tional Research Council laboratories, by R. L. Cunningham and R. B. Harvey of McGill University. Four fellowships of the value of 750 dollars each, and thirty-seven studentships of the value of 650 dollars each, will be held at Canadian universities directly under the auspices of the National Research Council. With the cooperation of Canadian universities, the National Research Council is also awarding twenty-three bursaries of 250 dollars each. These bursaries are available to students of high attainments who have just graduated and are ready to take their preliminary training in research.

AT the Toronto meeting of the American Society of Biological Chemists a committee was appointed to consider the relationship of chemists to the work in clinical laboratories. The committee, consisting of Dr. William C. Rose, president elect; Dr. D. D. Van Slyke and Dr. Vincent du Vigneaud, chairman, was authorized to act for the society and has submitted the following report: The American Society of Biological Chemists wishes to express its full agreement with the policy set forth in the resolution adopted by the American Chemical Society with regard to clinical laboratories: "In order that the public may be protected the states should license individuals engaged in determining data of a chemical nature bearing upon the public health or upon which the diagnosis and treatment of disease may be based, and that the states also should approve laboratories engaged in such work and their directors, solely on the basis of adequacy and competence and without assuming that any particular degree such as doctor of medicine, doctor of philosophy or doctor of science, is in itself a guarantee of the qualifications requisite to ensure the accuracy and experience necessary to the public welfare."

DISCUSSION

BACTERICIDAL FILTRATES FROM A MOLD CULTURE*

ALTHOUGH there is a large literature on bacterial antagonism, going back to the work of Metchnikoff and culminating in the striking results of Dubos at the Rockefeller Institute, there is, to my knowledge, only one recorded case of a bactericidal product formed from a mold. In 1929 Fleming[1]—confirmed later by Reid[2]—found that filtrates from a particular *Penicillium* displayed marked inhibitory effect on the growth of many gram-positive and some gram-negative organisms, but without bactericidal effect. Gratia and Dath[3] reported a *Streptothrix* whose filtrates were highly bactericidal to a variety of bacteria.

In this laboratory a mold—tentatively identified by Dr. Charles Thom of Washington as *Aspergillus flavus*—has been found which grows readily in liquid media yielding filtrates that are definitely bactericidal for some gram-negative as well as gram-positive bacteria. A series of other *Aspergilli*—all kindly supplied by Dr. Thom—has been examined in this way, with widely varying results. Another strain of *Aspergillus flavus* was found totally inactive, while several representatives of the oryzae-flavus group, as well as a strain of *Aspergillus parasiticus,* have shown activity in one degree or another; but none has been as active as the original organism. The results with any mold are fundamentally dependent upon the medium. Various media and conditions of growth are being studied, and at the time of writing a method has been found to concentrate the active material, although nothing is yet known as to its nature. The results so far noted stem from an inherent property of the mold as against properties developed by adaptation in the sense of Dubos and of Waksman and collaborators.[4] However, attempts are being made to grow the mold on bacterial cultures as sources of nutriment with the hope of accentuating the activity already existing.

A detailed report of this work will be published as results warrant. In view of the growing interest and more numerous investigations in this field of microbial antagonism it has seemed appropriate to publish this brief record at this time.

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1 *British Jour. Exp. Path.,* 10: 226, 1929.
2 *Jour. Bacteriology,* 29: 215, 1935.
3 *Compt. Rend. Soc. Biol.,* 92: 461, 1925.

ANTLER-EATING BY RODENTS

CARLSON'S query[1] as to the presence of an "urge" or appetite in the gray squirrel for calcium and phosphorus during pregnancy and lactation as evidenced by the eating of bone brings up a related question which may have some bearing on the case. This is a question of what becomes of deer antlers after they are shed.

It might be supposed that if the antlers persisted on the ground for several years after shedding they would become quite common on certain portions of our western range where it is heavily stocked with deer. It has been my observation through many years afield on such ranges that the antlers are exceedingly scarce. I believe this has been corroborated by many other observers. If it is actually a fact, the obvious

4 National Academy of Sciences, Washington, April, 1940. A report of this work was seen in the *New York Times* of April 24, 1940.

1 A. J. Carlson, SCIENCE, 91: 573, June 14, 1940.

implication is that the antlers disappear rapidly after being shed.

In casting about for an explanation of their scarcity, I can suggest only one possibility that would explain their rapid disappearance—that of being eaten by rodents. I have observed on a very few occasions partly eaten antlers with definite teeth-marks left to indicate the gnawing of rodents, presumably mice. Could this be the answer to the disappearance of the antlers? Could antlers serve the same purpose that bones did for Carlson's gray squirrel? Is it likely that other rodents have an "urge" or appetite to eat bones or antlers?

If antlers do actually disappear in this manner, it seems to me, there must be some wide-spread agency consuming them, and consequently they must serve as an important source of supply of minerals. Could it be possible that there is an interrelated dependency between rodents and deer or other antler-shedding ungulates?

It has occurred to me several times that I have found on the range more cases of antlers fastened to the skull than of those that have been shed. While this is clearly a case of memory I wonder if others have had similar experience. If this be true, the obvious implication is that the shed antlers disappear more rapidly than those fastened to the skull at death. If so, is there some change in the composition of the antlers that would make them more palatable to rodents when properly shed than at other times?

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THE EATING OF BONE BY SQUIRRELS

IN your issue of June 14, Professor Carlson asked for reports on the eating of bone by squirrels. The following note may be of interest. In 1928 I spent a large part of the summer in a cottage on a five-acre island in Lake Temagami, Ontario. The island is densely covered with mixed bush. Lying just outside the cabin was an old moose skull, found a year or two earlier in a stream where it had been long enough to become completely clean; this, combined with subsequent exposure to all weathers, had reduced the fleshy contents to a minimum. During this summer a red squirrel (*Sciurus hudsonicus*) regularly visited the skull twice a day, about 6 A.M. and 4 P.M., and nibbled for a few minutes at projecting parts, especially the upper edge of the orbits. When I first arrived on the island the physiological effects of the breeding season might still have been operative (assuming the animal was a female), but the practice was continued till the end of August, when this could hardly have been the case. I do not want to imply that the visits were invariable, but they were so regular as to be expected, and I have photographs of the animal on the skull. The amount removed each time was very small, but there was a real eating of bone.

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FIFTY HARVARD GRADUATES

CERTAIN achievements of the Harvard College Class of 1915 seem worth special consideration just now. This is the class which was graduated into World War I and its social-economic upheavals. It is the class which, having reached its twenty-fifth and mature anniversary, was the principal alumni group at the recent Harvard University graduation exercises. Again a world war was in their minds, and each individual's relations to his society's changes. Seriously they looked backward at their own careers and forward to the careers of their children.

This is what they found in their own pasts:

Seven hundred and two matriculated with the class; 90 have died; 12 have disappeared; 600 are active to-day; some 400 were able or wanted to attend their twenty-fifth class reunion.

Taking "American Men of Science" and "Who's Who in America" as measures of achievement—50 of the 600 survivors are in one or the other of those directories; 9 are in both; 19 are in "American Men of Science." Two are starred in "American Men of Science," one when he was 40 years old, the other when he was 46.

By professions, the 50 break down to 16 in academic work, 5 in medicine, 3 in law, 5 in government service, 6 in finance, 10 in business, 5 in writing.

Oldest in this group is 58 years; youngest 44; average age 47.

Average age of achievement (when a man became assistant professor, published a book, etc.) for the 50 was 33.3 years; for all the scientists, 31.4; for the 9 scientists listed also in "Who's Who" 29.8.

The plurality (24) of these 50 achievers have migrated westward from their place of birth. Seven have traveled eastward; 19 flourish in the neighborhood of birth.

Of the 50, 45 have been married, 7 divorced. Average at first marriage, 27.7. Average marriage age of those with children, 26.8; without children (10 couples) 30.8. Average number of children from productive marriages, 3.1; from all the 50, 2.2.

Of the entire 1915 class of 600, 491 have married. Each averages 2.3 children. The whole class average is 1.9. Achievers are the more family-minded. But one classmate, whom the directories do not list, has nine children. The divorce rate of the achievers is 14 per cent. (7:50), against 9 per cent. (54:600) for the whole class.

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