

regional "multinational" companies be set up to break the monopoly of foreign transnationals in selected areas of interest to a particular region—something that could be achieved, it is suggested, by pooling the resources of a group of countries in the region and by arrangements for market-sharing, as is now done by the Andean pact countries of South America.

The draft plan says little about basic science. One of the few explicit references is in paragraph 63, which says: "One developing country and one market economy country recommend the fostering of basic research as an important basis for indigenous scientific and technological development." But the same paragraph continues: "Several countries recommend a more utilitarian rather

than an academic approach to the results of scientific research and underline the special importance of applied research and technological development for countries with limited resources."

Nor is much attention given to the obstacles to applying science and technology to development although they had been stressed previously by the conference secretariat. The introduction to the plan of action admits that "the approach by most governments in the preparation of their national papers has been to deal implicitly with obstacles throughout their papers."

As a result, the secretary-general of the conference, Dr Frank Joao de Costa, says that he has adopted the same approach in the outline of the

plan of action; and the introduction states that the number of obstacles treated explicitly "has necessarily been limited."

The two resulting paragraphs are vague and generalised. The first says merely that "systematic analysis and study" of such obstacles is a prerequisite for their elimination. And the second, in language somewhat typical of the whole document, states: "Many developing countries consider that the absence of an awareness of science and technology, often in the context of the social structure, cultural heritage, value system and religious traditions of a country may constitute an important obstacle to the application of science and technology."

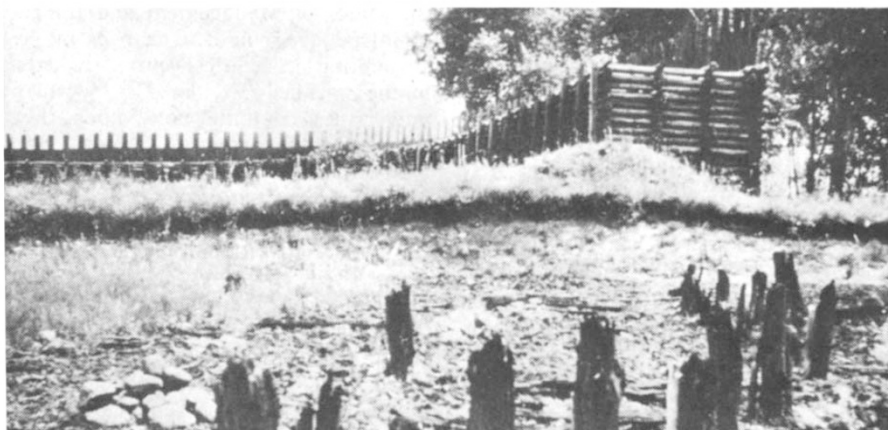
David Dickson

Problems of preserving a 2,500-year-old township

SINCE its discovery in 1933, Biskupin has posed a considerable problem to Polish archaeologists: how to excavate this prehistoric township whose timbers were preserved virtually intact in the peat without the immediate deterioration and decomposition of the finds once they are in contact with the air. A conference of wood conservation specialists, organised last September by the Polish State Archaeological Museum, which is responsible for conservation work at Biskupin, indicated, however, that during the last three years extremely satisfactory results have been attained at attempts at conservation *in situ*.

Biskupin, which dates from circa 550 B.C., was an island settlement of two-bedroomed wooden houses, arranged rectilinearly and enclosed by a palisade. Abandoned when the water-level of the lake rose, the houses collapsed and their timbers were preserved in the peat. The value of such a site for early iron-age archaeology is inestimable; however, until recently the problems of conserving the timber finds seemed insurmountable.

The new conservation programme at Biskupin uses a polyphenol resin to preserve the timber. The method is adapted from one introduced six years ago by Yuriy Vikhrov, of Minsk, (Byelorussian SSR). In the Polish method the fluid is applied with a brush, and then cured by sunlight, temperature or catalyst hardening. Curing time depends



Reconstruction of the palisade with original wood in the foreground. Below: applying the solution.

on the conditions, but, using hot-air blowers, a typical figure would be 30 hours at 100 °C.

The resin penetrates the wood to a depth of 3 cm; this gives a mechanical strength that is quite sufficient for conservation; indeed, this method has already been used for the conservation of a whole mediaeval house at Breston-Bug. According to Teresa Stanczuk-Rozycka, head of the conservation laboratory of the State Archaeological Museum, the method, although expensive, nevertheless works out at only 20% of the cost of the method used in Sweden to conserve the timbers of the *Vasa*, and, unlike the Swedish method, is suitable for work *in situ*. Mrs Stanczuk-Rozycka further said that the September conference showed that the overall results of the method were extremely good, and that the programme of conservation would go forward.

At present, the conservation teams propose to work only on the remains of the gate and ramparts, excavated during the early digs, which are now under the greatest risk. With all future



excavations, however, running conservation of the wood in parallel to the actual digging work will be carried out as a matter of routine.

And, since the actual technique of applying the fluid and, if necessary, the hot air blowers, is extremely simple, a large team of skilled conservationists will not be necessary. "Anyone can do it", Mrs Stanczuk-Rozycka, told *Nature*, "for example, students!"

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