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storehouse for grain staples. The heavy brickwork, including the thick subfloor, would have served against rodents and humidity (note that the stone and ash subifoor may also serve the same purpose). The partition walls are very thin because they have no structural purpose, but only serve to separate different loads of grain. There would have been no permanent roofing structure, but only covers or lids, presumably made of wood, which would have covered the individual receptacles. It even appears from the details of the top of one of the walls that we have their original height.

The building would have been approached from the glacis and the platform. One would have climbed to the top by means of ladders (a standard representation on cylinder seals) and the grain would have been dumped, and then retrieved, from the top.

What else we know about the occupation of the site during the third millennium matches this interpretation. Last year we found only the remnants of some very small private houses and otherwise large dumps. It appears then that the site was a special function site, destined to the gathering and storing of the grain from the surrounding plain. There was a single major public building (the storehouse excavated this year), plus the remnants of seasonal activities implying the presence of large groups of people (the dumps excavated last year), and small houses used as administrative quarters (also excavated last year). Since the closest known third millennium urban site is Tell Brak, it is a probable

conclusion that the site served as a specialized farming center for the needs of thet city (somewhat as Tell Atij seems to have done for the fishing needs, or as Puzrish-Dagan did for the needs of animal husbandry for the bigger site of Nippur in late third millennium Sumer).

While Phase 1 is preserved apparently to its very top, Phase 2 is preserved only minimally, and seems to be a remodeling of Phase 1. The exterior walls of the complex seem to conform to the previous phase, but we only have the lowest courses of bricks. The width is once again about 60 cm, two bricks wide, and the orientation is the same. We do have two floors which were used with the walls and some pottery associated with this last phase of occupation, including one whole vessel.

On the Western face of the tell (Area P), we have opened two units. The lower of these units contained similar material to the lowest unit in Area N, i. e. loose clean dirt. Here again we have evidence for the original occupation being placed on a small hill about one meter above field level. Farther up the tell we opened another 5 x 5 m unit. In this unit we seem to have a wall, on the upper side of the unit, below which there is only very clean (no pottery) hard material, similar to what we might find outside a city. This supports the possibility of the original occupation beginning at about one meter above field level. Virtually no cultural material has been found in this area

In conclusion, our excavations this season have served to define the role and function of Ziyada in the third millennium. While not providing any conclusive evidence as to the working hypothesis concerning a volcanic destruction of the late Halaf/Ubaid strata, we have no new evidence against it either. It should be stressed that the glacis/ramp of the storehouse would have reached the plain level, and thus it would logically have destroyed what remains there might have been of earlier levels.

A joint preliminary report on the three seasons by the present writers and Daniela Buia Quinn was presented at the symposium on Recent Archaeological Researach in Third Millennium North Syria organized by M. Fortin in Toronto, and will be published in its Proceedings. Plans are currently underway for a new cycle of three seasons of excavations to begin in 1991. The major focus of this second cycle will be a more thorough exposure of the Halaf period strata, and a full analysis of the ash deposits.

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Experiments in Salt Production at Tell Oraya G. Buccellati UCLA

Earlier work at Qraya (a small Uruk period site north of Terqa) was reported in SAB 1, p.6 by S. Reimer. Here I will report on some experimental work undertaken in 1989 to test certain aspects of a theory pertaining to both the nature of the ancient occupation at the site and the function of the stratigraphic assemblage of which the bevelled rim bowls are a part (I have written about this in the introduction to the first Qraya report, Syro-

Mesopotamian Studies 4/4, 1988, and in an article due to appear in the Bounni Volume). I consider it an anomaly that a small site like Qraya, with urban characteristics of mass production, as evidenced by the large amount of bevelled rim bowls found at the site, should be at such great distance from any urban settlement of that period - Brak being the closest. To explain this, I have suggested that Qraya was a commercial station for salt procurement. established by the Northern cities because of its proximity to the large salt playas of Bouara, due east of Qraya on the Iraqi border.

To test this hypothesis, I was forunate to enlist the help of Mrs. B. Hopkinson, Director of the Salt Museum of Droitwitch, England, and together we travelled to Bouara and to the other major salt deposits in Syria (Jabbul and Palmyra, as well as the salt mines of Tibni near Der ez-Zor). Besides studying in detail the current techniques of production (some of which are still of a non-industrial type), we obtained various samples of local salt. Back at the IIMAS expedition house in Terqa, where the Qraya materials are stored, we processed the raw salt obtained from Bouara, and through a series of steps which B. Hopkinson designed and supervised, were able to produce very fine salt. One merit of the experiment was that it accounts not only for all the well-known technical peculiarities of the bevelled rim bowls, but also for the overall stratigraphic situation in which they occur. For instance, the pattern of breakage and discard, unusual

for other common pottery, can be explained by assuming that bowls were broken intentionally through percussion at the base in order to get a whole salt cake out of the bowl. Many of the other pottery types which occur with the bowls (vats, high rim platters, spouted jars) acquire a special functional value when seen as part of a production assembly chain; also, the association of small grill ovens with water run-offs can be easily explained by the need to use a great amount of water in the production and to prevent any significant amount of organic refuse to be mixed in. The results of our experiment will be published in a joint paper by Hopkinson and this writer, in which archaeological and ethnographic comparisons will also be given.

## Salvage Excavations in North Syria

Thomas McClellan Oriental Institute, University of Chicago

During the summers of 1989 and 1990 salvage excavations at Tell el-Banat, Tell Kabir and Derf el-Ahmar, and surveys were conducted by a team led by Tom McClellan (Project Director) for the Oriental Institute in the flood zone of the Tishreen Hydroelectric Dam. It is being constructed at el-Qitar, a Middle and Late Bronze Age fortress where McClellan excavated from 1982 to 1987.

Earthen Ramparts of the Early Bronze Age? Only 10 km north of el-Qitar, on the left bank, the modern village of Tell el-Banat is built over a 32 hectare site partially surrounded

by earthen ramparts. It is located beside a small fortified mountain called Tell el-Bazey (outside the flood zone) which is not unlike el-Qitar in setting and fortifications. Late Bronze settlement extends from the mountain some distance onto flat areas around it, including parts of the village. Early Bronze III/IV pottery was found in the village in addition to the Late Bronze pottery, and the earthen ramparts led to the presumption that there was a major Middle Bronze settlement too.

Three soundings (A-C) were made in 1989 to determine the nature and date of occupation within Tell el-Banat Village, and the date of the earthen ramparts. Sounding A, closest to Tell el-Bazey, revealed a domestic area of the Late Bronze Age. Immediately beneath this stratum was Early Bronze III/IV occupation. Public constructions of the Early Bronze III/IV period were found in the Sounding C, including two large limestone column bases previously excavated by the villagers and a round mudplaster foundation for one of the columns. In Sounding B, three phases of Late Bronze buildings were constructed over the line of the earthen rampart. At the lowest point a round solid mudbrick structure, possibly a tower, was beginning to emerge at the end of the season. Some Early Bronze sherds were found in the lowest levels reached.

It appears that the earthen ramparts may date to the Early Bronze Age; certainly there was virtually no occupation of Tell el-Banat Village during the Middle Bronze Age and Late Bronze occupation is restricted to the southern quarter of the site.