

THE STORY OF EXPLOSIVES

Explosives

By Prof. John Read. (Pelican Books, A.100.) Pp. 160+8 plates. (Harmondsworth and New York: Penguin Books, Ltd., 1942.) 9d.

THERE is something about the atmosphere of St. Andrews that leads to eloquent speaking and clear writing: Kipling knew this, for in his poem he tells of "The lives that caught fire 'neath her hand". John Read has caught the infection; he is always interesting, whether he is enjoining us to keep warm by carrying faggots up and downstairs or discoursing about past worthies across that most famous of all lecture tables at the Royal Institution. This time it is explosives which he seeks to explain to the people; they have become all too conscious of them through personal experience of the blast waves from big bombs, and may well wish to learn more.

It is a story which is as fascinating chemically as it is historically. Beginning in Roger Bacon's cell in 1242, it goes on into time, to a day not too far ahead when explosives safe to handle will once more play their proper part in the peaceful operations of mining, quarrying, road and railway making and much besides. Somehow the public at large should know more of these and similar things; the fact that they are ignorant is a confession of failure of the educational system. The modern Caroline and Emily have no Mrs. Jane Marcet to tell them useful things or incite them to experiment.

Read starts with Mr. Pickwick and is on good terms with every kind of historical worthy in his pages: Eblis, greatest of the Djinnis, Black Berthold, Scheele, Nobel and, of course, Shakespeare, are all brought in a collaboration to help the reader "wade without discomfort" through the chemical chapter to the more solid shores that lie beyond.

Man's mounting mastery over materials has made him more chemistry conscious: the problem is how to teach the masses just enough chemistry to make them curious to understand materials and the why and wherefore of their behaviour. Then, as Meredith says:

"You of any well that springs
May unfold the heaven of things,
Have it homely and within
And thereof its likeness win."

Explosions are nothing more than very rapid chemical reactions; explosives are made from simple substances and usually depend for their existence on nitrogen, which acts to hold away the oxygen atoms from the carbon and hydrogen atoms until the moment for disruption arrives. Gunpowder, the oldest and most famous of all explosives, gives Read his chance. The story is equally interesting whether told by the chemist or the historian. The necessary nitrate, once a monopoly of the birds, is now won direct from the air, first as ammonia, which is then oxidized by catalytic processes. Charcoal, once obtained exclusively from certain woods—as it still is for gunpowder, which depends on the grain size and rate of burning—is for other purposes, as for example motor-car tyres, a petroleum product known as carbon black. Sulphur is still mined chiefly in Louisiana by an ingenious process which brings molten sulphur to the surface, but can be recovered from metallic sulphides. Gunpowder heralded the modern explosives, nitroglycerine and trinitrotoluene, the former obtained from fats and the latter from coal tar; both innocent

enough until the deadly nitrate group was introduced. All these things are explained in simple language with scarcely a dull paragraph. Read tells also of the invention of the percussion system by Forsyth, minister of Belhelvie.

It is said that bankers regard science as a thing that makes banking hazardous; it is at least certain that it is hard to finance inventions in Great Britain. By far the greater number of inventions are of no immediate, practical or commercial value. But some are, and it is discouraging to know the foreigner finds it easier to get started in his own country and, what is worse, is acclaimed when he comes to Great Britain, whereas the Englishman making the same discovery frequently has little chance of recognition. One result of the neglect is that in times like the present there is so much leeway to be made up in a hurry.

The sun rises and sets, half of us are making plans for the new world after the War, each advocating his own remedy. At least we must ask for more and not less science, but to be successful the public must understand why. Hence the utility of such books as this.

"Further deeper may you read
Have you sight for things afied."

Read sails under the flag of the *Pelican* as Drake did before him. Both made a quest for explosives, for gunpowder, though on the Spanish Main Drake had more often to rely on cold steel: on the way up the Channel after the Armada, he sent his boats ashore at every small port to beg for powder and shot. Read's quests would make explosives work solely for the good of man kind—good servants but bad masters; his ports are the libraries of the universities, where he does not have to beg for knowledge in vain.

The explosives "are melted into air, into thin air", but in days of peace the work done by their agency endureth.
E. F. ARMSTRONG.

HISTORY OF DISEASES OF THE HEART

A Short History of Cardiology

By Prof. James B. Herrick. Pp. xvi+258. (Springfield, Ill., and Baltimore, Md.: Charles C. Thomas; London: Baillière, Tindall and Cox, 1942.) 3.50 dollars.

THOSE who know Dr. James B. Herrick of Chicago, and are familiar with his past writings, will unanimously welcome this book from his pen, and will be eager to read it. The book is a small, volume, printed in clear type and on paper of a quality unusual in war-time. Its many excellent illustrations are chiefly portraits, some of them old friends; many more are comparatively rare and will be seen for the first time by most readers.

The author divides his history, of what has come in quite recent times to be called by the rather ugly name 'cardiology', into periods, using as milestones, Harvey, Laennec, Virchow and Koch. There may be some who will regard the last three names a little askance, since they are associated with no discovery, certainly with no outstanding discovery, directly connected with the field of knowledge considered. Especially might criticism be directed at the milestone Laennec, for, great as he was, his description and analysis of heart sounds did