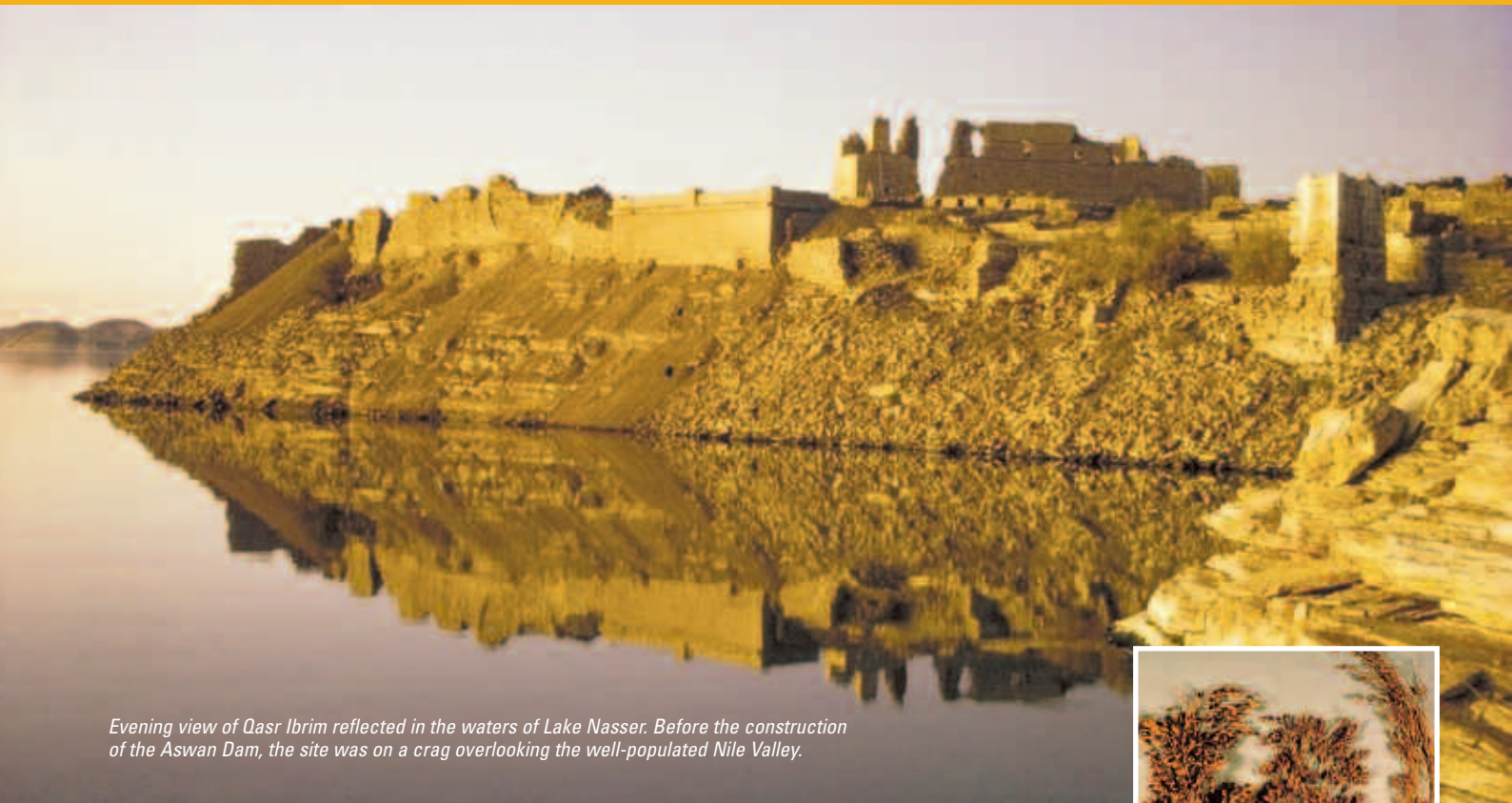


Rewriting the history of

Nubians were growing summer crops around 25 BC, a thousand years earlier than previously thought. Alan Clapham and Peter Rowley-Conwy pick over the evidence.



Evening view of Qasr Ibrim reflected in the waters of Lake Nasser. Before the construction of the Aswan Dam, the site was on a crag overlooking the well-populated Nile Valley.

The Nile Valley is often depicted as timeless. Empires rose and fell, individuals briefly occupied the world stage, but for the agricultural peasant nothing changed. Rains far to the south caused the Nile to rise during the autumn, flooding extensive areas of land and depositing fertile silt. As the waters receded from November, crops were planted in the moist uncovered areas, and these were harvested by March or April as the land dried out.

The Nile floods were the basis for a straightforward but productive agricultural system, capable of feeding a large population. But this population had little to do during the non-agricultural part of the year, and could be deployed as a seasonal labour force for major construction projects—building pyramids, for example. The Nile floods continued until the Aswan dams were built in the 20th century and the inundations ceased.

But the agriculture encountered by European travellers in the 18th and 19th centuries was no longer the simple one-season activity just described. The ancient flood-based system mainly cultivated crops that had been domesticated in the Near East around 10,000 years ago, such as wheat, barley, lentils, and linseed for oil and fibre. These crops were perfectly adapted for growth during the warm Egyptian winter, which was when the Nile floods obligingly provided the necessary water.

The travellers reported other crops too—ones that can grow

in the heat of summer. Egyptian cotton was famous and widely cultivated, and cotton cloth (being easier to manufacture) had largely replaced the linen derived from linseed. Sorghum was an important cereal, and pearl millet was also grown. Legumes such as the lablab and termis beans, and oil plants such as sesame, were also important.

Unlike the traditional crops of the region, these crops are mostly of African origin and are adapted to growing rapidly during the very hot summer, when barley and the other winter species could not survive. But of course they need water—and the Nile did not flood the fields during the summer. Their cultivation depended on irrigation technology. In Egypt this meant a device known as the *saqia*, an ox-driven water wheel from which descends a conveyor belt to which pots are attached. The pots dip into the water below and are raised as the wheel turns. As they pass over the top of the wheel the water empties into a horizontal trough which leads it away to the fields. A saqia can lift water at most about eight metres, and at this height can irrigate only about one hectare of land, but if the lift is lower the area may double. But numerous saqias closely spaced can open up a lot of otherwise



African agriculture

parched land for summer cultivation. Using the previously sterile summer season for cultivation was the most momentous change in Egyptian agriculture between the first arrival of agriculture 8000 years ago, and the building of the dams at Aswan.

A great change

Our research investigated when and how this great change happened. With the world's most spectacular archaeological record to explore, Egyptologists have understandably tended to overlook something so mundane as the history of agriculture. But Egypt can answer the question in a way almost no other part of the world can: the grains, beans, leaves and stems of the actual plants are preserved by desiccation, and retain their original colours and flexibility. It is often difficult to believe that one is handling material centuries or millennia old.

Most of the archaeological record of Egyptian Nubia has however disappeared below the waters of the Aswan dams – only a few major monuments like the Abu Simbel temples were removed to higher ground. But one extensive settlement does survive above the lake waters: Qasr Ibrim. Before the dam, it sat on a crag overlooking the busy valley 80 metres below; now it is on a promontory some 40km from the nearest settlement at Abu Simbel. The archaeological layers extend from about 1000 BC, when the site was first occupied, until it was abandoned in AD 1811.

We are the site archaeobotanists (specialists in ancient plants), and one or other of us has attended the excavations for



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the last 25 years. We have recovered plant remains from most of the 3000 years of occupation. They are dated by archaeological context—the changing pottery styles are quite well understood and the numerous sherds provide good dating evidence—supplemented when necessary by radiocarbon dating of the plants themselves. The sheer volume of material is staggering: about one third of a million items have been identified (mostly by Alan), and we suspect this may be the largest such identified sample in archaeobotanical history.

The upshot is that we can definitively place the agricultural revolution in the period between AD 0 and 350. And this is an unexpected and remarkable result: previous work has dated the introduction of the summer crop plants much later, to the 10th and 11th centuries. Repeated finds and radiocarbon dates have confirmed that cotton and sorghum appeared by AD 100. Pearl millet, which was never very common, first appeared a century or so later. By AD 350, termites and lablab beans as well as sesame had arrived, and bread wheat of the kind we now consume had begun to replace the emmer wheat of previous times.

Why does our work indicate that summer agriculture began a millennium earlier than previously thought? We believe it is because we are working on a

Want to know more?

Fieldwork at Qasr Ibrim is described on the website of the Egypt Exploration Society:
www.ees.ac.uk/fieldwork/qasrbrim.htm

unique 3000-year sequence of the plants themselves, while most previous studies have been based on historical documents. Many of the summer crop plants were first mentioned by Arab ethnographers and geographers such as Al-Idrisi and Abd al-Latif, who wrote their books after AD 1000. But we have to go back to Roman writers like Strabo to find similar works. They in any case were probably not aware of what was happening in a far-flung extremity of the Empire like Nubia; and in about AD 100 the Romans pulled their frontier back to Aswan, leaving Qasr Ibrim to be taken over by the Meroitic Empire of the present Sudan, whose script has never been deciphered. In between the Romans and the Arab geographers, authors took much less interest in agriculture, and the kind of book that would tell us about it was simply not being written.

The Nubian agricultural revolution is a classic example of a problem that can only be solved by a major archaeological project like the one focused on Qasr Ibrim. The power of the technique is that it can go beyond the historical documentation and provide new answers to questions that cannot be answered by any other means.

- 1 Sorghum heads from AD 550-800. Similar (but less photogenic) finds of this important crop date from as early as AD 100.
- 2 Barley dating from 600-800 BC. This material comes straight out of the ground and was not preserved inside a container.
- 3 A sample of Roman cotton pods, AD 0-100: probably the earliest find of the plant known from Africa.

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