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.

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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. BENGTSON 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 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

[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.

as Chapter II dealing with the seasons, time and map projection, could have been omitted from a text in economic geography without serious loss.

In the opinion of the reviewer, the outstanding praiseworthy feature of the text is the organization of the treatment of agriculture on the basis of topical discussion of the production of climatically delimited regions rather than by political subdivisions or on a purely topical basis. This type of treatment, which might have been extended to other sections, has certain manifest advantages.

The style is simple and within the understanding of the students who will use the text; much of the material is presented in very interesting fashion; the illustrations, maps and graphs are both numerous and good; the text obviously fulfils adequately the objectives the authors had in mind in its preparation. The authors have both had years of successful experience, the results of which appear in this highly effective presentation of the field of economic geography in a new and attractively printed text due to meet merited approval.

Economic Geography. By R. H. WHITBECK and V. C. FINCH. Third edition. x and 550 pp.; maps, diagrams, illustrations, index. 9 by 5¾ inches. McGraw-Hill Book Company, New York, 1935.

IN the third and latest edition of this well and favorably known text in economic geography for beginning college students the subject-matter is organized on a "topical regional basis," as in the earlier editions, with political units as "regions" and with major emphasis on those areas of North America with English-speaking populations. Both the treatment of subject-matter employed and the greater importance of these areas to American students make this desirable, but there is no valid equivalent justification for the greater emphasis accorded to Latin America than to Asia.

Revision has involved but slight change in the text; even the pagination is essentially the same as in the first two editions: a flattering commentary on the earlier editions which have been tried and found satisfactory over a period of more than ten years. The most important difference between this edition and its predecessors is that outdated maps have been redrawn or graphs based on recent data have been substituted for maps which have outlived their usefulness for instructional purposes. These new maps and graphs measure up to the high standards of the text, though some are open to the criticism that there is no method of determining the date of the statistical material upon which they are based, *e.g.*, Fig. 8.

The first edition was a welcome addition to the list of college texts in economic geography; the third is a worthy successor to the first. Though there may be some slight differences of opinion as to the desirability of the organization of the subject-matter on a "topical regional basis" with political units as "regions," there should be general agreement that the authors have succeeded in writing a logically organized, readable, teachable and excellently illustrated text.

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FORESTRY

The Theory and Practice of Silviculture. By F. S. BAKER. 502 pp., 1934. McGraw-Hill Book Company, Inc., New York.

IF any proof be needed that forestry in this country is gradually emerging from empirical gropings and slavish imitations of European practice, Professor Baker's book gives ample evidence of it. Silviculture is nothing else than applied ecology and must rest upon plant physiology, soil physics and biology in general.

In western Europe, there are only about a half dozen commercial tree species, growing under a fairly uniform climate, with which the forester has to deal; forest practice has grown up there as a slow evolutionary process and has become, like agriculture, a part of the everyday life of the people. The scientific problems are therefore comparatively simple, and the scientific reasons for this or that practice are not very urgently needed.

In this country, where foresters have to deal with several hundred commercial species of trees, spread over a continent with a climate ranging from semi-tropical to arctic, from humid to arid, with an enormous variety of soil conditions, and a lack of historic and economic precedence in forest culture, forest practice must be built from the ground up—a practice suited to the needs of every locality and species. This requires ingenuity and freedom from any fixed European moulds, possible only when the scientific reasons for this or that step are clearly understood.

Professor Baker attempts, and in my opinion admirably succeeds, to combine in one volume both the different forest practices in the several forest regions of this country and the scientific background for such practices. He lays the scientific foundation for an indigenous silviculture, and shows that forest management can succeed only when it is firmly grounded in natural sciences. Although the book is divided into five chapters, it really falls, on the basis of the topics treated, roughly into two almost equal parts. Of the 459 pages of the text proper, some 264 pages are devoted to plant physiology, soils and ecology, as they apply to the life of the forest, and the remainder to the discussion of the different silvicultural systems.

In a book of such scope, one may find, according