of Chicago, was shown some "petrified walnuts" by a resident in the vicinity of Dayton, Wyoming. Mrs. Rust brought some of them back to Chicago with her and gave them to Professor F. J. Pettijohn, who examined them and commented on their unusual characteristics.

Quite ignorant of the fact that such concretions had been previously seen by Profesor Pettijohn, the writer described[1] some concretions (apparently of the same sort) which were given to him by Mrs. F. C. Sayles, Jr., Ishawooa, Wyoming. Their external surface and size is remarkably similar to that of a black walnut. When broken open, they show an irregular chamber containing dark-colored oxides (the nutmeat?), which is encased in a plumose structure made up of radiating crystals of dahllite. This mineral is comparatively little known, although it is not rare in phosphorites.

Concretions of similar structure and mineralogical composition occur in Podolia, U. S. S. R., and these are described by O. Stutzer[2] as being as large as a "Kegelkugel" (bowling ball).

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FLUCTUATIONS IN NUMBERS OF VARYING HARES

SINCE the autumn of 1931 an investigation of the recurrent rise and fall in numbers of snowshoe rabbits or varying hares (*Lepus americanus*) in Ontario particularly has been in progress under the joint auspices of the department of biology of the University of Toronto and the Royal Ontario Museum of Zoology.

No hares sick with tularemia have been found, but of twenty-four samples of blood serum tested previous to 1935 three gave a positive agglutination reaction, indicating that these animals had recovered from the disease.

A chronic infection with *Staphylococcus aureus* is common and correlated with the fact that snowshoe rabbits have practically no Staphylococcus antitoxin in their blood. One fatal case of empyemia with pus all through the lungs and heart has turned up. The pus masses of the more common cases, on the head, legs or chest, certainly reduce the beasts' margin of safety under adverse conditions. Several other diseases are being studied.

That part chiefly of the normal intestinal flora of varying hares which is composed of bacteria of the family *Bacteriaceae* Cohn has been surveyed.

The most serious helminth parasite has been a strongylid stomach worm, probably Obeliscoides. A moderate number of these blood-sucking worms have been found in the stomachs of nearly all the hares autopsied from all parts of the province and may be considered "normal." However, it does appear to have caused the deaths of six out of seven recently captured and well-cared-for hares that died "natural deaths" at Smoky Falls on the Mattagami River in northern Ontario in the summer of 1935.

In general, the last winters of great abundance of hares in various sections of the province were as follows: northern part of Frontenac County, 1931–32; southern Ontario, 1932–33; central Ontario north to about the height of land, 1933–34; northern Ontario, 1934–35 (questionnaires this coming winter will corroborate or modify this last statement); and the region west of Lake Nipigon averages intermediate between northern and central Ontario. This is in accordance with the northward trend of isotherms and life zones to the west.

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MILK AS A SOURCE OF VITAMIN C[1]

ESTIMATES of the amount of vitamin C in milk have varied widely. More recent studies have placed the amount of fresh raw milk needed to protect a guinea pig from scurvy at approximately 40 cc per day. The amount of purified vitamin C needed for protection of this species has ranged from 0.7 to 1.3 mg daily. If the average of 1.0 mg per day is accepted, milk should contain about 25 mg of vitamin C per liter on a comparable basis.

The authors have had an opportunity to make chemical tests of the vitamin C content of milk on an extensive scale. A total of 502 determinations have been made to date on the milk of 55 cows representing the four major dairy breeds—Holstein, Jersey, Guernsey and Ayrshire. An average value of 25.9 ± 4.3 milligrams per liter was secured.

While no conclusive data pertaining to the human requirement for vitamin C are available, a range of 19 to 27 mg daily has been suggested as the minimum protective requirement.[2] Fresh milk, therefore, may be an important source of vitamin C. It has been found recently at this station that much of this vitamin C content can, with proper precautions, be conserved satisfactorily either in raw milk or in milk that has been pasteurized by the flash method.

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[1] *Amer. Mineral.*, 20: 693–698, 1935.
[2] Die Wichtigsten Lagerstätten der Nicht-Erze, Vol. I, p. 341, 1911.

[1] Contribution No. 200, Department of Chemistry and No. 105, Department of Dairy Husbandry.
[2] G. F. Gothlin, *Nature*, 134: 569, 1934.