ducted before we can hope to make generalizations concerning the life of the ruffed grouse. I wish to express my appreciation for the splendid cooperation already given me by various sportsmen and by the conservation commissions of Connecticut, Massachusetts and Maine. The primary purpose of this preliminary note is to stimulate interest in the further investigation of all phases of an important ornithological problem.

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A BACTERIOLOGICAL NOTE RELATIVE TO THE FRANKLIN ARCTIC RELIEF EXPEDITION OF 1848

THROUGH the kindness of Mr. O. S. Finnie, director of the Northwest Territories and Yukon Branch of the Department of the Interior, Canada, the writer was given the opportunity of examining bacteriologically a specimen of pemmican found in a cache on Beachy Island, District of Franklin, Canada, by members of the Canadian Arctic Expedition of 1924. The cache was identified as having been established by one of the early Franklin Relief Expeditions, presumably that of 1848.

The pemmican was found hermetically sealed in a tin container, which bore no marks of origin, but in all likelihood was of English manufacture, as it had no resemblance to Canadian-made pemmican of that period. Upon removal from the tin, the pemmican block measured about eight-inch cube, was somewhat rust-incrusted and weighed almost ten pounds. This rusty incrustation being carefully pared off with a knife, the pemmican was found to be of a light brownish-yellow color and in an extremely dry condition. Currants were found embedded in the homogenous mass and were thoroughly desiccated, extremely friable and tasteless.

For bacteriological examination, a portion of the surface of the pemmican block was thoroughly seared with a hot iron, and with the aid of a sterile punch a portion about two and one half cm long was extracted and deposited in a sterile Petri dish. With a sterilized knife the outer four mm of this cylinder were carefully cut away and discarded. The remainder of the plug of pemmican was broken up with a knife into small fragments and the examination proceeded with.

Bacterioscopic examination: A small fragment of the pemmican was transferred to a slide and soaked with a small amount of sterile physiological salt solution. As soon as the material was thoroughly softened it was crushed and smeared over the slide, dried and stained with gentian violet. Under the microscope, examination demonstrated the presence of a moderate number and variety of rod-shaped forms of bacteria, together with two different types of micrococci. These latter organisms were grouped usually, in pairs, with an occasional cluster of four or five. A gram stain showed large and small-sized positively staining rod forms, fairly well impregnated; diplococci, both large and small sizes, were found positive in fair numbers, although some of the larger type were negative. Although sought for, no acid-fast rods could be recognized.

An attempt was also made to demonstrate the presence of spores of bacteria, but on account of the presence of considerable fat in the material, spores could not be identified with any certainty.

Bacteriological examination: 0.2 gm of the pemmican was weighed out, suspended in 10 cc of sterile salt solution and distributed in large fermentation tubes of dextrose broth, containing the usual amount of Andrade's indicator, and of a pH of 7.4. These tubes were incubated at 37° C. anaerobically in an atmosphere of hydrogen for 48 hours and examined. At the end of this period, one tube showed about 50 per cent. of gas, and the surface of the liquid in the bulb was covered with a heavy wrinkled felt-like growth. The contents of both the bulb and closed arm of the tube were strongly acid in reaction. The other three tubes gave no gas, but showed growth in both bulb and closed arm and were slightly acid in reaction. The surface of the bulb and contents of two of the tubes showed a felt-like growth, as in the tube containing gas, whereas the fourth tube, although cloudy, did not show this peculiar surface growth.

Without going into further technical details, it can be stated that the following bacteria were successfully isolated: *Bacterium welchii, Bacillus cereus* (Frankland) and *Bacillus subtilis* (three varieties). It was calculated from special data that the viable spore content per gram of pemmican was about 25 spores of *Bacterium welchii* and 300 spores of the hay bacillus group. These results are in general accord with what might have been anticipated, namely, that if there were any surviving forms of bacterial life, these would in all probability consist of viable spores only. As a check, however, the contents of these fermentation tubes were tested out on Endo's medium in the hope that possibly some non-sporing bacteria of the coli-aerogenes group might have survived, but none was found. The same endeavor was pursued by using a small portion of the pemmican made up into strong suspension in salt solution, but no growth appeared on any of the Endo plates.

Bearing in mind the possible existence of spores of

Bac. botulinus in the pemmican, 0.2 gm was incubated anaerobically for four days in dextrose broth at 37° C. and two mice were inoculated intraperitoneally with 0.2 and 0.4 cc of the broth filtered through a Berkefeld "V" filter, with entirely negative results.

It is proposed to deposit sub-cultures of these organisms with the culture collection of the Society of American Bacteriologists, under the care of Dr. Ludvig Hektoen, of the McCormick Memorial Institute, Chicago.

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THE MICHIGAN ACADEMY OF SCIENCE, ARTS AND LETTERS

THE thirtieth annual meeting of the Michigan Academy of Science, Arts and Letters was held at Ann Arbor, April 1 to 3, 1925. The presidential address, "American botany during the colonial period," was delivered by Professor H. H. Bartlett. Dr. Edward Francis, of the United States Public Health Service, addressed the Academy on "Tularaemia."

The following program was presented:

GENERAL SESSION

Williams James Beal, 1883–1924: ERNST A. BESSEY.

Botanizing in the Himalayas: L. A. KENOYER.

American astronomical expeditions to the Southern Hemisphere: W. J. HUSSEY.

The Tanager Expedition of 1923 to Johnston and Wake Islands in the north tropical Pacific and its botanical results: JAS. B. POLLOCK.

SECTION OF ANTHROPOLOGY

E. S. McCartney, *chairman*

The influence of tales of the marvelous on Spanish exploration in America: A. S. AITON.

The natural science of the Australian native: E. F. GREENMAN.

Recent advances in prehistoric anthropology and archeology: E. C. CASE.

The heredity of head form: H. H. BARTLETT.

Religion at the Algonquian level: W. B. HINSDALE.

The protective power of red: H. A. KENYON

Notice of Dr. Hinsdale's "Primitive man in Michigan": E. F. GREENMAN.

Longevity and rejuvenation in Greek and Roman folklore: E. S. MCCARTNEY.

SECTIONS OF BOTANY AND ZOOLOGY

Joint Session

Variations and mutations in Pestalozzia guipina: CARL D. LA RUE.

The proportion of exceptions in the offspring of exceptional females from x-ray treatment of Drosophila: E. G. ANDERSON.

A dominant brown pericarp color in maize: E. G. ANDERSON.

A preliminary report on inheritance of fruit length in Capsicum: E. E. DALE.

Experiments concerning the coloration of pigeons: Read by title. JAN METZELAAR.

Genetics of color in Macrosiphum: A. FRANKLIN SHULL.

Some observations on the chondriosomes in the male germ-cells of Belostoma flumineum: A. M. CHICKERING.

A suggestion concerning the mode of inheritance of mental ability: H. R. HUNT.

Birth-rates in the families of the Michigan Agricultural College: C. V. GREEN and H. R. HUNT.

SECTION OF BOTANY

J. B. Pollock, *chairman*

The fungus flora of Mt. Hood, with some new species: C. H. KAUFFMAN.

Cultural life-histories of certain species of Eutypella, Diatrypella and Cryptovales: LEWIS E. WEHMEYER.

The life-history of Dimerosporium collinsii: GEO. B. SARTORIS. (Presented by C. H. Kauffman.)

On the distribution of the water molds, with notes on the occurrence in Michigan of members of the Leptomitaceae and Blastocladiaceae: BESSIE B. KANOUSE.

The reactions of the bean rust grown on leaves in solutions: CHARLES W. WATERS.

Rhizoctonias in culture: J. E. KOTILA.

Nutritive value of the Mung Bean: H. H. M. BOWMAN.

Rate of respiration in successive leaves of corn and sorghum: J. H. HOVER.

Growth curves in fruit of cucumber, tomato, summer squash and musk melon: F. A. GUSTAFSON.

The action of nutrient ions on certain enzymes in the sugar beet: DR. G. DOBY (visiting professor from Hungary), introduced by E. A. Bessey and R. P. Hibbard.

Further studies on the yield of corn as influenced by the date of planting: R. P. HIBBARD.

Studies of seed viability through the aid of electrical conductivity measurements. Preliminary report. R. P. HIBBARD and GEO. L. FICK.

Jane Colden, a pioneer in American botany: Read by title. H. H. BARTLETT.

Algae of the Douglas Lake region: ALMA B. ACKLEY.

The wild roses on and near the shore in the Mackinac region of Michigan: EILEEN W. ERLANSON.

The vegetation of the region of Douglas Lake, Michigan: I. Introduction, factors, general features and habits of the region: FRANK C. GATES. (Abstract presented by J. H. Ehlers.)

Meteorological data, Douglas Lake, Michigan, 1924: FRANK C. GATES. (Abstract by J. H. Ehlers.)

Enlarged bases in the black ash (Fraxinus nigra