

in the world.² Preliminary descriptions of some of these from Mr. Silberling's previous collections were published in 1923 by Dr. Gidley. The new collection greatly adds to the known material, both in number and in variety, and also includes considerably better specimens than any previously discovered. It should prove of the greatest value for the study of the origin and early differentiation of the primates.

It is estimated that preparation and study of this collection will take at least three years. In the meantime work is going forward rapidly on the United States National Museum collection, a study started by Dr. Gidley and after his death placed in the hands of the present writer by the authorities of that institution. In order to prevent long delay and to ensure proper priority for earlier work, this study will be completed and published without waiting for the new collection to be available.

GEORGE GAYLORD SIMPSON

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CASUALTIES AMONG ANIMALS ON MOUNTAIN ROADS

FROM time to time in the past few years there have been published lists of birds and mammals seen lying in the roads, killed by automobiles. These lists have been from the eastern and central states, and the majority of victims seem to have been birds. This past summer, 1935, I was in the mountains of Colorado from June 29 to July 25, and recorded such mammals and birds as were seen lying in the road.

My itinerary was as follows: From Colorado Springs through Canon City and Salida, across Monarch Pass down to Sargent and on to Gunnison. From Gunnison 12 miles north to Almont, and thence up Taylor River to Red Mountain Creek. Returning we went down Taylor River as far as the road across the Divide to East River at Jacks Cabin; thence north to Crested Butte. From this place we made trips to Gothic and Lake Brennan, at Irwin, and were about here until July 17. Then we returned to Gunnison, recrossed Monarch Pass to Salida, whence we went north as far as Chalk Creek, which stream we ascended as far as the old mining camp of Romley. From here we returned to the main road, went to Buena Vista and north to Half Moon Creek, which we ascended for several miles and where a few days were spent. Leaving here on July 25 we returned to Buena Vista, and thence went over Trout Creek Pass, and across South Park to Colorado Springs. Total mileage, 760.

I have purposely given this itinerary in considerable detail, though on some parts of the road no, or but very few, victims were seen.

To my companion, Robert C. Hill, of Denver, be-

² Dr. G. L. Jepsen, of Princeton University, has recently discovered similar forms of approximately equal, but apparently not greater, age in Wyoming.

longs the greater part of the credit for this list. He did all the driving and thus had to keep his eyes on the road, while my own eyes wandered far afield at times. The list follows:

Mammals: Cottontail rabbit, probably mostly *Sylvilagus nuttalli pinetis*, 8; white-tailed jack rabbit, *Lepus townsendi townsendi*, 4; Say's ground squirrel, *Callospermophilus lateralis lateralis*, 12; Gunnison's prairie dog, *Cynomys gunnisoni gunnisoni*, 56. Of these 29 were seen on July 1 along the 37 miles from Sargent to Gunnison, and 23 when returning from Gunnison to Sargent on July 17; wood rat, *Neotoma* sp., 1; mouse, sp.?, 2; skunk, *Mephitis mesomelas varians*, 1; house cat, 1; total mammals, 85.

Birds: Magpie, 1; blackbird, sp.?, 1; swallow, sp.?, 2; robin, 1; hen, 1; unknown bird, 1; total birds, 7.

Reptiles: Garter snake, 3; rattlesnake, 1.

The great mortality among the prairie dogs along the Sargent-Gunnison stretch of road is explained by the fact that there are many of the animals there. It would seem that when a car comes along the prairie dog is usually on the opposite side of the road from its hole, and tries to get home ahead of the car. Sometimes it makes it, frequently it does not. Many of the dead prairie dogs seen were young animals.

EDWARD R. WARREN

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FORMATION NAMES IN THE MACKENZIE RIVER VALLEY¹

THE pioneer map of the geology adjacent to the Mackenzie River by R. G. McConnell² was published in 1890. Thirty-one years later a report with two maps by E. M. Kindle and T. O. Bosworth³ divided the Paleozoic sediments of the Norman-Good Hope area of the Mackenzie River into formations and indicated their areal distribution in the vicinity of the river.

It has been found that two names applied in this paper to previously undifferentiated formations were preoccupied by other formations. One of these names, Lone Mountain dolomite, was applied to an 1800 section of Silurian dolomite capped by Devonian limestone. The name, Lone Mountain limestone, had been previously used by Arnold Hague⁴ for an Early Silurian formation⁵ in the state of Nevada. Since there is no evidence that the Mackenzie River and the Nevada formations represent identical horizons, the

¹ Published with the permission of the Department of Mines, Canada.

² Report on an Exploration in the Yukon and Mackenzie basins, N.W.T. Ann. Rept. Geol. Surv. Can., Vol. VI, pp. 5D-163D (1890), 1888-89.

³ Oil Bearing Rocks of Lower Mackenzie river valley. Summary Report, 1920, Pt.B., pp. 1B-72B, 1921.

⁴ U. S. Geological Survey, 3d Annual Report, pp. 253, 262, 1883.

⁵ Bull. U. S. National Museum, 92, p. 1516, 1915.

name North Nahanna River dolomite is here substituted for the Lone Mountain dolomite of Kindle and Bosworth. North Nahanna River enters the Mackenzie River adjacent to Lone Mountain, which was cited as the type locality for the formation, and the name is not preoccupied, according to the U. S. Geological Survey index of formation names.⁶

The topmost formation of the Devonian was given the name Bosworth sandstone and shale by Kindle and Bosworth from Bosworth Creek, which empties into the Mackenzie River at the oil well some forty odd miles below Norman.⁷ This formation, with a thickness "probably exceeding 2,000 feet, though only the lower 1,000 feet have been found exposed," requires a new name, because Bosworth was used by C. D. Walcott for an Upper Cambrian formation in British Columbia.⁸ The name Carcajou Mountain Beds is proposed in place of the name Bosworth. The new name is chosen from a mountain about 43 miles below Bosworth Creek.

On the south flank of the Wolverine anticline, which is responsible for Carcajou Mountain, a few hundred feet of these beds are to be seen along the bank of the Mackenzie River. A detailed section of the portion of this formation exposed here was given (p. 48B) when the formation was defined and may be regarded as representing nearly 500 feet of the type section.

E. M. KINDLE

GEOLOGICAL SURVEY
OTTAWA, CANADA

A CHEMICAL DIFFERENCE BETWEEN PROTEIN-LINKED AND FREE NUCLEIC ACID

A COMPARATIVE study has been carried out on the effect of phosphatase on thymonucleic acid and thymonucleohistone.

While free nucleic acid was nearly quantitatively dephosphorized within 24 hours in a monomolecular

reaction, only about 20 per cent. of the phosphoric acid was released from the nucleohistone under the same conditions. The rest of the nucleohistone phosphorus was split off extremely slowly from the nucleohistone. This essential difference between the behavior of free nucleic acid and nucleohistone can not be caused by any inhibiting effect of the protein component upon the enzyme action, since in a mixture of nucleohistone and free nucleic acid the dephosphorylation of the latter is quantitative and proceeds at about the same rate as that of free nucleic acid alone.

It is very probable that the 20 per cent. of "hydrolyzable" phosphorus in the nucleohistone arises from the presence of free nucleic acid in the nucleohistone preparation, because the quantity of the easily released phosphorus is nearly proportional to the amount of the added nucleohistone and because the quantity of purine nucleosides, split off simultaneously with the phosphorus, corresponds exactly to the purine-phosphorus proportion in thymonucleic acid.

Concerning the nature of the chemical difference between free and histone-linked nucleic acid it is very improbable that this is caused by different structures of the two nucleic acids. Thus, there remains only the supposition that this difference is produced by the linkage of the nucleic acid component with the protein.

This theory is also supported by the fact that the resistance of the nucleoprotein against phosphatase disappears after digestion with pancreas extract. From such predigested nucleohistone, the phosphorus is split off quantitatively by nucleophosphatase at the same rate as from free nucleic acid.

The behavior reported here of thymonucleohistone is not a special property of this nucleoprotein, since a similar resistance against phosphatase was observed on spleen nucleoprotein.

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SCIENTIFIC BOOKS

ECONOMIC GEOGRAPHY

Fundamentals of Economic Geography. By NELS A. BENGTON and WILLEM VAN ROYEN. xxviii and 763 pp.; maps, diagrams, illustrations, index. 9 by 6 inches. Prentice-Hall, New York, 1935.

THIS most recent of the several excellent college text-books in economic geography differs from others in the field in both organization and content. In departing from conventional organizations, the writers

⁶ Letter from M. Grace Wilmarth, June 17, 1935.

⁷ *Op. cit.*, p. 48.

⁸ Nomenclature of some Cambrian Cordilleran formations: Smithsonian Miscellaneous Collections, 53: 1, p. 3, 1908.

have performed the valuable service of calling attention to an effective plan for presenting the subject-matter of economic geography coherently. The inclusion of topics not generally considered as within the field of economic geography proper, presumably to supply the background which experience would indicate as lacking by the average college class, is not so fortunate, partially because it appears to assume too much inclusiveness for a limited aspect of geography and in part from the fact that it imposes a limitation on classroom use because of practical considerations which can not be ignored entirely in the selection of a text. Certainly some of the included material, such