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“EXPLORER” IN ORBIT

The Americans took it so much to heart when the Russians proved to be first in the field in setting up an artificial satellite of the earth that it is with a substantial sense of relief, as well as with much pleasure, that we can now congratulate them on their own fine technical achievement in placing their satellite, named “Explorer,” in an orbit. The “Explorer” started to circle the earth last Friday night. Its orbit, according to accounts at present available, lies somewhat further out than those of either of the Russian “Sputniks.” A circuit is made about every 115 minutes. Perigee is some 200 miles above the earth’s surface (230 miles and 186 miles have both been mentioned), and the eccentricity is quite pronounced as apogee is some 1700 miles or more above the earth’s surface. The object weighs 30·8 lb, is pencil shaped, and is 80in long. It includes the burnt-out third stage rocket and it carries some 11 lb of instruments in its head. Comparisons are always odious, but, nevertheless, they need to be made. The second “Sputnik,” also a burnt-out last stage, weighs almost half a ton. The “Explorer’s” orbit is more nearly equatorial than that of the Russian “Sputniks,” the highest latitude reached being about 40 deg. There are two radio transmitters, one operating on a frequency of 108 megacycles, the other on 108·3. They have powers very substantially less than those of the transmitters on the “Sputniks,” but they are designed to operate for a longer period and the less powerful of the two is expected to be still working up to three months from now. It is believed that information about temperature, cosmic rays and the amount of cosmic dust colliding with the object will be signalled back to earth. The orbit of the satellite and its instrumentation are “made to measure” to suit the chain of visual and radio-watching stations set up in the United States, and elsewhere, in connection with the “Vanguard” project. That latter project, under which a sphere some 20in in diameter and carrying 20 lb of instruments, was to have been the first earth satellite set up by man, is still under development and is likely to come to fruition, as originally planned, some time this year.

The evidence is strong that “Explorer” has been set in its orbit for reasons of prestige above all others. Had the Russians not placed their “Sputniks” in orbits last year the “Vanguard” project would have been continued and no special effort would have been made to accelerate the programme. Forced by the emotional reaction of the American people, however, the U.S. Administration seems to have given instructions that, somehow or anyhow, an American satellite must be set up at the earliest possible date. The U.S. Army had in being at least one tested ballistic missile powerful enough to act as the first stage in setting up an earth satellite. Inter-service rivalry, no doubt, added to Army keenness to undertake the task. For just over two years ago a Defence Ministry directive laid it down that the responsibility for the

development of all land-fired missiles with a greater range than about 200 miles should lie with the Air Force, which preferred its own missile, the “Thor,” to the “Jupiter,” although, in fact, development of both weapons was continued. It appears to have been a modified version of the “Jupiter C,” a multi-stage member of the “Jupiter” series, which put the “Explorer” into its orbit, using apparently what rocket engineers term an “exotic” propellant, though such a propellant is not, we believe, normally used in “Jupiter” rockets. That adequate instrumentation could be fitted into a last-stage rocket, whose shape differed substantially from the “Vanguard” spherical container for which instruments were no doubt initially designed, indicates that the Americans are well advanced in the design of miniature instruments.

In fact, it appears obvious that the “Explorer” has been flung into an orbit at the cost of diverging from the planned programme of development of the “Jupiter” series of ballistic test vehicles. American jubilation, therefore, though very understandable, seems to us somewhat misconceived. For if there was a political motive behind the Russians’ demonstration of their power to set up “Sputniks” it was to give notice to the world that they had developed a successful intercontinental ballistic missile. It is a fine feat on the part of the Americans to have put the “Explorer” into an orbit. But it has in no sense demonstrated that American rocket development has caught up with that of the Russians and it may even mean that the routine development of the “Jupiter” for its true purpose as an intermediate range missile has been delayed. Very probably the thoughts and energies of those developing the “Thor” have also been diverted and possibly the well-thought-out “Vanguard” programme, whose second test vehicle was fired unsuccessfully on Wednesday, has been delayed. Considering the limited means available the setting up of “Explorer” in its orbit is a particularly fine technical achievement. Scientifically, it will help largely to increase man’s knowledge. But diplomatically it has changed the situation not one whit.

TOWNS’ WASTE AND DERELICT LAND

In this island the population is so dense that only about half our food can be produced at home. What justification is there, then, for allowing large acreages to remain derelict and unproductive? How much expenditure from the public purse is justified to bring derelict land into use? The current *Journal* of the Royal Society of Arts contains the proceedings of a conference at which one of the subjects discussed was “The Reclamation of Land Disfigured by Industrial Use.” Some useful facts were given by the various contributors to this conference. Derelict land in England and Wales was estimated to be at least 126,000 acres, and disfigurement was going on at a rate of about 3000 acres a year, it was stated. In