

South African grower has yet succeeded in fixing the number of rows in any breed to such a degree that no variation occurs in that respect.

In the course of a series of breeding experiments I am conducting, which are not yet completed, I have met with the following interesting case.

Thirty-three plants of "Arcadia" sugar-maize, each of which bore two well-developed ears, were studied as regards number of rows. On 21 plants the number on the upper ear was different from that on the lower, while on 12 plants the number was the same on each ear. Of the 21 plants on which the number of rows differed on the two ears, 13 had a larger number on the lower than on the upper, while 8 had a smaller number on the lower than on the upper. The distribution of rows was as follows:—

Class	Upper ear	Lower ear	Number of plants	Number of plants in each class
As many rows in lower as in upper	12 ... 12	...	8	—
	10 ... 10	...	3	—
	8 ... 8	...	1	12
More rows in lower than in upper	10 ... 14	...	1	—
	10 ... 12	...	6	—
	8 ... 12	...	3	—
	8 ... 10	...	3	13
Fewer ears in lower than in upper	12 ... 14	...	1	—
	12 ... 18	...	4	—
	10 ... 8	...	3	8
				33
Summary.				
8	8	...	1	—
	10	...	3	—
	12	...	3	7
10	8	...	3	—
	10	...	3	—
	12	...	0	—
	14	...	1	13
12	8	...	0	—
	10	...	4	—
	12	...	8	—
	14	...	1	13
				33

The total number of ears producing any given number of rows was as follows:—

Rows	...	8	...	10	...	12	...	14
Ears	...	11	...	23	...	30	...	2
Total 66								

The "Arcadia" is a white sugar-maize obtained from a cross between a normally 8-rowed "Black Mexican" and a white flour-corn normally bearing a larger number of rows, but I do not know that either was pure bred, for row numbers and no subsequent selection in this line had been made.

It is generally supposed by maize-growers, in this country at any rate, that the number of rows is a definite, heritable character. Results obtained by crossing two other breeds, an 8-row and an 18-row (each believed to be pure as regards this character), have this year produced irregular results in the F<sub>1</sub> generation, for which I have not yet been able to account. However, the case described above seems to indicate that the development of rows is, within certain limits, a vegetative character depending in part on seasonal conditions and on food supply. This view is strengthened by the fact that this is the first year in which I have noticed 14-row ears in this breed, all the parent ears for two or three generations having been 8-, 10-, or 12-rowed (so far as I am aware). At the same time, there is ample indication that, within certain limits, row-numbers are inherited in the maize plant, but it is doubtful whether any South African strains are yet sufficiently pure-bred for this character to demonstrate the point with absolute certainty.

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Department of Agriculture, Pretoria, April 17.

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### Absorption Markings in "K" Spectroheliograms.

In a letter published in NATURE of March 30, Mr. Buss suggests that the evidence derived from some spectroheliograms taken by M. Deslandres at Meudon conflicts with that which I obtained from the Kodaikánal daily series.

There is no such "divergence of evidence" in reality. The dark marking shown on our plates of March 21, 1910, and described as vague and ill-defined, is doubtless much more clearly seen in the plates obtained with the Meudon high-dispersion spectroheliograph, which isolates the central absorption line K<sub>3</sub>.

With the dispersion available in the Kodaikánal instrument, the K<sub>3</sub> line is about half the width of the camera slit, and photographs taken with the slit exactly central on K integrate the light of the absorption line and of the side components of the emission line K<sub>2</sub>. As the dark flocculi or absorption markings seem to be entirely due to variations in intensity in the narrow absorption line, it is rather a matter for surprise that in our photographs they should be so clearly defined in many cases. In the original negatives taken on March 21, 1910, in addition to the broad, ill-defined shading already mentioned, there are clearly seen all the curious linear markings so beautifully shown in M. Deslandres' K<sub>3</sub> plate of this date, and I can find no appreciable differences in the contours of the markings.

With regard to the disappearance of the enormously extended marking between March 25 and 26, had Mr. Buss read the paragraph in my article referring to this with ordinary attention, he would not have suggested that the absence of the marking on the plate of March 26 was due to imperfect adjustment of the spectroheliograph slits. Very possibly the disappearance shown by our plates was not absolute, and K<sub>3</sub> or H<sub>α</sub> plates taken on the same day would have shown the marking, but if so the reduction in intensity compared with the previous day would have been marked.

The theory apparently advocated by Mr. Buss, that the absorption producing these markings takes place above the prominences, receives no support from our visual or photographic observations, and his remarkable observation of a dark flat cloud hovering over the bright prominence at each successive appearance east or west seems to be unique! No trace of so extraordinary a feature can be seen on any of our numerous photographs of this prominence.

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Kodaikánal Observatory, April 18.

### Calendar Reform.

MAY I trouble you with one or two observations on the excellent article which appeared in NATURE of April 27.

Referring to the application of the principle of the *dies non*, or the setting aside of a day annually not included in the weekly enumeration, the author of the article says "the week can boast a most ancient lineage uninterrupted by the slightest break." Is this certain? I find Dr. Hale in his "Chronology," vol. i., p. 67, says:—"If the year of the Crucifixion was A.D. 31, as is most likely, it follows from an eclipse of the moon in Pingre's tables, April 25, at 9 afternoon, that the Paschal full moon that year fell on March 27, which in the calculations of Newton, Ferguson and Lamy, and the computation of Bacon is reckoned Tuesday," &c. I might adduce other reasons for doubting if the continuity of weeks has been uninterrupted. It must be remembered that for some time, at any rate, throughout the Roman Empire the odd day in leap year was treated as a literal—not merely as a legal—*dies non*, being regarded as part and parcel of the day preceding.

Nevertheless, I agree with the author that prejudice in this matter cannot be disregarded.

But no such objections can be stated to the proposal to apply this principle to the *months*, i.e. to treat the 365th and 366th days as without the monthly enumeration, and to equalise so far as possible the lengths of the months so as to give four quarters of 91 days, or 13 exact weeks.

It is hopeless to suggest that the present arrangement of months has any scientific or religious sanction or advantage.

I hope shortly to present to the public more fully the arguments in favour of this really non-contentious part of