thought by fall planting that the winter would kill out all but the most hardy individuals, which were the ones desired. During the winter the rain cut a gully a foot wide and a foot deep right through the patch of hybrids; however, most of the plants were saved. Heads of the parent varieties were saved for comparison. It was found that there were 169 real crosses left after the plants were grown. Each plant was pedigreed separately, a nursery was laid off in ranges, and plant families were begun in the F_2 generation.

The earliest plants found were from crosses between Red Chaff × Valley. The segregations of other varietal crosses were noted particularly where Turkey was one of the parents, because of the beards. About this time Dr. Spillman was sunburned from being in the field so much studying hybrid plants and had to go to the hospital. During this period, E. E. Elliot took charge. Twenty-two types of plants were obtained in the F_2 of his cross of Red Chaff × Valley.

A talk was given to a teachers' association at Pullman, and they were told by Dr. Spillman that the 22 types of wheat were all the kinds of wheat in the world, as he thought this to be true at that time. Segregation was noted and also the recombination of characters which had originally been present in the parent varieties.

In 1901 a paper was prepared and read in Washington, D. C., describing the F_2 generation of the crosses. Segregates from different crosses were mounted on cloth, and the F_{1s} and F_{2s} of all eleven crosses were shown. At the lecture Dr. W. M. Hays was on a front row seat and was much surprised at the results shown. Dr. Spillman emphasized recombination and segregation of characters in plants rather than a general blending. It is interesting to note that the papers of DeVries, Tschermak and Correns were published in January, February and March of 1901, in the months preceding Dr. Spillman's work. His discovery was made in August, without knowledge of the earlier work.

About this time and after presenting his paper in Washington, D. C., Dr. Spillman was offered a position there and left Pullman. Continuation of the work of selecting desirable strains from the crosses was left to Mr. Elliot and those who succeeded Dr. Spillman. Spring wheats were discarded, since the winter wheats were the types desired. After four years, Hybrid 128 and Hybrid 143 were isolated. Hybrid 128 has long been a standard variety in the Pacific Northwest, where the rainfall is over 13½ inches.

Thus, although not responsible for the selection of the segregates which later proved to be valuable varieties, Dr. Spillman was the one who planned and began this work and in doing so made an important contribution as a plant breeder.

E. N. BRESSMAN
OREGON STATE AGRICULTURAL COLLEGE

AN OBSERVATION ON THE LONGEVITY OF SERRATIA MARCESCENS (B. PRODIGIOSUS)

ON April 24, 1932, the writer had the opportunity to examine certain old stock cultures which had belonged to the late Professor H. H. Waite. The oldest of these cultures had been made in 1903, and other cultures ranged from that date up to 1911. All these cultures had been sealed by means of sealing wax.

The media upon which the cultures had grown consisted for the most part of nutrient agar and nutrient broth. The cultures had been stored in the dark at room temperature. Cultures which showed evidence of drying due to breaks in their seals were not examined.

A broth culture which had been inoculated on November 1, 1909, with *B. prodigiosus* (now known as *Serratia marcescens*) was chosen for examination. The wax seal was removed with the aid of heat and the cotton plug taken out. Using a sterile platinum wire loop, one drop of the culture was distributed to each of the following media: standard nutrient broth, standard nutrient agar (liquefied and held at 45 degrees Centigrade and later poured into a sterile petri dish), and "K" medium. All cultures were incubated at room temperature.

At the end of a 24-hour incubation period all the cultures showed visible signs of growth. The petri dish culture showed three colonies about 3 mm in diameter with a slight pinkish tinge at their edge. After longer incubation the colonies took on the deep red metallic sheen of fuchsin and when touched with the platinum wire exhibited the characteristic ropy test. All the other cultures proved to contain *Serratia marcescens* in pure culture.

The observation seems then to have shown that an organism of a non-sporogenous type can remain viable in a fluid medium, in the presence of its own metabolic waste products, and at a reduced oxygen tension, for at least a period of twenty-two and a half years.

WILBUR E. DEACON
UNIVERSITY OF NEBRASKA

POINTERS FOR STARS

IT is difficult to point out to another person a particular star or constellation when the night heavens are being viewed without instrumental aid. If a fairly powerful long focus flash-light, such as can be pur-