berculate mammal. The teeth of *Diademadon* show an incipient division of the fang and closely resemble in the crown the alleged *Microlestes* of the Rhætic of Germany. The point of additional interest is in the superior molars of an allied form, *Gomphognathus*. These are, as Professor Seeley implies, multitubercular, but they are also *tritubercular* in pattern. It is difficult to resist the inference that the four upper cusps do not represent the protocone, paracone, metacone and hypocone. If this is supported by further discoveries it will amply demonstrate the truth of the hypothesis which I have long advocated, that multitubercular teeth are more or less degenerate derivatives of tritubercular teeth.

HENRY F. OSBORN.

MARCH 25TH.

ZOOLOGICAL NOTES.

THE SHARP-TAILED FINCHES OF MAINE.

IN the proceedings of the Portland Society of Natural History (Vol. II., March 15, 1897) Mr. A. H. Norton remarks on the distribution and relationship of the sharp-tailed finches of Maine.

He states that *Ammodramus c. subvirgatus* breeds in the swale-bordered tide rivers, in close proximity to rocky bluffs fringed with black spruce, while true *caudacutus* of southwestern Maine rears its young in the broad salt marshes along the sandy beaches. As there are none of these low marshes in the area inhabited by *subvirgatus*, it necessarily takes the only available nesting grounds; consequently the difference in the character of the home of the two birds is of no apparent significance. It is suggested that after the close of the glacial epoch *subvirgatus* followed up the receding ice until a barrier to the bird's northward migration was reached at the Gulf of St. Lawrence. From this point the overflow of individuals pressed westward along the Great Lakes and finally covered the area now occupied by *nelsoni*.

The author, in common with a few others, is of the opinion that *A. caudacutus* and *A. nelsoni* are specifically distinct, and that *subvirgatus* is a race of the later so-called species. In this we do not agree, and would consider it just as logical to separate *Melospiza fasciata* and *M. fallax* into species with *montana* as a race of the latter bird.

A. K. FISHER.

CURRENT NOTES ON PHYSIOGRAPHY.

YELLOWSTONE NATIONAL PARK.

THE Yellowstone folio of the Geologic Atlas, by Hague, Weed and Iddings, forms No. 30 of the series. It has six pages of text, three plates with eleven admirably reproduced photographs, four topographic and four geologic sheets; all at a cost of 75 cents. Apart from the wonders of the geysers, the plateaus of lava beds and volcanic breccias, deeply dissected, especially in the Absaroka range, along the eastern border of the Park, are most notable. The slender, digitate forms of some of the ancient plateau remnants are remarkably well displayed on the topographic sheets. The continental divides in two open valleys that trench across Two-ocean plateau are peculiar, one of them being the famous Two-ocean pass, where a stream from the north forms a fan at the summit of the pass, turning its water rather indifferently to Atlantic Creek on the east or to Pacific Creek on the west. The origin of this deep and rather wide valley through the plateau is not stated, and our curiosity is left unsatisfied as to the reason why the Yellowstone River, with its relatively mature and open headwater valleys, has cut a distinctly young, steep-sided canyon in its more northern course.

BEARPAW MOUNTAINS, MONTANA.

MESSRS. Weed and Pirsson describe the Bearpaw mountains of Montana (Amer. Journ. Science, I., 1896, 283–301, 351–362)

as the dissected remains of a group of Tertiary volcanoes. Seen from the surrounding plains, the mountains have a serrate outline, highest near the center of an oval area, 20 by 40 miles in diameter. Seen in plan, they exhibit a well defined system of radial valleys. The interstream peaks and ridges consist of volcanic tuffs, breccias, and flows, lying on Cretaceous strata, around a central district of laccolitic cores, dikes and bosses. The Cretaceous strata are somewhat upturned and baked around the largest laccolitic mass, and the 'contact ring' stands in bold relief, forming ridges around the igneous center.

In the absence of detailed surveys of this region, a somewhat similar type may be studied on the topographical and geological maps of the great dissected volcano, known as the Cantal, on the central plateau of France.

LAURENTIAN HIGHLANDS OF CANADA.

A REPORT by Professor F. D. Adams on the geology of a portion of the Laurentian area (Geol. Surv. Canada, VIII., 1896, pt. J) includes a brief account of the physical features of an area lying northwest of Montreal. Leaving the drift-covered valley of the St. Lawrence, underlain by paleozoic strata, the Archæan highlands rise abruptly in a line of hills, which constitute the edge or southerly limit of a great uneven plateau, gradually rising to the northwest. Its surface is undulating or mammilated; the depressions being generally filled in with drift, forming extensive flats, studded with numerous lakes, great and small. Rounded, ice-worn bosses or hills protrude through the drift, seldom rising more than three or four hundred feet above the general level, and presenting, especially when burnt over, great faces or whole summits of bare rock. The lake outlets have carved terraces in the drift-clogged valleys. Settlements are scattered over the drift plains, avoiding the rocky hills.

The date of origin of the undulating plateau is not considered; but Lawson's supposition that it is a pre-paleozoic land surface, long preserved by burial, and lately revealed by the erosion of its cover—a geographical fossil, as it were—seems to be contradicted by the well defined line of bluffs in which the Archæan rises from the St. Lawrence valley, unless this line is determined by an unmentioned fault.

MAPS OF MT. DESERT.

MESSRS. Bates, Rand and Jaques have rendered a service to the summer residents of Mt. Desert by publishing several good maps of the island; one on a scale of 1:40,000 (in a single sheet or folded in cover), another on a scale of 1:25,000 in two large sheets, and a third of Bar Harbor, on a still larger scale. All have contour lines, the first two printed in brown with the culture in the black and the water in blue. A special map of the eastern part of the island shows the mountain paths in red. All the maps are based on the Coast Survey sheets; but the names are carefully revised to accord more closely with local usage, the revision and republication being the outcome of a careful work on the Flora of Mt. Desert by Mr. E. L. Rand and collaborators. Any of the maps can be had of Mr. Waldron Bates, 40 Water street, Boston. To the more observant of the island residents, winter or summer, these maps would serve as a good base for detailed record of the supposed high-level shore lines, described by Shaler.

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CURRENT NOTES ON ANTHROPOLOGY.

THE PROGRESS OF ANTHROPOLOGY.

THE President of the Anthropological Institute of Great Britain, Mr. E. W. Brabrook, in his annual address in January last, re-