SPACE

New Satellite Consortium

ON November 3, the day on which the European Space Conference reopened to discuss the Lefevre mission to Washington, the setting up of a new European satellite consortium was announced. The British partner in the linkup, which involves seven companies, is Marconi Space and Defence Systems Ltd, who recently won a British government contract for the Skynet 2 military communications satellite programme.

The consortium is planned to be a loosely grouped concern with little or no central organization and the chairman of the managing board, appointed for a year, is Commander D. W. Malim, of Marconi Space and Defence Systems. The leadership of any particular project will be undertaken by whichever firm seems to have the most appropriate expertise; capabilities range widely through aerospace technology, telecommunications and electronic systems.

Although the new group will obviously look towards Europe and possible European association with the American space shuttle plans, it also hopes to tender for possible satellite contracts with countries such as India, Australia and Canada. Several of the companies involved in the consortium have considerable experience in launcher work which could be particularly useful for smaller satellite projects. In particular, the French company Société Nationale Industrielle Aérospatiale (SNIAS) has been actively involved in both the launcher and satellite programmes of ELDO and ESRO.

The other five members of the consortium are Etudes Techniques et Constructions Aérospatiales (Belgium), Société Anonyme de Télécommunications (France), Messerschmitt-Bölkow-Blohm and Siemens (Federal Republic of Germany) and Selenia (Italy).

PHYSICS

Particles and Telescopes

from our Soviet Correspondent

WITHIN the past two weeks, two "unique" achievements in physics have been announced in the Soviet press. The first of these concerns the Joint Nuclear Research Institute at Dubna, where there is a synchrotron, now accelerating deuterium nuclei to energies of 11 GeV. This is claimed to be the first accelerator in the world to accelerate complex atomic particles to velocities approaching the velocity of light. The director of the Dubna Institute, Academician N. N. Bogolyubov, said in an interview in *Pravda* that the "transformation of the synchrotron into a 'relativistic' nuclear accelerator" is an "outstanding achievement". It penetrates into a new field of research in which it is hoped that many important and interesting data will be accumulated.

At the same time, the new wide-band UTR-2 radio telescope of the Ukrainian Academy of Sciences

went into operation. Operating in the 10–20 MHz frequency band, this telescope, with an area of 150,000 square metres, comprises 2,040 linked antennae. It is T-shaped, extending 1,860 m in the north-to-south direction and 900 m east-to-west.

This instrument is particularly important because it is designed to work in the low frequency band where very little information has been gathered. There are similar arrays in British Columbia and at Clark Lake in the USA, but the development of radioastronomy lately has been towards higher frequencies where observations are less troubled by ionospheric disturbances.

So far, the general level of Soviet radioastronomy has not been highly regarded in the rest of the world. This does not detract from the valuable contributions which are being made to this field in the USSR, but their first claims are usually treated with even more caution than those of western radioastronomers. It is to be hoped that with the opening of this new telescope and the expected rapid completion of another very large instrument now being built in the Caucasus and designed to operate at high frequencies, Soviet radioastronomy will achieve a reputation comparable with that of the best western work.

COAL

Smokeless Fuel Fiasco

YEARS of patient Parliamentary work, starting with the first clean air legislation in 1955, seem in danger of falling temporarily by the wayside this winter as shortages of solid smokeless fuels place more and more smokeless zones in jeopardy. Among the alternative smokeless fuels, only gas (now produced chiefly from oil or piped from the North Sea) looks reasonably certain to be dependable throughout the winter. The supply of electricity, which now accounts for about 50 per cent of the national coal output of 160 million tons a year, could all too easily suffer because of the Electricity Generating Board's disappointing prediction that there will be only a 9 per cent surplus over the estimated maximum demand, coupled with low stocks and the threat of industrial unrest within the coal industry.

This solid fuel shortage, now running at about 300 to 400 thousand tons a year, will cause the lifting of at least 127 smoke control orders and probably many more. This is, however, by no means a return to the murky days of the nineteen fifties; coal consumption in London, for example, will remain well below 10 per cent of the figure for 1952—the year of the great smog. The situation would be even worse if central and local government had not adopted a definite policy of looking to other smokeless fuels. This alone is expected to save about 450,000 tons of smokeless fuel a year, and in addition the gas boards expect to have supplied large concerns with about 7,000 units during 1970 for conversion of solid fuel boilers to gas.

The annual output of smokeless coal is now running at about 8 million tons of which about 4.5 million comes from the National Coal Board and about 2.3 million from private firms. The remainder has in the past been a byproduct of gas production from coal, but supplies from this source have dwindled from 1.6 million tons in 1969/70 to 0.97 million tons in 1970/71 and the Coal Board claims that this method of gas production has been