

NATURE

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SCIENTIFIC AND TECHNICAL BOOKS

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ALTHOUGH in his pamphlet, "Newsprint—a Problem for Democracy", Sir Walter Layton was concerned more specifically with the consequences of the reduction in size and freedom of circulation of newspapers, the position he discloses is not without relevance to the scientific and technical Press. Scientific and technical periodicals may also be described as imported articles, being like the newspaper printed either on imported newsprint or on newsprint made in British mills from imported pulp, and they are equally vulnerable to any factor interfering with imports. Similarly, scientific work and interests, as much as knowledge of public affairs, have suffered from the compression and also from the selection that are inevitable when newspapers are confined to four pages. Matters of scientific and technical importance raised or debated in either House of Parliament, for example, are frequently unreported or at best receive bare mention in the daily Press; the scientific and technical Press can rarely afford the space to discuss the topic adequately, and sometimes it is overlooked entirely. Some attempt is made by the Parliamentary and Scientific Committee in *Science in Parliament* to remedy this position, but the summaries thus published are usually too belated for any effective action to be taken.

Sir Walter Layton's pamphlet makes it abundantly plain that the critical importance of an adequate supply of newsprint is not adequately appreciated by the Government, and scientific workers on their side have the painful experience of the war years to impress on them the failure of either the Ministry of Supply or the Board of Trade to realize that books and periodicals are tools of research as essential as apparatus and laboratories. To a Government department a first-class scientific monograph or work of reference is equated with the latest novel or a bag of chalk, and most technical or scientific librarians could testify to their inability to secure any acceleration of the import of the text-books which research workers were urgently demanding. It is understandable that the output of British scientific and technical books should in war-time have dwindled to negligible proportions, and it was inevitable that the supply of such books from European sources should be interrupted. That no Government department should have appreciated that this situation accentuated the need to import American books is another question, and such departmental short-sightedness was at times a direct handicap to research and to our war effort.

What is discouraging is to find so slight an improvement in the position eighteen months after the termination of hostilities in Europe. The output of British scientific and technical books is still slight, due in large part to the shortage of man-power. Dollar stringencies are still allowed to curtail our imports of American books. American publishers are to be congratulated on the energy with which they have faced the situation and for their enterprise in

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the reproduction of important German scientific and technical books; nevertheless, we are entitled to ask whether it is likely to be in the interest of Britain or of its scientific workers to leave such developments exclusively in other hands.

The shortage is particularly acute as regards publications of the text-book class. Correspondence in the columns of *The Times* on the shortage of books and the difficulties which university students experience in consequence is corroborated in the annual reports of important public libraries, one of which states that twenty students may be waiting at the same time to use the sole copy of a particular book which the students themselves are unable to buy or to borrow elsewhere. Moreover, the abnormal demands at present made on the universities, and the shortage of teachers increase the importance of text-books in university education. Without books, as Sir Charles Grant Robertson observed in this connexion, a real university education is impossible; nor in such conditions is it possible to explore in the newer universities the possibilities of the tutorial system as opposed to the lecture system on lines, for example, such as Dr. C. H. Waddington has suggested.

The repercussions of this shortage of books are in fact not felt solely in the universities, or in research, in industry, or in Great Britain alone. They affect the Colonial Service courses and also, as Sir Stanley Unwin has pointed out, there is an acute and unsatisfied demand for British books on the Continent of Europe and elsewhere. One function of the British Council is to make known British culture and achievements; but the actual production of scientific and technical text-books certainly does not come within its competence. It is doubtful whether much success can be expected to attend the establishment of an emergency pool of text-books, for example, by the University and Research Section of the Library Association; such copies as exist are unlikely to be idle and available for pooling. Moreover, such measures are at best palliatives and should not be allowed to deflect attention from the main objective—the increase of production.

As Mr. H. M. Cashmore, president of the Library Association, urges in his letter to *The Times*, the production of books, including the reprinting of standard texts, is a matter of vital importance. Scientific men may well be expected to take whatever steps are in their power to facilitate and co-ordinate supplies of materials, and to renew their representations to the Government on the importance of books not only in the training of students, in the formation of opinion and the promotion of international understanding and the exchange of knowledge, but also as essential tools in research and production. Nor should they forget that in the present situation it behoves them to see that the most effective use is made of available supplies of material for book production. There is no room for books or for periodicals which will not bear searching objective scrutiny, and the present shortage of labour makes it the more imperative that scientific workers should not only set their own house in order by the elimination of redundant books and period-

icals; but also, by the rigorousness of their criticism and the impartiality and objectiveness with which they review scientific and technical publications, they can ensure that the highest possible standards of production and content are attained. This much being done, however, the central problem is the manpower situation. Until the various industries concerned in the production of books can employ the requisite number of workers and also make full use of their material equipment, the supply of all types of books is bound to continue seriously to lag behind the demand.

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DEVELOPMENTS IN RUBBER SCIENCE

Advances in Colloid Science

Initiated by the late Elmer O. Kraemer. Vol. 2: Scientific Progress in the Field of Rubber and Synthetic Elastomers. Edited by H. Mark and G. S. Whitby. Pp. xl + 453. (New York: Interscience Publishers, Inc., 1946.) 7 dollars.

THE appearance of a comparatively comprehensive book on rubber science is an event of some importance. The last publication of the kind was Davis and Blake's "Chemistry and Technology of Rubber" (1937), and a comparison of this with the volume under review makes one immediately aware of the considerable advances which have taken place in almost every aspect of the subject, but even more strikingly of the shift of emphasis away from organic chemistry and towards physics and physical chemistry. This is not due to any reduction in the significance or importance of the organic chemical aspect, but rather to an efflorescence of new concepts and ideas of a somewhat revolutionary character in the physical realm which have combined to make rubber science one of the most fascinating of present-day studies.

In the second volume in the series appearing under the title "Advances in Colloid Science" the editors have succeeded in choosing recognized authorities to write on their particular branches in such a way that the whole subject is fully covered, without introducing any undesirable repetition. Of the nine principal chapters, five deal mainly with physics, two with physical chemistry, and two with organic chemistry. In addition there are an excellent short introductory chapter by G. S. Whitby on the structure of synthetic elastomers, and an appreciative review of the work of the late Elmer O. Kraemer, by whom this series of volumes was initiated.

The rubber-like state, characterized by long-range elasticity, is associated with an amorphous or disordered arrangement of long-chain molecules in a state of micro-Brownian motion. If the regularity of structure along the molecular chain is sufficient, the amorphous state may, under suitable conditions, transform to a partially crystalline state, while at low temperatures both crystalline and amorphous states give place to the glass-hard condition. The transition to the glassy state—the so-called second-order transition—is discussed by R. F. Boyer and R. S. Spencer, of the Dow Chemical Company, while the phenomena of crystallization are treated by L. A. Wood of the U.S. Bureau of Standards. Another