

for the job to make yet another detailed two-year study of technical, commercial and economic factors affecting the Channel Tunnel. It is intended that the study will then form the basis for final decisions on the proposed rail tunnel, which would be built by private enterprise and run by a public organization whose financial undertakings would include the remuneration of the companies concerned.

Locations for the rail terminals at the English end of the tunnel have already been discussed, after an examination in 1968 by a group based on the Ministry of Transport. Ashford in Kent was first marked out as a possible site, but now it seems that locations nearer the coast are more favoured. Three kinds of terminal would be required, the largest of which would be a ferry terminal for transferring vehicles to the trains that would take them through the 35 miles of tunnel. The other installations would be a railway passenger station and a freight yard. No decisions have been made about the final siting of any of these, but there are half a dozen sites in Kent which look promising.

The tunnel itself, which could be open in 1976 if all went well, would run from near Folkestone to a point in France near Calais and use 25 kV overhead electrification. Ferry trains would carry up to 300 road vehicles, and would run a frequent shuttle service; other traffic would include through freight and passenger trains from centres in Britain to many continental destinations.

Alternatives to the tunnel are not likely to meet with much success now, in view of the official commitment to a rail link under the Channel, although there is always Stansted Airport to be borne in mind as an example of a last-minute change. All would depend on how far a rival suggestion could win popular support on a large scale. Devoted readers of *Nature* may remember a competition at the end of last year to design a dam for the Channel; another approach, advocated by a number of academics including at least one engineering professor, involves a combined bridge and tunnel, and the success of a project of this kind in Chesapeake Bay in the United States has prompted the Institution of Civil Engineers to invite General L. J. Sverdrup (chairman of the firm of consultants that designed the scheme) to give a lecture in London on September 29 about the project.

The interesting point here is the use of four artificial islands as points of interchange between sections of bridge and tunnel. Two tunnels, each over a mile long, run beneath important shipping channels and the remaining gaps are crossed by bridges. Because one of the main objections to a Channel bridge is that it would take too long to negotiate suitable agreements among the eighty or so nations whose maritime activities would be affected, this design looks at first sight attractive. It falls down, however, on cost. A study group in 1962 reported that a bridge-tunnel combination might be more than three times as expensive as the rail tunnel.

What is rather more relevant, if less exciting, is the method that the American engineers have used to build the tunnels. Concrete tubing is lowered into a trench across the sea floor which is then filled to a depth of at least five metres. This is one of the two techniques considered for the English Channel, the second being the traditional boring of holes from each end to meet in the middle. According to the Ministry

of Transport, the immersed-tube idea has not been rejected, and the final decision may therefore, it seems, rest on fairly fine points.

#### INTERNATIONAL MEETINGS

### More Food Not Enough

from our Botany Correspondent

DELEGATES to the eleventh International Botanical Congress in Washington earlier this month joined the ranks of those who feel that the solution to world food problems can come only through population control. When the botanists' contribution to increasing food supplies was discussed, a minority of delegates felt strongly that no amount of effort would be adequate. This group left its mark on the final wording of the first resolution passed by the plenary session of the congress on September 2, to the effect that members of the congress, conscious of their responsibilities as biologists, considered that there can be no solution to the food problem unless population control is achieved. The resolution went on to urge governments to adopt appropriate policies, at the same time ensuring an adequate standard of living for their people, particularly by encouraging the increased food production which goes with proper land use.

Further mindful of their responsibilities as biologists, the delegates passed an all embracing resolution urging individuals and organizations interested in conservation to do all in their power to preserve the Earth's biosphere from the destructive influence of men. The resolution also urged governments and other organizations to support the conservation projects of the International Biological Programme and those that are within the ambit of the International Council of Scientific Unions and the International Union for Conservation of Nature and Natural Resources. The delegates evidently had no difficulty in reaching unanimous agreement on this topic. But the obvious problem with such a resolution is that it will be extremely difficult to put into effect.

A practical step may be the setting up of an environmental biology section within the International Botanical Congress. A third resolution passed on September 2 urged the planning committee for the next congress, to be held in Leningrad in 1975, to make provision for sessions devoted to the problem of the deterioration of the environment. Whether or not the new section is set up remains to be seen. The general feeling was that the organizers of the next congress should not be restricted by any resolution passed now, and so environmental biology may or may not form an official part of the proceedings in Leningrad.

#### SCIENCE EDUCATION

### Soviet Prizes and Problems

from a Correspondent

THE opening of the new academic year has, as is customary, been hailed by the Soviet Press with reviews of the current achievements in Soviet education and plans for the immediate future. Much of the discussion has been concerned with the relationship of current