

their efforts to scale the fall. It is possible, by scrambling down over the rocks, to get quite close to the water, and we were rather wetter than was comfortable by the time our exposures—three in all—were made. Of these, one showed a small fish, far away from the camera, one was utterly blank, and the third, here reproduced (Fig. 1), showed a fish of twenty to thirty pounds at a distance of about fifteen feet from the camera. This particular fish failed at this attempt, since it jumped more than high enough, but not far enough to reach the unbroken water above.

Often an ill-directed jump would result in a fish's striking its head against the bare rock with a crack which could be heard fifty yards off; it is a marvel to me that such a blow does not break the salmon's head, but it appears to be without effect, for they continue to come up undaunted.

The obtaining of a photograph such as this is always the accompaniment of a considerable amount of luck, and I account myself fortunate in having secured this one, which has been admired by many as a fine example of its kind.

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The University,  
Edinburgh, January 23.

#### Weather Prediction from Observation of Cloudlets.

SOME three years ago I had explained to me by an Irish land official, whose duties are largely carried out in the open air in South Kerry, a method of weather prediction which is much the same as that described in NATURE by Sir G. Archdall Reid. Attention was fixed on a small fragment of cloud; if the cloud increased in size, rain was to be expected within a few hours at most; if the cloud decreased, no rain was to be expected for some little time. I have had numerous opportunities of testing this method, and I do not recall any occasion on which the forecast made was not borne out by events.

The occasions on which my tests were made were all in unstable weather conditions of the kind in which, while hoping for a fair period, one nevertheless takes out a mackintosh to be on the safe side. These are doubtless the conditions referred to by Dr. Lockyer when he writes of "doubtful afternoons." The clouds observed were never cirrocumuli, but always either small detached fragments of cumulus or fracto-stratus, commonly known as "scud," and at a height of, probably, not more than 3000 feet. It seems scarcely likely that in settled fine weather one would think of applying any test for imminent rain, but in such an event Capt. Cave's criticisms would no doubt be found to be well grounded. It seems possible that the differences between Sir Archdall Reid's and Capt. Cave's opinions in this matter may be due to Sir Archdall's regarding as a general method of prediction one which is applicable only in particular conditions, namely, those of showery uncertain weather, and, it may be, in particular localities; and also, to some extent, to the lack of precise definition of the type of cloud to be observed.

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#### Polyploidy and Sex Chromosomes.

PROF. RUGGLES GATES introduces hybridity with chromosome incompatibility as a possible source of polyploid series in plant genera. In my note I deliberately refrained from referring to this theoretical possibility because neither in intrasectional crosses nor in the widest possible intersectional willow

crosses known to me does the remotest approach to total chromosome incompatibility occur. Furthermore, in my opinion, such a state of affairs is not likely to arise, or to have arisen, in *Salix* hybrids.

Even if it were possible, other complications, which Prof. Gates seems to have overlooked, would ensue. Consider a cross between two diploid *Salix* species A and B, A supplying the male parent and B the female. Let the sex chromosomes of the former species be designated X and Y and of the latter X' and Y'; then, so far as the sex chromosomes are concerned, the male of A is of composition XY, and the female of B of build X'X'. It follows, therefore, that the hybrid males will have a sex chromosome formula of X'Y, and the hybrid females the composition XX'. If no reduction division takes place in hybrid sporogenesis, as the hybridity theory of polyploidy demands, the F<sub>2</sub> generation, although tetraploid, will have the formula X'X'XY, and only one sex is developed!

Prof. Gates instances several cases (to which, as a result of my own researches, I could add others both in animals and plants) in which polyploidy has originated in experimental work, but in none of these is the real difficulty raised by the failure of the duplication of the sex chromosome complement in polyploid *Salices* met. By quoting from the work of my colleague Dr. Blackburn and myself ("A Preliminary Account of the Chromosomes and Chromosome Behaviour in the Salicaceæ," *Annals of Botany*, vol. 38, p. 361, 1924) on the cytology of *Salix* in which we found peculiar relationships in respect to chromosome size, and by postulating secondary changes, he simply emphasises my original statement that, by the discovery of only one pair of heterochromosomes in the males of polyploid willows, the origin of polyploidy is thrown open for further consideration.

In conclusion, whilst directing attention to the innocent-looking remarks on the transformation of sex chromosomes into autosomes, I venture to leave them, with their far-reaching implications, to provoke their own comments.

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#### Mutant Groups in Nature, *Gentiana campestris* var. *alba*.

PROF. JULIAN HUXLEY (NATURE, October 3, 1925, p. 497) may be glad to know that his example of mutant white-flowered *Gentiana campestris* has its analogue in Zetiand. There, on the slopes of Whiteness Voe, is a very large group of white-flowered specimens, outnumbering the normal form, and I saw several good-sized patches in the remote island of Balta. There is also a considerable group on the slopes of Ben Lawers and on Glen Lyon. I saw no intermediates, although in the Isle of Wight there is a large colony of white *Origanum* and intermediates which are also almost certainly crosses of the white and normal plants. One might add that I brought a single red-flowered *Kentranthus ruber* to my garden about twelve years ago; seedlings came up and they remained constant, but last summer a white-flowered plant appeared. However, there seems to be a permanence in the white-flowered *Gentiana campestris* and in the albino *Geranium Robertianum* which continues for many years. It was very noticeable on one side of the Brazen-face outside Funchal; there it evidently seeded down the hill-slope.

G. CLARIDGE DRUCE.