

that in the largest individual blast carried out 80,000 pounds of dynamite were used.

The book is divided into six parts, dealing respectively with black powder, nitroglycerine, and dynamite, blasting supplies, including the necessary accessories, detonators and fuses, smokeless powder, including both sporting powders and military powders, military high explosives, largely concerned with trinitrotoluene, and, finally, the part referred to previously, dealing with explosives in the making of America.

The book is well got up; it is profusely illustrated with portraits of those who have been concerned in the development of the industry, and with photographs of factories, plants, and machinery, and of a number of interesting blasting operations and their effects. It will probably not appeal to a wide circle, but will be read with considerable interest by all who have any connexion with the explosives industry.

Our Bookshelf.

The Unconscious in Action: its Influence upon Education. By Barbara Low. Pp. 226. (London: University of London Press, Ltd., 1928.) 5s. net.

MISS BARBARA LOW'S "Unconscious in Action" is an attempt to show the importance of psycho-analytic theory in the explanation of character formation. At the same time it is a plea for the use of analysis in the school-room. The author does not, indeed, advocate psycho-analysis of children by their teachers; but she does desire to see the teachers themselves analysed so that, understanding the complex tendencies of their own 'unconscious' and its mechanisms, they may the better appreciate the potentialities for good and evil of the hidden forces lying in the depths of the child-mind. Thus, knowing himself, the teacher will realise the influence of the 'unconscious' upon consciousness, the way in which 'repressions'—fruitful causes of mal-adjustments—are brought about, the dependence of the intellectual life upon the emotional, the rôle of fantasy, and the like; and he will make use of his knowledge in helping the child to adjust himself to reality. Moreover, understanding the 'unconscious' and its mechanisms, he will at least know when to call in the professional analyst as need may arise.

Miss Low is a convinced, orthodox Freudian. Many, acquainted with Freud's teaching in crude, popular, even prurient, vulgarisations, would not allow that the analysis of children could do anything but harm. The popular vogue for psycho-analytic theory and practice has done it thus much disservice. Miss Low, however, is restrained and temperate in what she has to say. She certainly makes out her case for the understanding by the teacher of those forces upon which he plays, knowingly or ignorantly, in his rôle of educator. She

makes out a case for the prudent guidance of children along the lines of dynamic psychology. There can be no doubt that education has waited too long for a satisfactory dynamic theory of mind upon which to base its practice. Her theory is Freud's, whose work has done so much to stress the influence of human relationships upon the development of character. But the foundation upon which she builds, notwithstanding Freud's noteworthy contributions to it, is even broader and more solid than the theory of Freud. The details of Freud's views, psychological and philosophical, are still open to criticism; not so, however, his contention, general in modern psychology, of the essentially dynamic nature of the mind.

Creatine and Creatinine. By Prof. Andrew Hunter. (Monographs on Biochemistry.) Pp. vii + 281. (London: Longmans, Green and Co., Ltd., 1928.) 14s. net.

ALTHOUGH our knowledge of the physiology of creatine, up to within the last year or so, has been remarkably meagre in spite of many investigations on the subject, we are grateful to Prof. Hunter for collecting the data in one volume and critically reviewing the results obtained. It appears probable that recent work on the occurrence of a labile compound of creatine and phosphoric acid in muscle will explain much that has been obscure about the function of creatine in the body, so that the present moment appears opportune for summarising our knowledge and providing a suitable foundation on which future investigators may build.

The author commences his monograph with a description of the discovery, synthesis, and constitution of creatine and creatinine, and then considers the general chemistry of the two compounds and their derivatives. Detailed descriptions of their preparation and quantitative estimation serve as an introduction to an account of their biological distribution: both compounds appear to be confined to vertebrate tissues and completely absent from invertebrate: creatine is found chiefly in the skeletal muscles, probably in labile combination with phosphoric acid, whilst creatinine occurs chiefly in the urine. Creatine is not usually excreted by healthy men, though it occurs as a constituent of the urine in children, in women at certain times, and in certain cases of disease, chiefly of the muscles. The author considers that there is now sufficient evidence to conclude that the urinary creatinine is derived from the muscle creatine, a statement which might have seemed obvious, yet for which direct evidence has been singularly difficult to obtain. It is probable that the conversion of creatine to creatinine is a purely physico-chemical process dependent solely on the temperature and reaction of the tissues, especially the muscles.

It appears certain that creatine has a definite function to perform in the organism and is not simply a waste product: it is presumably derived from protein, possibly from the amino-acid arginine, although its exact precursor has not been definitely determined. The monograph concludes with a