

(i) **The cytoplasm is a homogeneous substance in the plant cell, as it is in the animal.**

(ii) Except in the bacteria and blue-green algæ, it holds minute living bodies, the chondriosomes, sometimes called chondrioconts when they are rod-like, mitochondria when dot-like. Originally regarded as artefacts, the chondriosomes are now known to divide and change their form, showing a striking resemblance with bacteria in their size, shape and staining properties. This resemblance we now know to be purely deceptive; the chondriosomes are not symbiotic bacteria, as they were once believed to be. For one thing, they do not respond to the centrifuge as do bacteria within the same cell.

(iii) The origin of the chondriosomes is still a mystery. Possibly, as Lewitsky suggested, they arise by differentiation from the cytoplasm, but they have never been observed to arise *de novo*; they most probably pass on from cell to cell during division.

(iv) The plastids of green plants are only transformed chondriosomes. During the development of mature cells from meristems they have been found to arise by differentiation from some of the chondriosomes which become enlarged and are able to manufacture chlorophyll and starch. Conversely, the plastids have been observed, at certain stages in the life-history of green plants, to become smaller and smaller, to lose their chlorophyll, and finally to revert to the inactive form as chondriosomes. These transformations may be repeated in both directions several times in a life-history.

(v) "Nothing is positively known about the rôle of the chondriosomes". Like the plastids to which they give rise, they appear to be the seat of important surface phenomena in the metabolism of the cell, but the exact nature of these processes is shrouded in mystery.

(vi) The aleurone grains of seeds are only dehydrated and condensed vacuoles. On germination they take up water and swell up into vacuoles which contain a more or less concentrated colloidal solution capable of being shown up by vital stains, like the aleurone grains themselves.

(vii) The vacuoles probably arise *de novo*, through absorption of water by colloidal granules secreted by the cytoplasm.

(viii) The fungi possess chondriosomes but no trace whatever of plastids, even of the colourless type. Are they, in their origin, algæ dispossessed of their chlorophyll? What is the relation of the Cyanophyceæ, in which no trace is found either of chondriosomes or of plastids, with the rest of the algæ? Perhaps the non-green races of the Flagellata will help towards a solution of these questions. But the bacteria still stand quite apart, and baffle all attempts to line them up with the rest of the plant world. Are they plants at all?

(ix) What happens at death? You watch an apparently healthy cell, with only its vacuole stained in neutral red. Everything seems normal, but abruptly the stain leaves the vacuole, and colours the cytoplasm and nucleus. The change that has come about, expressed in this innocent way, must be a change of vast magnitude. What is the nature of this change? What is the mechanism of the vital processes that have now ceased? The narrowing down of this gap in our knowledge is the concerted aim of the morphologist, the cytophysiologist and the physical chemist.

B. SAHNI.

Food—the Deciding Factor. By Frank Wokes. (Penguin Special No. S. 87. Penguin Books Co., London), 1941. Pp. xi + 144.

During the last few months, the public is becoming increasingly alive to the necessity of a well-planned and equitable food policy for the world as a whole. Eminent scientists and economists of Britain are ventilating their views on this subject through the columns of *Nature*. It is believed that the adoption of a sane and humane food policy would be helpful in avoiding international conflicts which have become so dreadfully frequent.

In a Penguin Special the question of Food, which represents one of the most important deciding factors in the successful prosecution of a world war, is discussed by Frank Wokes in all its aspects. Morale on the Home front is as important as the offensive spirit on the battle-field and maintenance of both these essential qualities is intimately

bound up with the nutritional state of the two classes.

War-time food economy necessitates rationing and successful scientific rationing demands an intimate acquaintance not only with the principles of nutrition but also with the nutritional and vitaminic composition of the available foods. This fundamental knowledge and data are to be found in the book under review. In a series of seven lucid chapters, the author has dealt with the energy value of foods, the food values of starches, sugars and fats, the body-building values of foods, the value of mineral salts, the vitamin values of foods, losses of food value and the food value of dishes and diets. There is a descriptive Appendix of "Tables of food values". While the book is primarily intended to help the solution of the problem of food imposed on England by the war, the ideas developed in the book will prove helpful in the building up of a new world in which food will still remain the main deciding factor. This little book which is within the reach of every one, will receive the wide circulation it deserves.

V. S. G.

Reference Service and Bibliography. Vol. 1: *Theory*. By S. R. Ranganathan, M.A., L.T., F.L.A., and C. Sundaram, B.A., 1940, pp. 642. Vol. 2: *Bibliography of Reference Books and Bibliographies*. By S. R. Ranganathan, M.A., L.T., F.L.A., and K. M. Sivaraman, B.A., 1941, pp. 511. (Madras: Madras Library Association; London: Edward Goldston.) (n.p.).

These two volumes, it is hoped in the preface by the Madras Library Association, will help libraries in India and elsewhere to organize their work in an efficient, scientific and serviceable way. These are welcome additions to the library literature in the country. Skilfully have the authors traced the genesis and expounded the what, why and how of reference service in Parts 1-3; Part 4 encompasses the whole field of bibliographies including the subject of bibliography or "reference bibliography" as the authors prefer to call it. Vol. 2 is a bibliography to Vol. 1, so to speak.

It may be surprising for many to learn how helpful and informative can the library service be in various fields of knowledge if it is equipped with reference staff. With

this background the authors have painted a splendid picture that is just what the titles of the two volumes indicate. The skill of bibliographical research, keen discernment of a librarian *savant*, analytical and interpretative ability of a scholar, and creativeness of a thinker, have all been deployed in penning the picture. Books, institutions, men, memories, incidents in day-to-day library routine, causes and effects, have been searched out, evaluated, and combined, with the result that the two volumes have a wide appeal to anyone who has had contact with a library or who is interested in problems of library service.

That the authors' exposition of the art of reference work is academic as well as practical is seen throughout the work and particularly in the assortment of problems which, with their worked out solutions, fill a number of pages of the pleasingly unorthodox Vol. 1. This book is also unique in the emphasis it places on indological allusions so that the truth of the subject-matter may be feelingly realized by the Indian reader. In this volume the authors put forth the thesis that reference books as a rule are "rather treacherous" and reference service is therefore not a *service de luxe* but a necessity—for guiding the unwary reader through the so-called ready reference works. In the *why* section, a vista of reference books has been opened before the reader, and each book has to bear the brunt of the authors' critical genius. This section is educative for educationists and librarians alike, although it cannot be said to be the last word so far as highly specialized and scientific matter is concerned.

The voluminous flow of pages of lucid, racy, persuasive style is remarkably free from transcription blemishes except on pages 213, 254 and 543 of Vol. 1 and on page 212 where the hog idiom has been pierced by a through. Perusal of foreign titles, however, leaves in general an uneasy feeling owing to their shortcomings of accentuation. Many readers would wish that the valuable references in footnotes were accompanied by names of publishers.

These minor points are not intended to detract from the general interest or message of the composite treatise. It assembles a vast amount of information which the ordinary user might find difficult to acquire.