

be ready for occupancy in about a year and a half. The cost of the buildings will be about half a million dollars.

THE department of pharmacy of the Oregon Agricultural College has been notified of its acceptance as a member of the American Conference of Pharmaceutical Faculties.

THE will of the late Mr. George May, mining engineer and colliery proprietor, of Darlington, bequeaths £500 to the North of England Institute of Mining Engineers, the income to be applied in providing "George May" prizes for students, and 500*l.* to Armstrong College, Newcastle, to found a "George May" scholarship in mining.

PROFESSOR HERBERT COUPER WILSON, of Carlton College, has been appointed visiting lecturer in astronomy, at Harvard University. Marshal Fabyan has been promoted to be assistant professor of comparative pathology.

DISCUSSION AND CORRESPONDENCE

PARASITES OF THE MUSKRAT

IN a recent number of the *Journal of Parasitology*,¹ Professor Al. Mrázek, professor of zoology, Bohemian University, Prague, called the attention of American helminthologists to the opportunity for study of the parasites of one of the most typical North American mammals.

We announced in a recent number of *SCIENCE*² the finding of a varied and abundant parasitic fauna in muskrats in Nebraska and called attention to the important, virgin and fertile nature of this field for the parasitologist and the need and value of a thorough survey of the parasitic fauna of our common North American animals.

A study of the parasites of the muskrats, now practically completed, gives the following data. In forty-two muskrats, 881 parasites were found. No parasites were found in four muskrats, three harbored cestodes, trematodes and nematodes and three harbored a single species of trematode. The parasites found represent nine species of trematodes, of which

three belong in the genus *Echinostomum* and one in each of the following genera, *Echinoparyphium*, *Notocotyle*, *Catantropis*, *Plagiororchis*, *Hemistomum*, and a new genus *Wardius*. Two species of cestodes were found belonging in the genera *Hymenolopis* and *Anomotaenia* and three species of nematodes, belonging in the genera *Trichiurus*, *Trichostrongylus* and *Capillaria*. The description of these parasites is given in the June number of the *Journal of Parasitology*, Vol. 1, No. 4.

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THE CHEMICAL COMPOSITION OF BORNITE

IN *SCIENCE* for September 17, 1915, Professor Austin F. Rogers admirably summed up the evidence as to the composition of bornite, and concluded that the best explanation of the known facts is that the mineral consists of a solid solution of varying amounts of chalcocite, Cu_2S , in a normal bornite, Cu_5FeS_4 . The object of this note is to bring forward another possible interpretation.

Since chalcocite is of common occurrence as inclusions in bornite the assumption that it may unite with the latter in solid solution is a reasonable one. But inclusions of chalcopyrite, CuFeS_2 , and even of pyrite, FeS_2 , are likewise frequently found, so it can not be denied that these minerals may also form solid solutions in the bornite. The clustering of analysis points in the diagram around Cu_5FeS_4 may then be accepted as "evidence that [normal] bornite has the formula Cu_5FeS_4 ," without excluding the possibility of solid solution, because the analyses lying in the diagram to the left of the Cu_5FeS_4 point may well be those which contain the chalcopyrite in solid solution, the absence of analyses far to the left of the Cu_5FeS_4 point indicating that this is the limit of solubility of chalcopyrite in bornite: $\text{Cu}_5\text{FeS}_4 + \text{CuFeS}_2 = 2\text{Cu}_3\text{FeS}_3$. The entrance of pyrite in solid solution would also account at least in part for those analyses lying above the diagonal line, and it need not be assumed that they are erroneous.

There is, however, another way of explaining variability in composition of the type shown

¹ 1914, Vol. No. 2, p. 104.

² 1913, Vol. 37, p. 268.