of a University Observatory at Hendon is also a notable departure.

It is not easy to predict the lines of future development of the University, but one thing at all events seems obvious. London is, from the nature of things, destined to become more and more a centre of advanced teaching and research. At University College, King's College and the Imperial College, there are teachers and investigators of great distinction, and there are growing up around them important schools of workers in the various branches of science. This is all to the good ; but while the complete severance of teaching from research work would be in many respects unfortunate, there is undoubtedly room for creating more research posts, the occupants of which should be freed from routine teaching. Another direction of advance may be the setting up of special institutions devoted to particular sciences. Either way has much to commend it, but either plan needs very considerable financial resources. Nevertheless, the history of the University of London does not give rise to any fear that the needs of science will be overlooked in the years which lie ahead of it.

Excavations at Tell Duweir, Southern Palestine, 1932–33*

THE first season's work of the Wellcome-Colt Archæological Expedition at Tell Duweir in Southern Palestine under the direction of Mr. J. L. Starkey in 1932–33, has amply justified the selection of this site for exploration. It holds out a strong assurance of substantial additions to knowledge of the archæology of southern Palestine in an obscure period at no distant date. Considerable progress has been made in demonstrating the character and relation of the works which converted the Tell into a strongly fortified position ; while the examination of the great stone structure on the summit of the mound, which made Tell Duweir unique as a surface site in Palestine, has been carried to a point which confirms the first impression of its importance.

Before giving an account of the more important results of the excavation, it will not be out of place to mention certain topographical features relating to the Tell. It lies twenty-five miles to the south-west of Jerusalem, twenty-three miles north-east of Gaza, and twenty miles from the sea to the west. The mound, of which the top is 900 ft. above sea level and at a mean height of 130 ft. above ground level, covers 39 acres at its base, while the summit has an area of approximately 22 acres. The average width is 250 metres from east to west and 300 metres from north to south. The remains of a stone revetment, which had encircled the mound, were still to be seen near the summit, while crowning the whole were the imposing remains of the stone buildings, to which reference has already been made.

Tell Duweir has been identified tentatively with Lachish, a strategic strong point of southern Palestine, which offered a strenuous resistance to Joshua, was fortified by Rehoboam, and captured by Sennacherib, and also by Nebuchadnezzar. The siege of the city by the former is depicted on a stone relief from Nineveh which is now in the British Museum. So far, the excavations have produced no positive evidence to confirm the identification, although it may be said that they have added to its probability.

The main points to which investigation was directed during the season's work were the stone revetment, the works at the south-western corner of the mound—a bastion and, it would appear, the main gateway to the city—the city walls, and the building at the top of the mound, which evidently must have been the central structure of the city keep or fortress. A habitation site on the east side of the Tell and another with a cemetery site on the north-west were examined and the latter cleared.

The clearance of the area at the north-west, which provided the greater part of the cultural objects obtained by the excavation—a lengthy operation which continued during the greater part of the time the expedition was at work—came about almost fortuitously. It arose out of the necessary operation of preparing a place for dumping the earth removed from the mound in the course of the work. It was decided to build a retaining wall which would enable the earth to be terraced and made available for future cultivation. In testing bed-rock for the line of the retaining wall, a number of cuttings were found which, on further examination, proved to be a well and rock-chambers or tombs. The well was choked with boulders, but when it had been cleared, a matter of no little difficulty, potsherds from the filling indicated that it was certainly of Middle Bronze age date. The clearance was eventually carried up to the face of the escarpment, which it was found had been cut back until it was nearly vertical, rendering the fortress practically impregnable from this side, while immediately in front of the cliff was a fosse carefully cut in the rock, running north-east and south-west, and following the line of the rock platform on which the mound stands. The fosse was of considerable depth and was only cleared finally by blasting the boulders which formed part of the filling. A cache of pottery with metope pattern with bird, of the type common at Tell el Ajjul, in the lowest levels at a depth of 38 ft. indicated the Middle Bronze age (Hyksos period) as its date.

The tombs first to be examined were found to

* This account of the excavations is based upon the reports of Mr. J. L. Starkey, for access to which we are indebted to Sir Charles Marston. The photographs are by Mr. Ralph Richmond Brown, a member of the Expedition.

contain potsherds of Middle or II Iron age date. Many of them had collapsed and had been reused or reroofed in Byzantine times. Both the tombs and the house foundations which lay in the habitation area over the fosse covered a considerable period of time, ranging from Middle Bronze age down even to early Christian times. One tomb can with certainty be attributed to the Hyksos period. House foundations contemporary with the nineteenth dynasty and tombs dating from the eighteenth were discovered.

In addition to the pottery, the objects recovered

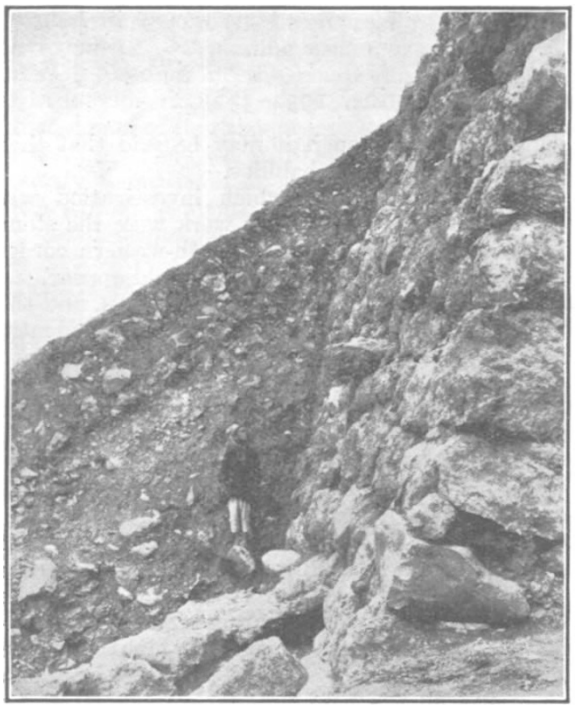

FIG. 1. Section of revetment exposed on north-east side showing stratification of debris. Burnt layer is half-way between boy's head and surface.

from this area included several bronze daggers, bronze toggle pins, bangles, anklets and rings, pottery figurines of Astarte in conventional pose, vases in alabaster and serpentine, beads of various forms and material, seals, and a number of scarabs in steatite, green jasper and carnelian. Some of the steatite examples are of fine workmanship, though of local manufacture. The pottery of certain types affords a link between series found at Jericho and at Tell el Ajjul.

The first of the major operations in the examination of the fortress works was the tracing of the line of the stone revetment. This was first cleared at a point at the north-east corner of the Tell, where eleven courses of fine dry-walling, rising to a height of about 20 ft., were uncovered. Further clearances revealed interesting differences in the method of turning the wall at the four corners. At the north-west a bold sweep was supported by five buttresses with their intervening spaces filled with blocks of stone and lime forming a compact mass, a feature unique in Palestinian architecture. There was evidence at the north-east corner (Fig. 1) that this part of the fortress had been subjected to concentrated attack by enemy forces. It was found that the approximate height of the revetment actually preserved encircling the Tell was $16\frac{1}{2}$ ft. and its width $6\frac{1}{2}$ ft.

Within the thickness of the revetment at one point a shaft, some eight feet in diameter, was discovered, which proved to be a well, choked with boulders. This at a depth of 26 ft. cut into living rock. Water level was reached at a depth of 122 ft. and bottom at a depth of 140 ft. from the Tell surface. Immediately behind the revetment enclosing the well were traces of three walls, which probably are the foundations of parts of the internal structure of a tower.

The investigation of the area of the great bastion to the south-west proved to be a problem of considerable intricacy owing to the fact that in the removal of the blocks of stone, the dry-walling offered little guidance in following the line of structure. Eventually it was found that there were three walls running south from the great square tower standing out from the lines of fortification, while a fourth at the highest point represented the city wall. The lowest of the walls, which would appear to be contemporary with the lower revetment and of Israelite age date, was a retaining wall at the side of a ramp which carried the road leading into the city up to the gateway, while a second wall was apparently a flanking wall to the road, here 20–25 ft. wide. Of the two gateways, the left jamb of the outer has disappeared. In the walls flanking the inner

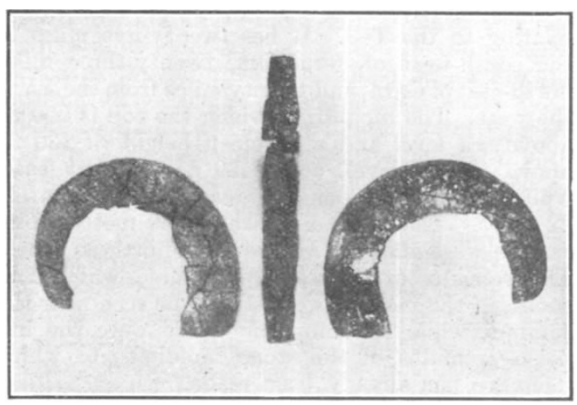

FIG. 2. Bronze crest-mount (two sides) of a helmet, with connecting spacer.

gateway are the remains of towers at a distance of approximately forty-four feet apart. Abutting on one of these was a chamber which probably served as a guard room. Two iron lance-heads found nearby lend support to this view, while it was here also that a bronze crest-mount of a helmet was found (Fig. 2). This still showed traces of cloth and leather fastenings and the rivets by which it was affixed to the casque. Its purpose was determined only after some deliberation; but

its resemblance to this part of the soldier's helmet as shown in the British Museum relief (Fig. 3) proves its character beyond doubt.

It is of interest to note that the defensive walls, here as elsewhere in the fortress, show that the method of defence was by shallow recessments in the wall rather than by the more usual deep re-entry. This corresponds with the form of defence shown in the British Museum relief.

It is possible to do no more than refer to the interesting habitation site on the eastern side of the Tell, which in the nineteenth dynasty marked the most prosperous period of the city's occupation, and yielded evidence of Egyptian contacts, in order to pass on to the examination of the remains at the summit of the mound. This was undertaken towards the close of the season, but sufficient time was available to reveal that here were the ruins of two structures, of which the earlier had been levelled and used as a platform for the erection of the later building. The ruins of this again had been used later by squatters. It was found that the walls of the later and smaller building, which it may be conjectured was the governor's residency, did not follow the lines of the earlier building, with which its plan had no relation. At north and south the levelled portion of the earlier building projected to form a platform. The residency had contained a large number of public and private rooms and offices with an open courtyard. This latter was probably open to the sky, as it was not filled with limestone blocks as were the spaces representing the other rooms. Some of these blocks showed a curvature which points to a barrel-roofing. The dating of this building is not yet fixed archæologically; but certain considerations point to fourth to fifth century B.C.

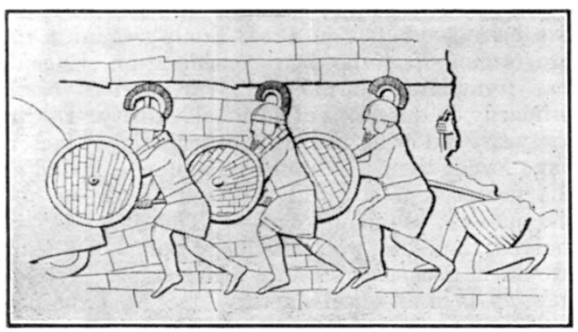

FIG. 3. From bas-relief of the siege of Lachish showing helmets worn by Assyrian soldiers. [*By permission of the Trustees of the British Museum.*]

Two further problems arising out of the excavation remain to be mentioned. These, it is perhaps not unfair to say, constitute the main contributions of the season's work to the discussion of the historical question raised by Tell Duweir. In examining the defensive works of the fortress and in removing the earth from the face of the revetment, evidence was found that the walls had been breached in two, or possibly three, attacks. The breaches had been repaired, although usually with little skill or care; but the defences had afterwards been subjected to the effects of a serious conflagration. In the stratification, this conflagration was represented by a stratum consisting of calcined limestone and charcoal in which were the remains of tree trunks of considerable size. It is suggested that earlier breaches in the defences were made during the siege by Sennacherib, dated tentatively at 701 B.C., while the evidence of conflagration bears witness to the more thorough-going methods of the army of Nebuchadnezzar in

FIG. 4. West wall of residency lavatory and bathroom, showing sanitary fitting and, on left, drain from bath room.

586 B.C., which, cutting down the trees on the neighbouring hills and in the olive groves, piled the trunks against the walls and set fire to them, utterly destroying the city's defences in its lines of attack.

Attention was directed to the second problem in the course of the excavation by the occurrence of burnt brick in the debris at various points, as well as by traces of burnt brick building in the area of the well in the revetment to which reference has been made above. The problem was resolved up to a point by a section through the city walls near the bastion, where it was found that an earlier system of walls constructed of unbaked mud brick lay on a foundation of stone below the late city walls. The width of the walls, 19 ft., points to their substantial character.

It remains only to mention briefly the result of a complete section taken down to bed rock through a depth of 38 ft. of deposits. This section showed that the deposits of the lowest 10 ft. belonged to early Palestinian culture; and it provided a complete and unbroken series of potsherds from the third millennium B.C. down to the close of the city's occupation. Among the early wares are examples of the almost unknown black burnish ware, hitherto discovered only in the Jordan valley, which shows resemblances to the ware of predynastic Egypt produced by the muffled technique. For this Tell Duweir now affords a new southern limit of distribution in Palestine.

An exhibition of the antiquities found during the excavations will be held in London during July.