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.

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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.

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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-

chased for a few dollars, is directed at the night sky it can be used as an effective pointer. The beam loses itself at a sufficient height to make the pointing unambiguous to a small group. This use of a flash-light recalls the use of an electric light pointer by the lecturer in a Zeiss planetarium.

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SPECIAL CORRESPONDENCE

CANADIAN PARTICIPATION IN INTERNATIONAL POLAR YEAR

IN view of the great extent of Canadian territory in high latitudes, it is natural that Canada should take an active part in the activities of the second International Polar Year. In this great international enterprise, intensive observations according to a uniform plan will be made at a large number of Arctic and sub-Arctic stations in terrestrial magnetism, meteorology and aurora. Observations in these subjects, which began soon after August 1, 1932, will continue until August 31, 1933.

The Canadian Meteorological Service has been in charge of the organization of the Canadian program. Parties will occupy three stations in Northern Canada, in addition to extending materially the magnetic observations now being taken at Meanook, Alberta.

The largest party, consisting of F. T. Davies, formerly magnetician of the Byrd Antarctic Expedition, B. W. Currie, assistant professor of physics, University of Saskatchewan, S. T. McVeigh and John Rea, will go to Chesterfield Inlet, latitude 63° N., longitude 90° W., on the northwest shore of Hudson Bay. Chesterfield Inlet is about 475 miles from the north magnetic pole and is the nearest point to the pole at which continuous magnetic records will be taken during the "International Polar year." Using a set of the recently designed laCour magnetographs, three continuous records will be obtained of each of the magnetic components—horizontal and vertical magnetic force and declination. With an equipment loaned by the Department of Terrestrial Magnetism, Carnegie Institution of Washington, continuous records will be taken of the feeble electric currents which flow through the earth's crust, and which have been found to vary closely with magnetic disturbances.

It is planned to photograph the aurora, simultaneously at two stations about 30 km apart, using the Krogness f. 1.25 auroral cameras. From these photographs the height of the aurora may be determined. Using the McLennan night sky spectrograph, it is hoped that the spectra of all aurora will be obtained, and thus establish whether aurora of a certain spectral type are associated with auroral displays at definite elevations above the earth's surface.

The meteorological program, in addition to intensive routine observations, includes daily kite ascents, pilot balloon observations and temperature data to a level of 3 km or 4 km from the Patterson light-signalling meteorographs. The kite equipment both for Chesterfield Inlet and for Coppermine has been loaned by the U. S. Weather Bureau.

Records of the atmospheric electric potential, nuclei of condensation and of the temperature at the top of the radio mast, 45 meters high, will throw further light on the atmospheric conditions in this region.

R. C. Jacobsen will be in charge of a station at Coppermine, on Coronation Gulf on the Arctic Ocean. The supplies and equipment for this remote point have been forwarded by steamer from Vancouver *via* Behring Strait, but the observer in charge and his assistant will be flown in by airplane from Northern Alberta. The program at Coppermine will be devoted to meteorology and auroral observation. An interesting feature of the meteorological work will be an attempt to determine the height of the stratosphere by the grid type of Moltchanoff meteorographs. These instruments emit automatically every few seconds radio signals giving the temperature and pressure of the point aloft at which the meteorograph is situated. These signals, which resemble a Morse code, are picked up by a receiver on the ground, and from them the true temperature and pressure are determined. The Moltchanoff meteorographs have been donated by the Rockefeller Foundation on the recommendation of the International Polar Year Commission.

At Coppermine on the bleak Arctic coast line the temperatures of the air up to 3 km or 4 km will be taken at frequent intervals by kite and light-signalling meteorographs. Both the Chesterfield Inlet and Coppermine parties will use the Robitzch actinometer to record the solar radiation, while at Chesterfield Inlet readings of the kata thermometer will be taken thrice daily.

A third station at Cape Hope's Advance, Latitude 61° N., Longitude 70° W., on Hudson Strait, will be operated by J. E. Lilly, with the assistance of the operators of the radio station here. The program will be meteorological and auroral, similar to that at Coppermine, but not as extensive. Cape Hope's Advance will serve as an effective link between the Danish and French stations on Greenland and the réseau of American stations.

Supplementing the data taken at Chesterfield Inlet,