

in early 1970. The programme of tests is starting, however, with the reproduction of tides and storm surges, including the 1953 level and higher. In this way, the maximum flood levels to be expected anywhere along the estuary can be obtained. These tests will finish this summer. Other investigations being carried out by the station for the GLC are field studies of the Thames estuary (two have already been completed), a mathematical model study to assist in understanding the siltation problems involved and a continuous survey of the silt in the estuary. The total cost to the GLC of these investigations is around £100,000, of which the Government is paying half.

ARCHAEOLOGY

Portchester Castle

from our Archaeology Correspondent

IN his excavation at Fishbourne in Sussex, Professor Barry Cunliffe did more than reveal a magnificent Romano-British palace. He showed how to capture the public imagination, and if more archaeologists did that instead of shooing the public from their sites at every possible opportunity, archaeology might gain some of the increased financial and public support that it deserves. It is, of course, no coincidence that Professor Cunliffe ranks among the best half dozen or so archaeologists working in Britain today. While he was directing the Fishbourne excavation and since, he has been conducting an equally exciting and, for the professionals, perhaps even a more important excavation at Portchester Castle. His excavations on this nine acre site on a promontory in Portsmouth Harbour began in 1961, and he plans to continue the work for at least five more seasons. Already, however, the principal phases of occupation, stretching from about AD 260 to the Napoleonic period, have been identified.

The square site was probably first fortified by a massive flint and mortar wall in 285 to provide a defence against pirates. The wall, 10 feet thick, was originally more than 20 feet high, and some 24,000 tons of flint and mortar were used in the superstructure alone. Unfortunately the Roman features excavated within the enclosure are not nearly as impressive as the wall, chiefly because

timber was used and buildings were restricted to the periphery of the site, along the wall, leaving the central area undeveloped. In this, Portchester resembles contemporary Rhenish castles.

The excavation has shown, however, that by about 300 some at least of the buildings had been carefully demolished, and all but the mortar salvaged. In the early years of the fourth century, there was what Professor Cunliffe calls a squalid phase of occupation. Rubbish accumulated on the roads of the castle, and children and even premature babies were buried there. Hairpins, brooches and other feminine objects also attest to the presence of women in the castle in the early fourth century. But by about 340 the military had returned. Cesspits dug with military precision, ovens and hearths have been excavated, but no traces of buildings have been found, presumably because the soldiers lived either in tents or in timber barracks.

These three successive phases of occupation reflect the turbulent history of the period. In 286, probably only a year after the walls were built, Carausius rebelled, and not until 296 was Britain reconquered for the empire. Carausius no doubt garrisoned the castle, and the second, the squalid phase, seems to correspond to the period immediately after the reconquest when the castle may well have been occupied by civilians or irregular military units. The military reoccupation in the 340s coincides with renewed piratical attacks in the Channel. In fact, Portchester may have been regarrisoned on the orders of the Emperor Constans, who visited Britain in the winter of 342.

The castle was abandoned by the military by about 370, but the excavations have provided evidence of occupation in the early fifth century, and the castle may well have been unofficially occupied as soon as the army left. The floor of a grubenhauser—a type of small Saxon hut—has been discovered, which is dated to the end of the fourth century, and the pottery associated with it is of particular interest. There are two chief styles, one in the Roman tradition, the other in the grass-tempered Saxon tradition. This raises the possibility of a continuous tradition of pottery making at Portchester throughout the years during which Saxon culture replaced Romano-British. Indeed, it is

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possible that the castle was occupied by Saxon mercenaries during the late fourth and early fifth centuries. The Portchester pottery, when fully analysed, should provide vital evidence for a re-evaluation of the pottery styles of this shadowy period. Likewise, because of the continuous occupation throughout the Saxon period and up to and beyond the Norman Conquest, the site is yielding unparalleled evidence of changing pottery styles, on which so many archaeological dates depend, between the fifth and eleventh centuries. By the time the excavation is complete, more than one currently accepted interpretation of Saxon pottery may need revision.

SOCIAL MEDICINE

Red Light for Green Paper

from our Social Medicine Correspondent

THE British Government's proposals for reforming and unifying the health services have fallen on stony ground. At a representative meeting of the British Medical Association in London last week, 450 doctors firmly rejected the main theme of the green paper, published last July, to draw local authorities and executive councils, general practitioners and hospitals, into forty to fifty health area boards, each administered by people with a broad professional knowledge of medical and related services (see *Nature*, 219, 432; 1968). Although the principle of unification was accepted—by all but six doctors—it was nevertheless agreed that the present tripartite structure should be retained until another more acceptable alternative had been negotiated.

The BMA's reaction is no surprise. The council has already expressed regret over the cursory references to patients in the green paper. It feels that the proposed health boards are too large to deal effectively with the day to day problems of the patient and too small to allow for overall planning. As emphasized at the meeting by Dr R. Gibson, chairman of the BMA council, any change in the structure of the National Health Service must be for the good of the community or, as others would have it, for the good of the patient.

Repeating the well worn phrases, motions were passed to the effect that no change in health service administration should take place that would infringe the present standards of confidentiality between doctors and patients and between doctors and doctors. The clinical independence of the doctor must not be impaired, and the relationship between the government and the medical profession should be one of genuine partnership. Doctors should not be directed to practise in particular areas (except by the existing Medical Practices Committee procedure), and patients should be free to choose their general practitioners. Dr Gibson also expressed the view that the profession is vigorously opposed to the transfer of the administration or financing of the health service to local authorities, either in their present form or in any modified form under which the health service would be subject to the fluctuating and conflicting pressures of local government. The association wants to see active elected representation of doctors by doctors at the appropriate levels in all the planning and administrative units, and is concerned that the proposed chief administrative officer should be medically qualified.

Parliament in Britain

by our Parliamentary Correspondent

Nuclear Ships

MR GERRY FOWLER, Joint Parliamentary Secretary to the Ministry of Technology, said that the ministry was examining further information received from shipbuilders on the subject of nuclear ships. Container ships offered the best prospects for surface nuclear propulsion, he thought, but it was hard to show economic sense in this "extremely difficult sphere". Two British shipbuilders had supplied proposals, and the ministry would be discussing them. (Oral answers, January 29.)

European Airbus

MR WEDGWOOD BENN was questioned about his attitude to the European Airbus and the BAC 3-11. The BAC 3-11 may be considered as a possible alternative, he said, and he would be studying it at the same time, keeping the French and German governments fully informed. But he was wary of entering into commitments which were not viable in the long run. ELDO, he said, was a perfect example of a non-viable project which diverted resources from the aircraft industry or from computers or other industries where a basis of collaboration existed. (Oral answers, January 29.)

STOL Aircraft

MR J. P. W. MALLALIEU revealed that two projects had been put forward for the design and construction of short take-off or vertical take-off aircraft. But the idea does not yet seem to have reached the stage of asking for Government support; the two projects, which were "more than on the minister's desk—they are in the minister's head", were "extremely interesting". (Oral answers, January 29.)

Research in Wales

DR JEREMY BRAY, for the Ministry of Technology, said that the total cost of ministry research in Wales amounted to £200,000. More research and development, Dr Bray admitted, should be done in Wales, and governments had been wrong in failing to put more research and development work into development areas. Mr Emlyn Hooson said that of every £1 paid by Welsh taxpayers, only threepence was spent in Wales by the Government on research and development projects. (Oral answer, January 29.)

Nuclear Power Industry

MR WEDGWOOD BENN denied that he had been "pushed by events" in his reorganization of the nuclear industry. Mr Arthur Palmer, who suggested that this had happened, was told that the minister was simply "taking account of the realities". Mr Benn said that he thought the IRC had done a good job on the reorganization. Both Babcock English Electric Nuclear and the Nuclear Power Group are to be licensed to exploit both the fast reactor and the steam generating heavy water reactor, he said, although one would certainly "go ahead on an inside track". The high temperature reactor would be the study of further discussion, but both companies would have access to the technology. The final duty remaining to him, Mr Benn said, was to deal with outstanding issues involving the AEA, and this he would do as quickly as possible. (Oral answers, January 29.)