adopted by the committee of the electrical exhibition of Paris, in 1881, was adopted as a basis for the observations of the intensity of the magnetic earth-currents. The end of the year 1885 was named for the conclusion of the work of the various stations.

— Prof. F. H. Snow of the University of Kansas reports, that although the month of May was one of the coldest on record, yet it was marked by an entire absence of frosts. The rainfall was ample, though less than the average.

— Prof. W. B. Scott is now on his way to Montana with the fourth scientific expedition from Princeton, with the object of exploring the Wahsatch eocene of Wyoming and Montana.

— Professor Mushketoff will be sent by the geological committee of the St. Petersburg academy of sciences to explore the Kalmuk steppe (between Volga, Don, and Manikh). Later in the season he will make a geological exploration of the celebrated mineral springs of Piotigorsk and vicinity (northern Caucasus). This study is to decide many important questions about their protection and improvement. These springs are under direct government administration from the beginning of this year, after a long lease to a contractor.

— *Nature* announces the call of Dr. Hugo Gylden, director of the Stockholm observatory, to the professorship of practical astronomy at Göttingen.

— The forthcoming volume of the *Encyclopaedia Britannica*, the seventeenth, extending from MOT to ORM, will contain the following articles: Navigation, by Capt. H. A. Moriarty, R.N.; Nebular theory, by Dr. R. S. Ball, F.R.S.; Newton, by Mr. H. M. Taylor of Trinity college, Cambridge; Nitrogen, by Prof. W. Dittmar; Nitroglycerine, by Sir Frederick A. Abel; Numbers, by Prof. A. Cayley; Numerals, by Prof. W. Robertson Smith; Numismatics, by Mr. Reginald S. Poole; Nutrition, by Prof. A. Gamgee;

Observatory, by Dr. J. L. E. Dreyer of Armagh; Opium, by Mr. E. M. Holmes; Optics, by Lord Rayleigh; Orchids, by Dr. M. T. Masters; and Organ, by Prof. R. H. M. Bosanquet.

—At the meeting of the Royal astronomical society, May 9, Prof. C. Pritchard of Oxford read a paper on the proper motions of forty stars in the Pleiades, which he has determined from a comparison of Bessel's heliometer-measures with recent micrometric measures made at Oxford, and also with the positions determined ten years ago by Wolf at the Paris observatory. The existence of certain small proper motions of these stars in different directions is interpreted as indicating the mutual interference of a group of gravitating bodies. At the same meeting of the society, Dr. David Gill, her Majesty's astronomer at Cape Town, described the mounting of the great thirty-inch refractor now constructing at the shops of the Messrs. Repsold, at Hamburg, and which is to be set up this year at the Pulkowa observatory, near St. Petersburg. The tube of the telescope will be about fifty feet long; and the mechanical arrangements of the mounting will be so thorough and convenient in use, that a single assistant, sitting at the lower end of the polar axis, will be able to point the instrument accurately to any part of the heavens. A paper was likewise read by Mr. A. A. Common of Ealing, proposing the application of his method of relieving the friction in the axes of large instruments, to the polar axis of a large equatorial telescope. In his plan, somewhat similar to that of the Repsolds, the centre of flotation in a bath of mercury is vertically underneath the centre of gravity of the polar axis and telescope combined. The Repsolds employ, instead, a friction-roller under the centre of gravity to support the Pulkowa telescope.

—Dr. A. Berghaus has called attention in *Ausland* to the successful revival of the use of fibres derived from the nettle, as a material for spinning and weaving. That the common stinging nettle was formerly largely used in Germany to afford a material for the making of woven fabrics, is proved in an interesting manner by the fact that the old German name for muslin literally means 'nettle-cloth' (*nesseltuch*). Before the new material was introduced, the fabric most nearly corresponding to the new cloth must, undoubtedly, have been made from the nettle, and, as in many other cases, the name remained (at least for a time) after the thing was changed. But on the introduction of cotton from America, the nettle soon fell into neglect; and it was not till comparatively recent years that attention was again called to it. After the exhibition at Philadelphia, when the German manufacturers saw that they must do something to put themselves on an equal footing with rival nations, Professor Reuleaux, their representative in America, strongly advised them to pay more heed to the products of their own soil in order to make themselves less dependent on foreign supplies, and, among other plants suitable for the purpose, he reminded them of the nettle. An enterprising lady took the matter up practically,

and, in the end, with the most gratifying success. She planted nettles on a part of her estate composed of poor stony ground, covered only with a thin layer of soil, and, at an agricultural exhibition held in the autumn of 1877, she was able to exhibit nettle-fibres in all stages of preparation up to yarn. This success convinced the unbelievers; and hundreds thereupon began to cultivate nettles, not only in Germany, but also in Switzerland, Belgium, Hungary, Poland, Sweden, Austria, and even in this country. Two years later the first German manufactory devoted to the new industry was opened at Dresden. The experiments made there at first were not altogether satisfactory; but, after repeated attempts, a yarn was produced which left nothing to be desired. In this manufactory the common nettle is used to some extent, but the best results are obtained by using the Chinese nettle, which yields a fine glossy yarn, of greater strength than the common nettle. The fibre is hence known as China grass.

—In the first number of the *Jahrbuch der Deutschen malakozoologischen gesellschaft* for 1884, Heynemann continues his studies of little-known genera of slugs. From an examination of the type-specimen, he shows that *Aspidoporus* of Fitzinger is founded on a malformed individual of *Amalia carinata*. The genera *Urocyclus*, *Elisa*, and *Dendrolimax* are also discussed. Brusina, in a paper on the *Neritodontas* of Dalmatia, indulges in a lively polemic with relation to some rather peculiar publications by Bourgnignat. Both papers are illustrated. In the accompanying *Nachrichtsblatt*, Simroth discusses the European and especially the German slugs, a group of the Pulmonates which has recently excited much interest. Simon and Boettger describe the land-shells of the Cottish Alps, and Kobelt describes some new operculated land-shells from the Philippine Islands.

—At the *séances* held during April by the Société française de physique, in the rooms of the observatory, the curious experiment of using a gloved hand as a telephone-receiver was exhibited. Fig. 1 shows the apparatus used, *P* and *M* being a battery and a microphone-transmitter in the main circuit; *B*, an induction-coil with the break-circuit closed; while *P'* is a battery, and *R*, ordinary holders for receiving a shock.

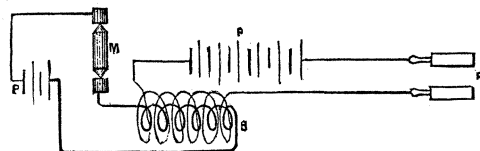


FIG. 1.

When two people, each with a gloved hand, take hold of the two holders with their bare hands, and one of them holds his gloved hand over the ear of the other, any conversation or music near the microphone becomes audible to this other; or, if they hold one another's ears, both may hear. By leaning their heads together, so that their ears would touch except for a sheet of paper placed between them, the same result was obtained. It was also found possible to do away

with the stretched membrane, the glove or paper, and for a third person to hear the conversation in the bare hands of the two holding the electrodes, when these two held his ears as shown in fig. 2. It has even been possible to render the sounds audible to a chain of people, each holding the ear of his neighbor.

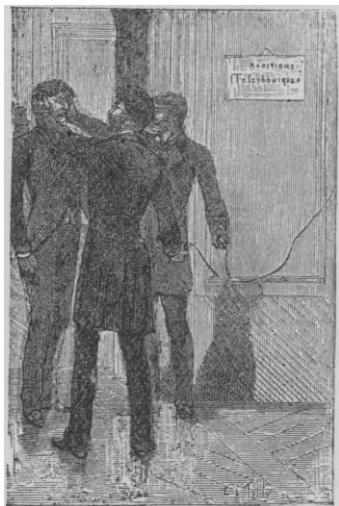


FIG. 2.

—In the report of the meeting of the Royal society of Canada, published in *Science* for June 6, it was stated that Mr. F. N. Gisborne had devised a new method of getting rid of the cross-talk in telephone cables. The device, that of the use of a metallic circuit of wires near one another, was patented by A. Graham Bell in England in 1877, and later in the United States.

—Dr. Palisa has had a declinograph, on the plan of Dr. Knorre's at Berlin, fitted to the twelve-inch Alvan Clark refractor at Vienna, and he is observing zones with even greater assiduity than usual. He reports himself as satisfied with the working of the instrument, which gives positions accurate to about $0^s.2$ and $2''$. In a zone 25^m by $20'$ a hundred and fifty stars can be registered. The positions are to be reduced to 1875.0, and this is chosen as the equinox for all the new Vienna maps. Each map is to have a catalogue of its stars accompanying it, which is an excellent addition. Dr. Peters's catalogue of sixty thousand zone stars would be of great usefulness, if it were available, as a supplement to his splendid series of celestial charts.

—Prof. W. Preyer of Jena is publishing a '*Spéciale physiologie des embryo*' in four parts, of which the first two have appeared. It is written from a purely medical stand-point; for it discusses really human embryology, drawing upon mammals, birds, and other lower forms, for illustration. In spite, however, of its narrow scope and one-sided view, it is a valuable treatise. By the collation of the researches previously published, and the addition of some observations of his own, Preyer has compiled a work

which reveals an extent of positive knowledge in this obscure field, which few would have anticipated. In the parts before us, the circulation, respiration, and nutrition of the embryo are very fully treated. The work is excellent, and, without doubt, will do much towards dispelling some of the crude and erroneous conceptions still prevalent in regard to the physiology of the mammalian embryo.

—The French geographical societies will hold their seventh general congress in the month of August at Toulouse. Geographers of several adjacent countries, especially of Spain, are expected to participate in the proceedings. The municipality has devoted a sum of twenty thousand francs to the expenses of the local committee, of which Dr. Ozenne is president, and Commander Blanchot, general secretary.

—An international fisheries, ornithological, and hunting-appliances exhibition is planned for 1886, in Vienna.

—A new expedition to Greenland has started from Copenhagen: it consists of Lieut. Jensen, Lorenzen as geologist, and the painter Rüs-Carstensen. The object of the expedition is the exploration of the west coast of Greenland between Holstensborg and Lukkertoppen. They expect to return in October.

—Prof. F. A. Forel of Morges reports that the glaciers of Mont Blanc, after decreasing for a considerable time, are now again advancing. Professor Forel has for many years recorded his observations on the Mer de Glace.

—A botanical section of the Cincinnati society of natural history was organized June 7, under the chairmanship of the curator of botany in the society. Its object was stated to be, to bring together those interested in the study of botany for the purposes of mutual encouragement and benefit, the investigation of the flora of the vicinity of Cincinnati, and the formation of a local herbarium. A number of specimens of plants were exhibited, and two or three new additions to the flora were announced. One of these was *Matricaria discoidea*, from near Loveland, O.,—a very late introduction.

—There is no truth, the *Athenaeum* states, in the rumor that Mr. Herbert Spencer purposes paying a visit to Australia. His trip to the United States injured his health too seriously to induce him to try another experiment of a like kind on a much larger scale. Though still suffering from impaired health, he is happily able to devote a portion of his time to his favorite studies.

—Lieut. Frederick Schwatka, the arctic explorer, has resigned his position on Gen. Miles's staff, and will join his regiment in Arizona. The Russian geographical society has awarded its silver medal to Schwatka for his explorations.

—Dr. Griffiths sends to the *Chemical news* of March 7 a note on the formation of the recently discovered paraffine shale deposits of Servia, which he thinks coincides with the results of his other investigations. These deposits are situated on the River Golabara, in the western part of Servia. The shale occurs in upheaved cliffs about two hundred feet

above the surrounding plain. The formation consists of hundreds of layers of white and gray shale, one above the other, sometimes being separated by small beds of clay of a whitish color, containing rock-salt, and sodium and manganese sulphides. It is stated that this part of the country strongly resembles the paraffine and salt districts of Galicia. It has been known for ages that cattle and birds resorted to these cliffs to eat the clay containing the rock-salt, but the quality of the shale remained unknown until a year ago. The paraffine shale is entirely free from bituminous impurities, it is nearly white in color, and has no odor. When heated to about 800° F., it takes fire, and burns with a clear, bright, smokeless flame, leaving a gray ash behind. The deposits are of marine origin and eocene period. Eruptive porphyritic and trachytic rocks are plentiful at a distance of five or six miles. In the clay-beds (which are peculiarly free from ferric oxide) large numbers of the fossil remains of the eocene period are to be found. It is thought, that, in the limestone rocks which underlie these shale deposits, rock-salt and petroleum wells may be found. A sample of the paraffine shale yielded, on distillation, 2% of a semi-solid hydrocarbon somewhat similar in appearance to ozocerite wax, which, on extraction with 'benzoline,' gave 1.75 % of wax. It also contains 3.02 % of water of combination, and 1.18 % of ammonia; the remaining ingredients being mineral constituents. It is stated that the mineral constituents of these paraffine shale deposits would make a useful hydro-cement, and could easily be obtained by open quarrying: they could be used as fuel with gas-retorts. They lie within easy reach of the Danube.

—The death is announced of Sir Sidney Smith Saunders, a leading English entomologist, who had made the Strepsiptera—a curious group of minute beetles parasitic on Hymenoptera—his special study.

—The medical congress in Berlin, in April, was very well attended, and most of the prominent medical questions of the day were discussed. The meeting opened with a paper on true pneumonia, which Professor Jürgensen considered infectious. Very opposite opinions were expressed during the discussion. Reflex action, and vaccination, followed. On the second day, diphtheria was the subject most discussed, which Dr. Löffles considered to be a local affection, caused by a chemical poison; but the theory found an opponent in Dr. Heubner of Leipzig. Professor Weber of London read a paper on school hygiene in England, and recommended medical inspection of schools. Nervous dyspepsia, and other nervous affections, filled up the rest of the discussions. Professor Rosbach of Jena read the report of the commission on the treatment of infectious diseases. Next year the congress will be held at Wiesbaden.

—As is well known, the work of excavating in the Tigris-Euphrates valley, the seat of the old Babylonian-Assyrian empire, has been carried on vigorously for the last forty years, and a vast mass of material has been collected and brought to Europe. Many

thousand historical and commercial inscriptions, copies of ancient epic poems, magic rules and formulas, religious hymns, and specimens of architecture and sculpture, are now to be found in the museums of London, Paris, and Berlin. The most of this work has been done by the English. The cuneiform collection in the British museum is by far the richest in the world. Mr. Rassam, a wealthy Syrian gentleman of London, is now devoting all his time to excavating: he goes out every year, and brings back to England a larger or smaller quantity of tablets and other Assyrian remains. Already there is enough Assyrian material in the British museum to occupy scholars for the next fifty years. But the field is large; and there is room for other exploring parties, without danger of encroaching on the English domain. American Assyriologists have for some time felt the desirableness of having a collection of cuneiform material in this country; and last autumn some gentlemen interested in the matter held a conference, and determined to make the attempt to organize an expedition to Mesopotamia. It was thought best that the first attempt should be in the way of exploration and survey of the ground, in order to fix on the best points of work, and come to an understanding with the English parties now in the field. In spite of some unfavorable conditions, the preliminary arrangements have now been completed. The money is assured, Miss C. L. Wolfe of New York having given the whole of the sum which it was computed would be required. In accordance with her desire, the expedition will be called, in honor of her father's memory, 'the Wolfe expedition;' and this name will be, in the feeling of the public concerned, a no less fitting tribute to her most praiseworthy liberality. The gentlemen who have been selected to go out are Messrs. W. H. Ward, editor of the *New-York independent*, and J. T. Clarke and J. R. S. Sterrett, lately of the Assos expedition,—all proved men. The expedition has received the indorsement of the Archeological institute of America, in whose name it will go out. The department of state has promised to use its influence to procure the necessary firman from the Ottoman government. The purpose is to try southern Mesopotamia, the old Babylonia, the seat of the oldest civilization, and the portion of the country which has been less explored than any other. It is believed that here, and in the opposite region across the Tigris, there is probably abundance of early material. If this preliminary expedition should report favorably on its return, an effort will then be made to organize an excavating party immediately, and begin serious work. In the region had in view there are not only Babylonian-Assyrian, but also more modern Arabic and Syriac treasures to be hoped for; and the explorers will be instructed to gather all that they can find. The present expectation is that Dr. Ward will sail for England about September next. In London he will find Mr. Clarke, who is engaged in working up his Assos report; and the two will be joined by Dr. Sterrett, who is now in Athens, where, during the sickness of Professor Packard, he has been in charge of the American school of classical studies.