## UNIVERSITY AND EDUCATIONAL NEWS

OHIO STATE UNIVERSITY has received a gift of $400,000 by Charles F. Kettering, a trustee of the university, for medical research in connection with the college of homeopathy.

W. A. CLARK, JR., of Butte, Montana, has presented a fund of $4,000 to the geological department of the University of Wisconsin for the purchase of equipment for experimental work in structural geology.

THE University of Wisconsin has obtained legal authority to offer a complete four year medical course.

DR. CHARLES B. FULTON, of Cleveland Ohio, has been appointed a director of the School of Mines and Metallurgy, Rolla, Mo.

DR. EMERY R. HAYHURST, professor of hygiene at Ohio State University, has been made head of the department of Public Health and Sanitation and Mrs. Norma Selbert, formerly of the University of Missouri, has been appointed assistant professor of public health nursing.

DR. W. THURBER FALES, of Malden, Mass., has been appointed instructor in biology and public health in the medical school of the Johns Hopkins University.

DR. V. J. HARDING, associate-professor of biological and physiological chemistry at McGill University, has been appointed professor of pathological chemistry in the University of Toronto.

DR. DOWELL YOUNG, of Cornell University, has been appointed professor of biology in Dalhousie University, Halifax, in place of Professor C. Moore, resigned.

AT the University of Leeds Dr. W. E. S. Turner has been appointed professor of glass technology, Mr. J. Husband professor of civil engineering and Dr. Mellanby professor of pharmacology.

## DISCUSSION AND CORRESPONDENCE

### THE RESCUED FUR SEAL INDUSTRY

AT the St. Louis fur auction held on February 2, 1920, there were sold for the United States government 9,100 skins of fur seals, the net proceeds of which were $1,182,905, an average of $140.98 per skin.

That sale marks an important period in the history of the most practical and financially responsive wild life conservation movement thus far consummated in the United States. In 1911 one of the stakes set by the advocates of the five-year close season was a return to a revenue of at least "$1,000,000 per year," and now it is no exaggeration to say that the results of the long close season that began in 1912 and ended in 1917 have been everything that the close-season advocates claimed that they would be.

The steady and very rapid increase in the fur seal population of the Pribilof Islands during their five years of immunity from commercial slaughter is revealed by the following official census figures as made by the United States Department of Commerce, and kindly furnished by Secretary Alexander.

In 1912 there were 215,738 seals of all ages.
In 1913 there were 268,305 seals of all ages.
In 1914 there were 294,687 seals of all ages.
In 1915 there were 363,872 seals of all ages.
In 1916 there were 417,281 seals of all ages.
In 1917 there were 468,692 seals of all ages.
In 1918 there were 496,432 seals of all ages.
In 1919 there were 530,237 seals of all ages.

The total number of fur seals killed for their skins since the open season began have been as follows:

In 1918 the number was 34,890.
In 1919 the number was 27,821.

The prices realized at the St. Louis fur auctions on the sale of fur seal skins are revealed by these figures:

In 1918 there were sold 8,100 skins for $375,385. Average, $46.34 per skin. In 1919 there were sold 19,157 skins for $1,501,603. Average, $78.38 per skin. In 1920 there were sold 9,100 skins for $1,282,905. Average, $140.98 per skin. If the average price of $140.98 at which the lot of 9,100 skins sold on February 2, 1920, should hold for the entire

catch of 27,821 skins taken in 1919, the total gross revenue for the lot would be $3,922,204.58.

In view of the feverishly advancing prices of all kinds of real fur, the growing scarcity of the supply, and the clamorously insistent demands, both of the rich and the poor, there are good grounds for the belief that very soon we will see good raw fur-seal skins selling at auction at an average price of $250 each. With 110,000,000 people in America demanding "fur," the future of the trade in real fur is remarkably bright—so long as the supply lasts—and Congress may regard the future of the nation's fur seal industry with entire complacency. The saving of the fur seal herds was a good investment.

In the future, when all other bearers of good fur have been utterly exterminated—*as they soon will be*—the protected fur seal herds will produce, by sure-and-certain arithmetical progression, a really vast quantity of the finest fur in the world. It needs no stretch of prophecy to foretell the annual increment to the three nations who now are so sensibly preserving the fur seals of Alaska from killing at sea. When we begin to take, as we formerly did in the days of the fur seal millions, an annual catch of 100,000 skins, the importance of the salvaged fur-seal herd will be realized. If we figure it out on a basis of the sale of February 2, 1920 at St. Louis, the answer is $14,098,000 *per year*, 75 per cent. of which will belong to the United States.

Under the terms of our treaty with England and Japan we are dividing net proceeds with those two partner nations, who now help us to preserve the fur seals when at sea, on the perfectly fair basis of 15 per cent. to Japan, and 10 per cent. to England. During the five-year closed season we annually paid to each of those two nations the sum of $10,000.

In its habits the fur seal—which in reality is not at all a true seal, but a fur-coated sea-lion—is one of the most remarkable of all sea-going mammals. There are writers who still insist that fur seals can be managed by man just as a farmer manages his herds of breeding cattle and horses. As a matter of fact, the fur seal is hopelessly wild and untamable, and the only "management" that man can bestow upon the free animal is in terms of slaughter. He can drive it and kill it by artificial or by natural selection, but that is absolutely all. The fur seal migrates, returns, breeds and feeds solely in accordance with its own erratic and persistent will, and man's so-called "management" lies solely in the use of the seal-killer's club and the skinning-knife.

William T. Hornaday

New York

## SIDE-TO-SIDE VERSUS END-TO-END CONJUGATION OF CHROMOSOMES IN RELATION TO CROSSING OVER

The stonefly, *Perla immarginata* Say, is exceptionally fitted for chromosome studies as it has only five pairs (including the X-Y pair) of chromosomes, each pair of which is structurally differentiated from all others. My observation on this form made in 1917–18 forced me to the conclusion that in the prophase of the first spermatocytic division "homologous chromosomes are connected to each other telosynaptically in the spireme," and later "they bend toward each other at the synaptic point and become reunited parasynaptically before metaphase." These conclusions are in agreement with a limited number of workers but are so opposed to the general contention of the majority of cytologists to-day that it was considered then unprofitable to do anything more than describe the process as observed. This was done in my previous paper in the *Journal of Morphology*,[1] in which no attempt was made at theoretical discussion in relation to certain genetical evidences.

As so convincingly summarized in Morgan's recent book,[2] Mendel's original law—the segre-

[1] Nakahara, W., "A Study on the Chromosomes in the Spermatogenesis of the Stonefly, *Perla immarginata* Say, with Special Reference to the Question of Synapsis, *Jour. Morphol.*, Vol. 32, 1919.

[2] Morgan, T. H., "The Physical Basis of Heredity," 1920.