Treatment	Mean height at flowering in cm.	Mean basal circumference of stem at flowering in cm.	Mean flowering time in days	Mean fruiting time in days
8 hr.	93·8	2·984	87·5	92
10 hr.	71·36	2·125	69·25	75
12 hr.	210·7	4·1	126	131
14 hr.	240·783	4·6	141	150
16 hr.	235·066	5·28	154	162
Control	236·7	5·0	122	127

The daily light period of the normal plants rose gradually from 13 hr. 20 min. on May 25 to 13 hr. 31 min. on June 22 and again fell gradually to 12 hr. 5 min. at the time of flowering.

It is evident that *H. sabdariffa*, *L.N.P.*5, has a very definite photoperiodic response and is a short-day plant flowering fifty-three days earlier than the control under the short-light period of 10 hr. At 8 hr., however, there is an average delay of nineteen days from those at 10 hr. At longer photoperiods flowering is delayed. The earliness of flowering is very marked at 10 hr. while a conspicuous delay occurs among the 14- and 16-hr. groups. Bolhuis[2] noted and Ergle *et al.*[3] confirmed the fact that flowering in *H. sabdariffa* var. *altissima* is strongly influenced by the length of day. The behaviour of *H. sabdariffa*, *L.N.P.*5, appears to be similar.

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Effects of Preliminary Treatment on the Subsequent Variation in the Resistance of *Lemna minor* to the Phytotoxic Action of 2 : 4 Dichlorophenoxyacetic Acid

DURING a study of the inter-relationships between light intensity, temperature and the biological effects of 2 : 4 dichlorophenoxyacetic acid, it was found in the case of *Lemna minor* (duckweed) that when the concentration of the growth regulator in the external water culture solution was sufficiently high to kill some of the fronds at the end of three days exposure, then the mortality increased with decreasing light intensity over the range of continuous illumination 700–180 ft. candles. It was further observed that, whereas the degree of toxicity was markedly dependent on the light intensity received by the fronds prior to treatment with the dichlorophenoxyacetic acid ('pre-treatment period'), yet similar variations in the intensity during the following short 'treatment period' of three days had no effect.

Since the ratio of area to weight was increased at low levels of light, it was at first thought that this larger proportion of surface was associated with a greater uptake of the toxicant. However, as the product of the area–weight ratio and the concentration required to produce a 50 per cent mortality (the 'L.D. 50' determined by probit analysis) was not constant this explanation seems unlikely. Furthermore, when fronds in the pre-treatment period were treated with low and non-lethal concentrations of dichlorophenoxyacetic acid, although the area to weight ratio was little affected, the concentrations required to give a 50 per cent kill in the following treatment period were greatly increased. Thus, while without initial pre-treatment the required concentration of the acid was 81 p.p.m., it rose to 91, 116 and 193 p.p.m. after the fronds had been exposed respectively to 2·5, 10 and 40 p.p.m. in the previous twenty-four hours.

The next step was to determine whether this increased resistance induced by the pre-treatment was a specific effect. Accordingly, experiments were carried out in which fronds in the initial period were placed for twenty-four hours in low concentrations of a number of other compounds—for example, 2-methyl-4-chlorophenoxyacetic acid, 2 : 4 dinitro-*o*-cresol and cupric sulphate. In each case, such an initial treatment increased the resistance to dichlorophenoxyacetic acid in the treatment period. For example, pre-treatment with dinitro-*o*-cresol at 0·5 p.p.m. demanded a rise from 83 to 148 p.p.m. in the concentration of the phenoxyacetic acid needed to bring about the standard 50 per cent mortality.

When in the pre-treatment period the time of exposure to 40 p.p.m. dichlorophenoxyacetic acid was varied from 0·75 to 48 hours it was found that the induced increase in resistance to the *same* compound reached a maximum and steady value at the end of 3 hr., but that treatment for as little as 0·75 hr. had a significant effect. It is not possible to rule out enzyme adaptation as an explanation for the results of this experiment, since even within the short periods recorded many 'generations' of an enzyme may have taken place. However, on this basis, it is difficult to account for the common effect of different compounds on the subsequent response of *L. minor* to dichlorophenoxyacetic acid.

The results will be reported more fully and discussed in greater detail elsewhere. The techniques of the *Lemna* culture and the methods of probit analysis have been previously described[1–3].

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Neurospora following a Volcanic Eruption

EARLY in 1951, Mount Lamington in New Guinea erupted violently, and the resulting shower of hot ashes which followed the explosion devastated many miles of the countryside, causing severe damage and loss of life. Very soon after the eruption, Mr. G. A. Taylor, volcanologist stationed in New Guinea, visited the area, and in the course of his investigations found large patches of a pink fungus which he collected and sent for identification. The fungus was readily isolated and proved to be a heterothallic species of *Neurospora*, which has been provisionally identified as *N. crassa* (Shear and Dodge). The genus *Neurospora* is well known as a troublesome pest of bakeries and similar high-temperature situations. The ascospores of this genus do not germinate readily unless subjected for a brief period to high temperatures (for example, 1 hr. at 60° C.). Its occurrence,