

## General Books

### Cold Comfort

*Vitamin C and the Common Cold.* By Linus Pauling. Pp. 122. (Freeman: San Francisco and Reading, March 1970.) £1.90 boards; £0.80 paper.

LINUS PAULING is well known for his contributions to chemistry and to the cause of peace, and his scientific knowledge and his concern for human welfare can both be seen in this short book. The book is intended for the general public, although it includes some quite detailed quotations of scientific results and a list of references in an appendix. The introduction is anecdotal and describes how the author and his wife noted a marked reduction in the number and severity of common colds after they began taking regular large doses of ascorbic acid. There follows a straightforward chapter on common colds and several on ascorbic acid; the latter give simple accounts of the discovery of the vitamin and its effects. There is an

interesting chapter on "Vitamin C and Evolution" which points out that most species can synthesize relatively far more ascorbic acid than man ingests. Pauling postulates that there may be an advantage to the organism to shed the work of synthesizing an essential substance provided that it is readily available in the food supply. He claims that this has been proved for microorganisms, but it seems to remain a hypothesis for higher organisms, although it gives him an opportunity to point out that gorillas eat 4.5 g of ascorbic acid a day and that if man lived entirely on a mixture of raw plant foods he might consume almost as much.

Pauling attacks the US and British standards for daily intake of ascorbic acid, although they represent much more vitamin than is required to cure the average case of scurvy. He points out the biochemical individuality of man and suggests that an optimum intake for some people may be as high as 10 g per day. In attempting to buy large amounts of vitamin C for himself he has discovered that this may be bought quite cheaply in 1 kg jars or as multivitamin tablets; however, it costs several times as much under a trade name or on prescription and up to eight times as much in the form of health products. One is bound to have sympathy with this attempt to protect the general public from exploitation, although a good mixed diet is probably all that is necessary to preserve the vitamin intake of all but a few special categories of the population.

The whole object of the book, however, is to persuade the reader that taking large doses of ascorbic acid will prevent and ameliorate colds and this is alluded to repeatedly. He presents the results of field studies such as that of Glazebrook and Thompson which showed that those on a vitamin C deficient diet had rather more colds and substantially more bacterial infection, particularly pneumonia and rheumatic fever, than those in the same group who had vitamin C supplements; he also reports other small studies suggesting that vitamin C may reduce the duration and slightly reduce the incidence of colds. Then (p. 45) he says that ". . . the common cold can be almost completely controlled by use of still larger amounts of ascorbic acid, several grams per day". From then on no controlled or convincing studies are presented—but chiefly claims that colds are "aborted" by the very early use of large doses of vitamin C; this contains the obvious fallacy that the more often one treats very mild symptoms, a scratchy throat, perhaps, the more often will one treat something which was never going to be a cold anyway and the more often will this be regarded as "aborting" the cold.

The only safeguard is to use a double-blind placebo-controlled trial. In an appendix are found reports of several other studies, most of which did not confirm an effect of oral ascorbic acid on colds. These are criticized on the grounds that too little ascorbic acid was used—for example 200 mg per day, or that treatment was deferred until after the cold had begun, although on p. 47 he quotes with approval such a treatment recommended by a Dr Regnier. He likewise discounts a volunteer study performed at the Common Cold Unit, Salisbury, Wiltshire, although 3 g/day was given before virus infection, because the population was probably ascorbic acid deficient—but this would have increased the difference due to a vitamin supplement. He also criticizes it because the numbers used would have only detected a decrease of 40 per cent with a statistical probability of 5 per cent—but this was the sort of claim which it was desired to test, and effects on the duration of disease and the excretion of virus would have been more easily detected and were not. Nowhere in the book are there reports of data from research, which the author says he is carrying out (p. 90), which prove objectively that ascorbic acid prevents colds. One comes sadly to the conclusion that Pauling is so convinced of the efficacy of vitamin C in common colds that he is no longer capable of regarding the problem objectively and realizing that there is little or no evidence that it does any good. While I agree that drugs are given quite unnecessarily and possibly with harmful effects in this disease, that is no justification for presenting to the general public, in a form which may look to them like scientific proof, propaganda for a harmless but no more effective remedy. DAVID TYRRELL