

fundamentals is, however, a little superficial in some respects. In the new chapter on plastic deformation, for example, no hint is given that metallic crystals are anything but perfect in structure, and one would prefer to see the early chapters, on the equilibrium diagram, extended at the expense of the final chapter on laboratory methods. The list of alloys given in the appendix might be replaced with advantage by a select bibliography. Printing, illustrations and binding are excellent.

MISCELLANY

Science and Civilization

By Dr. Bernard Lovell. (Discussion Books, No. 63.) Pp. 150. (London and Edinburgh: Thomas Nelson and Sons, Ltd., 1939.) 2s. net.

DR. LOVELL can be heartily congratulated on the admirable way he has discharged a difficult task. Within a hundred and fifty pages, he has given us a lucid and balanced outline of the training of the man of science, the organization of research, and its interactions with society, the factors which impede scientific advance and social progress, and a glimpse of the possibilities science holds for civilization could these obstacles be overcome; it should prove as stimulating to the general reader as to the scientific worker himself. This little book can be commended as a direct basis for discussion on the relations of science and society or as an introduction to the brief but growing scientific literature written with social consciousness. Its interpretation of scientific men and their work in the light of social responsibility, no less than its indication of the ways in which the frustration of scientific knowledge persists and indeed extends, and of the threats to intellectual liberty and life throughout the world, are well calculated to stimulate increasing numbers of scientific workers to consider the social aspects and responsibilities of their work, and attempt the interpretation of science in its social context.

The great value of the book is in its contribution to education for citizenship, whether of the scientific worker or of the general reader. It is therefore unfortunate that in his preface Dr. Lovell suggests that the universities should be re-directed to produce men educated as citizens *instead of* exact scholars. Great as may be the need for the universities to serve the community by providing graduates who are trained as citizens, competent to think accurately about the great problems of to-day and alive to the human issues underlying the decisions they are called upon to take, it must not, as Dr. Lovell's words seem to imply, be at the expense of either scholarship or the critical intelligence they are equally called upon to exercise. Changes in teaching or curriculum at the universities which will assist the development of personality and social consciousness are indeed desirable. They must not, however, be allowed to impair the integrity or exactitude of scholarship or scientific competence.

Civil Defence

A Practical Manual presenting with Working Drawings the Methods required for Adequate Protection against Aerial Attack. By Capt. C. W. Glover. Second edition, completely revised and enlarged. Pp. xviii+764+74 plates. (London: Chapman and Hall, Ltd., 1940.) 36s. net.

THE defence of the civil population against air attack has become a science of considerable magnitude, in which the problems cover a wide range from structural engineering, chemistry and fire fighting to the control and psychology of crowds. This second and enlarged edition of Capt. Glover's book is a very useful and comprehensive manual of protection against aeroplane bombs, in which technical details, graphs, mathematical data and costs are given. It also deals with matters of general interest. The diagrams of bombs, twice the size of a man, and the fact that in some of the raids in the War of 1914-18 one third of the casualties were caused by fragments from our own anti-aircraft fire, will come as a revelation to many people.

A large part of the book is devoted to shelter protection in buildings, trenches and dug-outs, and comparative costs are given. Alternative solutions to the pressing problem of the replacement of crumbling sandbag parapets by such methods as sand-filled hollow concrete blocks are not, however, mentioned, and the difficulty of the all-important question of the draining of trenches and dug-outs receives little attention.

There is a fascinating chapter on camouflage, one on anti-gas measures, with appendixes giving the properties and effect of the various war gases, and another on factory protection.

In the chapter on the organization of A.R.P., diagrams show the organizations in France, Germany and England. The complexity and lack of co-ordination in the English organization compared with the Continental nations is very marked, and lends credence to the story that at a certain first aid post and party depot, one half was sandbagged and the other not, since the Home Office, which deals with first aid parties, said 'sandbags' and the Ministry of Health, which deals with first aid posts, said 'no sandbags'.

E. H. K.

Problèmes de la vision

Par Armand de Gramont. (Bibliothèque de Philosophie scientifique.) Pp. 282. (Paris: Ernest Flammarion, 1939.) 22 francs.

THE title of this book is somewhat misleading, since in its short compass it covers the essential facts of how we see, and adds many suggestions which are not to be found elsewhere. It consists of three parts: (1) the eye and its defects; (2) the spatial medium—points, lines, directions, optical delusions, surfaces, volumes, stereoscopic relief, and architecture; (3) chromatic transmission—heterochromatic photometry, colour sensations and contrast, colour blindness, and the perception and transmission of colours.