

ribosome subunit of which they were supposed to be precursors. Comparison of the proteins of the 25S CM particles and 50S ribosome subunits gave essentially the same result, although these CM particles do contain a small amount of authentic ribosomal proteins. But to clinch their argument Yoshida and Osawa made CM particles by incubating free ribosomal RNA with a cell extract.

Schlief also showed that the protein of CM particles must be synthesized before chloramphenicol is added, because the total amount of protein made during 90 min after adding the drug is only 3 per cent of that found in the particles. Furthermore, the protein cannot be ribosomal because the total pool of free ribosomal protein in normally growing *E. coli* is insufficient to provide the protein found in the particles. And in labelling experiments, the specific activity of CM particle protein parallels the specific activity of the cell's soluble protein but not its ribosomal protein, in conditions where these parameters can be distinguished. Finally, when cells are given a transient pulse of chloramphenicol, although the RNA in the CM particles matures into ribosomes, the protein of the CM particles is displaced by authentic ribosomal protein.

Perhaps the most surprising aspect of the affair is the speed with which the CM particles became accepted in the first place as intermediates in ribosome maturation and the tardiness of any critical test.

ARCHAEOLOGY

Roman Fort at Usk

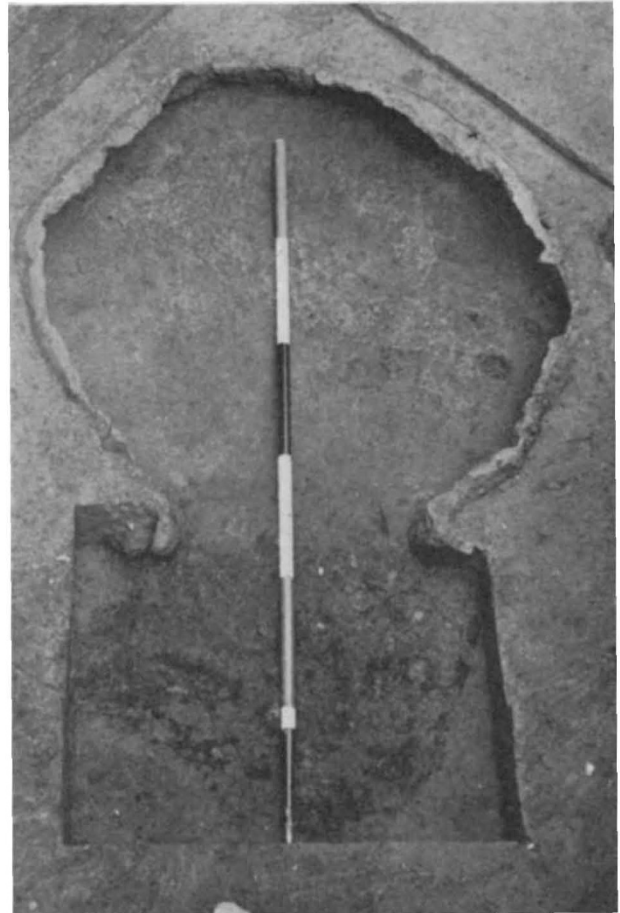
from our Archaeology Correspondent

BEFORE the Roman conquest of south Wales in the seventies and eighties AD there were repeated Roman incursions into Wales between AD 50 and 70. Excavations at Usk in Monmouthshire, directed by Mr W. H. Manning of the University of Wales, Cardiff, for the Ministry of Public Building and Works and the university, have in three seasons of excavations revealed two Roman fortified camps. One is a Flavian fort of about AD 70–100 built during the main conquest; the other, and more important, is a pre-Flavian fort built about AD 60 during earlier Roman incursions. This fort, which has only been excavated during the last two seasons, should, when it has been more completely excavated, reveal a large part of the layout of a fortified Roman camp in the formative period when the military architects were developing standard patterns.

The part of the fort excavated so far lies below what are now the grounds of a detention centre and an adjacent field now covered by a housing development. Sections through the remains of the fortifications have shown that it was enclosed by a single earth bank, which can be dated to about AD 60 by Samian ware found at its base, with a broad ditch in front about twenty feet wide and ten feet deep. This bank can still be traced with certainty for 350 m and possibly for 700 m, but later mediaeval building makes it impossible to define the precise boundaries of either of the two Roman forts. The ditch and bank of the first fort were apparently built after the site had been cleared,

and clay, probably dug from five large shallow pits along the inner side of the bank, was then used to level the enclosure carefully before wooden buildings were erected. So far there is no evidence of stone buildings, apart from a bath house, although some of the later structures apparently had stone footings.

Perhaps the most surprising feature of the fort is that there were two distinct building phases in its short life of about twenty years. The first phase is characterized by post holes; traces of six buildings of this phase remain as six sets of six rows of five post holes spaced about 150 cm apart; the buildings



A Roman bread oven excavated at the pre-Flavian fort at Usk. Burnt earth (bottom) reveals the position of the fire.

were probably granaries measuring about 6 by 7.5 m overall. The granaries were demolished at some stage and replaced by at least two very large rectangular buildings, one of which had sides 110 feet long, but all that remains are the long beam slots cut into the soil. In all probability these structures were storehouses and workshops and their complete plan should be revealed next summer.

Apart from these buildings, contemporary and military pattern bread ovens have been unearthed together with numerous small finds chiefly, as always, pottery. The potsherds include Neronian Samian ware, some St Remy ware, coarse Roman ware and local pottery in Iron Age styles but definitely of the Roman period. What may well be Roman spade impressions have also been found.