PANTOTHENIC ACID—A VITAMIN

THE discovery of Jukes[1] and of Woolley, Waisman and Elvehjem[2] indicating plainly that the "chick antidermatitis factor" is identical to pantothenic acid, which has been investigated in the writer's laboratory, comes as a welcome confirmation of a suspicion which has long been entertained—namely, that pantothenic acid is a vitamin of importance in animal nutrition. It seems likely that this particular compound, which appears to be universally present in living tissues, will be found to be required by higher animals in general.

A partial synthesis of pantothenic acid somewhat similar to that reported by Woolley, Waisman and Elvehjem was carried out in the author's laboratory in June, 1938, but publication was deferred pending further investigation. This partial synthesis, based upon our finding that pantothenic acid was a derivative of β alanine,[3] was mentioned orally to a few individuals, but we have no reason to doubt but that it was accomplished by Woolley, Waisman and Elvehjem independent of any knowledge of the procedure which we employed. The Wisconsin workers and Dr. Jukes, of the University of California, are to be congratulated on the clear-cut character of their results.

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THE EFFECT OF X-RAY ON THE COCCIDIA OF THE RABBIT

INTRACELLULAR stages of rabbit *Eimeria* have been found to be susceptible to the x-ray. Skin dosage of as little as 150r. at 70kvp. causes a sharp decline in oocyst production, while skin dosage of 450r. at 70kvp. completely stops oocyst production for from five to seven days, after which a relapse occurs in which oocyst production varies considerably from day to day with a gradual decline, which in one instance reached zero on the sixteenth day after the relapse. At no time during the relapse has the production of oocysts reached the same volume as before raying.

From these observations it is evident that the gametocytes are more susceptible than the asexual stages, but the exact developmental stages which are most susceptible have not yet been determined because of lack of complete information on the life cycle of the coccidia studied.

It is indicated that laboratory animals as well as valuable stock and pets might be freed from coccidia by the use of x-ray.

This work is being extended to the coccidia of poultry.

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SCIENTIFIC BOOKS

THE GEOLOGICAL SCIENCES

The Birth and Development of the Geological Sciences. By FRANK DAWSON ADAMS. $5.00. 506 pages. Illustrated. Williams and Wilkins.

THIS copiously illustrated volume is a very welcome addition to the rather scanty literature dealing with the history of geology and the related sciences. Whereas the widely used treatises of Zittel, Geikie and Merrill deal mainly with the development of geological science during the last two centuries, it gives much larger space to the consideration of the more ancient writers and the first attempts, often naive and unscientific, to explain the phenomena of the earth.

During Dr. Adams's long life of devotion to education and science at McGill University, he has become a conspicuous leader in geological research. His intimate friends have long known of his passion for rare and ancient books, and many have envied him his remarkable collection of more than a thousand such books dealing with geological topics. And now with characteristic generosity, he gives to the world the benefit of his activities as a bibliophile.

After a survey of geological science, or the lack thereof, in classical times and a general investigation of the conception of the universe in the Middle Ages, a half dozen of the subdivisions of the broad science of geology are considered in sequence. There is a chapter on the ancient controversies concerning the "generation of stones" and two chapters devoted to "Medieval Mineralogy" and "The Birth of Modern Mineralogy and its Development from Agricola to Werner and Berzelius."

Next comes an account of the birth of historical geology in which due attention is paid to the rise and fall of the "Neptunian Theory." This is followed by chapters dealing with the birth of paleontology, the early investigations of metalliferous ore deposits, the origin of mountains, the attempts to explain earthquakes and the origin of springs and rivers. Where it seemed advisable to do so, Dr. Adams has briefly sketched the more recent developments of geological principles and theories. In the concluding chapter, there is an appraisal of the reasons why the earlier seekers after knowledge were so often turned aside into the by-paths

[1] *Jour. Amer. Chem. Soc.*, 61: 975, 1939.

[2] *Jour. Amer. Chem. Soc.*, 61: 977, 1939.

[3] This relationship was reported both at the International Physiological Congress in August, 1938, and at the American Chemical Society meeting in Milwaukee, September, 1938. A paper on the subject is now in press.