

This discovery is considered to be of considerable theoretical and practical importance, and has been registered by the Committee of Inventions and Discoveries of the Council of Ministers of the USSR as a major scientific discovery.

HEALTH ECONOMICS

Cost of Disease

THE treatment of mental, psychoneurotic and personality disorders accounts for more expenditure by the National Health Service than any other group of diseases. An analysis of the costs of medical care published by the Office of Health Economics shows that 18.5 per cent of what the NHS spends on the treatment of specific conditions is spent on caring for mental patients. Most of this cost is attributable to hospital in-patient treatment. More than half of all hospital beds are for mentally ill or subnormal patients, although the relatively low cost of their treatment means that this accounts for a quarter of the total in-patient cost. The Medical Research Council spends only 7 per cent of its total grant-for-aid from the government on mental health.

Diseases of the respiratory system and of the circulatory system account for 9 and 8 per cent of the NHS expenditure respectively. Most of the money spent on respiratory disease is spent outside the hospitals, the largest single cost being the diagnosis of bronchitis and its treatment with antibiotics. On the other hand, more is spent on in-patient treatment for circulatory disease, particularly for coronary heart disease. Next in order of expense are diseases of the teeth (7.5 per cent), deliveries and disorders of pregnancy (7 per cent), diseases of the digestive system (6 per cent), and injuries (5 per cent). The expenditure on cancer is 4 per cent of the total.

IMAGE TUBES

Bigger Market Sought

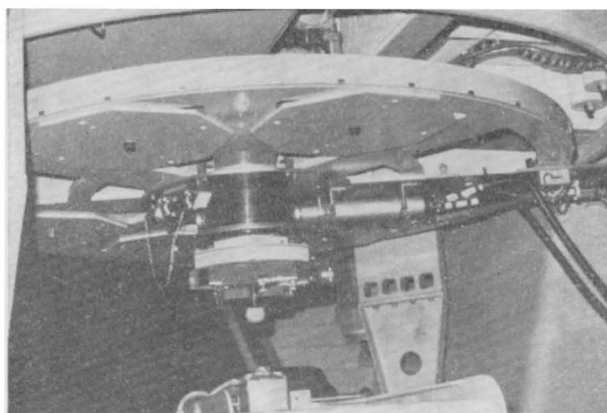
from our Astronomy Correspondent

BRITISH optical astronomers are wondering how to increase the market for Spectracon image tubes from the annual dozen at present to about fifty per year. The tubes, which were developed by Professor J. D. McGee at Imperial College (London), operate by accelerating photoelectrons to such an energy that each exposes a small clump of grains in an emulsion. So far, the tubes are being used almost entirely for spectroscopy, although they have applications whenever faint optical images have to be recorded. Dr M. F. Walker, at the Lick Observatory, for example, has used a Spectrocon at the AURA Observatory at Tololo in Chile on a 60-inch telescope for the direct photography of star clusters. The tube makes possible stellar photometry down to magnitude 23, which is comparable with what can be done with the 200-inch on Palomar Mountain.

The immediate problem is that not enough astronomers need the tubes to make manufacture viable. Apart from providing built-in obsolescence, the answer seems to be to find uses outside astronomy. Things will be worse in two years when Professor McGee will have retired, and the Image Tube Management Committee under Dr V. C. Reddish, the Royal Observatory,

Edinburgh, is aware of the urgency. The committee was set up by the Science Research Council several months ago and administers a grant of £21,000 over three years to cover the production of Spectracons and cascade tubes—about half of each—for astronomy. But part of the problem seems to be that the overseas market is being discouraged. Professor McGee has apparently received many enquiries from abroad, but most of them have had to be turned down because of the limited facilities available at Imperial College.

Some tubes are being used outside astronomy—Professor D. J. Bradley of Queen's University, Belfast, has one for his work on photon physics—but apparently not enough to interest a commercial company. Clearly other people are being as slow to exploit the potentialities of the tube as astronomers were in the first place. A design for a spectrograph for the Isaac Newton Telescope based on a Spectracon image tube has been on the stocks at the Royal Greenwich Observatory, Herstmonceux, for four years now, and is still some way off completion.



Spectracon image tube mounted in focusing solenoid for direct stellar photography at the Cassegrain focus of the Isaac Newton Telescope (photograph by Dr B. L. Morgan).

Professor McGee and his team are turning out two or three dozen of the tubes each year, about half of which are experimental. How much each would cost in commercial production is almost impossible to estimate, but one guess is of the order of £1,000. Even so, this seems to be much less than comparable pieces of apparatus. A similar type of tube, but said to be more complicated to use, has been developed in the United States and taken up by a manufacturer who charges \$35,000. In Britain, the two possible manufacturers who have been approached have apparently not been enthusiastic. What people are worried about is that if a British company cannot be persuaded to take up manufacture, an American firm will come along with a tube more nearly like the Spectracon, and that astronomers in Britain will settle for that rather than the British product.

LENIN DAYS

Science in Estonia

THE latest in the series of Lenin Days of Science, which are held from time to time in Moscow and are devoted to the scientific achievements of the various republics of the USSR, focuses attention on the smallest of them—Estonia. It might seem that Estonia is not