FLYING SAUCERS. *Donald H. Menzel. Putnam, London* 1953. 319 *pp. Illustrated.* 21*s. net.*

Dr. Menzel is Professor of Astrophysics at Harvard University. His book on flying saucers makes far less entertaining reading than some earlier efforts by writers convinced that this celestial crockery is an interplanetary fleet manned by little men from Mars, Venus and all points west of the Milky Way.

However, it is undoubtedly far more useful; the author states that " Flying Saucers: (1) Do exist; (2) Have been seen; (3) Are not what people thought they saw." Any reader sufficiently interested to plod through his lengthy treatise (which is extremely thorough, sometimes slightly smug, but only very rarely questionable in its authority) should have a very good idea of what they *might* see.

That is to say, after disposing of the many " sightings " due to hoaxes and hysteria, there are a great many due to mistaken identification of aircraft, balloons, and other airborne objects, and then still others associated with meteors, other heavenly bodies, auroral effects, and optical mirage phenomena. Radar, like the human eye, can also sometimes be unreliable in its " seeing "; as regards the mirages caused by atmospheric refraction, Professor Menzel describes some simple and interesting laboratory experiments which produce plausible small-scale saucers. He also discusses the many " sightings " going well back into history; in the early years of this century, they were sometimes thought to be airships—spaceships were then not yet a familiar popular conception.

Professor Menzel, in one of his chapters, concedes that interplanetary travel is likely to be achieved by mankind within the not-too-distant future, and even that the earth might, at any time, itself receive extra-terrestrial visitors. However, like this reviewer, he regards it as very unlikely that the flying saucers are to be explained on these grounds. —A. V. CLEAVER.

BRITISH WAR PRODUCTION. *M. M. Postan. H.M.S.O. and Longmans* 1952. 512 *pp.* 32*s.* 6*d. net.*

In this book, which is part of the official history of the war, Professor Postan, an eminent economic historian, tells the story of the progress and problems of British munitions production from the lean years of the inter-war years to the peak output of 1943 and 1944 and then the demobilisation of 1945. It is a general review and is to be followed later by more specialised studies. Professor Postan is quite rightly not content merely to tell the narrative of this great achievement, but at every stage he criticises and analyses the methods of planning, Government control and the organisation of industry. He tries to discover the causes of failure and the secrets of successful effort. This is inevitably a daring and risky venture and some of those who took part in the great production struggle will disagree with many of his conclusions.

It must be remembered that this is a story and commentary based largely on the records of Government Departments and it portrays the events and problems mainly as seen through the eyes of the civil servant. The industrialist who ran the factories will find here little explanation of the problems and difficulties he had to face, the desperate expedients he often had to use, and the problems of Government control and planning as seen from the receiving end.

In this story aircraft naturally occupy a prominent place. There is a detailed discussion of the progress of aircraft production, an analysis of the causes of the invariable inability to fulfil any of the programmes 100 per cent. I think that Professor Postan does not altogether realise how much this fall-down was due to the industry's unwillingness to set itself an easy task which it knew it could achieve. It always wanted to aim at the maximum. I know from my own experience that no firm ever achieved its programme 100 per cent. without immediately asking for its programme to be increased. There is a fascinating discussion of the problems of design and technical development (pp. 322-339), but the reasons why some aircraft were failures while others, for example the Lancaster and Mosquito, were winners, still remains something of a mystery. Professor Postan seems to think that more " industrial planning " by M.A.P. of the type started by Sir Ernest Lemon at the Air Ministry would have improved the efficiency of the industry; but I expect that the thought of this, even in retrospect, will send a cold shiver down the back of many an aircraft manufacturer.

In a general review of this kind the final product, the aircraft, is in the centre of the picture. There is little discussion of the great achievements and problems of engine, propeller, undercarriage and other equipment production. That story, in my view just as fascinating and enlightening, remains to be written.

It is clear that this book is compulsory reading for anyone interested in the aircraft industry, its problems and especially its relations with Government.—E. DEVONS (The University, Manchester).

FATIGUE OF METALS. *R. Cazaud. Translated from the French. Chapman & Hall, London.* 334 *pp. Diagrams and photographs.* 60*s. net.*

Some 124 years ago, the German mining engineer, Albert, investigated the effect of repeatedly loading mine-hoist chains. His experiments, though primitive, were far reaching in result. They made clear for the first time that repeated stresses, low in comparison with the ultimate tensile stress of the material to which they were applied, could give rise to fracture. Thus dawned consciousness of the fatigue of metals, a subject whose significance grows, particularly in those fields where economy in weight is of first importance.

Towards the middle of last century, the British Government was seriously disturbed by the frequency of railway accidents. These, in many cases, appeared to be related to the deterioration during the use of the metal employed both in the construction of bridges and of rolling stock. As a result, a commission was appointed—" to enquire into the application of iron to railway structures." Its report, in the preparation of which a considerable part was played by E. A. Hodgkinson, can be rightly regarded as one of the major foundation stones of the vast body of literature relating to the fatigue of metals.

In recent years, there have been attempts to make a bibliography of works dealing with this subject. In 1941, the Battelle Memorial Institute published its excellent work *Prevention of Failure of Metals under Repeated Stress;* the 1949 edition cited 914 publications. Another bibliography made some four years later by the Australian Division of Aeronautics, gave approximately the same number of references. Thus it is clearly impossible for the average engineer or metallurgist to read, *in extenso,* all that has been written about fatigue, though admittedly its importance becomes greater and greater every day, particularly in the aeronautical field.

Thus it is entirely fitting that from time to time the current state of knowledge should be reviewed by someone having special knowledge in this field. In the past, there have been some notable examples of this. Gough's splendid work *The Fatigue of Metals* was first published in