

On the Mapping of Carts and Wagons in Europe

WHEELED VEHICLES HAVE A LONG HISTORY and wide distribution. This in itself makes them a complex subject for study, to which the attention of many writers has been turned for a variety of reasons — linguistic, technical, historical, ethnic, and so on. Though much has been written, the differences of approach mean that a consistent body of comparative data does not exist. At the same time, there are many areas for which information on wheeled vehicles is scanty or non-existent.

Both of these points create difficulties in mapping carts and wagons. It is necessary to work out a means of extracting data from existing sources in some kind of standardised way, in order to construct maps that override national boundaries. At the same time, an element of selection is required, for example by restricting the range of vehicles mapped to those used primarily in agriculture. Even with such a restriction, the subject remains complex, as a brief examination of the literature of recent times will show, and a further selection of elements or features that have significance over wide areas must be made.

Gösta Berg's pionering work on *Sledges and Wheeled Vehicles* was published in 1935. Though described on the title page as "ethnological studies from the view-point of Sweden", nevertheless it was and remains the best comparative regional study that has so far appeared, exemplifying B. Laufer's concept — quoted by Berg in his Preface — that:

"no historical problem can be understood and solved with any hope of success by limiting our attention to one particular culture-sphere to the exclusion of all others, and even in the minutest specialisation of our work we must never be forgetful of the universalistic standpoint" (Laufer 1931: 536).

Professor Berg was able to assemble such a wide range of comparative information that he provides a basis on which it is possible to begin thinking about the construction of maps for types and structural elements. Though many detailed regional studies are needed to fill the numerous gaps, nevertheless a considerable amount of fresh material has been published since 1935, particularly within the last fifteen years. Examination of a selection of these will serve to highlight some of the problems and complexities of the subject.

For England, J. G. Jenkins, in *The English Farm Wagon* (1961) has surveyed 600 wagons and established the existence of 28 wagon districts on the basis of types. Though questions of evolution are touched on, mainly following the writings of V. G. Childe, J. G. D. Clark, J. Czekanowski, A. G. Haudricourt and G. Berg, the main strength of the book lies in its technical description of the details of wagon construction, and in its analysis of regional varieties.

In terms of diffusion, Jenkins considers that the heavy wagon for the long-distance transport of goods was probably introduced into Britain from the Low Countries in the sixteenth century, though baggage and passenger wagons were known in Britain before then (Jenkins 1961: 8). At first the heavy wagon served primarily for road transport, but with the rapid spread of agricultural improvement in the eighteenth century, it began to be adapted by local cartwrights for agricul-

tural work, especially harvesting, and even replaced two-wheeled carts for this purpose, though not in areas where the terrain was hilly or uneven. Geographically speaking, this meant the retention of the two-wheeled cart in Scotland, Northern England, Ireland, the Isle of Man, and parts of Wales.

However, the situation must not be over-simplified. Even within these regions, there is some evidence to suggest that four-wheeled wagons, usually ox-drawn, existed at a date prior to the spread of the heavy wagon in England for agricultural purposes. There were, for example, four-wheeled chariots in Ireland, drawn by horses (Joyce II 1903: 405). In Scotland, it is clear that on the estates of landed proprietors, there were wagons drawn by oxen yoked in pairs to a central draught-pole, used mainly in the south and east, but with outliers as far north as Shetland and Orkney. Wagons of English type, horse-drawn, did reach the south of Scotland in the second half of the eighteenth century, but they were few in number, and their life-span was short (Fenton 1976: 205—7). They marked the absolute limit of the northwards diffusion of such vehicles in Britain. On the other hand, the source of origin of the pole-drawn ox-wagons, used on estates for moving heavy loads, remains to be established. Their existence does show that the glamour of the English farm wagon should not be allowed to obscure an apparently earlier pattern of a different character and presumably different source.

The English farm-wagon itself could have more than one source of origin. Apart from direct introduction from the Low Countries, it could also derive from the two-wheeled cart. According to Jenkins, the deep-bodied, blue-painted East Anglian wagon is descended from the East Anglian tumbril, itself a descendant of the medieval box-cart. The postulated course of development is based partly on the fact that the East Anglian wagon body is markedly box-shaped, and partly because of the custom of temporarily converting two-wheeled dung-carts into wagons by the addition of pairs of fore-wheels and fore-carriages. Such "hermaphrodite" vehicles, "partaking of both a cart and a wagon" are known from the end of the eighteenth century. They were made from the indigenous tumbril, or from the lighter Scotch or Leith carts that were by then being imported from Scotland into the East of England. If the tumbril was used, the shafts were removed and a coupling pole was fixed from the cart axle to the fore-carriage axle. With the Scotch cart, the front ends of the fixed shafts were made to rest on the fore-carriage axle (Jenkins 1961: 120, 122, 179), but the two points of contact must have given rise to turning problems. The use of the Scotch cart with fixed shafts, therefore, is likely to have been a fairly temporary expedient.

It could be argued, in general, that the hermaphrodite combination, whether with Scotch cart or tumbril, is later than the wagon, possibly a poor man's version of it. Nevertheless the existence of the central coupling pole in the case of the tumbril relates it to a method of wagon-body construction widely known elsewhere, in which a pole or *Langbaum* links two carts or the front and rear portions of a wagon. Putschke's analysis of early archaeological sources points to a distribution of such a body structure in Norway and Sweden (rock carvings

dated to about 1200 BC), Gotland, Jutland, and West Prussia — Pomerania, with a variant type in Bohemia — South Germany, France, Italy and Spain. His ethnological sources show the *Langbaum* in South Norway, South Sweden, South Finland, Denmark, Central England, the Netherlands, Belgium, France, Germany (excluding the Rheingebiet), Switzerland, Upper Italy, Czechoslovakia, Poland, the Baltic, Russia, Austria, Hungary, Rumania, Jugoslavia and Bulgaria (Putschke 1976: 74—77).

The construction was so common in some areas that a writer recently said of feudal Poland, that: "le distinction, très utile ailleurs, entre le char à deux roues (charette) et celui à quatre roues, a, en Pologne, relativement peu d'importance" (Fenton, Podolák, Rasmussen 1973: 304).

This feature, therefore, has a wide distribution, it goes far back in time, it has relevance to theories about the evolution of wagons, and it underlines the problems that may arise from defining carts and wagons too closely as different species. It therefore has considerable ethnological significance.

JENKINS' STUDY OF THE ENGLISH FARM WAGON shows that four-wheeled wagons with pairs of shafts for horse draught developed as agricultural vehicles in England mainly in the eighteenth century, with some possible structural cross-fertilisation from the tumbril and to a lesser extent the Scotch cart. The evidence for ox-drawn wagons with central draught poles from Scotland may point to the earlier existence of such vehicles in other parts of Britain as well, though it is not possible, for lack of sources, to point to any clear link with either the four-wheeled Irish chariots or the wagons used in England for road transport of loads before the eighteenth century. At any rate, when the horse-drawn wagon became a primary means of farm transport, it led to a considerable, if sometimes only temporary, displacement of two-wheeled carts. These included the deep, heavy tumbril of the East Anglian plain and the long cart or flat-bodied cart with shafts, sometimes known as a wain, and traceable back to the fourteenth century at least. The Scotch cart with its fixed shafts was related in form to the wain, though in Scotland, at least, the wain may have originally had a central draught-pole (Fenton 1976: 205—6; S.N.D. s.v. Wain). Etymologically, the word "wain" is cognate with "wagon", though the former refers to a two-wheeled and the latter to a four-wheeled vehicle — a fact which further helps to obscure the difference between carts and wagons. The name survives especially for the "Cornish wain" of South-West England.

In the nineteenth century, circumstances began to change and the use of the wagon began to dwindle. Throughout much of England it was gradually replaced or complemented by the Scotch cart, exported by sea from Leith or by land across the Border into Northern England, and later made in quantity by English firms such as Crosskill of Beverley and Tasker of Andover (Jenkins 1959: 173—5). The Scotch cart also penetrated Ireland in the late eighteenth — early nineteenth century (Evans 1957: 176—180; Herring 1944; Thompson 1958;

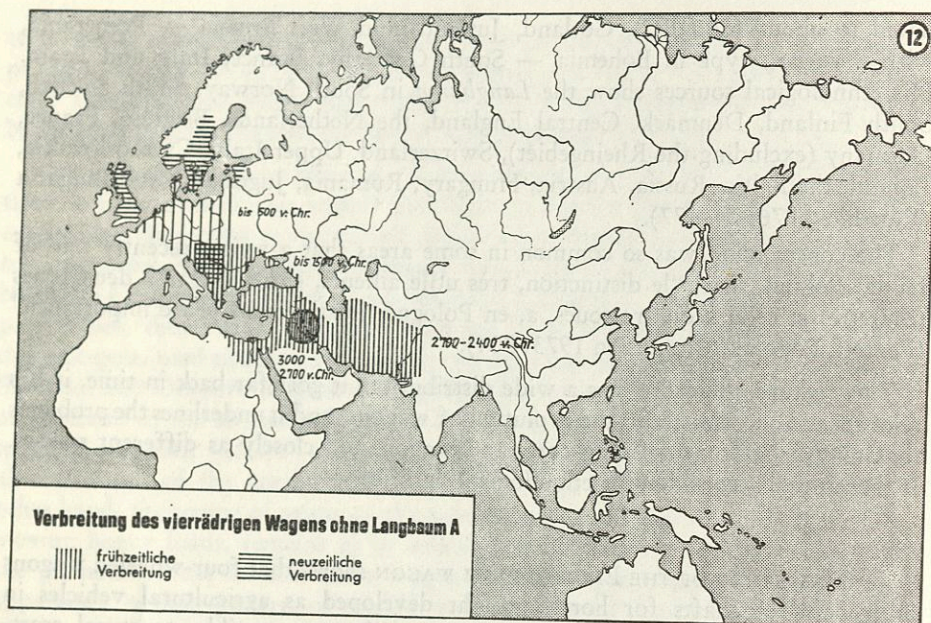


Fig. 1: Distribution of the four-wheeled wagon without "Langbaum" in prehistorical and modern times. (after: W. Putschke 1976, de Gruyter-Verlag Berlin).

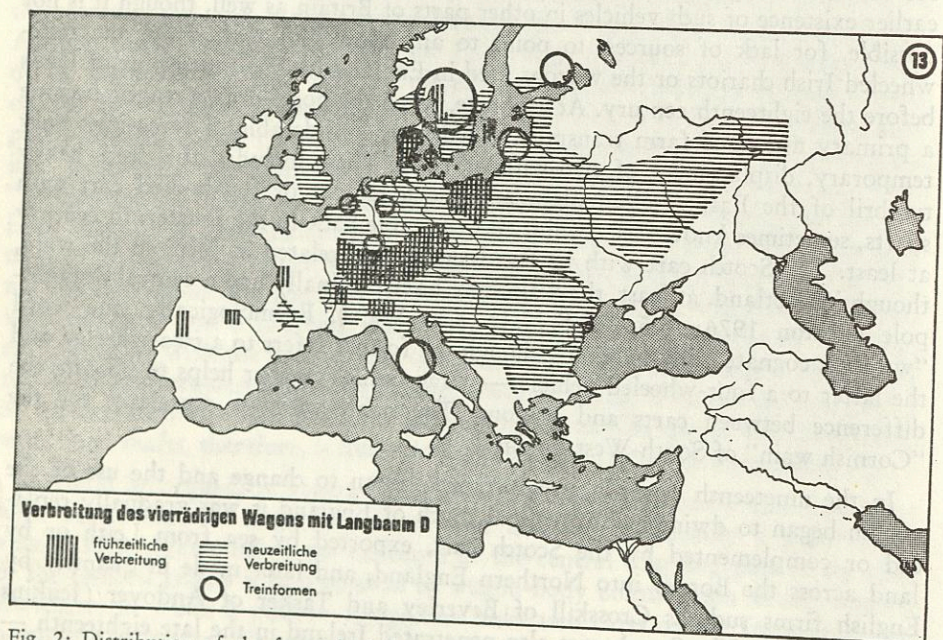


Fig. 2: Distribution of the four-wheeled wagon with "Langbaum" in prehistorical and modern times. (after: W. Putschke 1976, de Gruyter-Verlag Berlin).

[Gailey] 1975: 13), as well as the Isle of Man, where it was used alongside the smaller Manx *stiff-cart*, the body of which could be tipped (Killip 1960—1: 117—8).

The Scotch cart is a representative of a widespread type. Though it may originally have had a single draught-pole, like the Portuguese carts, in its expansion phase it had a pair of shafts that were extensions of the side-members of the flat body. One horse was enough to pull it, a fact that may have been instrumental in its adoption in Eastern England to replace the two-horse tumbrel. On the other hand, its adoption in Ireland and the Isle of Man was related to its greater carrying capacity in relation to existing vehicles.

According to an early nineteenth century writer, it had wheels about 4 feet high, and: "differs from common English carts in having scarcely any sides or ends, consequently there is none of the superfluous weight of the tumbrel, and the axle-trees being straighter it runs more truly than common carts; the bottoms of the sides of these carts project like handles behind the cart, to prevent it from falling too far backwards when empty, and to assist the carter in unloading".

The same writer noted that this type was also common in the Low Countries and in many parts of France, and that in Ireland: "the Scotch or Leith cart, as it is called, though it costs full three times as much as a common car, is becoming general in every part of the country, though it has not been introduced into it more than five or six years" (Edgeworth 1813: 100, 103).

Thus, whilst the wagon made considerable progress in the early stages of adoption for farm work, spreading right into parts of Wales (Peate 1935: 231—2; Jenkins 1973: 270—293) and just reaching the south of Scotland, nevertheless it suffered a reversal during the nineteenth century when the Scotch cart pushed it back again. It is evident, therefore, that chronological factors must be kept firmly in mind when mapping carts and wagons in Britain: the distributional patterns, for, say, 1700, 1800, and 1900 will be very different. The interpretation of the factors — economic, social, technical, geographical — that give rise to such differences is a matter for regional research, which must eventually be slotted into wider issues, and if this is done cartographically, then selection must again be exercised. In British terms, both the four-wheeled wagon and the flat-bodied Scotch cart with its fixed shafts have relevance to the wider European pattern. The dynamics of their interaction within the national boundaries may help to explain, or provide comparative data for, parallel phenomena in other regions.

For such comparison to be readily carried out, more studies like F. Galhano's *O Carro de Bois em Portugal* (the ox cart in Portugal) are required. This, complemented as it was in the year of its publication by a companion volume on the yoking of oxen (Oliveira, Galhano and Pereira 1973), is a substantial contribution to the study of the cart. The data is summarised in the form of a distribution map that distinguishes four main cart types, according to the form of the body, suspension, and wheels. Chronological depth is given to the map by the use of red symbols for carts recorded for the period 1960—70, and blue symbols for those of earlier periods.

Galhano pays close attention to the influence of topography in relation to distribution and type. In the flat regions of South Portugal, carts have been at home for centuries. In the hilly parts of North and Central Portugal, carts were fewer in numbers, and mainly restricted in use to the roughly-paved roads. Here, river-transport and sledges were the common alternatives.

In the northern half of the country, the draught animals were exclusively oxen, attached by yokes to the central draught-pole, and the carts had movable axles that turned along with the block wheels. In the south, there were carts with spoked wheels that turned on fixed axles, drawn by teams of two or four horses or mules, known from the late eighteenth century. The northern type, therefore, is the older stratum.

To understand and map the Portuguese situation properly, Galhano has in the first instance examined the technical factors — body construction, axle and wheels, and the influence on the cart of the kind of the draught animals. To continue his survey in equivalent depth over the rest of the Iberian peninsula would help to round off the picture that has begun to be painted here (cf. Ebeling 1930: 54—94, 143—145).

At the same time, it is of importance to observe the effect on the carts of the use of pairs of yoked oxen. Usually the draught-pole is single, and runs straight back under the cross-planks of the cart floor. In other cases the side supports have been brought forward and curved together to join at the front forming a single pole to which the centre link of the yoke was attached. This latter form involves skill on the part of the joiners, and was enforced by the use of oxen and the wooden yoke. It would have been much simpler to extend the side supports to make a pair of shafts, as happened in the case of the Scotch cart, which may well have developed out of a wain with a single central draught-pole, after horses replaced oxen as draught animals. Under such circumstances, it may be argued that for international mapping, the important constant feature is the flat body construction and the single pair of wheels, whereas the draught arrangement is dependent on external factors less directly related to the nature of the vehicle.

OF THE TWENTY CONTRIBUTIONS in the volume *Land Transport in Europe* (Fenton, A., Podolák, J. and Rasmussen, H. 1973), seven are concerned with wheeled vehicles, in Scandinavia, Scotland and Wales, Austria, Bulgaria, Czechoslovakia, and Poland. None of these is a detailed study of carts and wagons, but some relevant points may be extracted.

In feudal Poland, a light one-horse cart was in use alongside a two-horse wagon for agricultural work and short-distance transport, and the four-horse wagon for longer-distance and often commercial transport. The one-horse cart could have fixed shafts like the Scotch cart, or they could be separable. In North-East-Poland, the shafts were linked by a bow-shaped *duha* from at least the sixteenth century (Jewsiewicki 1973: 300—2).

Carts with central draught-poles, implying ox draught, are not mentioned by Jewsiewicki, but they occurred, though rarely, in Czechoslovakia. They had block wheels. Light carts with flat bodies and pairs of shafts were, however, more common. Jewsiewicki's point about the unimportance of the distinction between two-wheeled carts and four-wheeled wagons is emphasised when Baran describes the small carts of southern Wallachia in Central Slovakia as being "in fact, half a four-wheeled waggon, essentially lighter and more convenient for mountainous terrain with steep fields" (Baran 1973: 76). In turn, this raises the question of whether the cart evolved from the wagon or the wagon from the cart. This question can only be resolved with reference to local conditions. There may be no generalised answer to it.

In the mountain areas of Bulgaria small carts with draught-poles were in use, and larger carts for carrying meal, grain, etc. complemented wagons elsewhere. Some of the carts had shafts within which the ox or horse walked (Marinov 1973: 367, 370). Generally speaking, the two-wheeled carts were mostly confined to the hilly regions, and some were similar to the front end of a wagon, except that they had smaller spoked wheels. Elsewhere the wagon was the normal vehicle, with a versatility body that could be lengthened, shortened, or made narrower, depending on the load to be carried. The only major variant feature is the stake-brace linking the outer end of the axle with the upper end of the corner post of the wagon body, as found in North Bulgaria (Vakarelski 1969: 131—133).

Apart from the increasingly elusive differences between carts and wagons, three features may be selected here for examination: the stake-brace, which appears to be confined to wagons; the use of shafts as against a central pole; and the *duha*, which is associated with pairs of shafts, whether fixed or movable.

Berg records the distribution of the stake-brace as including, in whole or in part, Albania, Austria, Czechoslovakia, Germany, Hungary, Yugoslavia, Lithuania, Poland, Rumania, Russia and Sweden (Berg 1935: 165—7). Ten years earlier Nopcsa had suggested that the stake-brace was a Slavic feature (Nopcsa 1925: 139). Berg's noting of the feature over a much wider area showed that Nopcsa's thesis could not be readily maintained. Furthermore, the name for the stake-brace found in some form or another in numerous Central European languages appears, like the names for a number of other cart and wagon parts, to be German in origin, even though the subsequent wider spread may have been through Hungary and other countries (Czekanowski 1952: 10—12). It can be seen, therefore, that a combination of the precise mapping of the full distribution of a feature such as this, in alliance with a study of the terminological data, serves as a valuable corrective to theories based on insufficient evidence, and provides clearer historical perspectives.

The use of pairs of shafts, implying horse-draught, is said to have reached the West with the Germans, who must have got them from the Slavs. They were used on both two- and four-wheeled vehicles (Czekanowski 1952: 4—8). Amongst the Baltic peoples and the East Slavs, with the exception of areas such as Estonia, South West Finland and North Kurzeme, the horse is usually regarded

as the earliest draught animal (Viires 1964: 2), hence the early use of shafts. The pendulum kept swinging, however, for though the horse was apparently the earlier work animal amongst the East Slavs, it was later in part replaced by the ox in White Russia and the Ukraine (though not in areas such as the Steppes). In Lithuania the ox appeared alongside the horse in the thirteenth century, and had become general by the fifteenth-sixteenth centuries. Eventually the horse came back into its own, for a bad horse was cheaper than a pair of oxen. The use of equids or bovids, therefore, was likely to effect changes in the incidence of use of pairs of shafts, or of central draught-poles. In the 1920s, for example, the East Slavs usually used a pole and yoke for oxen, and a pair of shafts with a collar and bow (*Krummholz* or *duha*) for horses; but west of the Dniepr, in South-West Ukraine, a pole was standard for both horses and oxen, and neither collar nor bow were used (except in one or two districts). Here shafts were found mainly on sledges drawn by single horses. There were also areas where the pole was unknown (Viires 1964: 2; Zelenin 1927: 130—131).

Such regional variety is in part a reflection of the earlier historical changes that have taken place in the kind of draught animals employed, and also in relation to changes in harness, such as the adoption of the collar that allowed the horse to oust the ox from heavy ploughing. The bow or *duha*, that appears to go back to the fifteenth century in Russia and the Baltic (Viires 1964: 4), helps to hold the shafts apart and acts as a kind of shock-absorber on rough roads. It is regarded as a later improvement in Poland (Moszyński 1929: 659), and it therefore seems to have spread from its kernel area of early horse-draught, but it is unlikely to be as old as the use of pairs of shafts themselves.

Though the stake-brace is limited in its distribution, nevertheless it is such a readily recognisable feature, with such a well-defined terminology, that it might well be included in a map of special features of wagons. It has a history of at least 500 years, it remains in use, it can point to historical situations of both a national and international character, and it also has importance from the technical point of view. For example, in North Poland wagons had stake-braces only with rack-frames, whereas in the south they were used with dung-wagons as well (Czekanowski 1952: 12). Such variations have been ascribed to ethnic influences, but it is preferable not to prejudge this issue until the full distribution has been mapped, and regional historical situations annotated.

The second and third features referred to, the shafts and bow or *duha*, clearly relate closely to the kind of the draught-animals. The brief comments made above, allied to points already made such as the likely pre-eighteenth century existence of central draught-poles on wagons or wains in Scotland, show how complicated this aspect of transport is. The distinctive *duha*, like the stake-brace, could and should be plotted (for a recent study, see Viires 1971), but the question of paired shafts and central draught-poles depends very much on period, and it would probably be just as relevant to plot the distribution of equids and bovids as draught-animals, as the draught-arrangements for the vehicles themselves. It is not certain that either of these tasks could be done easily for an international

atlas, for lack of adequately researched comparative data, nor that a sufficiently clear picture would emerge, because of the number of possibilities for regional variation and preference in relation to social, economic, geographical and other factors, though the effort would be worth making. The issues are further obscured by small points, like the fact that oxen wearing collars may also be found within a pair of shafts, and in parts of Central Europe a single horse may often be seen pulling an empty or lightly-laden wagon, yoked to the side of a single draught-pole.

IF THIS IS ACCEPTED, then we can begin to think about what would be of positive immediate value for purposes of international cartography. The simplest matters to deal with are such readily identifiable features as the stake-brace. But of more general value would be to establish the distribution of farm-vehicles with two or four wheels, or even three wheels, as in some parts of the Low Countries where the custom developed of adding a third wheel to the fronts of dung-carts, possibly in the late eighteenth — early nineteenth century (Theeuwissen 1969). Such three-wheeled varieties, however, may be of more local than general significance, and do not affect the main issue, which would be to test the validity of the cart and wagon zones outlined by Professor Berg and subsequently adopted by writers such as J. G. Jenkins.

In his notes on the mapping of European carts and wagons prepared for the European Ethnological Atlas Meeting at Visegrád in 1974, Professor Berg stated that he regarded, as being of main importance, the establishment of the distribution of three main varieties of farm-vehicle: the Mediterranean cart, drawn by a pair of oxen (occurring sporadically as far north as South-West Finland); the Central European wagon, drawn by a pair of oxen or horses; the North European wagon, usually drawn by a single horse.

It might be preferable in fact not to apply such specific adjectives as "Mediterranean", since this could pre-suppose a concept relating to a point of origin, which might later have to be adjusted.

Professor Berg considered that if specific aspects were to be taken further, then the following points might be looked at:

1. For carts, the distribution of block wheels and perhaps of rotating axles.
2. For wagons, the different devices for lengthening and shortening the body.

Since the fixed or adjustable wagon-beam is "the distinguishing characteristic of European wagons" (Berg 1935: 158), it deserves particularly close attention. Like the keel of a ship, this beam is the foundation on which the rest of the wagon is constructed, whatever the kind of body fitted. And it is hard to avoid thinking, at the same time, of the central draught-poles of the Portuguese carts described by Galhano, which are carried back in one piece as the main support for the cart body. If such a correlation is valid, it can establish a further formal link between the cart and the wagon. As long ago as 1929, Moszyński constructed a diagram showing a variety of wagon-beam types (Moszyński [1929] 1967, I:

653), which could now be supplemented by incidental information from a variety of sources (e. g. Moora and Viires 1964: 126; Dunáre 1972, I: 369—371; Fél and Hofer 1974: 424—5; etc.). Carts as well as wagons could be included in a survey of the structural forms of the bases of wheeled vehicles.

Mechanisation has so overtaken animal-drawn farm-transport in so many areas, that the mapping of carts and wagons has already become in part a historical exercise. Nevertheless such vehicles survive widely still, and where they do not, they often lie within memory. The time is ripe, therefore, for a general survey based on a select number of the most important and most readily comparable elements.

In the foregoing pages, a number of regional studies were looked at to see what problems and what common features were to be found. Gösta Berg's *Sledges and Wheeled Vehicles* comes closest to being a general survey, and in this respect, there now falls to be examined a much more recent work — Wolfgang Putschke, *Sachtypologie der Landfahrzeuge*, published in 1971, and relying on data known to him published up to about 1966 (see Putschke 1971: 16, for a list of studies that go beyond regional boundaries).

Putschke's technique was to look at the subject widely in time and space so as to examine questions of origin, development and diffusion. However, because the scope of the subject is so vast, and because there are such large gaps in the information available, he had to apply to his study of this aspect of material culture a technique more commonly used by word geographers. The publication is part of a dissertation on *Worttopologische Untersuchungen im Sach- und Nennstruktur der Landfahrzeuge*, presented at Marburg in 1966. This involved taking two synchronic sections at an early and a later period, that may be labelled "archaeological" (prehistoric and early historical) and "ethnological" and examining the evidence for each period in terms of *Sachtypologie* and *Sachkartographie*. Two periods were then set in relationship to each other through the needle's eye of *Sachprojektiv*. This attempt to use ethnological evidence inferentially to expand and clarify the archaeological evidence is bold and interesting, though it need scarcely be pointed out that the work would have benefited from the existence of a better range of detailed ethnological studies. Relatively speaking, the archaeological side has been much more intensively studied, as Putschke's wide-ranging survey of the literature shows. It is also no surprise that the complexity of the subject should have brought Putschke to the conclusion that:

"der Entstehungskomplex des Landfahrzeuges nicht auf eine monogenetische oder polygenetische Ursprungshypothese zu reduzieren ist, sondern auf ein vielschichtiges Abhängigkeits- und Bedingungsverhältnis führt" (Putschke 1971: 98).

It is evident, in fact, that material culture, which can be affected by so many diverse factors, is less amenable than words or names to the kind of methodological approach used by Putschke, and his effort to reconstruct the course of development between the periods of his two synchronic sections does not quite come off. Nevertheless the book includes many valuable pointers to profitable

directions for future activity, and for present purposes provides a useful guide for thinking about the mapping of carts and wagons.

The primary purpose of such mapping, on a European scale, is to establish an accurate, cartographically expressed corpus of factual data which will reveal patterns on the basis of which theories relating to evolution, diffusion, etc. may be reliably based. At some stage complementary maps relating to types of draught animals, and to wheelless forms of transport, will be required to fill out the picture properly, but a start can be made by mapping types and typological features of carts and wagons, with emphasis on the basic elements — wheels and axle, frame and construction, draught equipment and draught animals. The function of the vehicle also has a close relationship to its body structure. Furthermore, it might be wise not to worry too much about differences between carts and wagons in the first instance, for these are not everywhere mutually exclusive as vehicle types.

The distribution maps made by Putschke are interpretive. In pursuing questions of origin, evolution and diffusion, he maps the various aspects of his subject in the light of possible antecedents, and marks likely lines of diffusion with arrows. The maps that are most straightforward and most relevant for our purpose, set against each other — in exemplification of the *Sachprojektiv* approach — the archaeological and ethnological evidence for the distribution of wagons with and without wagon-beams, and of two and three-wheeled vehicles with draught poles or shafts. The maps are, essentially, visual reference summaries for the detail of the text, and though they are small, they are nevertheless instructive and coherent enough to show that the mapping of carts and wagons for the European Ethnological Atlas can be a feasible and fruitful proposition.

FOR THE SAKE OF SIMPLICITY, a map or set of maps of farm-vehicles should be limited in the first instance to typological or structural questions. In this respect, the discussion so far suggests that amongst the basic points for inclusion in a survey or questionnaire should be:

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|---------------------|---|
| A. Wheels | <ol style="list-style-type: none"> 1. The number of wheels 2. Whether they are block — or spoked-wheels. 3. Whether the axle is fixed or movable. |
| B. Body and Draught | <ol style="list-style-type: none"> 4. The presence or absence of a central main-beam. 5. The form of the central main-beam; including, for wagons, the method of linking the front and rear elements. 6. The presence of side-beams. 7. Whether the central main-beam is extended forward to form the draught-pole; and the type of draught animal. 8. Whether the side-beams are extended forward to form a pair of shafts; and type of draught animal. |

9. Other means of draught (e. g. by traces).
10. The form of the body - (a) with rungs
 - (b) with rungs and strake-brace
 - (c) box
 - (d) other.

With these ten points, so much information could be gathered that further selection for European mapping purposes would be essential, but selection is easier on the basis of too much than of too little. National or regional ethnological atlases are able to include a range of data with the minimum of generalisation; but the small scale of the European Ethnological Atlas will make acceptable generalization much more of a problem. For this reason, it will be necessary to ensure from the start that only the essential features with the greatest possibility for interregional and international comparison, at equivalent periods of time, should be selected, which means that in the end, some of the points listed above (eg. the means of draught) may have to be omitted from the map, though they must, of course, feature in a commentary volume.

Published work shows unambiguously that the mapping of animal-drawn carts and wagons used in farm-work is of value for comparative ethnological research. With careful selection of the features to be plotted, and attention to the chronological comparability of the evidence from published or questionnaire sources, a sound basis should be provided for relating the theme and its various features to geographical space, and new patterns and relationships should become evident. In this it should fulfil the basic function of an ethnological atlas.

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