give a vivid impression of primitive processes and serve to contrast these with the methods and machinery of advanced civilization. The subjects presented are as follows:

The fire maker. A Ute Indian making fire by twirling between the palms of his hands a wooden shaft, with its point set into a conical depression in a second piece of wood.

The driller. An Eskimo man, in reindeer skin costume, using a bow drill for perforating an ivory ornament.

The flint flaker. A Powhatan Indian roughing out stone implements from quartzite bowlders.

The hominy huller. A Southern Indian woman pounding corn in a wooden mortar. Figure in plaster with costume restored from drawings made by members of the Virginia colonies.

The skin dresser. A Sioux woman using a scraping or graining tool in preparing a buffalo robe.

The potter. A Papago Indian woman modeling an earthen vessel.

The metal worker. A Navajo Indian making silver ornaments. Processes probably, in part at least, introduced by whites.

The belt weaver. A Zuni girl with primitive loom weaving a belt.

These exhibits form a part of the series now in course of preparation for the National Museum, and are mere outlines of the subjects as they will finally be presented. It is conceived that a measurably full series of such exhibits will be of high educational value, giving a comprehensive notion of a large number of the greater facts of anthropology. By no other scheme of display of objective material can the whole career of the race, especially of its intellectual development—its greatest characteristic—be so clearly set forth. The objects are not assembled chronologically, but pertain to all times and to all peoples. The place of each specimen in the series is determined by its estimated relation to the successive levels of culture; and the exhibits when completed may be taken to illustrate the full range of human accomplishment as it stands to-day or as comprehending the entire human period. These exhibits thus present the whole scope of human achievement, so far as human handiwork can express it, and serve at the same time to indicate with approximate accuracy the main steps of progress made by the race in its tedious ascent from lowest savagery to highest civilization.

W. H. Holmes.

CURRENT NOTES ON PHYSIOGRAPHY.

THE LAKES OF FRANCE.

André Delebecque, of Thonon, Haute Savoie, France, has for some years past devoted himself to the study of the lakes of his country, on which he has already written fifty odd papers. He now produces a handsome monograph, 'Les Lacs Français' (Paris, Chamerot et Renouard, 1898), the most elaborate work of its kind yet published. All the lakes of France, over 400 in number, are described; the larger ones being studied as to location, depth, form, deposits, temperature, color and composition of water, origin of basins, and changes due to natural processes. The volume contains 22 maps and 153 figures. Under lake sediments it is well to note that, except close to the shore lines, lake bottoms are covered with an impalpable alluvium, quite like the sandstones that are often described under the head of lacustrine deposits in the Rocky Mountain region. The sub-lacustrine ravines, by which inflowing streams of low temperature and bearing glacial silts descend to the bottom of the larger lakes down the slope of their deltas, are interesting features; they raise the question whether some other condition than 'continental elevation' may be found to

explain the much greater ravines by which the edges of continental shelves are so often notched. The Rhone, entering Lake Geneva, is visible for a little distance by its whitish color in the clear water of the lake; but it suddenly sinks and disappears about 500 feet out from its mouth. Judging by the texture of bottom deposits along the path of the descending river, its velocity at a distance of 7 kilometers from the head of the lake and at a depth of 250 meters must be 0.20 m. a second.

LAKES OF THE AUSTRIAN ALPS.

THE text by Richter to the second part of the Atlas der österreichischen Alpenseen (1896) appears in the Geographische Abhandlungen, edited by Professor Penck, of Vienna (Vol. VI., No. 2, 1897). It describes and explains the origin of the lakes and gives a detailed discussion of their temperatures. The lakes of the Drave basin are ascribed rather to barriers of drift and torrent fans than to glacial action, thus giving another example of the different conclusions as to the competence of glacial erosion reached by detailed local study and by generalizations at a distance. The Millstatter See, for example, is cut off from the aggraded valley of the Drave by the torrent fan of the Lieser. Two small lakes, Afritzen and Brenn, are similar in origin to the lakes of the upper Inn, which were explained some years ago by Heim as the indirect result of the capture of headwaters of the Inn by an encroaching Italian stream. Several of the deeper lakes show a slight rise of temperature in the bottom waters during the spring months, which Richter explains as the result of conduction of the heat from the earth's crust after the active cooling of the surface waters in winter has ceased.

THE LOB NOR CONTROVERSY.

UNDER the above title, the (London) *Geographical Journal* for June, 1898, contains an account, based chiefly on the work of Russian explorers, of the shallow lakes in the desert basin of Eastern Turkestan. The point at issue is: Which one of the several lakes of the region shall be identified as the Lob Nor of the Chinese maps; no lake being called by this name among the people of the region. This controversial matter is of less general interest than the physical features which are so well adapted to lead to controversy. A vast barren aggrading plain of sand and clay, occupying a great basin between enclosing mountains; fickle rivers which run far forward in flood and wither away in drought, occasionally turning into new channels and wandering a hundred miles from their abandoned beds; wandering sand dunes and growing deltas, disputing possession of the faint depressions with extensive reedy marshes and shallow shifting lakes; the lakes now brackish, now salt, at one time expanding, at another shrivelling; even the villages of uncertain mind, deserting an old site for a new one when invaded by dune, marsh or lake. A centenarian told one of the Russian explorers that he would not have recognized the country of his boyhood if he had returned there in his old age after spending his life abroad. Controversy naturally arises in such a geographical environment. It would then be with a new meaning that the returning traveller would sing: 'There's no place like home.'

LAKE MENDOTA.

THE use of lakes as biological stations by our inland universities promotes their physical exploration. The account of Turkey Lake, already noted in SCIENCE, is now followed by 'Plankton Studies on Lake Mendota,' by Birge (Trans. Wisc. Acad. Sci., XI., 1897, 274–448, of which 286–300 are on lake temperatures). The depth of the lake is 18 meters. In May there is a rapid gain of heat through the whole water body; dur-

ing mid-summer the surface waters reach a temperature of 23° C., the bottom waters being 14° or 15°. The lake is at this time in stable equilibrium and the stagnant bottom waters are unfit for most forms of life. But by the end of September the surface has cooled so that a uniform temperature prevails from top to bottom; then gales easily overturn the water body and it slowly cools as a 'homothermous' mass to the winter minimum.

W. M. Davis.

CURRENT NOTES ON METEOROLOGY.

CLIMATIC CONTROL OF TRANSPORTATION IN NORTHERN RUSSIA.

From a recent book, entitled 'A Northern Highway of the Tzar,' by Trevor-Battye (London, Constable, 1898), there is much of interest to be learned concerning the marked control which the climatic condition of northern Russia in October exert over transportation and over the occupations of the inhabitants. October is known in that region as the Rasputnya season, Rasputnya meaning literally 'the separation of the roads.' At this season 'the first frosts have thawed and the first snows melted,' streams of broken ice block the rivers, the morasses are like quagmires; 'the tracks, where any advance has been attempted upon old forest bog, a mixture of treacle and glue.' There is an almost complete interruption of travel, owing to the condition of the roads and streams, until the settled frost of winter has united the land and the water into one solid frozen surface. "During the whole of October the government postal service is stopped, labor contracts are off, and the keepers of the stages are entirely freed from their usual obligation to supply the traveller with horses and sleighs." The control over transportation, here brought out in one of its aspects, is an important relation of climate and man which has not yet received the careful study it deserves.

KITE METEOROLOGY IN THE ANTARCTIC.

In *Das Wetter* for May, Sprung advocates the use of kites on the proposed Antarctic expeditions, for the purpose of securing accurate data as to the vertical temperature gradient in high southern latitudes. At present the calculation of the pressures at altitudes of 2,000–4,000 meters in these latitudes leads to rather unsatisfactory results, owing to the uncertainty which exists concerning the actual temperatures prevailing there above the earth's surface. By the use of thermographs elevated on kite lines, as has been so successfully done at Blue Hill, it would be possible to obtain accurate temperature data from the free air at considerable altitudes, and these observations could be used in calculating the pressures aloft with a considerable degree of accuracy.

AURORAS IN LONDON FROM 1707 TO 1895.

A recent paper by Mossman, on 'The Aurora Borealis in London from 1707 to 1895,' (*Journal Scottish Meteorological Society*, Nos. 13 and 14, 1897), shows that the maximum numbers were observed in 1848, 1787, 1789 and 1872. Auroras are most frequent in October and April, and least frequent in December and June.

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CURRENT NOTES ON ANTHROPOLOGY.

THE ARCHÆOLOGY OF GUERRERO.

The State of Guerrero lies on the Pacific, directly south of the City of Mexico. Before the Conquest it was peopled by the Mixtecs, who had a picture writing of their own; by the Nahuas, who were in the majority; and by lesser tribes. The Mexican antiquary, Orozco y Berra, writing thirty-five years ago, asserted his belief that within its area would be found one of the oldest sites of the American race (*Geografia de las Lenguas*, p. 239).

Especial interest, therefore, attaches to