For much of the past century the issue of the transformation of human societies from the Mesolithic (hunter–gatherer) type of subsistence economy to the Neolithic (agricultural) economy has been the subject of debate among archaeologists, prehistorians, anthropologists and linguistic scholars. By the mid-1950s there had emerged a consensus which held that the diffusion of domesticated plants and animals from the near East into Europe between 7000 and 4000 BC had arisen via a wave of advance whereby farming cultures displaced unsophisticated hunter–gatherer communities who themselves had survived at the very margins of subsistence. However, the emergence of the exacting disciplines of palaeobotany, palaeozoology and ethnography, combined with the almost alarming sophistication of archaeological science and its increasing adoption of molecular biological techniques, are beginning to offer a radically different view of what was probably the single most significant cultural change in human history. In this brilliant volume of synthesis (which should be read by all those engaged in inductive agricultural science research as an object lesson in the virtues of multidisciplinarity and the value of the powers of imagination, deduction and lateral thinking), Price and his collaborators review an enormous range of literature and highlight the various revisionist trends underlying the contemporary view of Mesolithic and Neolithic prehistory. As individual authors trace the spread of domestication and farming throughout different regions of Europe, further evidence is offered to support the now widely held view that far from being the opportunistic strandloopers of the older prehistory, Mesolithic communities pursued food quest strategies which were at one and the same time efficient and sustainable. Indeed there is compelling evidence to indicate that by the later Mesolithic, hunter–gatherers were manipulating their environment in such a way that enabled them readily to develop through to farmers. Thus, throughout Europe there are numerous examples of the technological elements normally associated with the Neolithic being unearthed in Mesolithic contexts, although niceties of interpretation are required to differentiate between items of exchange and indigenously developed technologies arising from contacts with adjacent peoples. Nevertheless, a common *leitmotif* of the nine lengthy chapters in this volume links to the notion of the *indigenous* development of farming at the Mesolithic/Neolithic interface so that the idea of invasion/displacement remains proverbially dead in the water. While it is accepted that in many parts of Europe food strategies varied within a region, and that there was inevitably a degree of colonization, the latter was a relatively minor factor in the transition from hunter–gathering to farming.

The islands of Britain, as so often the case, present problems of interpretation, not the least of which arises from the paucity of clearly established Mesolithic sites. Changes in the Holocene sea level inundated coastal sites and many river valley locations where, by European analogy, Mesolithic communities might have been anticipated. The limited evidence to hand, however, reveals unequivocal differences between Mesolithic Britain, whose economy seems to have been based substantially upon the exploitation of land mammals, and Mesolithic Ireland which lacked a land-based economy and depended upon fishing and sea mammal hunting, supplemented (as in Britain) by gathering. In neither island is there any compelling argument for colonization which implies that the transition to farming among the indigenous Mesolithic population was facilitated by contacts with agricultural communities on mainland Europe in the fifth millennium BC.

The question is why? What was the rationale for clambering on to the agricultural treadmill with its implied enslavement to the seasons, its imperatives for food storage and its demands for profound changes in social, economic and cultural organization? The old arguments of climatic change, resource degradation and population can no longer be sustained since no correlation between climatic and cultural change has been demonstrated, besides which levels of populations in the Mesolithic and Neolithic would have applied little stress to the resource base. Moreover, it is becoming increasingly clear that throughout much of Europe the Mesolithic/Neolithic transition occurred in areas of abundant natural resources. Current thinking, much of it deriving from the disciplines of ethnology and anthropology, focuses upon elements of social change and the emergence of social inequality whereby higher status groups encouraged agriculture as a means of creating food surpluses to support exchange and
wealth systems. But this, of course, begs the question of what brought about this rise of social differentiation in the first place? Perhaps it derived from a profound change in ideological perspective with late Mesolithic communities encountering new sets of ideas which fundamentally changed their world view and accordingly their social and economic conditions of existence? Farming demanded sedentarism, a sense of community and a sense of time and timeliness. As we know from the complex relationship between funerary monuments, ritual sites, and the evolving fields of the Neolithic and Bronze Ages, it also demanded a need for the immanent and the sacred and thus for shamans, priests and other intercessionaries with the inevitable consequence of social differentiation. If this provided a more agreeable lifestyle than the harvesting of the natural increase of indigenous flora and fauna, then the question ‘why’ is answered.

As Price notes in his final chapter, there exists at present a wider vista of interpretations than of concrete evidence to explain why agriculture occurred, although the mechanisms of change and appropriate chronology are becoming increasingly certain. Research continues apace and the probability is that the 57 page bibliography to this book will expand inexorably over the next decade when we can hope that Price will produce an updated volume as the chronology are becoming increasingly certain. Reordering of scales has been used from patches into fields to close-ups of symptoms and even a few photomicrographs of fungal spores. The arrangement and quality of the image collections for the six different crops are variable and lacks overall cohesion. There are images from agrochemical companies and HMSO showing that considerable efforts have been made to compile these collections, however, the absence of important pathogens such as septoria leaf blotch (Mycosphaerella graminicola) will frustrate those seeking a comprehensive collection to use in education and training. The images for each crop were not presented in strict alphabetical order or recognizable sequences. This leads one to select images using the search facility, which can be used for individual crops or on the overall collection. These are minor irritations.

With any collection of images of disease, it is a pleasure to explore new or unusual disease symptoms – those you might see once in ten years, others which might appear in future. How many pathologists in the UK would recognize verticilium wilt or wirrega blotch symptoms in barley? Technology is moving rapidly, colour images with fluent linkages to text are with us and will surely develop further. APS Press are to be commended for providing a large selection of images in an easy-to-use and affordable electronic format.

P. GLADDE RS


Although the use of CD-ROM technology in education and the home is now commonplace, it is important to appreciate the pioneering spirit of the American Pathological Society in producing this selection of colour images. The CD-ROM has simple instructions which proved easy to use and requires an IBM-compatible PC with Windows 95, Windows 98 or Windows NT and a standard resolution screen (640 × 480 SVGA capable of 63536 colours). The images are grouped in six crop categories: alfalfa (134 images), barley (142 images), corn (maize) (76 images), sorghum (118 images), soybean (66 images) and wheat (74 images). The reasons for this grouping of crops remains a puzzle for a northern European, for whom cereals or small grain crops alone would have represented an attractive selection. The images can be laser printed and facility is provided to produce slide shows. The images are clearly aimed at those involved in education and training, diagnostics and commercial personnel seeking colour illustrations for technical and sales presentations. The collection can be browsed in groups of six, with a click on the small image producing a full screen and text. There are captions to most of the images, though these vary from simple descriptions of the image to details of key diagnostic features. Common names of disease and latin names of pathogens are provided. Images are not limited to diseases as one might expect from the title of this CD-ROM; nutrient deficiencies, chemical injury, physiological disorders, pest damage and even some undiagnosed symptoms (always of interest to diagnosticians!) are represented in ad hoc fashion. A diversity of scales has been used from patches into fields to close-ups of symptoms and even a few photomicrographs of fungal spores. The arrangement and quality of the image collections for the six different crops are variable and lacks overall cohesion. There are images from agrochemical companies and HMSO showing that considerable efforts have been made to compile these collections, however, the absence of important pathogens such as septoria leaf blotch (Mycosphaerella graminicola) will frustrate those seeking a comprehensive collection to use in education and training. The images for each crop were not presented in strict alphabetical order or recognizable sequences. This leads one to select images using the search facility, which can be used for individual crops or on the overall collection. These are minor irritations.

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This large anthology is reminiscent of an historic document as the cover and facing page are illustrated by drawings and notes from the laboratory journal of Professor Martinus Beijerinck. The notes date back to 1898 when he first provided experimental evidence that tobacco mosaic virus (TMV) was a ‘contagium virum fluidum’ and so the science of virology was founded. To mark this centennial anniversary the book provides a compilation of classic papers on
TMV over the last decade, with commentaries written, in some cases, by key authors of the papers who provide anecdotal information about their research, important discoveries and their life with TMV.

The book does not provide an up-to-the-minute review of the status of virology or TMV studies but celebrates this key area of plant pathology research and as such provides a combination of case history, reference manual and archive document which will be invaluable in teaching undergraduate or graduate students. It is also surely a must for anyone who has ever worked on TMV as research on this virus has led the field of plant virology for over 100 years and many a virologist has fed and clothed their family on the proceeds of research on TMV.

N. J. SPENCE