Fig. 3 is also useful in calculating the dry weight of food consumed by an 8·5 mm animal. The average dry weight of a single *Artemia* nauplius and *Sagitta* was found to be 2·5 and 194 μg respectively, using a torsion microbalance. Assuming a maximum consumption of 50 nauplii/day, then *Sagitta* will ingest up to 64 per cent of its own dry weight in food each day. This figure may be compared with the maximum value of 30 per cent reported for the herbivorous zooplankton[9] in a natural community.

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Lack of Effect of Polyvinyl Alcohol on the Growth and Chlorophyll Content of Green Algae

In two recent communications it was claimed that polyvinyl alcohol at a concentration of 0·1 per cent had a marked stimulatory effect on growth of *Chlorella* (increase of 50 per cent) and an even more striking effect on chlorophyll content of the cells of *Chlorella* and *Chlamydomonas* (increase of 300–400 per cent)[1,2], independent of an increase in cell number. Unfortunately, these experiments are described as being carried out in "pond" water in aquaria under unspecified conditions and chlorophyll was determined in dried samples.

In view of the possible significance of these findings for the mass culture of algae it was decided to re-investigate them. The algae were grown in Roux bottles in the greenhouse on a shaker as previously described[3]. A stream of air was passed through the bottles. Controls and cultures to which polyvinyl alcohol had been added at a range of concentrations were always grown in parallel. Polyvinyl alcohol was obtained from Light's Chemical Co., Ltd. (viscosity of 4 per cent solution is 7 cP). The experiments were carried out either in modified Knop's medium or in water from a pond on the University campus or collected from the Aqua Bella spring, near Jerusalem. The second and third treatments were chosen to create conditions of minimal growth, similar to those in the experiments of Czeczuga *et al.* The pond water was filtered and brought to *p*H 6·5. The experiments were repeated a very large number of times using *Chlorella vulgaris*, *C. pyrenoidosa* and *Chlamydomonas snowiae* as the test organism. In no case was any significant increase in either the rate of growth or the final cell concentration obtained in the range of polyvinyl alcohol concentrations of 0·1–1,000 p.p.m. Under the conditions used *C. vulgaris* reached a cell density of 3,000 cells/mm³ in about 150 h in the modified Knop's medium. No effect of polyvinyl alcohol was found on cell number either in the presence or absence of minerals in the culture solution. At the higher polyvinyl alcohol concentrations fungal infections became evident in the solutions.

When total chlorophyll content in the cells of *C. vulgaris*, grown in Knop's medium, was estimated by Arnon's method[4], but extracting with methanol and using appropriate extinction coefficients, it was found to be 1·016 μg/10⁶ cells without polyvinyl alcohol and 1·35 μg/10⁶ cells in the presence of 0·01 per cent polyvinyl alcohol, that is, at best a 30 per cent increase. The differences were not significant. These experiments were repeated with all three species of algae in pond water or in modified Knop's medium in the presence or absence of polyvinyl alcohol. Typical results are shown in Table 1. None of the differences is significant, except possibly in the case of *C. vulgaris* in pond water and *C. pyrenoidosa* in Knop's medium. In the former case, despite the apparent increase of 75 per cent the difference was not significant at the $P = 0{\cdot}05$ level using the t test for unpaired samples. In the case of *C. pyrenoidosa* the rise of 34 per cent was significant at the $P = 0{\cdot}01$ level using the same test. Clearly, polyvinyl alcohol, with one exception, does not cause any significant stimulation of chlorophyll production or increase in the chlorophyll content of the cells. Even the one significant increase is far below the 300 per cent of Czeczuga *et al.*

Table 1. Chlorophyll Content of Algae Grown in the Absence or Presence of 0·1 per cent Polyvinyl Alcohol. Results as μg Chlorophyll/10⁶ Cells

Species	Conditions	Control	+ polyvinyl alcohol
C. vulgaris	'Pond' water	1·2 ± 0·2	2·1 ± 0·3
	Modified Knop's medium	1·84 ± 0·22	2·0 ± 0·19
	'Pond' water	0·15 ± 0·01	0·097 ± 0·022
C. pyrenoidosa	Modified Knop's medium	0·32 ± 0·035	0·43 ± 0·006
	'Pond' water	1·87 ± 0·27	1·73 ± 0·14
Chlamydomonas snowiae	Modified Knop's medium	2·38 ± 0·08	2·33 ± 0·06

It is difficult to account for the discrepancy between our results and those reported previously. In view of the very high concentrations of polyvinyl alcohol required to induce the effects, as reported by Czeczuga *et al.*, it seems probable to us that the effect of polyvinyl alcohol was caused by the presence in it of a contaminant or impurity, possibly a metal ion (magnesium or iron) which promoted growth under the unfavourable conditions prevailing in their experiments.

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In the investigations Nos. 1, 2 and 3 published in *Nature* (refs. 1 and 2 of preceding communication), positive results were obtained showing an increase in chlorophyll and hæm.

In investigations carried out by H. Fr. Nowak and L. Rejniak[1] an increase in the dry mass of pea seedlings was observed.

In investigations carried out by H. Fr. Nowak and L. Rejniak[2] a rise in the level of glycogen in the liver was observed; there was, however, no evidence of polyvinyl having any effect on the level of nucleic acids.

C. Wetter[3] has shown that polyvinyl alcohol has an effect on the increase in dry mass of that fungus.

According to the preceding communication the authors investigated the effect of polyvinyl alcohol on *Chlorella vulgaris*, *C. pyrenoidosa* and *Chlamydomonas snowiae*. We suggest that the results given in their Table 1 are somewhat contradictory in view of the title, since it shows that, though alcohol from a different firm was used in 3 of the 6 groups investigated, an increase in chlorophyll (in