Editorial

Occupational health and the archaeologist

Archaeology is held in particular affection by the public in many countries, probably as the result of the spectacular excavations carried out in the Middle and Near East in the early years of this century and towards the end of the last. Many of these digs were widely reported in the popular press and their directors, men such as Heinrich Schliemann, Howard Carter, and Flinders Petrie became household names. In more recent times television has done much to keep archaeology in the public eye and has helped to create more archaeological superstars, foremost of whom must be counted the late Sir Mortimer Wheeler.

The popular appeal of archaeology has its roots in two basic human emotions, greed and a morbid fascination with death. Tales of buried treasures or rich funerary objects will guarantee large scale public interest and, as every excavator knows, there is nothing like human skeletons to attract visitors to a site.

The risks the archaeologist may run in the course of his work have, by contrast, excited little interest except when they are themselves bizarre or exceptional. The excavations in Egypt spawned a widespread belief in the curse of the Pharaoh's tomb, the disturbance of these last resting places being thought to be followed by the appearance of mysterious illnesses caused by infectious agents that had lain dormant until their release by the desecrators of the tomb. This belief was firmly held with respect to the expedition that excavated the tomb of Tutankhamun, and it may indeed have been the case that some of those concerned did die from an infection contracted during the excavation, although the organism responsible was somewhat more prosaic than a mystery virus. Dean has suggested that Lord Carnarvon and others may have developed histoplasmosis since the entrance of the tomb was guarded by an iron grill that freely admitted bats into the interior.1

The archaeologist does expose himself to a variety of hazards both physical and biological. Digging is carried out in the arid heat of the desert, in the cold wet winds of the Outer Isles, in caves, jungles, and, increasingly, several fathoms under the sea. When gathering ethnographic data, the archaeologist-anthropologist may enter regions that would normally not be considered his domain at all. It has been cynically remarked that the typical Inuit family, for example, consists now of two parents, three children, and one anthropologist!

The physical hazards on site will clearly depend on its nature and position; some sites—especially when dug in advance of development work—may resemble nothing so much as a building site with all the risks attendant to it. Minor injuries on site are common and musculoskeletal problems are also frequent. Low back pain in middle aged volunteers is a complaint for which the sole remedy appears to be the analgesic action of several pints of beer. Prolonged digging in the sun may predispose to the development of skin cancer, while underwater archaeology exposes its practitioners to all the hazards of diving.

Of the infectious diseases, tetanus is potentially the most likely and no-one who has not been immunised against this disease should be allowed to dig. Myctic diseases are a real risk in some parts of the world and Werner and his colleagues have described an epidemic of coccidioidomycosis among a group of students who were digging some Indian ruins in northern California.2 Of the 103 members of the excavation, at least 61 developed symptoms. The most prominent feature of the outbreak was the appearance of a rash; in two patients this was incorrectly diagnosed as contact dermatitis and they were admitted to hospital for treatment with corticosteroids before the true cause was discovered. Arthrospores typical of C. immitis were observed in cultures of a soil sample taken from a rodent burrow. This was the only one of the eight soil samples taken which gave a positive result. As the result of this finding, however, the authors made the not very practical recommendation that digging should not be done directly into rodent burrows; compliance with this injunction might well bring most archaeology to a halt.

The two other infections which elicit most inquiries from archaeologists are anthrax and smallpox. Anthrax is perceived to be a potential hazard when sites are dug on which cattle or sheep may have been slaughtered or their hides used. Anthrax was probably common among animals in the past and the spores of the bacillus may remain alive in the soil for many years. The period for which the spores remain viable, however, depends on the nature of the soil and the temperature. In Great Britain survival times are short, probably because spores that survive the winter are rapidly destroyed by soil organisms proliferating in the summer. Elsewhere, in India, Russia, and France, for example, the disease never dies out.3 The risk to
the archaeologist will depend therefore on the country in which work is to take place, although it is never likely to be high given the relatively low infectivity in man. If infection were to occur it would almost certainly be the cutaneous form, pulmonary anthrax being extremely uncommon even in those occupations with the greatest exposure.  

Smallpox has come to the forefront of some archaeological and medical minds in the wake of the clearance of church crypts. Many of the London churches are removing bodies from their crypts in order to devote more space to the deserving living; in some cases it is known (or strongly suspected) that the crypts contain smallpox victims, and some of the more recent burials (those from eighteenth or nineteenth century interments) may be well preserved. What are the chances that the smallpox virus may survive to infect the excavator? Arita has provided evidence that the virus becomes inactive in scabs within a year, which suggests that bodies that have lain in the ground for a century or two are not infective. Nevertheless, as Zuckerman points out, the inadvertent reintroduction of smallpox will be devastating, and no archaeologist—still less his medical advisers—would wish to enter history with that on his conscience. Hence the understandable need for caution when digging sites that may contain the bodies of those who may have died from the disease and the need for clear guidelines for those who do the digging. There are some ethical objections to vaccination de novo and it would be prudent—insofar as is practicable—to permit only those who have already been vaccinated to work on these sites.

Even this brief review has shown that the archaeologist is subject to a considerable range of occupational hazards to which careful attention must be given. The final responsibility for health and safety on site must be taken by the director, and he should designate one member of the dig as safety officer with as many deputies as the size of the workforce dictates. The safety officer will clearly need to rely on others for professional advice; sources of useful information appear to be few, however. The Council for British Archaeology’s booklet on safe working practices in excavation is now out of print, and there is a gap that should not be hard to fill, given the number of doctors with an interest in the subject.

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References

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doi: 10.1136/oem.42.12.793

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