Hence the importance of educating the public in measures which would reduce the casualties to a fraction of the figure they might otherwise assume.

At the annual meeting of the British Science Guild held on June 12, a lecture[1] on gas defence was given by Mr. Davidson Pratt, general manager of the Association of British Chemical Manufacturers, and formerly an official in the Chemical Defence Research Department. Mr. Pratt dealt at fair length with the question of gas-protected rooms, of which he considers there should be one in every house or building, preferably situated on an upper floor. The preparations advocated would be decidedly troublesome and expensive, as they would involve not only closing all cracks and chinks with putty or mud, but also boarding up the windows outside and covering them inside with stout material such as wetted blankets or linoleum; also laying in a store of provisions, water and other necessities. It is evident that it would be difficult to do all this even in the houses of the well-to-do, and would be practically impossible in those of the poor. We should like to know whether these recommendations are based on actual experiments, and whether it would not be possible to make a room reasonably safe without rendering it useless for any other purpose than a refuge in emergency. If such experiments have not been carried out they should be put in hand, and the results published.

As regards gas masks, Mr. Pratt recommends that a type should be developed less expensive than the service one but sufficiently efficient for the needs of the general population. It is unsatisfactory that so little appears to have been done yet in this direction. The problem of clothing that will protect against mustard gas and lewisite is more difficult. Other subjects dealt with briefly in the lecture were the detection and diagnosis of gas and decontamination; but apparently, from what Mr. Pratt said, the methods and organisation required have not yet been worked out.

An anonymous pamphlet on this subject has also been issued by the Union of Democratic Control[2]. Considerable industry has been shown in collecting statements, but the comments of the writer are mostly misleading, so obviously misleading that they tend to produce in the reader a prejudice against pacifists rather than a hatred of war, which is the natural attitude of most Britons.

The chapter dealing with Mr. Davidson Pratt's lecture is headed "The Great Defence Hoax", and the general thesis is indicated by the statement on p. 60: "The authorities hope to succeed in rousing enough fear amongst people to persuade them to acquiesce in an armaments race, to make the danger of air attacks seem real and to encourage them to believe that the precautions against them will be effective". More agreement will be felt with the following sentence, which occurs almost at the end of the pamphlet: "The plain fact is that the only defence against air attack is the absolute prevention of war". Similarly the only real defence against burglary is the absolute abolition of burglars, but pending that our front doors are provided with latches.

ARTHUR MARSHALL.

[1] "Gas Defence." By J. Davidson Pratt, O.B.E. Pp. 14. (London: The British Science Guild, 6 John Street, Adelphi, London, W.C.2, 1935.) 1s.

[2] "Poison Gas." Pp. 63. (London: Union of Democratic Control, 34 Victoria Street, London, S.W.1, 1935.) 6d.

Obituary

Prof. J. B. Cohen, F.R.S.

IN the old organic chemistry laboratory at the University of Leeds there was a life-size bust of Liebig. It was perched high up on the top of some reagent shelves and it seemed as if the great 'master' of organic chemistry looked down and said, "All is well here". In many ways that bust was symbolic of the sway exercised in the laboratory by J. B. Cohen. He would have wished no better thing to be said of him than that he had tried to carry on the traditions made by Liebig for organic chemistry in the eighteen-fifties. Nicknames are often given to professors by their students as a sign of affection, but Cohen never received one from his. He was a little too austere for that. Instead he was usually called "Julius"—his first name. In a sense this was a greater sign of affection. It struck a deeper note of regard.

Cohen was born in Manchester in 1859 and lived almost the whole of his life in the north of England. Except for a couple of years in Munich in Baeyer's laboratory, he spent all his active scientific life in the Owens College and the Yorkshire College (later the University of Leeds). He went to Leeds in 1890. Previously, he was a demonstrator of chemistry at Owens College. His title at Leeds was lecturer in organic chemistry, and in 1904 he was appointed to a chair. Twenty years later he retired, having reached the age limit. He was made a fellow of the Royal Society in 1911. But when he retired he did not give up active work. During the next eight years he occupied a small suite of laboratories in the Leeds Medical School, and carried out a most laborious investigation on the antiseptic and trypanocidal activity of a large series of synthetic compounds, many of which he prepared himself. This was done

under the auspices of the Medical Research Council. When the last-named body decided to discontinue this line of work, Cohen really did retire, and he and his wife left Leeds and went to live at their country cottage near Coniston Lake. It was there amidst the beautiful surroundings which he loved that he passed away on June 14, after a few weeks' illness. He was then seventy-six years of age.

Cohen taught by example rather than precept. His research students will always retain ineffaceably in their minds a picture of his amazing industry, his high technical standards, his almost woman-like gentleness in dealing with their early errors, his reticent smile at anything which amused him and his abhorrence of anything which savoured of showmanship or attaining ends by any but transparently honest means. Those who came less closely into touch with him will remember his clarity as a lecturer, his great interest in the welfare of students and especially foreign students of the University, the Working Men's Club which he founded and personally conducted in one of the least attractive parts of Leeds, and not least his attempts by direct investigation to show the great evils wrought by the smoke-laden atmosphere of our industrial towns.

Cohen was an artist to his finger tips. A lover of music, he was no mean performer on the violin. He and his wife often gave delightful musical evenings to their friends both in the University and outside it. He painted well in water-colour and got great enjoyment in trying to put on paper in this medium his impressions of many parts of his beloved Lake District. With such a temperament his likes and dislikes were often very clear cut. They were sometimes an enigma to those who did not know him, but never to his friends. Few men are so honest and live their lives with such simplicity and dutiful routine as Julius Cohen did, and none can have tried more faithfully or wholeheartedly than he to serve his fellow men.

As a chemist Cohen did a considerable amount of valuable and fundamental work, but he did not make the kind of outstanding discoveries that open up new fields of activity. He was, however, very versatile, and from the titles of his published papers it may be seen that he covered a wide field. He was one of the old school of organic chemists who were mainly interested in the structure of carbon compounds and its influence on their properties and reactions—what may be called molecular architecture and its significance. The principal province of his work was that of aromatic substitution, especially of benzene compounds, and the laws which govern it. But he was also intensely interested in the problems of optical activity, and almost the last paper he ever wrote was on "Asymmetry and Life".

It was this mystery of the optical activity of naturally-occurring organic compounds, together with his great appreciation of the work of Pasteur, that probably directed Cohen's attention to the wide scope for chemical investigation provided by the activities of living organisms. This led him to advise many of his research students—the first being H. D. Dakin—to take up the study of what was then called physiological chemistry and is now named biochemistry. None who were so advised can have regretted their choice, and the enormous development of biochemistry during this present century proves how right Cohen was in his appreciation of the contributions that the chemist could make in the biological field.

Organic chemists owe a great debt to Cohen because of his books. The smallest of these was probably the most important—his little "Practical Organic Chemistry". There was no book anything like as satisfactory when it was first published, and it has guided innumerable students in their first steps in the subject. Indeed it is still widely used. His greatest production was the three-volume "Advanced Organic Chemistry", and it is a tribute to his industry and wide reading that he could write such a book and yet carry out his normal day's work at his bench in the laboratory. Organic chemistry is now almost getting beyond the compass of a one-man book, but this "big Cohen" is still one of the books which are highly valued by advanced students in Great Britain. To many, Cohen's books will be his most lasting memorial, but those who had the privilege of his friendship will always in addition be grateful for the virtue they derived from the man himself.

H. S. R.

Prof. Max Cremer

On May 22, a few weeks only after celebrating his seventieth birthday, Max Cremer, emeritus professor of physiology in the University of Berlin and formerly head of the Physiological Institute of the Veterinary College, Berlin, died in Munich. He was one of the last representatives of the classical German school of physiologists who mastered both biochemistry and biophysics.

Cremer started his scientific career as a pupil of Carl Voit and Soxhlet by investigating animal metabolism, particularly the formation and utilisation of carbohydrate in the body. He succeeded in proving that the organism is able to synthesise glucose and glycogen from certain breakdown products of organic matter, for example from glycerine. Although he maintained a fruitful interest in these problems, he soon turned his main activities to electrobiology, a field very congenial to his talents in mathematics and physics. In 1906, he discovered the existence of considerable potential differences between suitable watery electrolytes separated by a phase immiscible with water (glass, nitrobenzene). This fact formed the basis of the present view of electrical phenomena in living matter, and on the practical side, of the use of the glass electrode for hydrogen ion measurements.

Regarding the electric change in nerve as the essential factor concerned in the origin and propagation of the impulse, Cremer combined physico-chemical and physiological terms in an ingenious manner which culminated in a formula for the velocity of the impulse and in a mathematical expression for the processes preceding excitation. He also promoted the technique of recording the rapid