

tivity of the yeast cell or its zymase is greatly accelerated by the presence of these substances. The question then may properly be asked whether soluble phosphates do or do not accelerate the activity of the organisms or the enzymes responsible for those important soil processes mentioned above, and further whether sulphates effect in the same degree such accelerations.

Work in this and other laboratories has progressed far enough to indicate that soluble phosphates have a very material effect in increasing the number and consequently the rate of ammonification, nitrification, nitrogen fixation, and carbon dioxide output of those soil organisms capable of carrying out these processes, while sulphates do not, at least in the same degree, accelerate their multiplication. My thanks are due Professor C. Hoffmann for conducting such experiments.

From such results it is evident that sulphates will not be of the same importance in increasing crop production as can be expected from the phosphates. An adequate supply of sulphates is, of course, necessary, and for those crops making an abundant use of sulphur, such as the high protein plants and the members of the Cruciferae, a further concentration in sulphates of the soil water may often result in increased crop production. But to the phosphates must be ascribed functions additional to that of merely maintaining a certain concentration of phosphorus in the soil solution—namely, the important function of greatly accelerating the biological activities of the soil.

In conclusion, however, it should be emphasized that as crop production per unit of area increases through the extended use of added phosphorus and attention to proper soil reaction, there will result an increased demand for sulphur.

E. B. HART

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GRIZZLY BEARS: SKULLS WANTED

HALF a century ago a considerable number of wholly distinct species of grizzly bears inhabited the western part of North America. They ranged from the eastern edge of the

Great Plains in Manitoba and the Dakotas westerly to the Pacific coast in British Columbia and California, and from the shores of the Arctic ocean south into Mexico. The species inhabiting Alaska and the western provinces of Canada, though reduced in numbers, may still be counted among the living, but those of the western United States are with few exceptions extinct; and what is still worse, in most cases only a few skulls remain to afford future students a fragmentary and imperfect picture of the great carnivores which not long ago were dominant figures in our wild life.

For twenty-three years I have been engaged in a study of the bears, and have been favored with specimens (mainly skulls) from nearly all the museums and private collections of the United States and Canada. Still, owing to wide gaps in this material, many questions have arisen which can not be answered. Not only is it impossible to map the ranges of the different species with anything like precision, but in some cases, owing to the absence of skulls of adult males, the characters which serve to distinguish one species from another can be determined only in part.

Therefore, in the hope of obtaining more light on some of these questions before going to press, I wish to make a final appeal to all who have skulls of grizzlies in their possession. I am anxious to see as many skulls as possible of both sexes from all parts of the western United States, British Columbia, Alberta, Manitoba, Yukon Territory and Alaska, and would like to purchase or borrow all that I have not already seen. Owners of skulls will confer a favor by addressing

C. HART MERRIAM

NATIONAL MUSEUM,
WASHINGTON, D. C.

QUOTATIONS

THE PARTICIPATION OF UNIVERSITY PROFESSORS
IN POLITICS¹

My dear President McVey: I regret to advise you that I find myself out of harmony

¹ Correspondence between the professor of law and the president of the University of North Dakota.