NOTES AND NEWS.

A NOVEL event transpired at Boston last Wednesday, in the celebration, by Dr. B. Joy Jeffries and his friends, of the centennial of the first balloon voyage ever made across the English Channel, which was undertaken by his grandfather, Dr. John Jeffries, on Jan. 7, 1785. In this connection, Dr. Jeffries has happily printed, in the current number of the *Magazine of American history*, the original diary of Dr. John Jeffries, illustrated by three excellent portraits, one representing him as taking his voyage. The account of the trip is exceedingly interesting, and told in very simple language. But many persons would doubtless be more attracted by the naïve account of his reception in Paris, and the honors which he received during his six weeks' residence there. It gives a vivid picture of society, at the time, in that gay capital.

— A party of German explorers, consisting of Dr. Karl von den Steinen, Wilhelm von den Steinen, and Otto Klaus, has just reached Rio de Janeiro, after a journey of five months through the least-known part of Brazil. Starting from Cuyaba, capital of the province of Matto Grosso, in May, these gentlemen went by land to one of the head waters of the Xingú, — to which they gave the name of Batovy, in honor of the president of Matto Grosso, who furnished an escort, and in other ways aided the expedition, — and, embarking upon this stream in bark canoes made for the purpose, reached the mouth of the Xingú in October. The journey was rendered dangerous by the innumerable rapids of the river, and by numerous tribes of Indians who had never before seen a white man, but was safely accomplished without a single serious accident. The results promise to be of great geographical and ethnological interest. The Xingú, which is thus added to the small number of Brazilian rivers that have been accurately explored and mapped, has been the least known of all the great rivers of the empire; and its valley has become the centre of the unknown Indian country from the driving-in of the more intractable tribes by the advance of civilization along the Tocantins, Tapajos, and Upper Paraguay. Its lower course was explored in 1842 by Prince Adelbert of Prussia, to a point above the great bend; but the upper course has only been known from the somewhat vague accounts of missionaries and traders of colonial times, which have, until recently, been overlooked by Brazilian geographers. Represented with tolerable accuracy on the earlier maps, it has, during the last thirty or forty years, been a sort of geographical shuttlecock, each succeeding map introducing some erroneous correction. An important stream, the Paranatinga, an affluent of the São Manoel, branch of the Tapajos, or perhaps the upper course of that river, was first transferred to the Xingú. When this mistake was discovered, through a consultation of ancient documents, another was committed by taking three or four degrees from the length of the Xingú on the supposition that there was not room for its source near the parallel of 15° south, between the Paranatinga and the Araguaya. The present explorers report that the river flows through a fine country very abundant in rubber, but that it is too much obstructed by rapids to become a commercial highway.

— Agricultural experiments continue at Houghton farm (Mountainville, Orange county, N.Y.), on the general plan adopted in 1879, but with some extension and modifications. In the line of agriculture proper, the chief work is the comprehensive study of the Indian-corn plant, and experiments in rotation of crops, as inaugurated by Dr. M. Miles. Ten acres are devoted to this branch. One report has been published, and another is in preparation. The experiment-orchard planted by Professor Penhallow, and covering three acres, is doing finely, and promises results of value to horticultural interests. Meteorological observations are carried on, — atmospheric, surface, and subterranean temperatures receiving especial attention, — and an annual report is printed. In this department, instruments have been lately installed to secure continuous records. It is so difficult to thoroughly provide for animal experiments, that these have been undertaken only in a somewhat desultory way. Miscellaneous investigations, all related to practical farming, are carried on as time and circumstances permit. It is understood that Mr. Valentine is in search of the right man, with scientific training, faculty for original research, and taste for farm-life, to take the immediate charge of the experiment department at Houghton farm. The time of Major Alvord, general manager, is so occupied, that he can only give the work of this department a general supervision.

— W. Köppen, editor of the *Meteorologische zeitschrift*, has published, according to *Petermann's mittheilungen*, a chart of the zones of temperature from a new point of view, having taken as a divisional mark the length of the hot seasons according to their real relations, without reducing them to an ideal average. The tropical zone embraces those regions in which all the months are hot, that is, have a temperature of 30° C; the subtropical, those in which, during from four to eleven months, the mercury reaches that point. The temperate zone, with from four to twelve months in which the ruling temperature is from 10° C. to 20° C., he divided into regions which are marked by a uniformly temperate climate, those in which the summers are hot, and those with a moderate summer and cold winter. The frigid zone contains only regions with but from one to four months of moderate temperature; the polar circles, those where in no month does the mercury reach 10° C. In addition, there is shown on the chart the boundary of the northern ice-field, the isothermal line of 10° C., and the boundary of the four months' cold (under 20° C.) In the accompanying explanation, Mr. Köppen points out the influence of temperature upon the organic world, — shows that the boundaries taken by him very often agree with those of distribution of animal and plant life.

— Dr. Lacerda of Rio Janeiro, who has for some years been investigating the subject of snake-bites, now states that the poison of other snakes does not

differ in its effects from that of the rattlesnake, a view also maintained by Dr. Mitchell. The cure by means of injecting permanganate of soda into the bite has been subjected to further experiments by Dr. Lacerda. These prove that the injection must be fresh, and done immediately, and would be of no avail if the bite had penetrated an artery; also the injection must be made frequently, and all round the bite. He has already cured several cases of snake-bite thereby.

— The Russian geographical society has received a report from its member, M. A. V. Adrianof, who is travelling in the Altai and Sayan ranges. After traversing the Shapshalka Pass, he followed the course of the river Kemtsik, a branch or tributary of the Ulu Kem. In these regions he met with only a few Russian traders, but found a colony of Russian dissenters, who settled near the Chinese frontier in the time of the Patriarch Nikon, and placed the whole of their joint property under the uncontrolled administration of their leader, forming themselves into a kind of commune. Their occupations are agriculture and hunting. The native population which surround them manufacture a sort of felt, and have learned to weave a tissue of wild hemp. They prepare an intoxicating drink from milk, which they consume in notable quantity. These peoples who live in the basin of the river Kemtsik are Sayanians, or Sayantsi. They display a remarkable capacity for mixing with neighboring races without being merged, — a process which, however, succeeds better with Turanian and Finnic than with Mongolian tribes. There exist some important and interesting monuments of the past among these Sayanians, who are also known under the appellation 'Tuiba,' in their burying-places. These are either marked by conical cairns, or are flat areas surrounded by a circular row of stones, which are sometimes plain, but often covered with figures and inscriptions, and bear in some instances rude representations of the human figure. Remains of sacrifices, generally of a horse, are found near the tombs.

— The Russian explorer, Col. Prjevalski, spent last summer in exploring the plateau lakes of Thibet. The height of those at the source of the Yellow River he estimates at 13,500 feet, and those of the plateau at a thousand feet more. The climate he describes as detestable, cold, snow or rain, the whole summer through. The quantity of rainfall brought from the Indian Ocean by the south-west monsoon is so great that all summer the north of Thibet is one great swamp. Fish and quadrupeds are numerous, birds rare, the flora poor but peculiar. Prjevalski's party was twice attacked by robbers, whom they successfully repulsed. He means to continue his explorations.

— About ten per cent of the plants collected in the north-western Mexican states by recent collectors prove to be new species.

— Prof. David S. Jordan has been appointed president of the Indiana university.

— J. Müller, a German mining engineer, has applied electrolysis to the rectification of light coins. The practice obtains of reducing the weight of over-heavy coins by dissolving off some of the metal with acid; but in Germany, at least, no attempt has hitherto been made to add metal to the coin by electro-deposition in order to bring it up to its proper weight. The method answers well for small losses of weight, because the metal added in that case does not deface the characters on the coin.

— The *Athenæum* states that the government of Siam is about to take steps for the opening of the interior of its fertile territory. With this object, an expedition for survey and exploration will shortly set out for Kabin, where there are said to be mines of considerable value. The idea is to connect this place with Bangkok by a railway, which would be ultimately carried on to Karat, Sohai, and Phitsalok. By this means Zimmay and the fertile region of Laos would be brought within convenient distance of the sea.

— The naturalist, Groum Grzhimailo, has returned from eastern Turkestan, where, during the past spring and summer, his expedition was mainly employed in investigating the zoölogy of the country. He has collected seventeen thousand specimens of lepidopterous insects, of which a large number are of hitherto unknown species. The altitudes of many mountains were taken, and thermometrical readings registered throughout the journey. The general observations of Grzhimailo tend towards an affirmative solution of the contested question of a glacial period in central Asia. He reports the existence, on Thian-Shan Mountain, of forms which up to now had been found only in North America, Lapland, and the Swiss Alps. This explorer proposes to start next year from Samarkand in order to pursue his researches on the western spurs of the Thian-Shan range, which have not as yet been the object of zoölogical investigation.

— Mr. Edwin Guthrie has published a pamphlet on the development of the art of numeration, in which he has brought together in a condensed form a very considerable amount of information on a most interesting subject. The pamphlet includes a table of the Assyrian, Egyptian, Hebrew, Greek, Roman, and Arabic systems of notation.

— The ninth volume of the *Ornithologist and oölogist* forms a large octavo volume of a hundred and fifty-two pages, and, as regards both quality of matter and literary execution, is greatly superior to any of its predecessors. It consists wholly of original matter, and contains very little trash, and a large amount of valuable information, particularly about the nesting-habits of little-known species. It is carefully printed on heavy paper, is creditable to its new publisher and editor, and has a fair claim upon the attention of the ornithologist as well as the non-scientific bird-lover.

— Clermont Gannéau is publishing a book entitled 'Les fraudes archéologiques en Palestine' (Paris, *Ernest Leroux*). This volume, illustrated with numerous engravings, contains a full account of the false Moabite potteries at Berlin, of the celebrated Shapira Deuteronomy, and of different spurious monuments of Palestine and Phoenicia.

— The dean of Clonfert has in the press a work on 'The general principles of the structure of language.' Trübner is the publisher. The work contains grammatical sketches, drawn up with great minuteness, of about a hundred and twenty languages, African, American, Oceanic, Asiatic, and European.

— The latest part (tomo vi. 2, 3) of the bulletin of the National academy of sciences in Cordoba, Argentine Republic, has been received. It contains two geological papers, — the first by Florentino Ameghino, on a series of geological and paleontological excursions made in the province of Buenos Aires; and the second by Adolfo Doering, on certain artesian borings in the Argentine Republic.

— Under the title of 'La rage et les expériences de M. Pasteur,' Gaston Percheron has published an excellent little treatise on hydrophobia (Paris, *Firmin-Didot*). The work gives briefly a clear account of all that is known of the malady, with the latest discoveries of Pasteur respecting the protective vaccination of dogs against rabies, and the confirmatory report of the commission appointed by the French government to control the test experiments. The description of the primary symptoms of the malady in dogs is interesting, and may be useful. The treatise is written in a popular style.

— The *Illustrirte zeitung* gives an account of the exploring of the mysterious little river, Reka, which rises in the Carinthian Alps, disappears, and emerges again in Istria as the Timavo, finally flowing into the Bay of Monfalcone. An exploring party from the village of St. Canzian last March entered the grotto into which the river disappears. For sixty yards the boats went along a narrow channel bordered by walls a hundred metres high; then a cavern was reached, where the party was obliged to land, as the current was too strong for the boat. They followed the left bank of the stream along the rocks until it was only four metres broad, when they crossed it on a plank, then followed the right bank until they came to the sixth subterranean waterfall. The magnesium light showed calm water below this. Four explorers started again on the 9th of November, and reached a seventh waterfall.

— 'Danger-lines and river-floods of 1882' is the title of Signal-service note xv., by H. A. Hazen, junior professor in the office of the chief signal-officer. The height at which floods become dangerous is given for forty-seven cities, arranged alphabetically. This is supplemented by special notes descriptive of the conditions of danger at these stations. In accordance with these measures, warnings can be issued as the rivers rise. The excessive floods of 1882 in the Mississippi basin are referred to an unusually early spring, causing a rapid melting of snow, combined with excessive rainfall, which caused simultaneous high water in both the Ohio and Mississippi rivers. The progress of the flood-wave crest down stream is found to occupy from three to eight days (mean, five and seven-tenths) between Cincinnati and Cairo, and from eleven to twenty-four (mean, sixteen and eight-tenths) from Cincinnati to Vicksburg. In general, the higher the water, the longer is the time of movement. The statement has been made in the flooded district, that, "if the river-banks were now as heavily wooded as in the great flood of 1824, the water would have risen ten feet higher in 1882 than it did." To this Professor Hazen answers, that the same heavily wooded condition of the banks farther up stream would have held back the water, retarded the supply, and thus reduced the height by distributing the flood over a longer period. The value of property lost in the floods of 1882 in Tennessee, Mississippi, Arkansas, and Louisiana, is roughly estimated at nine and a half millions: the loss of life was a hundred and forty-eight.

— The city of Providence, being embarrassed about the disposal of its sewage at the head of a tidal bay, sent two of its engineers to Europe last summer to investigate the various processes practically employed there to accomplish the desired end. The resulting report has been recently issued in an octavo volume of a hundred and fifty pages, with many plates and maps. It contains recommendations to the effect that 'intercepting sewers' should be built so as to catch the sewage just before it flows into the natural channels of drainage, and that it should be thus carried to Field's Point, on the west bank of Providence River, near the southern limit of the city; that it should there be treated by chemicals in such a manner as to clarify it by precipitation of suspended matter; and that the clarified effluent should be emptied into deep water off the point. The estimated cost of this arrangement is over three and a half million dollars. The report contains much material of interest; and Appendix A, on 'sewerage systems and sewage disposal,' which makes the greatest part of the volume, is a valuable historical and practical statement of the question.

— According to a telegram from Calcutta, Mr. Griesbach, the geologist with the Afghan boundary commission, describes the route between Guetta and the Helmund as presenting features very similar to those in the Pishin valley and Candahar; namely, a system of precipitous, deeply eroded ridges, extending from north and south to north-east and south-west. Extensive post-tertiary deposits fill the intervening valleys. The south-west extremity of the Ghazarband range is composed of sandstone shales and grits of the Flysch facies of eocene rocks. A series of low hills and valleys stretches between Canjpai and Nushki, which, from their composition, appear to be merely continuations of the Kojah Amran range, but near Galiahah the formation is distinctly younger, the epoch being mostly trap rock, which in places bursts through the cretaceous limestone overlying it, and locally converts it into white marble.

— The steamship British Prince reports that on Dec. 23, in latitude 40° 45′ north, longitude 66° west (about four hundred miles east of New York), from two A.M. to half-past five A.M., she had steady St. Elmo lights at yard-arms and mast-heads. The weather was overcast, dark, and gloomy, with torrents of rain, vivid lightning, and peals of thunder.