

CORRESPONDENCE

Preserving Rare Breeds

SIR,—I was interested to read your report, "Keeping Fossils Alive", of a conference on "rare breed survival" which was held on October 15. This correctly refers to the fact that rare breeds of cattle, sheep and poultry had been kept as a "gene bank" at Whippsnade, but is wrong in saying that the animals "had to be dispersed when the Zoological Society of London needed the space".

The story is as follows. On a decision taken by the Society's council, small flocks and herds of rare native domesticated breeds were collected and established at Whippsnade in 1961 with the object of preserving them, not merely as historic remnants, but as material for study by geneticists, physiologists and other scientists. An offer to put the animals at the disposal of *bona fide* investigators and to collaborate in their research projects was made in your

journal in 1964². A useful study of the blood groups of sheep was carried out by Tucker³; otherwise the response to our offer was disappointing, and we failed either to stimulate interest or to obtain financial support for the appointment of scientists to our own staff to study these animals.

After exchanges with other scientific bodies, and following much deliberation by its scientific committees, the council of the Society was advised that greater use might be made of these valuable stocks if they were transferred to agricultural institutions where they would attract the interest of students, and where better facilities for rearing the young would be available.

Accordingly, in 1968, flocks of three breeds of sheep were transferred to Professor Bowman at the School of Agriculture, University of Reading. Arrangements were made with Mr Christopher Dadd, Director of the National Agricultural Centre, for the transfer of the

remaining four breeds of sheep to Stoneleigh Park, Kenilworth, where they have now attracted considerable public interest. In 1970, the NAC was also presented with surplus animals from the Zoological Society's herd of Chartley Cattle at Whippsnade.

What I should like to correct is the statement that the Society dispersed the gene bank it had established on its own initiative because "space was needed". The animals were sent to institutions where it was hoped they would attract more interest than they had done at Whippsnade and where they would consequently be of greater value to agricultural science.

Yours faithfully,

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¹ *Nature*, **233**, 587 (1971).

² Rowlands, I. W., *Nature*, **200**, 131 (1964).

³ Tucker, E. M., *Nature*, **216**, 684 (1967).

Obituary

Sir Ernest Marsden



[Photo by Walter Bird]

ERNEST MARSDEN, who died at the end of last year, was born at Rishton, Lancashire, on February 19, 1889. His mother had a hardware shop, selling cooking utensils, nails and similar goods. Ernest was one of four sons, and helped in the shop from time to time. In the school holidays he used to go to his aunt's at Blackpool, where he helped with washing up, cleaning knives

and peeling potatoes, to earn pocket money. After attending the local school at Rishton, where he had already exhibited ability, he was sent to the Grammar School at Blackburn.

In 1906, when he was eighteen, he enrolled in the department of physics at Manchester University. Schuster and Petavel were still professors, and in 1908 he began research in atmospheric physics under Petavel. With the arrival of Rutherford in that year he changed to atomic physics. In 1909 Rutherford assigned him to assist Geiger in research on the scattering of α -particles. Before he had graduated, and before he was twenty years old, Marsden collaborated in the crucial experiment from which Rutherford established the nuclear structure of the atom. Five years later, pursuing Rutherford's general plan of exploring the collision of swift particles with matter, Marsden observed that when α -particles were projected into hydrogen, a few of the hydrogen nuclei were knocked forward far beyond the range of the α -particles.

His brilliant work and general capabilities caused Rutherford to recommend him for the most important chair of physics in his native land, at Victoria University College, Wellington, New Zealand. Marsden was appointed at the age of twenty-five. Rutherford asked

him whether he would mind his taking over the experiments on the impact of α -particles on hydrogen gas. In the following two years, during the First World War, Rutherford continued these experiments; by 1917 he had evidence that protons were being ejected from atoms—that the artificial disintegration of the atom had been achieved. Thus Marsden contributed to two of the most significant experiments in modern physics. In the early work on large-angle scattering, Marsden perceived that his observations implied that the atom might have a nuclear structure. But he was too young to have the confidence, or to have acquired the scientific knowledge and maturity, to put the idea forward and prove that it was true. The full force of Rutherford's genius was needed to do that.

In stature Marsden was short and stocky. He had the physique and liveliness of the Lancashire man of his period, and he spoke with the local accent. He was a Lancashire lad, generally referred to as "Ernie" behind his back, a typical descendant of the people who had done so much to create the industrial revolution, with their combination of intelligence, ingenuity and enterprising common-sense. Like his great master, Rutherford, he had a feeling for people, and inspired them by his genuine interest in their concerns,