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## CONFERENCE REPORTS

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### *Transport and Economic Development*

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Discussion of the role played by transport in the general development of productive forces has been going on for some time. It has, however, become particularly prominent ever since the problems of economic growth became a central concern of economic history, with important results and consequences which need not be discussed here. The problem is one of the greatest urgency and relevance today; the relationship between the developed and the backward within a world market which is unified on a capitalist basis, leads us to examine the history of individual peoples, the ways in which their individual societies were organized, the major and minor themes of their historical development, and in particular their position in the network of international trade. There is a growing tendency to see the industrial revolution, and the different ways in which it came about, as phenomena which can only be explained in relation to both the age of mercantilism and even earlier periods, in terms of the role played by individual nations in the international market and of their individual capacity to form structures appropriate to changed circumstances. In order to understand the contemporary world we must then return to the period between the 13th and 18th centuries, when the ways in which different nations were to emerge from their pre-capitalist forms were taking shape.

The annual meeting of the «study week» organized by the *Istituto Internazionale di Storia Economica Francesco Datini* at Prato, now in its fifth year, concentrated on many of these problems. At the same time it also showed clearly how much research still remains to be done in international economic history before these problems can be fully defined in a satisfactory and integrated fashion. The majority of the papers and reports given were

preliminary and initial surveys, forming the substance of a general pattern which still remained indistinct, rather than a sustained attempt to relate individual problems to the general themes before the conference. One general problem which was particularly neglected and which, in our opinion, is of central importance in any attempt to establish the specific relationship between transport and economic development in general, is the gradually changing function of trade during the centuries in question. Trade changed from being a subordinate in the feudal economy to being the focal point of capitalist accumulation, and then again it finally assumed a subordinate position in the manufacturing economy, as a result of a highly tortuous process which differed greatly from one geographical area to another but which, directly or indirectly, influenced the world economy as a whole. During this process social and economic characteristics, as well as technical and juridical forms, were adopted which enabled it to perform the function it assumed. The broadening of communications upset the way that primary commercial profits, dependent on the imperfections of the feudal market, were extracted, and heralded the struggle waged for privileges and monopolies by the great commercial companies and the states which protected them. By reconstructing, then, an imperfect market at a different level, the rates of profit were maintained at a very high level and extended over a much wider scale, which enabled a process of massive accumulation to get under way. But even the mercantilist phase was destined to come to an end, and at the end of the period under discussion the commercial sector took an active part in the wider struggle to form a free, general market. But to describe this evolution in a less schematic and commonplace fashion, relating the various economic and social dynamic of different areas to it — that is, to that set of problems posed at the start — requires much more detailed examination as the labours of the conference illustrated. There were then no great leaps forward. In fact, faced as it was by the great range of new ideas and new methods, the Prato conference would seem to illustrate economic history retreating back to documentary and individual sector analysis — from which some new synthesis may, let us hope, emerge.

In these pages we shall attempt to select some of the problems posed by the papers that were presented, postponing closer examination of the individual studies until the publication of the transactions. Melis, who fell seriously ill just before the conference, was unable to present his introductory paper and the proceedings were opened by Luigi de Rosa who read a brief summary of his paper entitled «Land and sea communications and economic depression: the case of the Kingdom of Naples in the 14th-18th centuries». It was the author's aim (which was, to tell the truth, reflected in very few of the papers that were presented) to relate the lack of development in transport in Southern Italy to the lack of general economic development in the region, and to define the ways in which each of these influenced the

other. This was done without using any schematic or *a priori* models, following the author's own individual approach to historical problems. The paper traced the changing factors through the centuries — the depopulation of the plains, indiscriminate deforestation and irrigative chaos, the fiscal policies of various governments and the inadequacy of the measures taken in this field — which left the condition of transport unchanged. The length of journeys remained extremely long, roads were in an appalling state, even on the most frequented routes, coasting trade predominated over trade by land, ports were connected with the hinterland only by muletracks, and foreigners dominated international trade. The consequence, and at the same time conditioning factor, was backward agriculture, the meagre commercialization of which was hardly compensated adequately by fairs. In fact, as Paolo Macry argued in a comment on the paper — with which de Rosa partly agreed — even in the second half of the 18th century the Kingdom of Naples was divided into zones which in terms of cereal prices were quite separate and which were only provided with some form of communication through an extremely oppressive intermediary commercial structure.

De Rosa's paper, then, provided interesting indications of a type of research which would make it possible to relate the various areas studied to international economic relations, starting from the conditions of the individual internal economies. But in fact the conference tended to follow various themes within the general documentary and research methodology framework which we have mentioned, which, even if they gave no precise overall picture, did illustrate the wealth of topics related to the general problem under discussion. The technological problems involved in the development of transport in Central Europe in the 13th century was examined by the author of the second paper, Dunin Wasowicz. The Polish historian outlined a study of their development over the whole period preceding the expansion of the railways (which obviously altered the whole nature of the problem) relating them directly to the development of sea and river transport. This is of fundamental importance if one is to avoid a barren study of the internal development of transport techniques and tackle the concrete economic choices made by man in this sector. It was, for example, no accident that the four-wheeled cart, interesting illustrations of which the author provided from archaeological evidence, was, as a result of the invention in the 13th century of harnesses that multiplied horse traction power, immediately put to use in the Alpine passes. Even though their waterways were more developed than is often thought, they were both longer and more difficult to use.

We returned to the sea with a detailed paper given by Heers, entitled « Political power and economic power in the Mediterranean: the maritime nations and the transportation of men (warriors, pilgrims, merchants, slaves: from 1,000 to c. 1,500) ». Heers followed the lines laid down by the studies of Verlinden, Mollat, Lombard etc., which he developed and expanded on

the basis of mainly Genoese documentary research. He emphasized the importance of human transportation in the political and economic development of the Italian maritime cities, in particular Genoa and Venice, and he explained the relative decline of Pisa in terms of its failure, among other things, to participate in the wave of passenger transportation brought about by the Crusades. Apart from this and other important ideas and suggestions which occurred throughout the paper, its originality probably lay in the basic plan he adopted, in which he sketched out the history of passenger transportation in the Mediterranean over five centuries, moving from the development of Genoa as an assembly point for the Crusades to Venice's role in organizing pilgrimages to the Holy Land, from the traffic in slaves, which did not give rise in these centuries to the independent and specialized commercial organization characteristic of the age of the slave trader, up to the age of those worn out passengers who had to find room amongst the merchandise. Heers also provided a page in the history of techniques: the ships which specialized in human transportation were quite different from galleys and were also of considerable importance in the development of sailing ships, which would gradually supplant galleys on the seas of the world in the following centuries.

Finally a detailed paper given by Von Stromer on « Emperor Sigmund's continental blockade of Venice 1412-33 and the displacement of the inter-continental transport routes » argued that although this blockade did not have major political results it allowed the great Upper German manufacturing centres to free themselves from their absolute commercial dependence on Venice and open up alternative routes towards the Black Sea in one direction and toward Genoa and the mouths of the Rhone in the other, which were to continue well beyond the end of hostilities. In a certain sense, then, the continental blockade must have given Southern Germany an awareness of its own strength. But this strength was already both considerable and assertive, and its commercial undertakings together with its ability to react, which this situation illustrated, would have been extremely difficult had this not been so. Basically however, unless further evidence proves to the contrary, we must play down Von Stromer's description of the crisis as a turning point in Upper German economic history. The age of the Fugger had as its background not only the readjusting of commercial relations with Venice as a result of the blockade, but also several centuries of economic activity, especially in manufacturing, which had made Southern Germany the workshop of Central Europe. The suggestion with which the German historian closed his study was also of the greatest importance. He claimed that it was the awareness of its commercial vulnerability, made obvious during Sigmund's blockade, that drove Venice to turn towards the mainland. Here, too, Von Stromer opted for bold and clear-cut conclusions, and again his final suggestion was related to his overall assessment of the episode in question as a

moment of radical change. But historical developments do have some point of departure, even if attempts to reveal them run the risk of emphasizing only certain aspects of the phenomenon as a whole.

The very detailed study by Van Houtte in his paper on «The great trade routes between the 13th and 18th centuries» opened the second day of the proceedings. His work was meant to be simply «an introduction to a historical geography of communications' but here also a great deal remains to be done. The outline offered to us by the Louvain historian seemed extremely clear and successful, and we can only hope to see it soon included in a fuller and more comprehensive study. Its background is a Europe whose climatic stratifications, following both meridians and parallels, map out regions which were potentially naturally complementary — a potential that was expressed in the emergence of two foci of commercial and manufacturing development, North Italy and the Low Countries. These absorbed the raw materials which were provided by more backward lands, consumed them and then exported them in manufactured form. The great trade routes developed around these two poles. Van Houtte located three of these routes running in an east-west direction, and three more which intersected them perpendicularly. The northernmost of the transverse arteries connected the Baltic to the great markets of the Low Countries, first Bruges, then Antwerp and then Amsterdam, bringing products from the Russian forests and then, as cultivation of the region developed, flax, hemp and cereals. To these were added cereals from Poland and minerals from the Carpathians, which reached the sea routes by way of the Oder and the Vistola, together with minerals, fish and dairy products collected at Lubeck from the Scandinavian regions, and finally cereals and beer from the German coasts of the North Sea. The reverse current was fed by the influx into the Low Countries of products from wide areas of Western Europe and included wine, fish, salt, spices and various manufactures. A second great route crossed Central Europe in the same direction and also found an outlet in the North Sea: it carried spices gathered in the Italian colonies on the shores of the Black Sea. The Turkish conquest pushed the starting point of this route back to Lvov and changed the nature of the goods that travelled along it: spices were replaced by livestock, forestry products, minerals from the Carpathians, manufactured goods from Upper Germany and woad from Thuringia. In the other direction, textiles from England and the Low Countries fed the great central European market. Although not for long, the Turkish conquest at the same time restored a monopoly of the spice trade to the third great transverse route, the Mediterranean. But this alone was not sufficient to exhaust Mediterranean trade, which even after the great geographical discoveries still drew the Dutch and the English who wanted to export cloth. And now the longitudinal routes. The route from Archangel to Astrakhan, which was opened up after the Swedish conquest of the Baltic coasts and which declined with

the foundation of Petersburg in 1703, was the furthest east. Dutchmen and Englishmen from the Muscovy Company found the complete range of products from the immense Russian plains concentrated at Archangel, and they bought these in exchange for those goods which so much attracted the Westernizing Tsars. The westernmost of the European lines of communication also started at Archangel, edged round the entire continent gradually absorbing its surplus products, and then merged with the Mediterranean axis at the Straits of Gibraltar. Finally there was the direct land route between the two principal poles of development in Europe between the Middle Ages and the modern period, the Low Countries and North Italy, for which Van Houtte referred back to the specialized studies by Kellenbenz and Brulez. This, then, is the broad network of the great European routes, even though space permits us to discuss only their 'permanent' features, as our remarks show, but not their changes and development.

The wide range of the subsequent papers helped to fill out the sketch Van Houtte had drawn. Kellenbenz tackled the subject of transport between the Rhineland, the German ports on the North Sea, and the Alps, concentrating on methods, costs, men and goods rather than on the geography of transport and drew on an extensive and not easily accessible range of documents. Stols on the other hand examined the trade between the Low Countries and Spain and described the nature of the goods, the role of land as opposed to sea routes which predominated from the 13th century, and the reasons for the undisputed Dutch predominance on the route in question. Rutemburg described various European lines of communication using two Italian chronicles from the 15th and 16th centuries, those of Bonaccorso Pitti and Sebastiano Arditì which also contain a great deal of political and diplomatic information. River traffic was the subject of the papers given by Bautier and Wyrozumski, in terms respectively of France in the Middle Ages and Poland between the 12th and 18th centuries. Bautier's paper was particularly interesting, for after giving definite evidence of the fundamental importance of this type of transport he introduced a whole world of characters, both rich and poor, who lived on the rivers, accompanying goods, overseeing shipping operations or ferrying passengers. This world Wyrozumski left in the background in order to deal with the basic changes in the Polish economy and in particular the great growth in the quantity of grain exported from the 15th century, taking as a starting point the great volume of traffic absorbed by the Vistula — which he defined as 'one of the principal factors in the whole economic and social structure of ancient Poland'. Referring to the insubstantial nature of the technical innovations in river shipping over the centuries Wyrozumski reminded us that these were employed only once, in order to transport heavy export goods from the heart of Poland in the direction of the current, while import articles (luxury goods, fish and textiles) penetrated the interior by land. The relatively greater monetary value of

the latter meant that they were able to sustain the greater unit cost of land transport and at the same time did not create a demand for technical innovations in navigation techniques which would have made shipping against the current possible. A further examination of transport techniques was given by L. Makkai who, following Dunin Wasowicz's discussion, looked in detail at the improvements made to the cart in Central Europe which ranged from suspension to revolving couplings, the steering axle and the brake. Then there followed two other papers on important specific problems. In the first of these Philippe Wolff discussed the reasons why the isthmus of Aquitaine did not perform the function of a link between the Mediterranean and the Atlantic which nature would seem to have ascribed to it. He referred of course to Pegolotti, and drawing on this and on his own studies on the topic the author concluded that, due to the numerous tolls that had to be paid and because the journey involved travelling both by river and land thus involving costly and difficult trans-shipments, the sea route proved to be much more economical even with the navigation techniques in existence in the 14th century. Wolff also referred to the hopes that were later aroused by the construction of the 'Canal du Midi' which subsequently proved vain. Even today the Mediterranean and the Atlantic still preserve the forms they had in the medieval shipping charts. The other paper by Pickl attempted to give a precise picture of the quantity, as well as the organization and the overall economic importance of the trade in livestock in Central Europe. A number of research suggestions were outlined but, as the author warned, their realization would depend on the degree of international collaboration that could be achieved in the study of this commercial activity which has left so few traces in the archives of individual countries. This is an old and painful problem to which Kellenbenz had already alluded.

The last paper of the day, which Cipolla devoted to « Transport, quarantines and lazarets 1450-1650 » deserved particular attention. In the absence of progress in medicine in the centuries when plague was endemic, attempts were made to discover preventative measures, which of course affected trade in so far as it was itself a principal cause of contagion. Thus emerged the basic structures of hygiene and sanitation: sanitary officers, lazarets, the sanitary cordons on the borders of the state or the city, and compulsory disinfection. Cipolla gave a lively picture of the conflict between the world of trade and the economy in general, which was dramatically affected by the anti-contagion measures that were carried out, and the responsible authorities. Sometimes a single uncontrolled voice was enough to unleash mass psychoses which made it necessary for governments to put these measures into effect, with their normal sequel — the halting of communications, the destruction of suspect goods and the closure of artisan shops. The merchants struggled with all their might to prevent the news from spreading and even threatened, as in Busto Arsizio, the doctor who

claimed to have discovered a case of plague. But fifteenth century institutions were destined to survive for a long time, and only with the coming of free trade between the end of the 18th and the beginning of the 19th centuries did the merchants succeed in defeating them. It was an easy victory, however, since the epidemics no longer had the virulence of the first centuries of the modern period.

On the third day the problem of economic development was in the forefront, beginning with the paper by M. Małowist who used his vast experience in this field to relate the changes in commercial routes, methods, and techniques, in Eastern Europe to the economic and social changes in progress. Fifteenth-century Poland had relatively good roads, Małowist stated, drawing on the description given of them by Ambrogio Contarini who in 1463-5 travelled in person the entire route from Moscow to Nuremberg, although as a tourist rather than a merchant. Poland impressed him particularly as a country that was poor, although less empty than the Russian steppes, whose immense resources the world of trade was learning to appreciate. The journey was safe, however, and made more pleasant by the places of refreshment, and a cart could cover from 30 to 50 kilometres a day. In fact in the 13th and 14th centuries Polish roads had been capable of sustaining the increase in traffic that paralleled the region's general economic development, and of carrying a considerable export of salt towards Hungary, Bohemia and Silesia in particular. This was usually paid for with either high-quality Flemish textiles or else the more standard German cloths. At the time of Contarini's journey, however, and from the second half of the 15th century, the importance of the roads was slightly reduced in favour of the great river artery formed by the Vistula. The basic factor was that Poland's role in the international economy had changed due to the influx of its grain and timber on the trade route that connected Russia and the Low Countries. The latter were always in increasing need of foodstuffs because, as Van Houtte noted, they were in general spared by the Black Death and had already embarked on the road of manufacturing. The increased production of cereals under the stimulus of the international market was coupled with increased subjection of the serfs and the cementing of feudal structures. It was in the context of 'serfdom' and its economic roots that Małowist placed the development of Polish river traffic for which Wyrozumski's paper had provided no explanations.

The papers by Fryde, Kotelnikova and Ponsot attempted to consider the problem of transportation within the framework of the economic and social life of a single region. Fryde's task in tackling the problem of transportation in Wales in the late Middle Ages appeared particularly difficult and praiseworthy when one thinks of the shortage of primary documents for these zones which were cut off from international trade. But we did not under-

stand the use in reference to medieval society in Wales of the term 'under-developed', which is taken from the historical and economic debate on the contemporary world and which requires many qualifications if it is to be attributed to such distant contexts. In Kotelnikova's study the description of Tuscan trade routes between the 12th and the 14th centuries and the examination of the agrarian structures of the region, where payment in kind and in money still exist side by side, seemed to be juxtaposed rather than correlated in an attempt to study the reciprocal influences of these two aspects of economic life. However the Russian scholar's suggestion that we should see the struggle between the communes and the feudal lords also as a question of the control of the Apennine passes which gave access to the North was of great interest. Ponsot's paper entitled «Western Andalusia: the trade routes in and between regions and economic development (16th to early 19th centuries)» was very thought provoking. Its point of departure was of course Ringrose's recent work «*Transportation and economic stagnation in Spain*» (Durham 1970). Ponsot presented his study as a general research programme through which he proposed to define the reasons for the survival of a flexible transport system capable of adapting itself at any moment to the immediate necessities of the economic life of the region, but which was still very backward. Since there were very few roads that could be travelled by carts, drawn usually by oxen, overland transport was effected by ass or mule, along mule-tracks that were often subject to the ravages of the weather while the river and coastal trade was carried by small craft. Ponsot provided both a precise quantitative picture of the condition of commercial routes in the region, drawn from an administrative inquiry of 1750-51, and a micro-economic analysis of costs which enabled him to conclude that if the transport system in question 'scarcely brought about profound changes in production, it did not however prevent the growth of certain sectors and, what was more important to contemporaries, made it possible by and large to meet crises'. Finally he provided an interpretation of the cultural fashion of 'voluntarism' — the practical application of which to planning, even in terms of transportation, was noticeable especially among the Andalusian intellectuals — which was valuable because behind the new projects of varying degrees of practicality he was able to identify the interests, needs and dissensions of a ruling class. The structure of this agricultural economy which was so little commercialized obviously needs to be analysed more closely, and Ponsot promised us an '*étude globale*' the results of which promise to be of considerable importance. Ruiz-Martín put forward a very sound suggestion in a comment on this paper when he observed that there was a link between the large agricultural estates and international trade, and that conversely, in areas of small-holdings like Bilbao there was more intense internal traffic and communications that were made more effective by an active and independent local middle class.

The other two papers followed different lines and took up again the themes of the preceding day. M. Devèze discussed the floating of timber on the great European rivers in the 15th and 16th centuries and related this, in terms of demand, to the growth in sea trade and the resulting need for timber for ships (for example, the floating of timber on the Rhine towards Holland accompanied its emergence as a maritime power of world importance) and in terms of supply to the extension of cultivation in Europe which was resumed after the crisis of the second half of the 14th century. Devèze also described the geography of timber floating in Central Europe, the nature of the commercial enterprises involved, the techniques of transport, among the more important being the fact that the floated timber was bound into rafts on which both goods and men were then placed. Rakmatullin traced the development of transport routes in Russia in the 18th century, from the paving of some of the roads to the opening of the first navigable canals which closed the gaps in the immense river network which was already in operation and immediately created an umbilical cord destined to tie Russia to the West (which was increasingly held up as a model of civilization) and finally to the attempts to use steam power on the river boats. This was a careful and well documented description, but no more. An investigation of the role of the development of means of transport in relation to Russia's general development in the 18th century, in which the growth of some fundamental economic parameters did not, it seems, conflict with the permanence of productive structures and the extremely backward relations of production, would have been of the greatest interest.

The introductory paper of the fourth day, on « Technology and productivity in seaborne transportation » by F. C. Lane was a systematic analysis of the problems posed by the technological development of sea transport which was full of implications for the history of technology in general. The problem which the American historian posed, in an extremely interesting way, concerned the relation between technical innovation and economic development. According to him there was no mechanical connection between the two: 'Technology moves ahead, creating potentials for economic growth which are realized only later when political and economic developments become favourable'. In other words it is the general historical situation which selects among the technical armoury available in a specific age the most suitable solutions, and it is not, conversely, technology that alters the basic reality of the historical situation. 'The timing of increases in economic efficiency', Lane stated, 'correlates more closely with political and economic changes than with technological innovations. New techniques were applied only when their use was made profitable by the commercial situation and particularly by the degree of political and military security at sea'. The entire analysis which he developed in his paper justified this argument. Starting from the findings of recent studies on the 17th and 18th centuries he

examined the possibility of applying their methods to previous centuries, which provide fewer data on which input-output calculations of the measurement of the developing productivity of maritime transport might be based. His conclusions were, however, identical even for the period between the Middle Ages and the modern period: 'Just as, three hundred years later, the technology represented by the flyboat was not applied generally because piracy made more defensible merchantmen more profitable, so in the fourteenth century, the need of defence against hostile action, either pirates or warring enemies, required crews larger than were needed for harnessing winds'. One would be on the wrong track if one attempted to relate the merchants' behaviour to calculations of pure economics — abstractions which are not met in the real world of history. This conclusion is indisputable, even if, as Braudel was to stress in the subsequent discussion, the model of interpretation presented by Lane would have gained in breadth and value if the social context had been given greater emphasis. At the same time, however, a model like Lane's which treats technological development as an independent variant which originates and operates at a distance from society following laws of its own, may prove valuable in practice, but it does risk neglecting the way in which it is often the *demand* for technical solutions which derive from a specific economic-social structure that gives rise to researches and responses which sometimes go beyond the requirements of the customer but which, all the same, often solve the immediate problem. Is not the cotton-gin, apart from being a factor in the industrial revolution, a result of the demand for innovations that came from the textile sector? But it was Lane's main line of thought that was of the greatest interest in this session, and these observations only confirm the soundness of the basic argument of the paper, which provided one of the most interesting moments of the conference.

Two more contributions were made to the map of the great European routes. The first was by V. Borghesi and G. Calcagno who, using fiscal documents from the last decades of the 15th century and the beginning of the 16th, examined in quantitative terms the nature of the trade network that was based at Genoa, the types of vessels employed on the various routes and the times taken for journeys. The resulting picture was one made familiar to us by recent studies not devoted specifically to this topic, of the gradual contraction of the great maritime power, which after the fall of Constantinople was cut off from its eastern bases and was already on the way to becoming, in parallel with the paralysis of its internal social dynamic, the banking city of the 16th and 17th centuries. In this case too, as Braudel again pointed out, it was evident that the analysis would have greatly benefited from some consideration of the nature and composition of the ship-building groups, for which we must await the later studies on the topic by the two young Genoese scholars. The second paper on the geography of

European transport was by W. Brulez, who, carrying on the theme of his earlier studies on the 16th century, tackled the complex problem of road transport between Italy and the Low Countries in the 17th century as well, analysing the composition of the goods, organization, cost of transport, and the average time of journeys. According to the Dutch historian the hey-day of land routes lay between 1590 and 1620, despite growing competition from the sea routes on which the cost of transport was greatly reduced, and despite the presence of the English in the Mediterranean, which resulted from the prohibition on indirect importation of colonial goods into the island and the desire to export textiles which were produced no longer by the Low Countries but by England herself. But the land routes were to be revived again in the last third of the century, when armed conflicts were to favour them after the depression caused by the Thirty Years' War. But rather than in the military situation, the root of this obviously lay in the still imperfect organization of the market and the predominance of commercial capital which was in a position to meet very high transport costs. Even in the 17th century, in effect, as Brulez said, 'what counted for the merchant was obviously not the percentage that transport costs added to the price of his goods but the possibility of selling the product at a price that would cover his costs however high they might be. If the price difference between two countries was great enough there was nothing to prevent the transport of cheap goods by land even if the consignment costs added 100% or more to their price'.

The techniques and costs of land transportation in France in the 14th and 15th centuries were studied by Henri Dubois who used material from the Burgundian archives, in particular the *Archives départementales de la Côte d'Or* and the *Archives départementales de Doubs* to draw some specific conclusions in a field that has been largely unexplored — and as we have seen not only in France. The establishment of direct sea links between the Mediterranean and the seas of Northern Europe has often led us to underestimate the importance of the land links between the two areas and to concentrate exclusively on the sea routes. Although Dubois' research was preliminary and general this did not prevent him advancing some fascinating research projects. One of these for example connected the transport revolution, resulting from the replacement of beasts of burden by the cart, to the modifications of France's commercial geography in the 13th and 14th centuries which led to the decline of the Champagne fairs. As for the competition between land and river transport, the respective costs of which maintained a ratio of 1:6, the former remained viable except where distances were so long as to liquidate trans-shipment costs.

We must also mention Cistovonov's study of the dissolution of guilds and the growth of the great commercial companies in Amsterdam between the 16th and 17th centuries while the city was replacing Antwerp as the great commercial emporium of the Low Centuries. John E. Dobson also

surveyed the problem of 'stowage factors' and the lists of equivalents of goods on medieval cargo ships — as there was no fixed scale of reference like more modern times, goods were charged in relation either to the space they occupied or to their weight, whichever produced the greater profit for the ship.

We must now turn to the paper given by Ugo Tucci. Starting from an examination of the costs and profits of a Venetian galley taking part in the convoy to England and Flanders in 1504, he described how the undertaking was quite uneconomical and was only made possible by a state contribution which amounted to more than half the total costs, and finally he made some suggestions about the decline of oar-driven vessels and of the convoy itself which were of the greatest interest. Although their survival was due to needs arising from the struggle with the Turks, they had already from the point of view of economy and productivity become markedly inferior to the single sailing ship as the system of commercial privileges which Venice had established in the years of her greatest splendour began to collapse. Tucci's reference to the change in structure, as well as the expansion, of the international market in the years between the Middle Ages and the modern period, from which originated a series of modifications not only in techniques of transportation but also in the whole nature of its economic function, was extremely important. As we noted at the start of this review, it was a great pity that this was one of the topics which was largely neglected by the conference.

The two final days were less full but by no means less interesting. J. Martínez-Gijón treated the problem of the relationship between the development of legal machinery and the changing needs of the transport sector as it established itself in the context of Spain, as did G. Cassandro in a paper which was thorough but did not provide many new ideas or interpretations. Carmelo Trasselli provided a detailed and careful analysis of the development of the Sicilian road system which complimented De Rosa's paper on the Kingdom of Naples, but we would have liked to see this more closely related to the history of Sicily's development as the granary of the Mediterranean. It is quite extraordinary that the huge influx of grain from the interior to the coastal roads of Roman origin and thence to the sea during the centuries when cereal exports were at their most prosperous did not produce any real change on the network of mule tracks along which it was carried. For this reason it would be interesting, for example, to know the outlay which this involved and the causes of the situation. Another paper devoted to the technical aspects of sea borne transport was given by D. W. Waters. This was illustrated with slides and enlivened by the author's own knowledge of shipping and its technical side, as he is keeper of the 'National Maritime Museum' in London. According to the author the major advances in navigation lay, respectively, in the 13th century in the use of nautical

charts and the compass, in the 15th century in navigation on the high sea using the position of the sun and the stars to plot courses, in the 16th century in the plotting of latitudes with the aid of heavenly bodies, and finally in the 18th century in the use of scientific instruments to plot a ship's position in terms of longitude and latitude. But this was a general picture which the economic historian could accept only with certain qualifications because, as Lane pointed out during the discussion, Waters paid more attention to the specific date of *invention* rather than that of the *diffusion* and *adoption* of these technical discoveries. Between the two events, as we had already seen in Lane's paper, there was no immediate or mechanical connection — but rather a connection which was greatly dependent on both political and economic circumstances. We must also mention the paper given by Glauser on the function of the Gotthard Pass in Lucerne's trade in the 16th century, and the paper by R. W. Ferrier in which he examined the way in which Persia, restored to its ancient glories from the 15th and 16th centuries, formed a major commercial cross-roads. He also showed how the great English and Dutch private companies failed to oust the local merchants or take over with their sailing ships. As a result the camel caravans, which were mainly organized by Armenians, continued to dominate the Persian roadways, and it was only in the 20th century that the sea began to supercede the land routes.

We conclude this review by referring to the introductory paper given on the final day of the conference, which we would like to have seen in a more central position. This was Charles Wilson's paper on « Transport as a factor in the history of economic development ». Wilson's study, which in its theoretical and methodological character differed significantly from the general tendency of the conference, was presented not as a general review of the research undertaken in this field but as a series of indications and suggestions for future research, centred around the adoption of the methods employed by the American 'new economic history' in the well known debate on the role of railways as a 'leading sector' in overall economic growth, and their application to the whole field of the history of transport. The value of these suggestions is well illustrated by the fact that while it is generally accepted that for both England and Holland there is a direct connection between the expansion and increased productivity of their shipping and the growth of the economy as a whole, there still remains a great deal to be said about the precise nature of this relationship and the quantitative manner in which it was effected. On the other hand the use of such methods tends to sacrifice the specific economic and social contours of the various individual zones studied for an exclusively quantitative analysis, and would risk leaving unexplained for example the very different futures which followed on from the early commercial development of both Poland and Russia in the first centuries of the modern period, to mention the two cases most frequently

referred to at this conference. What one must emphasize is the way in which Wilson's paper raised a series of general problems and suggestions, as the author himself pointed out, rather than more precise and detailed statements, and so contrasted with the purely sectoral concerns and detail of many of the other contributions to the conference. But this served to confirm the basically interlocutory — so to speak — character of the fifth study week at Prato. And this in itself is surely a factor which can be taken as indicative of the changes and rethinking current in international economic history and also, in the last analysis, as a sign of its vitality.

