

Gordon Hillman's pioneering influence on Near Eastern archaeobotany, a personal appraisal

George Willcox

In this brief essay I discuss how Gordon Hillman pioneered the study of charred plant remains recovered from archaeological sites in the Near East and how his innovating research profoundly influenced my work and that of other archaeobotanists. I recount how he affected my career from 1972, when I first met him, up until the present-day.

Introduction

More than any other archaeobotanical scholar, Gordon Hillman has influenced a whole generation of students and colleagues and will continue to influence future generations. His eager enthusiasm, his broad-based botanical knowledge and his extraordinarily imaginative mind has led him to be the most original researcher among those working on Near Eastern archaeobotany, particularly the reconstruction of the origins of agriculture in the Near East.

His influential contributions come in two varieties. The first may be seen in his innovative publications. The second consists of the transmission of his knowledge and zeal to literally hundreds of students and colleagues over cups of tea in his office, or when examining samples with the binocular microscope in the archaeobotany laboratory at the Institute of Archaeology UCL. And there are those who were privileged to accompany him and listen to his explanations while on botanising and ethnobotanising field trips on the high Anatolian plateau. I remember several occasions when "Gordon bey" interviewed in fluent Turkish and in great detail a proud Turkish farmer about his crop processing techniques, as we listened patiently, tantalised by the odd word we understood, until he provided us with the English translation.

In this brief homage, rather than list all the well known accomplishments of this internationally renowned researcher, I would like to show how he was responsible for pointing in certain very specific directions much of my own research into Near Eastern archaeobotany. It is needless to say that Gordon's influence goes beyond what I will recount here and has shaped the projects of numerous other researchers from around the world.

Fieldwork and botanising in Anatolia

Aşvan was a small virtually self-sufficient village in eastern Turkey, now drowned below the waters of the Keban Dam. It was there among the beige-coloured mud brick houses of the villagers that I first met Gordon in 1972. In the Aşvan Project of the late 60's and early 70's directed by David French (French *et al.* 1972) a number of aspiring young archaeobotanists were first schooled by Gordon, who brought alive a kind of living museum of plant/man relationships by his observations in this beautiful traditional farming village. These observations were to be the basis of an interpretative tool for understanding archaeobotanical assemblages for many archaeobotanists (Hillman 1984). Thanks to David French's "broad spectrum" approach to environmental archaeology, Gordon was able to organise budding archaeobotanists to collect modern samples from threshing floors and winnowing machines, to make ethnobotanical notes, to collect seed and wood samples for reference collections, not to mention regular collecting visits to wild einkorn stands near Çemişkeşek at the foot of the Munzur mountains. Some of us also made observations for the ornithologists (including the collection of owl pellets). Those of us who were there will remember how revolutionary Gordon's archaeobotany was, and also the magic of being transposed into an archaeobotanist's paradise.

Aşvan was situated in an area with a distinct dearth of naturally growing trees. Indeed most of the non-cultivated trees were what M. Zohary called wild orchards of relic specimens which were protected from animals and wood cutters because they produced fruit. For example hawthorns were used as stock on which to graft apples or pears, sometimes both on the same tree. Gordon was amazed by the quantity



Figure 3.1. Gordon Hillman interviewing a Turkish farmer just after a summer thunderstorm, not far from Konya, August 1977 (photo Elizabeth Willcox).



Figure 3.2. Gordon Hillman and George Willcox examining weeds of cultivation not far from Çan Hasan, August 1977, (photo Elizabeth Willcox).



Figure 3.3. Waking up after a cold night near the summit of Kara Dağ. From the left Richard McKane (lying down), Gordon Hillman, Angela Cott, Beatrice Tessier, George Willcox (photo Elizabeth Willcox).

of charcoal produced by the near-total recovery strategy from flotation samples obtained from the multi-period sites in the Aşvan project compared to the distinct lack of trees in the present-day landscape. We discussed the possibility and potential value of charcoal studies for the reconstruction of ancient vegetation and deforestation in semi-arid areas. When I went back to Aşvan in 1973, Gordon assigned me to make a study of the ancient charcoal material. I had been initiated into the identification of charcoal by Joan Sheldon the year before at the Institute of Archaeology. Gordon also helped me obtain a grant to study the present-day forest vegetation, not just in the area around the sites but over the whole of Turkey, in order to establish a reference collection and become familiar with the diverse species which make up the woodland vegetation. Gordon quite rightly insists that archaeobotanists should be able to recognise and identify the living equivalents of charred remains from archaeological sites which they try to identify. He also suggests that, where possible, budding archaeobotanists should taste potentially edible plants.

In 1977 he got me involved with the study of charcoals from the Neolithic site of Çan Hasan III situated in the Konya plain. While I was on a grant at the British Institute for Archaeology in Ankara, Gordon and I with several others, including the poet and translator Richard McKane and my wife Elizabeth, made a memorable botanising trip in my old VW bus all around the Konya basin, bivouacking on the summit of Kara Dağ in what seemed to be sub-zero temperatures (Figures 3.1, 3.2, 3.3). We visited relic forest formations, with similar species composition to those we had found on the sites. These were remnants left after 7000 years of exploitation. We also gathered an excellent harvest for the reference collections. Although Cecil Western was really the first to study charcoal from the Near East at Jericho in the southern Levant (Western 1971) it was thanks to Gordon's initial keenness that a large number of studies of this kind

have been carried out over the last 30 years. We have thus been able, to some extent, to trace the catastrophic advance of deforestation in the Near East (Willcox 2002a). Charcoal analyses are particularly important in this area because there are so few pollen-bearing deposits.

Experimental cultivation of wild cereals

It was in the early 80's that Gordon Hillman pioneered experimental cultivation of wild einkorn wheat in order to understand its behaviour under conditions of plant husbandry. He had the audacity to take the seeds from these plants, which are native to the Near East, and sow them in Wales of all places! Needless to say they thrived under his caring hands, despite the climatic restraints. In 1984 at the invitation of the French prehistorian Jacques Cauvin, Gordon spent a few days at the then new CNRS centre at Jalès in southern France, where climatic conditions were somewhat closer to those found in the regions of the habitats of wild einkorn. Gordon (and my wife) insisted that I travel across France to Jalès so that we could meet while he was visiting Cauvin's team. It was then, that Gordon sowed the seed of the idea in the minds of Patricia Anderson and Jacques Cauvin of setting up an experiment to grow and harvest wild cereals. Patricia Anderson initiated the project with the help of a grant that she managed to obtain. This was a great help to me at this time because I was without a job in archaeobotany and Patricia kindly provided summer employment for me to work on the wild cereal project at Jalès. By 1986 we had our first harvest from single-line populations which Patricia had obtained from seed banks. In the same year Dominique de Moulins, a French archaeobotanist studying at the Institute of Archaeology in London, and Marie-Claude Neirlé from Switzerland collected wild cereals in Turkey. They kindly furnished a large seed stock which we were able to plant and this provided a large enough population after three years of cultivation to experiment with different harvesting techniques. This was at about the time that Gordon was passing around the first draft of his influential article on domestication rates written with Stuart Davies, a population geneticist, and first published in 1990 in the *Biological Journal of the Linnean Society*. This naturally inspired us to test some of their hypotheses based on theoretical genetics using our newly acquired seed stock. This project got underway thanks to Gordon and continues to this very day. We are now experimenting with wild rye. At the heart of this project were a series of questions proposed by Gordon which we hoped to answer by means of experimental cultivation (Willcox 1999).

From foraging to farming and pre-domestic cultivation

In 1989 I obtained my present research position on the basis of original research projects, past present and future, which

were initiated or originated with the help of Gordon. My new job led to my involvement in the studies of the origins of agriculture with Jacques Cauvin's team, and by 1991 work began on the Tishrin Dam sites on the Euphrates in northern Syria. We started sampling early agricultural sites such as Daj'de, Halula and later in 1995 Jerf el Ahmar (Willcox 2002b). These sites of the early tenth millennium BP (uncalibrated) were rich in charred plant remains and they constituted a chronological continuation that followed on from Gordon's now famous study of the late Natufian plant remains from Abu Hureyra some 50km downstream on the Euphrates, which had been sampled in 1972 and 1973. Given the chronological sequence and geographical proximity, my colleagues and I were highly influenced by the results, hypotheses and conclusions of Gordon's work on this earlier project. But the study of the Abu Hureyra plant remains as a long term project represented much more than this; it produced the raw material for Gordon's main research interest which he developed while at the Institute of Archaeology UCL, together with his colleague David Harris, that is, the study of the transition from foraging to farming (Harris and Hillman 1989). I think it is true to say that Gordon is best known worldwide for his work on the origins of agriculture at the late Natufian site of Abu Hureyra (Hillman 2000) and on the late Palaeolithic site of Wadi Kubbania (Hillman 1989).

Starting, so to speak, with the late foraging sites, he combined his identification skills and his vast knowledge of plant use to become the only archaeobotanist to suggest how these gatherers got the most out of the diverse plants available to them. But what about humanity's first steps towards cultivation? Gordon pushed forward the frontiers of archaeobotany when he developed the notions of pre-domestic and non-domestic cultivation in relation to the origins of agriculture in the Near East (Hillman and Davies, 1990). These concepts are essential to our comprehension and understanding of the process which led to the development of fully-fledged agriculture. But with these notions established, Gordon was faced with the daunting task of trying to recognise cultivation when the cereals themselves were morphologically wild. Not surprisingly, he did not recognise the minute signs of cultivation present in the Abu Hureyra plant assemblage the first time around (Hillman 1975, 1996, Hillman *et al.* 1989). Thus in the early publications he asserts that the site was occupied by hunter-gatherers and in the later publications he argues strongly for the later occupants being the earliest known cultivators in the Near East, if only on a small scale (Hillman *et al.* 2001, Hillman 2000). Some colleagues see this inconsistency as some kind of contradiction or misinterpretation, when in fact it simply demonstrates the progression of scientific enquiry.

With Gordon advocating cultivation at Natufian Abu Hureyra, we had less difficulty convincing colleagues that, despite the lack of morphological domestication, it seemed highly probable that at least some of the cereals and pulses recovered from pre-pottery Neolithic sites dated to the 10th

millennium, such as Jerf el Ahmar, were the products of plant husbandry. Initial arguments for cultivation were based on the presence of weeds of cultivation and then grain size, but recently we have proposed other indicators such as the introduction of new crops and diminishing frequencies of gathered staples, which were abandoned in favour of cereals (Willcox 2002c, 2005, Tanno and Willcox 2006).

Conclusion

In this short appraisal I have discussed the influences of Gordon's achievements and contributions on my own research, in particular the importance of ethnobotany, a knowledge of the present-day vegetation, the value of experimental cultivation and the concept of pre-domestic cultivation. Many of my colleagues followed the same path and were equally influenced. Finally, I hope that from this essay it is clear to readers that Near Eastern archaeobotany would not be where it is today if Gordon had not broken the ground for so many new and fruitful avenues of archaeobotanical research.

Acknowledgements

My thanks to the organisers Andrew Fairbairn and Ehud Weiss for inviting me to the meeting in Canterbury in June 2004 and for the personal effort they have made to bring about this publication. The first draft of this paper was greatly improved thanks to the meticulous work of two anonymous reviewers. Finally thanks to Gordon for his enormous contribution to archaeobotany.

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