

systems depending on whether or not they are coplanar, concurrent or parallel; some emphasis on the unifying principles for dealing with any of these systems would be advantageous. Three-dimensional force systems are well treated and there is a good chapter on friction.

The second half of the book deals with dynamics, and here the omission of elementary calculus results in some awkward circumlocutions. For example, on page 167 two "laws of motion diagrams" are formulated which are nothing more than the fundamental differential equations of linear motion shown more explicitly in the appendixes. A slight knowledge of mathematics would enable the student to grasp the truth of these 'laws' without having to memorize them parrot-wise. The distinction between mass and force is made quite clear, mass being treated as a quantity derived from the more fundamental concept of force. Problems in dynamics are so far as possible reduced to statics by the introduction of inertia forces and inertia couples. Here again the use of free-body diagrams showing all the forces is urged on the student. In dealing with impulse and momentum it would be as well to ensure that both these quantities are treated as vectors. The conservation of momentum equation given on page 292 is only true under certain conditions; and a few examples showing resolutions of momentum would be useful.

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## HUMAN ECOLOGY

### Human Ecology

The Science of Social Adjustment. By Thomas Robertson. Pp. xx + 534. (Glasgow: William Maclellan (Publishers), Ltd., 1948.) 21s.

THE interest of men of science in the study of human relationships is growing apace, much to the benefit of sociology. Sociologists have in the past been far too prone to assume that their subject can be developed in the library; social philosophy has steadily progressed as a result, while social science, properly so called, has lagged behind.

Anyone interested in contemporary developments will therefore welcome a book on "Human Ecology" when he is informed by the dust-jacket that the author is "a physician who, after a distinguished university career in biological science and medicine, turned to the study of sociological problems". This is a hopeful beginning, because it is the medical profession which has made the most significant contribution to the study of human relationships in recent years, as is evidenced by the work of psychiatrists in the Armed Forces during the War, and in the Tavistock Institute of Human Relationships and similar bodies more recently. Moreover, the medical Press demonstrates week by week the growing interest and understanding of the practitioner in problems of social organization. The biologist is certainly not far behind his colleagues in developing these new lines of investigation; the work at the Peckham Centre has aroused the greatest interest, and research into problems of nutrition, housing, manufacturing processes, and so forth, is beginning to achieve most important results.

It is therefore most disappointing to find in the book under review no realization whatever of the wealth of new knowledge that is now being made available in this way. No attempt is made to develop

the notion of 'human ecology' in its true sense which was first established on a biological foundation in the popular works of H. G. Wells. Instead, we find served up once again the outworn ideas which were fashionable among discontented young men with a political bent ten or twenty years ago. Much is said on the esoteric subject of 'social credit': many regrets are expressed concerning the unfortunate effects of the growth of the sovereign State; and the "true and secret source" of the "secret power which now dominates society" is found to lie "firstly and for all time in 'avidya', or unreality". The book ends in the lofty strata of the Hindu religion.

The present book is evidence of the fact that only a beginning has been made with the laying of the foundations of the science of man. It is nevertheless to be hoped that those trained in the biological sciences will be able to demonstrate that a more objective approach to the problems of social organisation is possible.

T. S. SIMEXY

## DEVELOPMENT OF ROMAN CONSTRUCTION

### Ancient Roman Construction in Italy from the Prehistoric Period to Augustus

By Marion Elizabeth Blake. (Publication 570.) Pp. xxii + 421 + 57 plates. (Washington, D.C.: Carnegie Institution, 1947.) 9 dollars.

THIS chronological study of the methods and materials used in Roman building is based on notes and photographs left by the late Dr. Esther Van Deman, who had been collecting evidence for many years for a work of this character. Originally it was intended to include all masonry in Rome and the vicinity from the earliest times to the fourth century A.D. or later; but as it was impossible, owing to the War, to complete the necessary field work in Italy, the author decided to terminate her work with the reign of Augustus, while broadening her field to include sites from all over Italy, as a background to developments in Rome. After a preliminary introduction defining the scope and character of the monograph, there follows a chapter on the materials available for building and decoration, namely, stone, clay, metals and wood. A brief geological survey precedes the description of the various types of stone, the sources from which they may have been obtained, and the chronological significance of the choice of material. Timber construction was employed for a variety of purposes; but its use was limited by the scarcity of suitable trees near Rome, and private houses especially were largely built of sun-dried brick.

The next four chapters are concerned with the various ways of building in stone, and they include accounts of the construction of roads, tombs, villas, theatres and temples in Italy during the whole of the period under review, as well as a discussion of the development of city walls from the cyclopean and other early forms. One chapter is devoted to squared-stone construction in Rome and its neighbourhood, and another to the building of arches and vaults in cut-stone work, and their use in such structures as city gates, commemorative arches, bridges, aqueducts and arcades. The fourth of these chapters deals with those methods of providing the stone facing for walls with a concrete core known as *opus incertum* and