SCIENTIFIC JOURNALS.

JOURNAL OF GEOLOGY, MAY–JUNE, 1897.

UNDER the title 'The Last Great Baltic Glacier,' Dr. James Geikie replies to the recent criticism by Dr. Keilhack.* He gives a brief re-statement of the evidence presented in the *Great Ice Age* for the belief that the great terminal moraines of the Baltic Ridge are products of an independent glacial epoch, quoting Du Pasquier on disputed points.

The post-Pleistocene elevation of the Inyo range and the Waucobe lake beds of California are discussed by C. D. Walcott. A series of well characterized lake beds in the foot hills of the Sierra Nevada are described. The beds contain fossils any of which 'might be recent or Pliocene' as determined by Dall, but of which the probable age is believed to be Pleistocene. The beds have a maximum thickness of 150 feet and in character resemble the ancient sediments of Lake Lahontan. The strata lie at very different levels. There is evidence of faulting and it is believed that there has been recent elevation to the amount of about 3,000 feet. In this connection the Owen Valley earthquake of 1872 is recalled.

In the fifth of his Italian Petrological Sketches, Dr. Henry S. Washington gives a general summary. The composition of the rocks of the Ciminite-Vulsinite-Toscanite series is discussed and its relationships to the Absorakite-Shoshonite-Banakite series as well as to other intermediate groups is illustrated by analyses and tables. The trachydolerites and the leucitic rocks are also discussed as to composition and relationship.

Dr. H. F. Reid gives a summary of the first annual report of the International Committee on Glaciers. Under each country notes relative to the present phase of glaciation is given. Of the Alpine glaciers a considerable number show the phase of increase. In America the glaciers are in general retreating, though some show the contrary phase. In 1896 the glaciers of Cook's Inlet, Chilcat Pass, and the Glacier Bay region, as well as those of Mt. Ranier, Mt. Hood and the Selkirk mountains were all reported as decreasing.

* *Jour. Géol.*, V., 113–125.

A sketch of the Geology of Mexico, based upon the recently issued reports of the Geological Institution of Mexico, is presented by Mr. H. F. Bain.

Among the reviews is an extended discussion, by Mr. C. F. Tolman, of the recent papers by Dr. G. F. Becker on rock differentiation.*

SOCIETIES AND ACADEMIES.

TORREY BOTANICAL CLUB, WEDNESDAY, APRIL 28, 1897.

PROFESSOR L. M. UNDERWOOD, Chairman, Professor N. L. Britton, Secretary, *pro tem.*

The first paper was by Professor L. M. Underwood, 'Notes on the Ferns of Japan.'

The immediate occasion of this paper was the receipt during the past year of two separate collections of Japanese ferns of about 50 species each.

The insular position of Japan, together with a considerable range of latitude, equalling that from St. Paul, Minn., to Mobile, Ala., gives Japan a larger proportion of ferns than we have in the United States, although the area of the islands is only that of the northeastern States as far as the Virginias, together with about one-half of Ohio.

The ferns are those of temperate climates and agree well with those of the adjacent mainland so far as the latter are known. A few subtropical forms enter the flora, but the really tropical species do not reach the islands.

Many species are common inhabitants of Europe as well as the eastern United States, but the ferns of Japan offer very little support to the once prevalent notion of the great similarity to the flora of the eastern United States. In fact about as many Japanese species have as many near allies in Pacific America as in other portions of the country if we exclude the species quite generally distributed through the north temperate zone.

Discussing the paper, Professor Britton cited a number of instances among spermatophytes, in which species supposed to be common to Japan and eastern North America had been

* *Amer. Jour. Sci.* (4), Vol. III., pp. 21–40, Jan., 1897.

shown to be distinct. He maintained that the theory of migration, as ordinarily accepted, was insufficient to account for such similiarity between the floras of the two regions as actually exists. Mr. T. H. Kearney, Jr., remarked that in comparing the grass-flora of the two regions he had found that, exclusive of circumboreal species, only two species are in common.

The second paper was by P. A. Rydberg, entitled 'Floral Features of Western Nebraska.'

It is a popular misconception that the country from Illinois to the Rocky Mountains constitutes one undifferentiated region. In fact, there are two entirely different regions, viz: 1. The prairie region, with rich loam and a comparatively good supply of rain and extending into the eastern Dakotas, Nebraska and Kansas. 2. The region of the Great Plains, with dry, hard soil and scanty rainfall and comprising the western portion of said States, eastern Colorado and Montana and the larger portion of Wyoming.

The plains are mostly covered by short grasses, the so-called Buffalo grasses. In the hot, dry autumn these become self-cured and form an excellent winter pasture for the stack. A little hay is cut on the lowlands and fed to the animals during snow storms. Otherwise the cattle and horses feed out during the whole winter. The Buffalo grasses are: the original Buffalo grass, *Bulbilis dactyloides;* Blue and Black Grama, *Bouteloua oligostacha* and *hirsuta*, and 'Nigger Heads,' *Carex filifolia.*

In a region where the rainfall is comparatively scant and distributed only during certain seasons of the year the plants must be so constituted as to be able to withstand a good deal of drought. In other words, the evaporation must either be reduced to a minimum or the plant must have special stores of water. The plants peculiar to this region may be divided into the following groups:

1. Very hairy plants generally covered with thick pannose pubescence, which retain the moisture, as species of *Eriogonum*, *Astragalus*, *Eurotia*, *Senecio*, *Evolvulus* and *Artemisia.*

2. Plants with glaucous foliage having a hard epidermis, as *Yucca glauca*, *Rumex venosus*, *Argemone alba* and several grasses.

3. Plants with white, often shreddy bark, as, species of *Mentzelia* and *Anogna.*

4. Plants with very narrow and often involute leaves, as *Lygodesmia juncea* and *rostrata*, and several grasses and sedges.

5. Plants with fleshy stems in which the surface is reduced to a minimum and no leaves, as the Cacti.

6. Plants with a deep-seated, enlarged root as the Bush Morning Glory, *Ipomæa leptophylla*, and the wild pumpkin, *Cucurbita fœtidissima.* Mr. Rydberg had seen a root of the former three feet long and almost two feet in diameter.

7. Plants covered with glands, containing essential oils, as *Dysodia papposa* and *Pectis angustifolia.* The oil is supposed by some to have a cooling effect, partly by taking up heat when evaporated and partly by surrounding the plant by a cooler atmosphere, their specific heat being much less than the air.

Two papers followed by Dr. J. K. Small: (a) 'The Sessile-flowered *Trillia* of the Southern States,' (b) 'Notes on Epilobiaceæ.' Both papers are published in the April number of the *Bulletin.*

N. L. Britton,
Secretary pro tem.

Alabama Industrial and Scientific Society.

The annual meeting of this society was held in the city of Birmingham on the 18th instant.

Mr. W. M. Brewer read a paper on Copper Mining in Alabama, in which he stated that the old Woods copper mine in Cleburne county had recently been taken in hand by a company which was doing a large amount of work in raising the ore, which is a copper-bearing pyrrhotite.

Mr. T. H. Aldrich gave an account of the work in which he has lately been engaged in preparing to mine and mill the gold-bearing quartz veins of Hog Mountain, in Tallapoosa county. This is a low-grade ore, but it can be mined and milled at a very small cost, and as the quantity is very great the proposed operations are to be on a large scale. In connection with this paper, the discussion brought out the fact that the working of similar low-grade ores has been very profitably carried on for about a year in the Idaho district, in Clay county, and Mr. Aldrich predicts that a number of gold-

mining plants will soon be in successful operation in the State. The recent reports of the State Geological Survey have shown that low-grade gold ores occur in large quantity at several localities in Alabama, and, since the success of the operations at Idaho has been fully demonstrated, the attention of capitalists has been directed to this inviting field.

Dr. Eugene A. Smith gave a short account of his recent visit to northwestern Texas for the purpose of inspecting again the sulphur deposits of that region. He exhibited some photographs taken by him which gave a good idea of the character of the scenery there.

Mr. Charles Geohegan gave to the Society some statistics concerning the relative cost of making mining engines and other mining machinery in Birmingham and in cities farther north.

Mr. J. W. Sibley read an instructive paper on the manufacture of vitrified brick, illustrating his remarks with a number of specimens of the crude material in various stages of its preparation and of the finished product. The material used in this manufacture is a gray shale, occurring in the Coal Measures of this State, in the vicinity of Coaldale, in Jefferson county.

Mr. Brewer then gave a report upon his success in the collection of the statistics of mineral production in Alabama, under the auspices of the State Geological Survey and this Society. He announced that for the past month he had succeeded in collecting statistics of about 95% of the total production, and said that he hoped to be able to have complete returns in the course of a few months. The statistics are collected monthly and sent out to the technical journals of the country and to the leading newspapers of the State.

Mr. Paschal Shook made the statement that the Birmingham Steel Mill Company were building two forty-ton basic open-hearth furnaces, which would probably be finished in the course of two months. They expect to be able to furnish steel billets to all the rolling mills of this section.

In his address the retiring President, Mr. F. M. Jackson, urged upon the members of the Society to exert themselves to increase the membership and with it the influence for good of this Society.

Officers for the ensuing year were elected as follows: President, Truman H. Aldrich, of Birmingham; Vice-Presidents, J. W. Minor, of Thomas, and J. A. Montgomery, of Birmingham.

EUGENE A. SMITH,
Secretary.

THE ANTHROPOLOGICAL SOCIETY OF WASHINGTON.

THE 264th regular meeting of the Society was held Tuesday, May 18, 1897. Professor Otis T. Mason exhibited a peculiar shaped boat from the Kootenay river, which in bow and stern was not unlike the modern ram or monitor, having a double point under water. The little model had been in the Smithsonian for forty years and was said to be an exact representation of the boats in use along certain parts of the Columbia river. It is made of the whole skin of the pine tree, and thus differs from the birch-bark canoe, which is made of pieces. This is reversed, so that the bast is outside and the bark inside; the ends are then drawn together and cut obliquely or with a slight curve from above downward, causing the bottom to project at either extremity, forming a point.

A line drawn across the Mercator map to Asia will strike the Amoor river, where practically the same style of boat is found, and the question was raised whether it showed contact or independent origin, and from the great resemblance it was thought the former, showing the migration of canoe forms from Asia to America.

Professor Mason premised these remarks by an outline upon the evolution of the boat. In the study of progress, water travel divides itself into *flotation* and navigation, the former meaning simply keeping above the surface, the latter including the higher problem of movement in a determined direction. Navigation includes the two elements of the hull and of the mechanism of movement. Propulsion may thus be represented:

Propulsion { Muscular, man or beast, { as in swimming, poling, paddling, rowing or cordeling. / Physical { wind, sail, steam and electricity.

The types of American aboriginal boats as conditioned by exigencies were then considered, beginning at the extreme north:

Kyack, or swift flying or man's boat for seal hunting. Umack, or scow or woman's boat for transportation.

Canada and northern United States, birch canoe, Haida.

Lower down on Pacific coast, Dugout, Klinkit, Chinook.

Inland, Columbia river, Kootenay.

Missouri river, Bull boat, which is nothing but a sort of crate with bull hide over it and pulled by a rawhide line, *i. e.*, towed.

South in East, Pirogue or dugout of soft log.

South and West, reed float or raft, reed catamaran.

On Pacific side of South America, Balsa.

In the interior and southward, woodskin.

The forms of boats are products of several causes or exigencies cooperating. The exigency of water is the study of the kind of water and its conduct, and the natives have everywhere studied the nature of water. The craft has resulted by a sort of natural selection. Thus at the mouth of the Yukon river the kyack is decked over with seal skin to keep off the spray; farther up the river is a birch-bark kyack partially decked; while still above it is an open birch canoe with no decking, on account of the rapids.

Exigency No. 2. Material, thus no Sioux made a boat of log, because there are no logs in his country, but have buffalo hide, and the propulsion is by women swimming, drawing the craft with a line.

Exigency No. 3. Function or use of boat. Thus for its purpose of swiftness the Esquiman kyack is built on the same lines as the best racing shells.

Exigency No. 4. Ethnic genius or the particular way or style of making by a people or tribe.

Discussed by Messrs Hough, Stetson, Sternberg, Pierce and McCormick.

Mr. Wells M. Sawyer read a paper on 'Jodocus Hondius Illustrations,' and exhibited one of the early maps of North America, 1607, containing many curious illustrations.

The principal of these is one in the lower left-hand corner of the sheet, showing 13 Indians from Brazil preparing a favorite intoxicant. The costuming, form of vessels and details of manipulation are truthfully given; to the right is a group of women biting and chewing the root which they afterwards spit into the large bowl from which others are pouring into an olla around which a fire is burning. Each illustration is accompanied by a Latin inscription of explanation. Another illustration of interest to the anthropologist is the throwing stick.

Discussed by Messrs Mason, Flint, Pierce, McGee and Sawyer.

Mr. James H. Blodgett read a paper on the 'Weak Places in our Public Education,' devoting the subject-matter principally to the study of geography in the public schools; he presented a number of old atlases, ranging from 100 to 20 years old and showing what slight changes had been made in the books used in 1820 and those used to-day and the unfitness of the latter for use with our present knowledge of such things.

Discussed by Messrs Flint and McCormick.

Professor W J McGee gave a paper on 'Present Condition of the Muskwaki Indians.' These Indians, known as the Sac and Fox, were at one time independent tribes near the Atlantic, but confederated for the purpose of warring against the Sioux; the Sac furnishing the principal chiefs up to the time of the Black Hawk War. They then moved to Iowa and bought land, and vested the title in the Governor of the State in trust, *ex-officio*, and now have about 3,000 acres. Their condition is quite primitive, and they are what are termed blanket and moccasin Indians.

They build winter and summer houses, the former ellipsoid in form, covered with mats made of rushes, sewed with cord manufactured by themselves; the summer house is rectangular, covered with the bark of the basswood or linden.

There is a symbolism connected with the building of their houses. They have many curious beliefs.

Discussed by Mr. Chas. Moore.

The Society adjourned for the summer.

J. H. McCormick,
General Secretary.