

Disease-resisting Sugar-canes.

It is observed in your issue for November 7 last in the article entitled "Immunity to Disease among Plants," being an abstract of a letter delivered before the British Pharmaceutical Conference at Manchester by Prof. F. E. Weiss, that the following statement occurs:—

"In the West Indies, the Bourbon cane has been given up on account of disease, but very useful and disease-resisting hybrids have been produced by crossing the valuable but easily attacked Tjeribon cane with the resistant Indian Tschan cane."

The latter canes are not known in the West Indies, and it is desirable, therefore, that the actual facts be placed on record.

When the Bourbon sugar-cane had to be abandoned in the West Indies on account of its susceptibility to fungus disease, its place was generally taken by the White Transparent—an introduced variety. Since then the latter is being largely replaced by seedling canes. These seedlings have been produced in some instances from the Bourbon cane, and, recently, almost entirely from the better of the newer seedling varieties under experiment. It may be of interest to mention that in British Guiana the area under cultivation with varieties of sugar-cane other than Bourbon is about 30,000 acres, and the greater portion of this area is occupied by seedling canes. In the island of St. Kitts about 71 per cent. of the sugar-cane acreage is occupied by seedlings. Seedling canes are also being largely planted at Barbados, Antigua, St. Lucia, and Jamaica. Many of the newer seedlings appear to be immune to some of the fungus diseases that affect the sugar-cane in these colonies, and the efforts in the direction of producing seedling canes by artificial cross-pollination give promise of success.

In Java the circumstances are also somewhat similar. The Cheribon cane had to be abandoned on account of its being liable to the "serah" disease, and amongst the foreign varieties introduced to take its place was the East Indian cane Chunnee. In 1894 it was found that the Cheribon cane bore a large proportion of infertile pollen with a normal ovary, while the Chunnee produced a very large quantity of fertile pollen. Advantage was taken of this to plant the two varieties side by side in the hope of producing hybrids by natural means. Considerable success has been attained, for a very large number of seedlings was obtained by sowing seeds from the "self-sterile" arrows of the Cheribon, many of which combine the high sugar content of the Cheribon with the disease-resisting power of the Chunnee. Other introduced canes have also been used in these experiments, and somewhat similar experiments are in progress in the West Indies.

A *résumé* of the "Improvement of the Sugar-cane by Selection and Hybridisation" (with coloured plates) was presented by Mr. F. A. Stockdale and myself at the conference on genetics held in London in August, 1906, under the auspices of the Royal Horticultural Society. The society issued a full report of the conference in February, 1907. The paper referred to has since been reproduced in the *West Indian Bulletin* (vol. vii., No. 4).

Barbados, February 14.

D. MORRIS.

Modern Views of Electricity.

To avoid misunderstanding, I write to say briefly, in connection with a review by "N. R. C." on p. viii of the supplement to NATURE of March 5, that I have never supposed space to be a conductor, but have always taught the opposite view; and that I have never imagined unmodified ether to be subject to gravitation, or to be other than the vehicle of that property of matter. If any phrases in my book suggest the contrary they are examples of faulty expression. But I would add, parenthetically, that I should not scruple to speak, untechnically, of the centre of gravity of a surface.

OLIVER LODGE.

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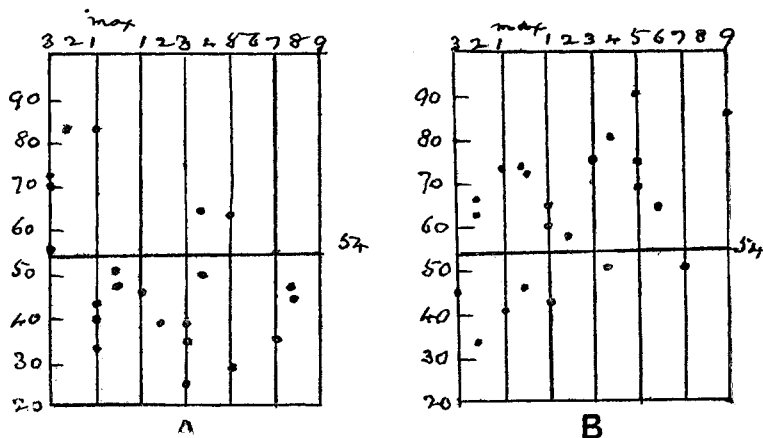
Rothsay Summers and Greenwich Winters.

LAST summer at Rothsay (N.B.) was very wet, with 14.8 inches (average, 11.3 inches). The current winter season at Greenwich may now be pronounced a mild one.

It is a curious fact (whatever the explanation) that a very wet summer at Rothsay tends to be followed by a mild winter at Greenwich, and a very dry summer by a severe winter. This is connected, I believe, with the fact that the rainfall of Scotland and the winter cold of Greenwich both exhibit pretty clearly the influence of the sun-spot cycle.

Suppose we pick out the twenty-two wettest and the twenty-two driest summers at Rothsay in the sixty-six years 1841–1906 (i.e. a third in either case). The former group range from 19.1 inches down to 12.6 inches; the latter from 5.9 inches up to 10.7 inches. Next, consider what sort of winter at Greenwich followed each of these (say, how many frost days in the period September to May).

These winters may be represented as in diagrams A and



The scale of frost days at Greenwich is shown on the left, and that of the sun-spot cycle at top of each diagram. A, Winters after very wet summers. B, Winters after very dry summers.

B, where a dot indicates by its position both the number of frost days of one winter and its position in the sun-spot cycle.

It will be seen that the twenty-two "very wet" Rothsay summers were followed by fifteen mild and seven severe winters at Greenwich (A), and the twenty-two "very dry" Rothsay summers by fifteen severe and seven mild winters at Greenwich (B). The contrast is still more pronounced if we confine attention to the period of decline of the sun-spots,

These diagrams seem to warrant two practical rules, which may be thus stated:—

During decline of the sun-spots, if summer rainfall at Rothsay exceeds 12.6 inches, a mild winter at Greenwich is highly probable (say, 6 to 1), and if during the same period the Rothsay summer rainfall is under 10.7 inches a severe winter is highly probable (say, 3 to 1). In the former case a very severe winter, and in the latter a very mild winter, would seem to be excluded.

We are at present close to a maximum (1905 or 1907?), and have to do with diagram A, which shows no severe winters for the corresponding position in the cycle.

ALEX. B. MACDOWALL.

The Possibility of Life in Mars.

At the risk of being thought by your correspondent, Mr. C. O. Bartrum, an "anthropomorphist," I consider that Prof. Lowell in his admirable investigations of the markings of Mars is quite reasonable in ascribing the change of colour to the presence of a vegetation containing a substance allied to, if not identical with, chlorophyll. I do so because the spectroscope has shown that, not only the solar system, but the whole universe, is built up of inorganic elements similar to those found on the earth. If we find unity of plan pervading the structure of the most