with Polish, it is interesting that if hernia is taken as diagnostic for homozygotes of the gene for crest, this gene is evidently linked with another, also showing lack of dominance, which gives when heterozygous a split comb, and when homozygous the obliterated comb of the Polish breed.

The 9 genotypes thus classifiable appear in Davenport's table with the frequencies shown in Table 1:

TABLE 1

	Normal	Crest	Hernia	Total
Single comb ...	12(9.004)	8 (7.097)	2(1.399)	22
Split comb	8(7.097)	17(20.806)	4(7.097)	29
No comb	1(1.399)	9 (7.097)	9(9.004)	19

The totals for the comb character are not altogether convincing, and suggest that some heterozygotes have been classified as having the single comb. Any such misclassification would tend to increase the apparent recombination frequency, which, as judged from the data, is between 28 per cent. and 29 per cent. The expectations in the table are for 28.27 per cent.

The earlier writers, such as Hagenbach and Darwin, took the connection between Crest and Hernia for granted. Among recent geneticists Dunn and Landauer[3] consider the point and report that all herniated fowls reared to maturity have developed a pronounced crest. They consider, however, that the characters are separable on the strength of one instance in which an uncrested fowl was believed to transmit hernia. The case would, however, be convincing only if uncrested birds showing hernia had been reared from the progeny.

In a recent letter, Dr. F. B. Hutt writes, "I have decided the same as you, that there is no difference between the genes," although in Hutt's material hernia seems not to be easily classified. Probably the largest factor in preventing, hitherto, recognition of the simple relation between these characters has been the genetic suppression of the hernia in the Silky breed used in many of the experiments. Back-crossing to the wild fowl is evidently capable after some generations of eliminating the cause of this suppression.

R. A. FISHER

UNIVERSITY OF LONDON

THE NEWFOUNDLAND SEAL FISHERY

IN SCIENCE for August 24, Dr. C. Hart Merriam called attention to an announcement by the secretary of the Society for the Preservation of the Fauna of the Empire that the Newfoundland sealing industry is steadily declining and recommending that a sanctuary be provided for the protection of the seals. Dr. Merriam very properly pointed out that these ocean-dwelling seals breed only on ice floes and that a land sanctuary would not be possible.

Having before me the official records of the catch of the Newfoundland seal fishery for over a hundred years, it does not appear that the fishery has declined to a serious extent. During the period from 1860 to 1930 the average annual catch was 196,019. Due to unfavorable weather conditions in 1931 and 1932 there was a falling off, but in 1934, 223,708 seals were taken.

Prior to the middle of the nineteenth century large numbers of sailing vessels engaged in this fishery. At one time in the fifties, there were 400, it is said. The annual catch *occasionally* exceeded half a million seals. Later, when the sailing vessels were replaced by steamers, the hunting season was officially shortened with a view to conservation.

Sealing operations are now permitted only between March 10 and April 15. Owing to the present low price of seal skins and oil only nine steamers were employed in making the large catch of 1934—223,708 seals.

This long established seal fishery is unique in that it is based on the taking of *young* seals only, the number of adults captured being negligible. Adults take to the water at once, upon the approach of the hunters, the extremely fat, nursing young being unable to leave the ice floes on which they are born.

The catch has always been made on ice floes not far from Newfoundland. Doubtless both Harp and Hood seals, the two species on which the fishery is based, bring forth their young on ice fields more remote and more difficult to penetrate by vessels. It is evident that the survival of great numbers of breeding seals has hitherto sufficed for the notably prolonged maintenance of the fishery. I have records of catches dating back to 1795. With no heavier killing than that of the past decade the fishery may last indefinitely.

We have for some time urged that the control of sea lions on the Pacific coast be brought about by commercial use of the nursing young before they are old enough to take to the water, rather than by wanton destruction of breeding sea lions that sink when shot. Young sea lions represent a resource in usable leather and oil that has hitherto been wasted, the skins of adults not being utilized.

C. H. TOWNSEND

THE NEW YORK AQUARIUM

OVERWINTERING OF APLANOBACTER STEWARTI

ATTEMPTS to solve the problems of dissemination and overwintering of *Aplanobacter stewarti* (E. F. Smith) McCul., the cause of bacterial wilt of corn, were for many years concerned chiefly with soil and seed transmission. Recently investigators have turned

[3] *Jour. Genetics*, 22: 95–101, 1930.

more and more to the study of insect transmission as the most promising field for study.

Studies recently carried on jointly by the writers have shown that the overwintered adults of the flea-beetle, *Chaetocnema pulicaria* Melsh.,[1] which commonly feed upon young corn on emerging from hibernation, harbor *Aplanobacter stewarti*. Adults of *C. pulicaria* were collected from orchard grass and alfalfa at Arlington Experiment Farm near Rosslyn, Va., during April, 1934. Four lots of these adults were sterilized externally in a solution of 4 per cent. sodium hydroxide and then rinsed in a solution of 0.1 of 1 per cent. hydrochloric acid before being macerated in sterile beef broth for plating. Large numbers of *A. stewarti* in practically pure culture were obtained from all four isolations. Healthy corn plants in the greenhouse were inoculated with transfers from these isolations, all developed typical symptoms of bacterial wilt and the organism was reisolated. These organisms appeared to be particularly virulent, as the symptoms developed in three to four days and the plants died soon afterward.

Other adult beetles from the same collection referred to above were permitted to feed for several days on healthy corn plants in the greenhouse. Typical symptoms of bacterial wilt developed in these plants and *Aplanobacter stewarti* was isolated from them in pure culture. Preliminary isolations from 175 single individuals of overwintered adults of *Chaetocnema pulicaria* collected from several different species of host plants indicated that the organism occurred in abundance in approximately 19 per cent. of these beetles.

It has been known for a considerable time that *Aplanobacter stewarti* may overwinter in infected seed to a limited extent, but there is no direct evidence of overwintering in naturally infested soil in the field. Since *A. stewarti* has been found to overwinter in a common fleabeetle under natural conditions, and since infection in healthy corn plants has resulted from the feeding injuries of these beetles, it appears probable that *Chaetocnema pulicaria,* and possibly other insects, may be largely responsible for overwintering as well as dissemination of bacterial wilt of corn.

CHARLOTTE ELLIOTT
BUREAU OF PLANT INDUSTRY
F. W. POOS
BUREAU OF ENTOMOLOGY
U. S. DEPARTMENT OF AGRICULTURE

[1] Identification verified by Mr. H. S. Barber, Division of Identification and Classification of Insects, Bureau of Entomology, U. S. Department of Agriculture.

INTERNAL PRESSURE IN LATEX SYSTEM

SOON after a sudden shower on a recent afternoon I was removing some almost fully grown fruits from a *Cryptostagia grandiflora* shrub in my garden. I pierced the bark of the fruit stalk near the base of one fruit and a stream of latex spurted from the wound with unusual force. The stream continued, I estimated, from two to three seconds and reached the foliage of a row of Arundina orchids which were about three and a half feet away from and about one foot below the source of the latex stream.

This same phenomenon is often noticed, but in a smaller degree when one pricks the bark of a tree of *Hevea brasiliensis* in the early morning or soon after a shower, when turgidity is high within the tree. The emission in such a case is, however, usually only a sudden spurt of latex and I have not heretofore witnessed such a long-continued flow.

W. N. BANGHAM
DOLOK MERANGIR
E. C. SUMATRA

SCIENTIFIC BOOKS

CRYSTAL STRUCTURE

The Crystalline State. Edited by Sir W. H. BRAGG and W. L. BRAGG. Vol. I. A General Survey, by W. L. BRAGG, xiv + 352 pages, 23 × 14.5 cm, with 186 figures and 6 appendices. Published by Macmillan and Company, 60 Fifth Ave., New York City, 1934, $5.50.

THIS is the first of a projected set of three volumes dealing with all aspects of the application of x-rays to the determination of crystal structure and with many of the physical properties of crystals which can be explained in terms of the structure thus determined. It is in some respects a revision and amplification of the "X-Rays and Crystal Structure" of the same authors, first written in 1914 and revised in 1924. The title is thus to a certain extent misleading, because certain groups of crystalline phenomena, such as those which can be treated formally and which have been so exhaustively treated in Voigt's monumental "Krystallphysik" are not included, and in fact Voigt's name is not even mentioned.

It is intended that the two remaining volumes of the series shall be technically complete expositions of the detailed topics; the articles in these volumes are to be written by a number of collaborating experts. This first volume gives a general survey of the whole field and is complete in itself. The sections in this first volume serve as introductions to the more detailed treatment in the later volumes. The endeavor is to so arrange the material that consecutive reading is not