

OLD WORLD

European Science Foundation Formed

EVEN the most confirmed sceptics must be impressed by the speed with which the academies and research funding bodies of Europe have set up a European Science Foundation. At a two day meeting in Paris last week fifty western European academies and research councils* decided in principle to set up a foundation following less than a year of detailed consideration.

The foundation's aims are to promote

- cooperation in fundamental research
- the free movement of research workers
- the exchange of ideas and knowledge, and
- the harmonisation of European research programmes.

A preparatory commission which will produce a constitution for the foundation has been created and it is hoped to sign a charter forming the foundation in May next year, setting up its headquarters at a place to be decided.

Research councils across Europe keep in touch with each other—the Medical Research Councils for example meet regularly—and this cooperative approach to problems even spread to the Science Research Councils which had a meeting at Aarhus in 1972. Many learned societies and academies have also set up exchange arrangements in the past decade.

But the real stimulus for the formation of the science foundation came from Signor Altiero Spinelli of the European Commission. He galvanised the European research councils and academies into action by the simple expedient of publishing, in the summer of 1972, his proposals for a common scientific, technological and industrial policy under the title *Objectives and Instruments of a Common Policy for Scientific Research and Technological Development*. One key proposal was that a European Science Foundation should be formed. But the proposal stated that it should include development work within its remit.

The reaction of Europe's scientific bodies was predictable. At a meeting held at the Royal Society in December last year the fifty academies of Europe discussed the proposal and decided that they did not want a Brussels bureaucracy trying to run science, they did not want a foundation for science that included

* The academies and research funding bodies represented were from Austria, Belgium, Denmark, Spain, France, Greece, Norway, Holland, Portugal, West Germany, Ireland, United Kingdom, Sweden, Switzerland, Yugoslavia, Italy.

the politically sensitive development side, they did not want a foundation limited merely to the community's nine, and they did not know whether they even wanted a foundation of any sort.

But the meeting—hostile though it was to Spinelli's proposals—was not entirely negative. The academies and research councils found themselves in almost complete agreement and decided to examine the possibilities of setting up a foundation themselves. A second meeting was held in Munich in April.

By then the situation had changed. Britain, Denmark and Ireland had joined the European Community, the commissioners had changed their jobs, Spinelli's original proposals, opposed by Britain and France, were due shortly to be quashed, and Dr Rolf Dahrendorf was now the commissioner responsible for European science. He attended the Munich meeting.

His response to the attitude of the research councils and academies was

encouraging. The commission, he explained, was now willing to see a foundation devoted purely to fundamental science. Furthermore the commission was willing for countries outside the nine to be included and it was happy to have the scientists themselves organise the body.

By the end of the Munich meeting the balance had swung from the academies and research councils being largely opposed to a foundation, to their being cautiously in favour.

In the months between Munich and last week's Paris meeting the questions which had to be answered included defining the relationship between the foundation and existing bodies, defining its relationship with the European Community and countries outside the EEC, and deciding which bodies should belong to the new foundation.

These questions have now been answered. The European Commission, subject to the approval of the council

SOVIET SCIENCE

Quick Clay Tube

THE most spectacular achievement of the reign of Peter the Great was the building of his new capital in the Neva marshlands. The lack of a firm subsoil, however, is a considerable problem to the civil engineering planners of modern Leningrad—but now one major difficulty at least has been met with a solution in the grand tradition of the city's founder.

In driving the tunnels for the new Metro, the "Lenmetrostoi" Trust (specially established for the task) encountered the apparently impassable obstacle of a 450-metre long bed of quick clay—the legacy of a pre-glacial tributary of the Neva. The situation was not suitable for treatment by the standard method—electrolyte injection—and accordingly a more radical treatment was proposed, namely, the freezing of the bed to a temperature of -10°C .

Civil engineering operations on quick clay regions are notoriously dangerous—the Surte disaster, which carried a railway a main road and three hundred homes into the River Gota was initiated by a pile driver employed on the foundations of a new building. The "Lenmetrostoi" teams, however, are safely operating a mechanical pick, with a nominal progress rate of 33 cm per shift, through the former quick clay bed that they have transformed into an "iceberg". They

are even able to use explosive charges to deal with the occasional two-ton granite boulders found in the bed.

How the quick clay was frozen in the first place has not been revealed. The press (*Pravda*, September 26, 1973) only describes the work in progress through the pre-frozen mass, with indium alloy pipes penetrating the work-face, carrying in the refrigerant (calcium chloride solution). It would appear, however that the actual thickness frozen is small—since cracks in the frozen walls of the bore must be closed at once by metal shutters to prevent flooding of the workings by the quick clay beyond the "iceberg".

It is not clear what preventive measures will be employed when the Metro is operating. It is proposed, however, that through the quick clay region the train tunnels should lie not parallel but one on top of the other. Even so, further precautions will surely be necessary if the thixotropic properties of the bed are not to be activated by the vibration of the trains. The cost of constructing this section of the Metro has already risen above 2 million roubles (£2,000,000) and (a serious matter in Soviet planning) the construction time has already doubled. It would appear that if the Metro is to operate without causing risk to the city above, the "Lenmetrostoi" engineers will have to find a further "heroic" solution to deal permanently with this quick clay bed.