

Wagons and chariots

A.F. Harding

The Earliest Wheeled Transport: From the Atlantic Coast to the Caspian Sea.
By Stuart Piggott. *Thames and Hudson: 1983. Pp.272. £20, \$34.95.*

THE WHEEL is one of those technological inventions which, in the banal and illogical catch-phrase, 'changed the course of history'. What would Old World civilization have been like without it? What would the New World have been like with it? Wheels are among those devices, such as pottery or writing, that are so basic one cannot easily imagine life without them. In view of this, it is surprising that no modern monograph has hitherto been devoted exclusively to the early history of wheeled transport, and a long-standing gap is thus filled with the appearance of the present work.

Professor Piggott is no stranger to the literature on the subject: he has been writing about prehistoric wheels since 1949 and in his wide range and detailed knowledge of the subject has no rival. As often happens, a number of recent books have dealt with aspects of the same problem, and here mention must be made of M.A. Littauer and J.H. Crowel's *Wheeled Vehicles and Ridden Animals in the Ancient Near East* (Brill, 1979), Crowel's *Chariots and other means of Land Transport in Bronze Age Greece* (Allard Pierson, 1981), and volumes in the series *Prahistorische Bronzefunde* dealing with the Italian vehicles (E. Woytowitsch) and early horse harnesses (H.-G. Hüttel).

But Piggott is concerned to write a connected narrative tracing the development of wheeled transport from earliest times

down to Classical Antiquity, and this he does in typically thorough and workmanlike fashion, apparently equally at home in the unfathomable awfulness of Russian excavation reports of 3rd millennium 'Pit Grave' vehicles and in the complexities of Iron Age wagon burials in central Europe. Thus we progress from early solid-wheeled wagons which would have been pushed to travel at walking pace, no doubt used for getting the hay in and the manure out, through the first spoked wheels as seen on Bronze Age chariots, to the marvellous and complicated carriage of Dejbjerg, with its roller bearings and pivoted front axle. The progression is not merely technological: the social effects of wheeled transport are in many ways the most important thing about it, as chieftains and other elite groups contrived to make their status manifest by riding, and eventually having themselves buried, in or with wagons and chariots.

In spite of the 'coffee-table' appearance this is a specialist's book which the layman may find hard going in parts. Careful study will however repay the effort, for this is a mine of information on many subjects. It is worthy of note that Piggott relies almost entirely on radiocarbon dates for the earlier periods, a position which will not find favour on the European continent. Nor will Near Eastern specialists care for: "The absolute chronology of Bronocice is more reliable than that of Uruk IV or the Early Dynastic periods of Mesopotamia".

One topic that I feel should have been more fully covered is Aegean Bronze Age chariots, but this is a relatively small failing in such a feast of learning and wisdom. The book is beautifully produced (in Hungary) and marks a worthy culmination to the author's long and painstaking work in such an important area of technology. □

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New ideas — new science

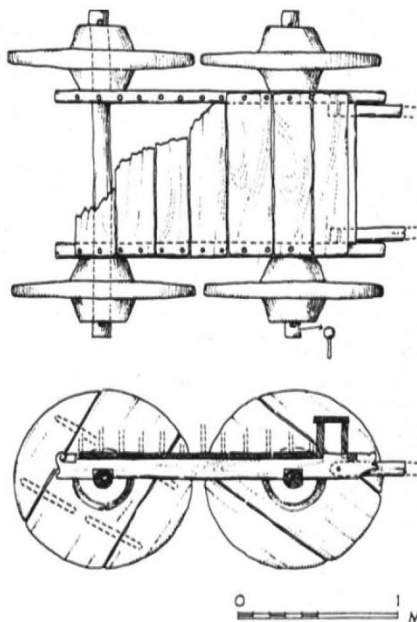
J.Z. Fullmer

The Revolution in Science 1500-1750.
By A. Rupert Hall.
Longmans: 1983. Pp.373. £8.95.

IN 1954 Longmans published A. Rupert Hall's *The Scientific Revolution, 1500-1800*, a work so well received that 1962 saw a second edition. The book under review is a heavily revised third edition. Only two chapters, that on the influence of technology on scientific development, and that on 'The Range of Life', remain close to their 1962 version. Hall was moved to drastic revision — as reflected in the changed title — by his desire to mirror "the increased maturity of studies of sixteenth and seventeenth century science". To accommodate this new scholarship, Hall has lopped off the last half of the eighteenth century, along with discussion of the changes operating in chemistry and in the electrical sciences.

What scholarly studies moved Hall to change his emphasis? 'Notes' appended to each chapter provide clues toward an answer. For Galilean studies the work of Stillman Drake; for Newtonian studies, the work of D.T. Whiteside, of A.R. and M.B. Hall, of B.J.T. Dobbs, and of R.S. Westfall; for biological investigations, the work of Walter Pagel. The list could be extended from Hall's 'Notes' to the sections on the organization of science, on Copernicus, on Kepler, on Tycho Brahe, and the like. Still, the list, while understandable — for the work of these distinguished scholars certainly must be taken into account in any text on the scientific revolution — raises a serious question. Does the reader assume that changes in chemistry and in electrical studies are not part of 'the scientific revolution', or does the reader assume that scholarly definition of the term has been revised to exclude changes that appeared in these two disciplines? Hall does not address this question directly. Therefore, the reader familiar with the earlier edition is left with an impoderable; there is no way of knowing what has prompted the exclusion of these fields.

While some sections have been expanded (and others truncated) some new scholarship has been accommodated, and there is now a mountain of papers and books bearing on his topics and periods which Hall has neglected. What has remained constant is Hall's attitude and his range of view. He avers that he wrote about ideas rather than about society, and about particular individuals rather than about anonymous masses. Early in the text (p.2) he announces that he "unashamedly" follows "a positivist or even whiggish line". He asserts his belief in "progress"



Above: Remains of a wagon from the second millennium BC found at Trialeti, Georgian SSR.

Left: Scale drawing of a wagon from the same site.