

ture, should prove of value to the organic chemist, but there is little attempt to compare the relative advantages of the compounds so described as constituents of technical explosives, and a comprehensive review of the whole subject is lacking. A later section contains the compositions of a large number of explosive mixtures, drawn mainly from the patent literature. It may be noted that, whilst many complex mixtures containing ammonium nitrate as their principal constituent are cited, there is no mention of the simple amatol mixtures which were so extensively employed during the war. The closing chapter describes the usual methods of testing explosives, and of performing the analysis of the raw materials and finished products. The illustrations include numerous photomicrographs of crystalline compounds, nitrated fibres, and prepared mixtures.

C. H. D.

*Lad: A Dog.* By Albert Payson Terhune. Pp. 309. (London and Toronto: J. M. Dent and Sons, Ltd., 1920.) Price 6s. net.

THOSE who like dogs will find this tribute very interesting, and will, we think, be able to confirm much of it from personal experience. Those who begin the book with a prejudice in the other direction are, we think, likely to change their position. The story is told enthusiastically, but there is no nonsense about it, and the anthropomorphism is restrained. Some comparative psychologists of the severer sort have said that the fatal thing is a personal interest in the creature observed, and the danger of mingling emotion with inference, and inference with observation, is well known. We might admit this, and yet hold that comparative psychology is likely to be advanced by intimate studies such as Mr. Terhune has given us of "Lad." There may be glimpses of reality to be got in this way which the analytic method does not reveal. In any case, the author has told, in a very delightful way, the story of a charming companion endowed with considerable complexity of character which nurture enhanced. For "Lad" was a "real" dog, and the chief happenings in nearly all the stories about him are "absolutely true." He lived out a full span of sixteen years, and his epitaph reads "Thoroughbred in Body and Soul."

*A Theory of the Mechanism of Survival: The Fourth Dimension and its Applications.* By W. Whately Smith. Pp. xi+196. (London: Kegan Paul, Trench, Trubner, and Co., Ltd.; New York: E. P. Dutton and Co., 1920.) Price 5s. net.

THERE is nothing striking or new in this argument, neither is there anything extravagant in its application. The author expounds in a clear and easy manner the familiar notions of flatland and of a possible fourth dimension, and suggests that a hypothesis is necessary to explain the somewhat doubtful phenomena with which psychical research deals. These notions, he thinks, afford the basis of a hypothesis.

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### Letters to the Editor.

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#### London University Site and Needs.

I HAVE been surprised that no word of protest has been raised against the scheme of locating the University of London on a limited plot of land in the centre of the city. If the site were for administration purposes alone, combined, perhaps, with lecture-rooms for those subjects which require no practical instruction, the area offered might be adequate, but could only be rendered suitable for its purpose at such an enormous cost for site, removal of existing buildings, and erection of new edifices, that nothing but the most urgent necessity could justify; nor would the new position be one whit better or more convenient than South Kensington. It is, however, understood that the buildings to be erected are not only for administration purposes and lectures, but also to meet all requirements of the scientific departments.

Now it can be easily shown that provision for scientific subjects will require a far greater area of land than the amount suggested in the Government's offer. For the population of London one thousand would be a moderate estimate for the number of students who might be expected to need instruction in any one of the great departments of science, of which not fewer than twenty would need to be provided. Taking into consideration passages, staircases, preparation rooms, and assistants' rooms, for every working place in any practical department a floor area of at least ten square yards is wanted. Therefore, for each of the twenty subjects not less than ten thousand square yards of floor-space would be necessary. In addition to this, each will require lecture theatres, demonstration rooms, and research rooms; and for this, on a moderate estimate, we must add 50 per cent. to the above figure. This gives a total requirement for the twenty practical departments of not less than fifty acres of floor-space, in addition to the area wanted for administration purposes, libraries, museums, and for the subjects which do not need accommodation for practical work. Unless, therefore, the "skyscraper" system is to be utilised for university buildings, the 11½-acre plot proposed to be given up for the purposes of the University of London is absurdly inadequate, especially since not more than 8 acres of such a site could possibly be covered by actual buildings.

The problem is, however, much more complex than is represented by a mere computation of floor area. Anyone who has experience of a practical department knows the supreme importance of placing it in an entirely separate, self-contained building or institute, thereby allowing abundance of light for all rooms and furnishing space for any necessary future extension. Such institutes cannot be erected on a limited site. They require far more land than can ever be provided in the centre of a town. It is, therefore, certain that a single university adequate for the needs of London cannot be established in the situation proposed by the Government; and it is not too much to assert that its purchase and the cost of erecting buildings upon it would be a most wasteful expenditure, involving at the lowest estimate a total of five millions sterling!

The alternative is to decentralise the teaching by placing several university centres—say four to begin