Smethurst high-light meter, which has certain advantages over the more usual type of meter, especially when dealing with reversal processes, and most particularly reversal colour processes, where accuracy of exposure is of first importance. The section on "Latent Image" has been re-written to include a very brief account of the Gurney-Mott theory. It is, of course, impossible to convey even an impression of the scope of the theory in the ten lines devoted to it, and it is interesting to note that in the first edition of the Dictionary nearly a page was devoted to the theory current at the time based on the formation of a sub-halide.

As a reference book the "Dictionary of Photography" will be found extremely valuable to the general photographer, though its value might be further increased by the inclusion of more references to fuller accounts of processes and theories which, owing to limitation of space, cannot be dealt with adequately in a volume of this size. It is always difficult to discover omissions, but there appear to be few, with the exception of 'reciprocity' and 'intermittency' failure, which do not seem even to be mentioned. Surely reciprocity failure, which can manifest itself under certain conditions in ordinary photography, is worthy of mention!

APPLICATIONS OF ELASTICITY IN ENGINEERING

Theory of Plates and Shells

By Prof. S. Timoshenko. (Engineering Societies Monographs.) Pp. xii+492. (New York and London: McGraw-Hill Book Co., Inc., 1940.) 42*s*.

PROF. TIMOSHENKO is one of the outstanding exponents of the mathematical theory of elasticity and of the application of this theory to a variety of practical problems. He has written on these topics for thirty years, and his books have become indispensable to every engineer who has to apply mathematical principles and methods to such problems.

As is so often the case, mathematical theory becomes very much simplified when approximation becomes possible, and as indicated by the title of the present book, Prof. Timoshenko discusses here the theory of elasticity as applied to problems of two dimensions, that is, to problems in which the thickness of a plate or shell can be neglected in comparison with the other dimensions.

The importance of this type of problem in practical application is too obvious to need elaboration. The hulls of ships, the walls of tanks, the domes of buildings, the boilers in engines of all kinds, and above all the vitally important light structures that can withstand great pressures necessary for the development of modern transport, particularly in aeronautics and especially in air-fighting—all these topics represent problems that come within the purview of the present book.

The development of the topics discussed in the book is in itself an interesting picture of the evolution of an engineering structure. The author begins by dealing with the bending of plates into cylindrical forms and the symmetrical bending of circular plates. The boiler or container or aeroplane fuselage begins to appear. The study of supported rectangular plates with various edge conditions portrays the placing of a structure into position. Finally, the study of shells as cylinders and as surfaces of revolution takes us into the more detailed applications to daily needs.

The author devotes only moderate attention to general theory, but deals in considerable detail with a number of definite problems which are of special importance. The mathematical treatment is very full and exhaustive, but is always clear and easy to follow. What adds greatly to the value of the book is the fact that the mathematical solutions obtained are not left in their general form, but are discussed both graphically and numerically, so that the engineer who is not a professional mathematician is shown exactly how to use the mathematical methods practically and how to get the results that he needs for his professional purposes.

At a time when the main attention of humanity is directed towards the epic struggle which is taking place in Russia, it is naturally of interest to see how Russian thought and research have contributed to general human progress. The thick and high wall of prejudice and hostility, due to mistakes and intolerance on both sides, that was set up after the War of 1914–18 between the Soviet Republics and the Western democracies, had the effect of blocking the current of scientific influence between the Russians and the world outside. But Russian science and technology, as well as Russian thought and literature, have meanwhile made great strides, and the breaking down of the wall by recent events can lead to results of great advantage to all. Prof. Timoshenko has been working in the United States for many years, but he began his important contributions to the literature of mathematical methods applied to mechanics and engineering in the Russian language nearly thirty years ago. It is a pleasure to welcome his latest book in English as a further contribution from his competent pen to this important subject.

S. BRODETSKY.