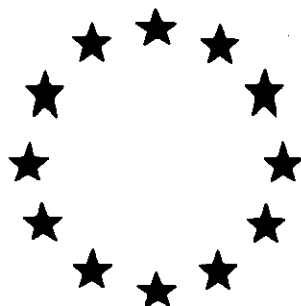


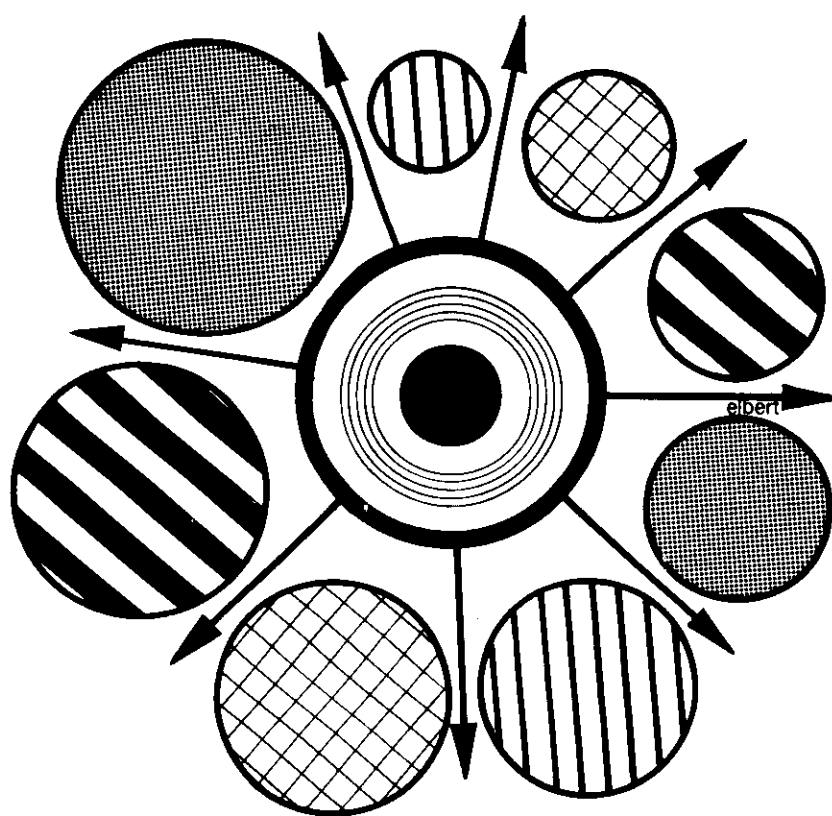
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39



THE SOCIAL AND ECONOMIC EFFECTS OF THE MAJOR CHANGES
IN TRUNK COMMUNICATIONS AND TRANSPORT IN WESTERN AND CENTRAL EUROPE,
WITH THEIR MEDITERRANEAN AND ATLANTIC IMPLICATIONS AND INTERACTIONS

STRASBOURG
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AND INTERACTIONS

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Strasbourg

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PRELIMINARY NOTE

This study has been drawn up at the request of the Secretariat of the Council of Europe by Mr Gabriel WACKERMANN, Professor at the University of Upper Alsace, Director of the International Transport Institute (Mulhouse).

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The author is responsible for the opinions expressed in the text; they do not necessarily reflect the views of the Council of Europe.

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I. RANGE AND PURPOSE OF THE STUDY

This consolidated report does not aim to present an exhaustive picture of the current European situation with regard to trunk routes and modes of transport. A great deal of work has already been done on this subject under the auspices of the Council of Europe itself (1). Nevertheless, it is obviously impossible to ignore the recent spatial reorientations and the changes wrought by new techniques. In the light of the new technical requirements, the various demands and the social and economic needs, therefore, it is necessary to consider developments in passenger and goods traffic both with regard to the various types of transport and multi-modal systems and with regard to their medium and longer term prospects. As there are ever closer correlations between the major European transport routes, it is also necessary to consider the main focal areas in order to analyse their permanent characteristics and their tendencies to change. Rhenish and Central Europe as well as the Alpine region are now coming to depend on the multi-modal technological transformations which are taking place on the Atlantic and even the Baltic seaboard, in eastern Europe, on the Adriatic coast and in the Danube countries. Developments in the Alps, particularly in Switzerland, are serving to reorientate or strengthen currents which are making the French Mediterranean coast more fragile, while the Iberian and Italian peninsulas are being reinforced by trends which have been constantly growing stronger over the last fifteen years. From Britain to Turkey, from Scandinavia to the Mediterranean area, the shifts which have occurred are to some extent upsetting customs and behaviour. Thus Europe is at present undergoing considerable changes, both qualitatively and quantitatively, in its transport geography. The main "external" causes of the transformation now come from the East and Far East. Some East European countries are encouraging road traffic from the Pacific seaboard with a view to stepping up trade with Japan. New modes of transport are being devised as a result of competitive attitudes in specific fields. Containerisation, palletisation, combined road and rail transport systems etc are accentuating the "dephasing" processes, strengthening the various social and economic forms of dumping or creating new bonds of solidarity.

All these changes, readjustments or upheavals, however, have considerable social and cultural consequences. According to the case they strengthen or weaken the spatial disparities. They accentuate centrality or marginalisation, creating new imbalances or reducing long-standing backwardness. For too long, alas! there has been a widespread tendency to regard general "economic progress" as an end in itself, whereas the "continental" type of advancement has led to deep-seated regional, sub-regional or local dislocations. Hence the need to insist on a balanced development of Europe, as is the fundamental aim of the present study, in accordance with the wish expressed by the Steering Committee for Regional Planning of the Council of Europe which is itself in keeping with the subject adopted as a priority one by the Committee of Ministers of the Council of Europe. For indeed the message of the Committee of Ministers addressed to all the committees on 12 February 1981 (Doc. SC (81) 3) states that "the Committee of Ministers of the Council of Europe, at their 67th session, in October 1980, adopted a declaration on balanced development in Europe. In this declaration the committee recalled

that it had decided to take steps in the name of European solidarity to reduce the economic and social imbalances between member states ... By imbalance in Europe, the Committee of Ministers means disparities or divergent trends in the development of European society which constitute an obstacle or threat to realisation of the Council of Europe's aim, as laid down in its Statute, and, in particular, to the full exercise of individual rights and the strengthening of democratic societies in Europe ... The objectives of the Plan and the activities of the programme must serve the interests of all the member states and thus help to strengthen their mutual cohesion." It is true that the preoccupations expressed in this text make it clear that a genuinely co-ordinated campaign between the states to further their social and economic well-being cannot neglect to promote the sub-groupings which go to make up national unity. Unfortunately the links between these are often weak ones, the obsession for an expressive gross national product having created contrasts and contributed to the pursuance of a transport policy which favours the central areas to the detriment of regions wrongly regarded as relictual.

Already on 21 May 1980 the Council of Ministers of Transport, meeting in Bonn, drew attention to the complexity of the problems of transport and of its links with planning activities and called for the promotion of "the development of a harmonised method for assessing infrastructure projects of international importance in the light of their impact on the environment, land and space-use planning, the quality of life and the energy situation."

In the report of the joint CEMAT/ECMT seminar held in Paris from 21 to 23 November 1977 (Doc.X), Dr. V. NEUSUSS stressed (page 6) the need to give consideration to regional problems. "In identifying the objectives of ... international transport links, he felt that it was important to use transport to ensure that the secondary centres in Europe did not become weaker. He also felt that the seminar should look at all the methods that exist in promoting regional economic development and not just transport." Mr A BONNAFOUS (page 7) considered that "if transport links were increased between unequal regions, inequality often increased. He ... felt that regions were so diverse that no general approach was valid." Mr A PLAUD (page 5) held that "transport policy was often a useful corrective instrument. The main question, however, was whether transport infrastructures affected economic regional development ... There were of course just as many negative effects of transport" /as positive ones/. Mr G WAGNER (page 19) said in conclusion that "the effect of transport on regional development depended on the original region, the type of transport used, its scale etc". Mr J H P PAELINCK (page 18) pointed to the ambiguous position of frontier regions. "Transport could be best used for development purposes in frontier areas where it was essential to link them, not necessarily with the centres of their respective countries, but perhaps with centres in adjoining countries." The Tenerife Declaration of 9 April 1981 concerning the Conference of European Island Regions mentions the disadvantages faced by other peripheral regions stigmatised by their "distance from the central regions that dominate Europe" and penalised by the following factors: "Need to transfer passengers and cargo from one means of transport to another, high cost of air transport, slowness of transport by sea, considerable distance not only from the continent but also from the nearest

(x) cf. European Regional Planning, Study Series, No.13, Strasbourg 1978. ./.

islands." With regard to another peripheral region, the Pyrenees, the consultant expert Mr. BUY (Doc. CPL/AM (15) 36) wrote on 18 December 1980: "South-West Europe cannot be regarded merely as a consumer market at the disposal of the industrial powers of Western and Central Europe. Similarly, the mountains and their piedmont regions can no longer be regarded as mere transit and tourism areas."

These considerations go to show the present importance of transport systems, which can no longer be held to be mere technical instruments serving a purely productivist development. The complexity of geographical facts makes it necessary to take account of all the factors involved in the development in order that the results obtained by a new technique, such as one in the transport field, may be duly assessed. All aspects of the social implications of the spatial sub-systems must henceforth be taken into account as soon as a European planning policy is introduced. Our observation of the economic transformation has given us a large number of indications about the socio-cultural change. The time appears to have come to associate the two fields in a co-ordinated action of geographical development combining simultaneously the requirements of local, sub-regional, regional and inter-regional harmonisation, on the one hand, and the need to strengthen national or supranational powers on the other. The following pages aim to set forth the main aspects of the experience gained and trace the orientations resulting from an examination of the effects on space, firstly of a growth economy and then of an economy undergoing a growth crisis. A comparison between, on the one hand, the economic and socio-cultural effects of transport and, on the other, the reactions to them which vary from one period to another, moreover, will yield abundant information and highlight future prospects.

II. METHODOLOGY ADOPTED

The nature of the investigation was such as to call for a specific methodological approach. The research work, which began around 1967 and has been regularly continued since that date, being intensified since 1973, was first conducted in connection with a general study of the Rhine area and an assessment of its uniqueness compared with the characteristics of adjoining regions. About 45 monthly magazines were scrutinised fairly regularly; over 1,600 scientific treatises were made use of. The indispensable task of reviewing this work was facilitated by numerous missions (2) and frequent talks with colleagues (3). Simultaneously, about fifteen inquiries in the form of questionnaires were conducted among a cross-section of representative municipalities, planning bodies and various types of transport companies. Although official statistics were not always of great help in solving our problems, they were duly collected and made comparable as far as possible. Motivation inquiries were also carried out among inhabitants and heads of firms in polarised and interstitial regions. A study made of industrial and tertiary installations in Rhenish and Central Europe, moreover, led us to extend our investigations to the effects produced by lines of communication on this sector. We accordingly contacted some firms and businesses involved in installing new plant and conducted inquiries among directors, staff representatives and wage-earners; the questions asked related to the reasons for establishing the new plant, or for refusals or the abandonment of decisions to go ahead with the installation, or for departure or shutdown. Other investigations concerned the actual or potential users of the various modes of transport.

The work of a sub-committee of the International Geographical Union, moreover, also led us to explore the problems of the consumption and conservation of territory by tourism and leisure activities, a field in which transport is obviously heavily involved. The general report of this sub-committee (4) provided us with plentiful information, which has been used to fill out the present study.

Since the spring of 1981 the preparation of an international colloquy which is to be held in Mulhouse in 1983 (5), the updating of certain documentary material and the issue of a circular letter (see Appendix) have caused us to peruse about 60 more scientific articles and 82 works dealing mainly or secondarily with the question with which we are dealing here. True, there has been very little analysis of the social and economic effects of trunk communications and the cultural repercussions of transport systems from the point of view of our own study, and we have often been obliged to resort to our own investigations in order to make some progress in our endeavours.

In view of the rather limited nature of this part of our findings, it is not possible to provide exhaustive information. It nevertheless describes the general tendencies, certain averages, the main kinds of approach and behaviour. In order to understand more clearly the nature of the development of transport and of its relations with space, as well as the way in which the various transport systems have been geared to this development, however, we must go back somewhat in history; the research carried out leads us to discern four main periods:

- the period before the second world war reflects the basic aspects of the age of traditional industrialisation and of its links with transport;
- from 1945 to 1960 we can witness a more or less Americanised period of industrialisation depending on the particular country or sector of activity;
- from 1960 to 1973 a post-industrial growth period gradually takes shape, with numerous variations;
- in 1974 we entered upon a post-industrial phase of growth crisis.

Under the plan adopted we shall pass through each of these four periods in turn: in the first part we shall examine the traditional trading conditions and their social and economic repercussions. In this part we shall pay special attention to the first two periods; the third will emerge through the changes it heralds. The second part, devoted to new trends, will deal with the two post-industrial periods. The third and fourth parts, the one seeking to describe the geographical factors making for concentration and the other those making for a certain thinning out, will draw up a kind of social and economic balance-sheet of the successes and failures of the present age.

III. TRADITIONAL TRADING CONDITIONS AND THEIR STRUCTURAL EFFECTS (until about 1960)

The industrial era, whose birth and development are inseparable from the transport revolution based on the steam engine and hence the railway and shipping, has deeply marked the European landscape. Railways and waterways, port installations and above all, after the Great War, trunk roads have led to activities which have created wealth on the one hand, but have caused human dislocations on the other. In order to give a clearer understanding of the scale of the current changes caused by the new transport methods and trunk communications it may be helpful to begin by rapidly reviewing the main social and economic effects of transport during the industrial era.

A. The "classical" industrialisation period (before the second world war)

It is at that time that the Christaller theory, invented around 1930 and published in Jena in 1932, corresponds most closely to European realities, except for the frontier regions in which the model remained incomplete or disrupted by the boundary line (6). Because of their large number of scheduled stops, the different types of train, ranging from the stopping train to the express, helped to create or strengthen an urban structure which gave rise to or developed artisanal, industrial and tertiary activities and which often led to agricultural redeployment. More than waterways which only had a very small number of "stopping-points", rail communications, by their numerous services to passengers and goods, performed a "total" function, "irrigating" both the rural and urban municipalities at the most varied levels, and gradually causing them to play central roles of an integrated or competitive kind. As this regular service did not exclude any size of territorial unit, it brought about an improvement in the economic and social situation without initially draining any more rural labour into the towns than that which was already redundant from the employment point of view.

The investigations we have been able to make have provided the following data applicable to the period between the beginning of the twenties and the end of the thirties (7):

- in over 80% of "simple" rural parishes the number of jobs created directly or indirectly by the railway amounted to only 12-17% more by the end of the period;
- in nearly 90% of villages the number of these jobs rose to about 20%;
- in small towns the rate of growth rose to 22-23%;
- in medium-sized towns it fluctuated around 27%;
- for the large towns it is very difficult to evaluate, but was hardly lower than 34-35%.

On the basis of the same cross-section of municipalities as that we have just analysed, we note that the presence of railways had numerically even greater repercussions on the educational system than on the creation of jobs. The rates of growth in the number of pupils, trainees or students, obtained during the period indicated above are as follows:

- increase of 21% to 24% in ordinary rural parishes;
- increase of 29% to 32% in villages;
- increase of 36% to 38% in small towns;
- increase of about 43% in medium-sized towns (8).

While there has not yet been time to assess adequately the social and economic impact made by the motorway network created by the Hitler régime during that period, the improvement in the ordinary road system had definite repercussions on local, sub-regional and regional development, bus and lorry companies having become firmly established and serving fairly small areas. Although it is harder to assess the consequences of the road innovations than those of the rail communications, it can be said that roads served to step up trade, gave renewed vitality to urban markets and helped to increase - though admittedly less so than trains - the number of Sunday outings to countryside beauty spots. They also opened up the rural world to technical progress, less than the railways but nevertheless fairly rapidly by facilitating visits to fairs and exhibitions and various occupational events.

B. The "Americanised" industrial period (1945-1960)

This way a key period in which the very conception of transport was transformed in order to meet essentially productivist needs on a national or even semi-continental scale. The search to obtain profits as easily as possible tended to benefit the large centres situated along the major trunk routes and to widen the gaps already existing between the polarised areas and the interstitial areas, just as from another point of view it increased the disparities between the industrialised and under-developed countries. It also created an extraordinary mobility of persons and goods to the advantage of technological investment, thereby seriously jeopardising numerous bonds of solidarity of a social and economic nature. The ultra-rapid intensification of road traffic to the detriment of rail traffic (see under IV A) and its penetration of the various forms of social communication (9) upset very old traditions, disrupting the rural world and tending to standardise lifestyles by causing definite losses of cultural identity. The customary way in which space was organised lost in depth what it "gained" in breadth: increasing recourse was had to the "extensive" and piecemeal exploitation of resources and to leap-frogging procedures, with the temporary abandonment of measures which would require a more onerous - that is, more exhaustive - implementation. Thus, the Rhine axis markedly increased its impact, from the Netherlands where the megalopolis, centred on Randstad Holland, gave the Lower Rhine

dynamism it had never known before, to the Upper Rhine, because of the shift westwards of the economic weight of the Federal Republic of Germany and the polarisation of German Switzerland around Zurich-Leichtenstein and Basle. The motorways completed on both sides of the river formed a kind of backbone which often greatly benefited the adjoining regions. Air photos, moreover, clearly confirm the structuring role played by the motorway feeder roads in the industrial and even tertiary sector, and particularly the commercial sector, to the detriment of the railway along which some degree of industrial decline was even discernible. A large number of firms now regarded it as a penalty not to be situated along a big trunk road with easy access; but the increase in the number of jobs created during this period by the Rhine basic motorways no longer reached such a high rate thereafter, as the other roads which were improved or newly built hardly provided one-tenth of the number of jobs made available by the motorway network, while the railways only created 7-8% of new jobs compared with the number of their wage-earners at the beginning of the period.

According to a cross-section of municipalities of all sizes (10) the rate of growth of jobs created directly or indirectly by the motorway networks during the period from 1945 to 1960 was as follows:

- about 80% in ordinary rural parishes;
- about 130% in villages;
- nearly 165% in small towns;
- between 192% and 197% in medium-sized towns;
- 280% to 310% in large towns.

The same cross-section shows that increases in the number of trainees and pupils undergoing secondary and higher education were even more marked. Thus the growth rates were:

- about 270% in ordinary rural parishes;
- nearly 465% in villages;
- a little over 520% in small towns;
- about 585% in medium-sized towns (8).

C. Birth of the post-industrial period

Symptoms of a post-industrial civilisation were appearing already before 1960. These were particularly discernible in the Rhine area which for both market and strategic reasons had been treated solicitously by the USA ever since the end of the second world war. The decline in the growing of diversified food crops and the steady tertiarisation of certain sectors, combined with the rapid fall in the number of farm labourers, had speeded up urbanisation which now extended to the countryside, so that transport had become the key factor in the development. The low cost of energy was gradually making passenger and goods transport

more and more widespread. Industrial and tertiary decentralisation increased. The siting and removal of firms became more flexible, making it easier to introduce new transport techniques which transformed inter-modal relations. The resulting traffic flows caused the centres of activity to be shifted towards new areas which were opened up. This movement had other kinds of sub-regional and regional repercussions.

IV INNOVATIONS AND NEW TRENDS

A. Increased use of roads and airways

The growing priority given to roads had very specific consequences: railways stations gradually ceased to be the main centres of activity of parishes or urban centres. New focal points were created inside and outside towns, which were partly shaped in accordance with this restructuration. As from the sixties the shift from the railways to the roads or the creation of completely new flows of road traffic led to the construction of major new trunk routes in Rhenish and Central Europe. These had the effect of separating residential districts from places of work and urban centres from their outskirts; daily commuting to the "outside" world increased, as did also the number of different modes of transport. Private cars seemed to be the form mainly used, to the detriment of public transport. As a result, town centres and their surrounding districts started to decay and immigrant residents often moved into them. Investigations into behaviour during the years 1960-65 show the following changes compared with practices in the Rhine area between 1955 and 1958.

- a virtual doubling of the number of people living along major trunk roads who acquired a motor car, as compared with a maximum increase of about 40-45% of those living along secondary roads and scarcely 16-18% of those living in remote rural areas;
- an increase of nearly 340% in the amount of goods delivered by road by firms situated near big trunk routes, as compared with a growth of scarcely 215% in the case of firms situated along secondary roads and about 120% in the case of firms in remote rural areas.

We should note, for instance, that the amount of goods conveyed by road across the frontiers between Austria and its neighbours also rose considerably during the intercensal period from 1964 to 1969: whereas imports by rail only increased from 16,325,029 tons to 17,773,889 tons and exports from 9,452,722 tons to 10,911,356 tons, road tonnage rose by the following amounts: from 2,821,199 tons to 6,075,874 tons in the case of imports and from 3,245,137 tons to 6,165,874 tons in the case of exports. The popularity of road transport and its flexibility, seeing that it involved no need to transfer loads from one form of transport to another, combined with the low rates of charges, caused a reduction in the expansion of traffic by rail and even by water. The principle that "traffic creates traffic" led very rapidly to the creation of traffic jams on the big trunk roads and required alternative routes to be constructed, at a time when the structurising effects of the railways and waterways and their impact on the environment were declining.

The increasing role played by airways in the transport of passengers and freight changed the former pattern even more markedly. Air travel reduced the importance of the major land and sea routes, although these nevertheless remained of fundamental significance for material and tariff reasons. All the same, the rapidity and intensity with which

air travel developed in Rhenish and Central Europe transformed the surroundings of towns possessing airports, the latter having succeeded in swiftly creating a market radius on differing levels according to the kind of transport envisaged. The airports, however, deprived a large number of the municipalities flown over of their chances of expansion: between 1960 and 1970 scheduled and charter flights from Scandinavia or North-West Europe to the Mediterranean countries reduced by about one-fifth the number of tourists crossing the Rhine area by road, although it is true that these tourists would on average have spent only 4 nights in this area (11). At present tourists from Scandinavia and North-West Europe have partly abandoned Mediterranean Europe in favour of Tunisia, and this has dealt a severe blow to Sicilian tourism, for instance. Even from Rome there is often a greater inclination to go to Tunis than Palermo; all the same, Rome's centralising policy obliges travellers from Palermo to pass through the Italian capital before flying on to Tunis. Further disruptions are being caused by recent technological innovations.

B. Introduction of combined transport based on standardisation

The existence of a consumer society, the growth in population and the raising of living standards have led transport promoters to seek to increase the volume of goods conveyed, to standardise packaging and to reduce or abolish bulk-breaking. The generalised use of containers and palletisation, the adoption of roll-on/roll-off procedures, the use of barge-carrying ships, the introduction of combined road and rail transport, are transforming usual transport methods. The new techniques are heightening the concentration, along certain routes, on a few points where special equipment is required. They place a premium on certain pioneering towns which thereby assume special significance, particularly as they help to cut down time losses, to make the traffic more fluid, and to reduce pollution and energy costs. These benefits are accompanied by a strengthening of traffic flows in areas which are already saturated; while they encourage intermodal connections, they take advantage of the major routes already existing. The combined road and rail transport system, for instance, uses the Freiburg-im-Breisgau-Basle-Gotthard-Lugano line which the Deutsche Bundesbahn hoped to develop in a northerly direction, particularly towards Hamburg. Thus transit traffic becomes more and more "delocalised" in respect of the areas traversed, making little impact on these areas and having little structuring effect except at transfer points. The influence which combined transport has on its surroundings is thus comparable to that of waterways, inasmuch as it is unable to strengthen the social and economic structure outside the zone of influence of the supporting conurbations. However, it ensures that the desired speed is reached and enhances the vitality of the polarised regions by increasing the profitability of the various forms of transport which have continually gained ground there and which cause new decisions to be taken to make the routes in question still more central: construction of further motorways, boring of long tunnels, creation of additional ports and bulking centres, etc.

The inquiries we have conducted show that the combined transport system and that of the containerisation benefit the points of convergence in the following ways:

- among the new firms which have been set up in a region since the introduction of a bulking centre, over two-thirds said they had wanted to be near this centre and nearly one-fifth are situated less than 35 kilometers from this centre or less than 65 kilometers when the travel time is reduced by a motorway or expressway.
- Jobs become increasingly concentrated around the bulking centre and more and more call is made on the interstitial areas: over half the jobs created are given to migrants of which only 5-6% come from country areas; nearly 55% of the workers engaged already live in the town or less than 25 kilometers away from it; the others do not live further than 35 or 40 kilometers away; they usually come and settle near their place of work fairly quickly.

Far from helping to develop the area uniformly, the new techniques also play an active part in changing the direction of traffic flows.

C. Changed direction of traffic flows

While containerisation and combined transport have strengthened the role of the major trunk routes in Rhenish and Central Europe, they have also reduced the importance of the transit trade to the advantage of coastal areas, that of the Atlantic in particular, since the big tourist migrations have been partly attracted towards Western Europe as well as the east of the area studied; neither is it necessary to refer again to the use of airways for transporting persons or freight.

The inquiries we have conducted show that since 1975-76 nearly 18% of firms have decided against establishing themselves in Rhenish and Central Europe in favour of North-West Europe and the Atlantic seaboard in general; the reason given is the transformation of transport techniques and the attractiveness of the North-West. For reasons of efficiency other firms have preferred to set up businesses along the North-South axes (Hof Nuremberg-Munich or Hof Nuremberg-Vienna) or the North-West-South-East axes (Frankfurt-Munich-Vienna or Frankfurt-Munich-Milan), partly abandoning the Upper Rhine countries and the Rhone Valley. The tendency to shift the main transit trade towards the east is accompanied by an economic crisis in the Southern Rhine regions, a case which we will describe here by way of illustration.

Our observations of this area have enabled us to understand in turn the reasons for the initial obstacles which were due to conflicting interests, the attempts at national planning in the face of competition between the German-speaking countries and the efforts to restore the balance on an international scale. This area demonstrates the difficulties of achieving an overall development of the economies despite the opening up of Europe. However, it also shows that the current consultations have had favourable results, even if they sometimes prove to be difficult.

The Upper Rhine, which is about 350 kilometers long, is activated in the north by the Frankfurt metropolis and in the south by the Basle-Mulhouse complex. Several major intersections in between Mannheim/Ludwigshafen, Karlsruhe/Stuttgart, Strasbourg, Colmar/Freiburg, participate in the general rhythm of activities. The creation of the

European Community has given this traffic route, which has been favoured by geography and history, an importance previously unequalled. For years, however, the new Europe which was coming into being favoured "solitary" development, each state pursuing its own evolution despite confusion in inter-frontier areas. Little by little the communication networks have become overloaded, and the accumulation of passenger and goods traffic is rapidly reaching saturation point. This phenomenon is being aggravated by the increase in the amount of individual travel, to the detriment of public transport: between 1968 and 1975 private car traffic on the motorways rose by 54% at the level of Karlsruhe; from 1976 to 1977 it rose still further by 5%. In summer the concentration of holiday departures is half as much again as the normal annual average amount of motorway traffic at the same place; it is estimated that the growth of this movement between 1967 and 1990 will amount to nearly 300%.

Being sought after from all quarters because of their central position, West Germany, Austria and Switzerland are seizing the opportunities offered in order to intensify their networks and diversify their assets. The multiplying and strengthening of the major trunk routes are serving to develop the regional economies of these countries, increase their competitiveness, and reinforce their central position on the Continent. The relative and temporary blocking of the Rhine-Rhone axes, the study of the orientation of passenger and goods traffic flows, the observation of shifts in trends, the federal or confederal nature of the institutions, the existence of public credits and private capital whenever an investment transaction proves to be promising in the medium or long term - all these questions have stimulated the authorities and won the approval of public opinion as well as the main social media. The rivalry between the three German-speaking countries is such that the advances made in comparison with other countries - France, Italy, Yugoslavia - constitute a remarkable source of power.

In the FRG, for instance, the traffic corridor Frankfurt-Mannheim-Karlsruhe-Basle has been doubled by a new route Frankfurt-Mannheim-Stuttgart-Zurich: the construction of the Mannheim-Stuttgart railway has been given priority, the Stuttgart-Constance section has just been electrified and the Stuttgart-Zurich motorway completed.

The role played by Frankfurt and Mannheim in diversifying the traffic flows seems to be of decisive importance. The hundred or so annual surveys we have been carrying out since 1974 among big international road haulage firms from Scandinavia, North-West Europe, German-speaking or French-speaking countries, Italy, Spain and Portugal, go to show that since 1969-70 the Frankfurt turntable and, since 1975-76, that of Mannheim have been ensuring the distribution of traffic in order to ease the flow, mainly towards the south-east, but also towards the south-west. The recent strengthening of the role of Mannheim is particularly surprising: the urban region Mannheim-Ludwigshafen-Heidelberg concentrates industrial, commercial, scientific and cultural activities at the highest levels. While this important centre of land communications is being strengthened by these activities, it is also the point of culmination and redistribution of the links between the Parisian region, North Lorraine (Metz) and the FRG. By this very fact Alsace is left somewhat outside, and the Franche-Comté is neglected; the north-south links across these two regions towards the Rhone-Alpine region are becoming of secondary importance.

The part played by Stuttgart in the rivalry also merits our attention: this "Talkessel" has strengthened its tertiary functions; it also enables big firms who depend on car transport because of the proliferation of small and medium-sized undertakings in the surrounding districts to avail themselves of an important network of sub-contractors and various subsidiary businesses existing alongside electrical companies (AEG, IBM) which are based on their own specific networks. The firms Daimler, Benz, Porsche, Bosch and many others stimulate the development of trunk communications in many different ways.

The structuration of the small and medium-sized undertakings which are typical of Baden-Württemberg, however, is such as to favour the ascendancy of Frankfurt, which has no competitors in South Germany, either at national or international level. Daimler-Benz, for instance, is dominated by a Frankfurt holding; the foreign firms Nestlé, Kraft, ICI, Ciba Geigy and others manage from Frankfurt their works situated in Baden-Württemberg. This polarisation of Frankfurt and this dominating association which Frankfurt has formed with Stuttgart have given South-West Germany an exceptional vigour which is tending to strengthen its privileged position compared with other German regions. In periods of crisis, however, this also means that the big firms seek to extend their markets beyond their present clientele and to persuade the small and medium-sized undertakings to re-organise themselves, preferably on the spot. One result is that German investments in Alsace have dropped, whereas on the right bank of the Rhone and to the east of the Rhine mountains the Federal authorities are completing the building of trunk roads. With regard to foreign economic policy the following measures are gradually being introduced:

- opening up of the East European countries, particularly the Danube countries, by a continuous motorway to Prague and the economic development of Bavaria;
- opening up of the west by the construction of the Stuttgart-Frankfurt-Mannheim-Paris motorway and the plan to provide links by high-speed trains along a stretch which is no doubt identical;
- opening up of the south by a link with Venice and the Adriatic and another with Genoa through Milan or Turin.

Zurich is also affected and is being integrated with the new orbit by rail electrification and motorway construction both of which are being further strengthened and continued from Frankfurt and Stuttgart. This capital of German Switzerland, which is now able to compete with Basle with regard to goods traffic and distribution, possesses the same weaknesses as its rival: Basle suffers from its cramped position; seeking to maintain its monopoly as a Rhine port for Switzerland and Northern Italy, its margin of reaction is limited to expanding the volume of freight of the Mulhouse-Basle airport; but the freight is handled almost exclusively by Swissair, which is so much to Zurich's advantage that the French airlines are no longer interested in the airport.

Thus the authorities in the German-speaking countries are tending to neglect the Franche-Comté, the Rhone Alps and the French Mediterranean coast. The conflict between French and German planners can be clearly seen from this distribution of forces, since the French administration is seeking to strengthen the position of Lyons and Marseilles without giving enough weight to Alsace when big civil engineering works are constructed in the Rhine area. For this reason, Alsace lies outside the network of the main areas of activity centred on Frankfurt, Mannheim and Stuttgart. The Rhine-Main, Rhine-Neckar and Middle Neckar regions possess such weight that their lateral influence is being extended and is sharpening the competition between the German-speaking countries in the Upper Rhine area.

This competition is being further heightened by Austria. The Brenner pass towards the south and the Danube valley route towards the east are attracting ever more traffic. Transporters from the European Community countries make frequent use of the north-west-south-east transit link across Austria, which has also been called the "migrant workers' route". The interest shown by Austria in the new prospects of traffic with the east has recently taken practical shape: the foundation stone for the construction of two big hotels in Budapest, which will be erected by a group of Austrian companies, was laid in 1979. This order is worth 1.25 thousand million Schillings. Certain Austrian building firms are also trying, against strong international competition, to obtain orders for the construction of other hotels in Budapest, West Hungary and on the edge of Lake Balaton. Austria has opened a credit of 300 million dollars to Hungarian contractors for the development of their hotel network. These innovations have been completed by a less hermetic sealing of the frontiers of the eastern countries along the Bavarian territory. Tourism is contributing to this relative opening up of frontiers (12) and the effects of this trend can be felt as far as Eastern Europe (Bulgaria, Rumania, even the Soviet Union). East-West goods traffic is assuming weighty proportions. At the Bavarian-Czechoslovakian border, in Upper Franconia, road traffic from the Soviet Pacific seaboard is mounting in volume, competing with sea transport since the journey can be made in five weeks at very competitive prices, the idea of economic profitability being different in the East from what it is in the West. The project for the construction of a "10,000 kilometer route" from Gdansk to Greece, with an extension via Ankara and the creation of two branches, one towards Iraq and the other towards Iran, is making progress though slowly. Poland constitutes an important intersection in the network now being constructed. Goods exchanged between Poland and its neighbours in Central or South-East Europe are transported chiefly by rail, while those exchanged with Northern, Western and Mediterranean Europe are mainly transported by sea, passengers being conveyed by air, rail and car. This country thus possessed rail links with 17 states, air links with 20 European states and 11 non-European states, coach links with 12 states and direct sea links with the main countries of the world. It is true that the country's political instability is causing the Soviet Union and other Eastern countries to give more backing to Czechoslovakia and Hungary. But the pieces on the chessboard are shifting, it must be realised. Meanwhile, the high concentration of traffic created in Rhenish and Central Europe has led to an atmosphere of crisis, the main features of which we will consider below.

V. SPATIAL CONCENTRATION AND PLANNING CONFLICTS

A. Consequences of the "uncontrollable" transformation

The boom in private cars, the creation of dense and varied bus networks and the large number of goods transport services in existence have given the roads such importance that the former spatial structures have been partly dislocated. The disruption is being heightened by the building or extension of airports and river or sea ports where it is planned to install oil refineries which will further advance the current trend. This development, which fascinates large sections of the population, is nevertheless causing considerable disorder. Let us applaud Pierre George when he writes: "The industrial revolution has not caused new balances - if indeed it is possible to talk of old balances - in the way it might have hoped both with regard to the social relations of the industrial economies and with regard to the colonial and para-colonial types of domination and subordination. The picture of a world corresponding to the Anglo-Saxon ideal of planetary organisation, in which certain secondary powers thought they had found their place, has proved to be fragile ... And while everything has been challenged again in a very short space of time, nothing has been restored for all that. Certain balances dating back hundreds or thousands of years - in the economic as well as the demographic sphere - have been upset, and the whole world is seeking for new phases of relative stability. The speeding up of all the processes is making them all the more uncontrollable and at the same time relegating to the level of archaeology balances which were being analysed by geographers less than half a century ago" ("Les méthodes de la géographie"), Coll. Que sais-je? Publ. Presses Universitaires de France, Paris, 1970, pp 121-122).

Certain adverse effects of a disturbing nature are appearing: town centres are being less and less linked with suburbs and outlying districts by bus services, the invasion of the private car having disorganised the potentialities of public transport. Connections between the suburbs are frequently proving to be inadequate or non-existent. The mounting traffic is causing more and more harm: the urban atmosphere is being polluted by noise and exhaust fumes; buildings are being eroded by the high content of chemical products in the air. The large volume of passenger and goods traffic inherent in a consumer society makes it necessary to enlarge railway stations and to build bus or coach stations for which the access roads are often ill adapted. The following tables show the main current trends and the basic problems encountered by those responsible for redevelopment activities.

During the period 1945-60 the urban municipalities had to devote on average about one-third of their equipment budget to traffic routes and various accessory services, while the corresponding amount required of the rural municipalities was around three-fifths of the annual budget. The breakdown of planning requirements was thus on average as follows:

Planning requirements created by types of communication	Total situation	Large cities	Other towns	Rural areas
	%	%	%	%
Roads	78	73	79	96
Rail (mainly goods and passenger railway stations)	9	9	7	3
Waterways and river ports (5)	7	6	5	1
Airports	6	12	9	-

The situation differs, however, if a distinction is made between towns which retained their old urban structures and those which were rebuilt after 1945. Between 1945 and 1960 the averages obtained were as follows:

Planning requirements according to type of lines of communication	Towns consisting of old structures (over 150,000 inhabitants)	Towns rebuilt after 1945 (over 150,000 inhabitants)
	%	%
Roads	81	46
Rail	5	11
Waterways and river ports	4	14
Airports	10	29

The requirements in question thus emanated mainly from towns which had retained their old character and rural areas which had experienced a certain euphoria of urbanisation in European regions with a high standard of living. Moreover, they consisted primarily of the building of roads which continued to make rapid headway.

Transport planning requirement within towns can be graded as follows for the same period 1945-60 for towns of over 150,000 inhabitants:

Types of requirements	Percentage of total transport requirements
General atmosphere	29
Town centres	21
Problems of suburban links	19
Problems of links with outlying districts	14
Urban intersections	11
Transport of dangerous or bulky goods	6

During this period, therefore, the general tendency was to stress the general problems relating to the town itself and those arising between the town and its suburbs. Planning offices and town council meetings said there was hardly enough time left to go into questions of "detail".

The frontier situation also reflected this choice. It was preferred to deal with the most urgent local needs rather than tackle problems which posed a threat only in the medium or long term. Foreign countries were regarded as secondary areas to which only limited importance was attached. The average ration between the number of development measures carried out on inter-frontier territory and those carried out on national frontier territory was still 1:17 in 1958/60. In general people were quite happy to take advantage of the infrastructures of the neighbouring country (motorways, port installations, etc) without giving anything in return: the Baden motorway benefited Alsace traffic on the Hamburg-Frankfurt-Basle route and the Grand Canal of Alsace lowered the underground water of the Rhine without any return benefit being granted to the German side to which, moreover, the west winds sent the gases from the Strasbourg oil refineries, to say nothing of the French pickling brine discharged into the Rhine which irrigates a multinational area. During this period, however, the inter-frontier sectors of the Rhine countries, the German-Austrian-Swiss and Franco-Italian border areas, had three or four times as many planning requirements as the national "interiors" - excluding large cities - firstly because in the area under review frontiers were crossing-points of vital importance, and secondly because the accumulation of problems remaining unsettled was aggravated by the extraordinary increase in passenger and goods traffic, even before the coming into force of the Treaty of Rome (1957) which led to the establishment of the Common Market of Western Europe.

These admittedly considerably variations, however, must not be over-estimated; a more or less simultaneous development, though occurring at a different pace and to a differing extent, was taking a roughly similar course elsewhere. For example, between 1950 and 1960 the Rhine area developed at a more rapid speed than the Côte d'Azur

and its hinterland. Activities in the Rhine plain caused a swifter economic penetration of the mountains than did those of the South of France coast. The trends, however, appear to be similar. Whereas even before 1960 the very foundations had been laid for the restructuring of the middle-height Rhine and West German mountains, plans were beginning to be devised at that time to open up the Côte d'Azur hinterland by means of various speculations coming from the coast or from major urban decision-making bodies of a national or international character. This opening up took the form of projects to build winter sports resorts, even though in the land behind Grasse the low altitude rather spoilt the ski-ing seasons because of the inadequacy of the depth of snow. Finally, what really mattered was to win consent for the building of roads which would encourage land speculation and the moving in of new residents, whether possessing permanent or second homes. This situation gave rise to much public discussion during the period between 1960 and 1972.

B. Technological excesses and the growth crisis

The tendency towards excess, aided by the energy shortage and the growth crisis, can give way to a better grasp of the situation. Thus, a territory should not be regarded as homogeneous merely because powerful techniques tend to remove certain disparities. Transport itself is also a factor which helps to shape a region or sub-region and which distinguishes it from other regions or sub-regions. Geographical facts require that modes of transport should be adapted to the requirements of these regions or sub-regions. As has been said repeatedly, the mere creation of a transport infrastructure does not suffice for developing a region. Neither should scales of charges be regarded as necessarily profitable when the profits they yield are only short-term. Such scales, however, should be in keeping with the demands of medium-term and particularly long-term competitiveness. The direction of traffic flows, moreover, is affected even by differences in the tolls imposed by motorways: our investigations show that tolls have a penalising effect, but that the rate of exchange of the currency of the country imposing the toll also carried weight. In the FRG there are comparatively few municipalities situated as far as 30 kilometers away from a motorway, although the principle adopted applies to a distance of 15 kilometers. Nowadays motorways are no longer an original feature of regional planning in that country, whereas in Austria only a limited number of municipalities possess access roads to them. Thus motorways there play an important strategic role in the siting of firms and in economic expansion; feeder roads in that country have a particularly structuring effect, whereas in the FRG they no longer have anything like the same importance because of the large number of them in existence.

But motorways do not solve all problems even in a country like Austria. As elsewhere, they cause at the outset a considerable rise in the value of land in places regarded as being the most attractive. Yet outside the high Alpine regions transport does not constitute the major asset. The weight of inertia in big textile firms, for instance, is more detrimental than shortcomings in the transport system. When industrial activities in a certain sector are concentrated in the hands

of one or two undertakings it is harder to bring about technological adaptation than when the labour force is spread over 20-30 businesses, some of which are capable of re-organising themselves; in that case the closing of one or the other of these businesses does not cause the same upheaval as that of a big firm. Thus the Linz-Wels sector or the Tyrol are better off with their small and medium-sized industries than certain towns where large firms are situated. According to LENGRAND and COLIN (cf bibliography) "it is sometimes necessary to sectorise factories: their influence is confined to one region, and this is due to the low added value of the product which cannot support high distribution costs, particularly transport charges (this is the case with the vinegar factories established in the main consumer areas and/or wine producing areas). Quite the opposite is the case with factories whose area of influence extends beyond the national framework because they specialise in manufacturing part of a range of products designed for distribution in a group of countries; this enables certain savings in scale to be made if these are not cancelled out by the distribution costs (another factory, in another country, produces the remaining part of the range: this is the case with numerous trans-national firms such as IBM, SHELL, SKF). In both eventualities logistics are used to determine the quantities to be produced by each unit and to define their zone of influence." (p 88)

The transport of bulky and dangerous goods on certain sections is also likely to make the route less attractive. Certain probes carried out on this subject have shown us that the volume of traffic may drop by up to 12% after two years.

The creation or re-opening of a railway does not necessarily create wealth: the Cuneo-Ventimiglia railway line, for instance, which was restored by means of a "rare accumulation of constructive works of a highly technical character" (DERRIEUX-CECCONI, p 17) is suffering from the "persistent inadequacy of the Nice-Breil route" and the "badly synchronised timetable for the construction of the new port of Nice", so that "because of economic rivalry and conflicting political interests or simple structural confusion in territorial management, the whole project threatens to multiply, geographically speaking, the number of 'cut-offs' and economically speaking the number of missed opportunities" (p 23).

According to the present West German Minister of Transport, the existing canals are still enabling waterways to transport a large tonnage of goods over long distances at lower costs and with little use of fuel. But if new canals have to be built to this end, they will no longer be profitable. This problem needs to be analysed from a long-term point of view at a time of weak growth, particularly as it raises the question of the Rhine-Main-Danube canal and hence also that of the North Sea-Mediterranean link. One thing is certain: in the area we are investigating, the social and economic impact made by canals on the regions and sub-regions has for twenty years remained at the same level as the effects produced by the railways, both as regards the rate of growth of the number of jobs and the rate of establishment of new firms.

As the transit sectors of waterways are particularly long, there are few chances that the sub-regions will exercise any direct control over the canals. It is the port complexes or their subsidiary industries which attract business.

We should also note that when a technique as advanced as the high-speed train is applied to the most congested routes of a territory (eg Paris-South-East, Paris-North, Paris-West), its effect is to increase the flow of traffic towards the starting-point, in this case the French capital, and thus to "distort" the territory in its space-time aspects. Our colleague E AUPHAN (University of Sciences and Techniques of Lille) points out to us on this subject that "at a time when the continuation of the energy crisis and the probable development of telematics are likely to lessen the relative importance of speed in travel, one cannot help wondering if the creation of a network of high-speed trains centred on Paris has not been more or less outmoded and whether it does not anyway conflict with regional planning aims, particularly so when they result from the institutional upheavals caused by the law of decentralisation."

The period of growth crisis entered upon seems henceforth to be marked by a certain wisdom in the search for solutions aiming at deconcentration and a thinning-out process.

C. The environment dispute

The decisions which were previously taken by town councils, regional or sub-regional assemblies and national authorities, and which strongly reflect the general optimism felt both by the administrators and by the administered concerning technical progress, have often led to impasses which have burdened budgets without resolving the problems of congestion. These problems weigh on the territory by causing incoherent or even contradictory measures to be adopted which often create more difficulties than they solve.

In order to help to remedy this situation, medium-term development plans have been produced at both national and regional level. Lines of communication and transport play an important part in these plans, either directly or indirectly or even unconsciously. Consultations of a socio-vocational or socio-cultural and political character are beginning to take place at the grass roots and at the top. Measures are being controlled more closely than they were formerly. Although they have become more coherent, they still contain sometimes important shortcomings. The vogue for creating industrial zones, for instance, has encouraged certain urban or rural parishes to make available land which has been connected up with the local and regional network at considerable cost, without there being the slightest guarantee that a sufficient number of firms will be sited there. Some of these new areas have never found any takers, therefore, especially since 1970 when the decline in population and then in the economy rendered obsolete the measures adopted during a period of high productivity. The main characteristic of the period between 1960 and 1972 is thus the contrast between the continuation of habits acquired during the post-war phase

of growth, which was regarded as virtually unlimited, and the signs heralding a saturation crisis which people now pretended to ignore. It is worth giving some attention to the actual idea of a "planning requirement" as it was conceived at that time and as it appears from the inquiry carried out, because it signifies the way in which facts and mentalities have been evolving. 82% of the municipal authorities answered that there was no "requirement" unless public funds had been appropriated or earmarked for this purpose; 16% of the replies said that it was sufficient for the financing decision to be taken by the town council, even if there was not yet any commitment or appropriation of expenditure for the current budget; only 2% of the replies said that a planning requirement arose as soon as the problem had been posed by one of the social groups.

As for the administered, whose reactions can be gauged from the press, radio or television, as well as in association communiqués and publications, they attached more importance to "planning requirements" as soon as environmental difficulties - whether real ones or those based on ideological differences - arose in the district or parish involved, causing concern among the groups defending the interests of residents, sometimes called "residents' associations". Financial criteria were rarely - in under 3% of cases - regarded as important here, whereas up till about 1965 three-quarters of those questioned had been concerned mainly about considerations of material or speculative interest compared with scarcely 12% who were concerned about health hazards and 11% who adopted an ethical attitude directed towards the protection of the natural, historical or ethnological milieu. Between 1945 and 1965 the harmful effects or incoherencies mentioned were thus mainly of an economic character, the measures envisaged being designed chiefly to make "reparations" of a technical character. After 1965, with the help of nature conservation campaigns, "Bürgerinitiativen" and ecologists, doctrinal principles began to prevail over individualistic attitudes and the desire for profit, although it is not always possible to ascertain the actual share which each of these factors had in this movement. The press played a multiplying and precursory role in disseminating the associations' messages. The investigations reveal the time lag which existed between the original intervention of the environmental militants and the response of public opinion. It was sometimes five or six years before "fine words" led to the creation of an active minority of some consequence and three or four more years before this minority succeeded in "shaking up" the existing town councils or ensuring that its demands were effectively given a voice in electoral debates. Thus the second period under review (1960-72) was essentially one of growing awareness, of mobilisation of an increasingly large section of the public by the ecological campaign. At that time a hitherto unprecedented number of associations came into being. In most of the regions within the area under review the number of groups doubled between 1960 and 1972 because of the environmental pressure.

Owing to the lack of adequate and reliable means of verification the planning requirement "cases" indicated in the tables contained in this study do not correspond to the information given in the press or in tracts and publications of the associations involved in the subject

we are considering. They are taken solely from the discussions held and decisions reached by the town councils, and it has been possible to ascertain their number fairly accurately. The statistics do not reveal the many different "states of mind" which existed with regard to both regional planning as such and ecological considerations. Statistics are of limited significance since the cases occurring outside the town councils were often three or four times as important, but their real value or their impact on planning measures is hard to assess. The investigations made into this second type of data, however, have not been in vain - quite the opposite. They show that more and more doubt had been cast on planning practices based on an expansionist or even all-encroaching economic policy. This new trend, which reflected a desire to imbue planning aims with greater human and social qualities, had taken such firm root in a decade that by 1975 the planners had either been fully persuaded of the social and cultural needs advocated or had themselves sprung from the prevailing movement.

However this may be, transport continued to impose important, if not decisive, planning requirements during the period between 1960 and 1972. Economic development and the re-adjustments it entailed called for numerous public interventions; these in their turn caused decisions to be taken to rectify or complete initiatives which had already been adopted or were in progress; thus a kind of vicious circle was created which was inherent in the system in force.

During this phase the municipal budget designed to meet the demands which had been directly or indirectly created by the transport system or which made it necessary to install new transport equipment grew still larger. This budget amounted on average to 45-50% of the total equipment appropriations of urban areas and 60-70% of those of rural areas. The projects undertaken and the measures achieved entirely during the first phase called for very consistent follow-up action and a whole sequence of operations which it was difficult or impossible to avoid. Public discussions on the purpose of this planning were thus superimposed one after the other on the technical measures necessitated by the decisions of the previous phase which entailed short or medium-term solutions of a different character from those advocated by the defenders of the environment for reshaping the organisation of space.

Between 1965 and 1972, therefore, the number of planning requirements created by lines of communications remained high as far as roads were concerned, although they were 10% fewer than in the preceding phase. While rail and internal waterways were far down on the list, having previously benefited from some changes but having retained their traditional structure, airports proved to be a truly disrupting factor and accounted for 16% of the cases recorded:

Planning requirements created by lines of communication	Total situation	Large cities	Other towns	Rural areas
	%	%	%	%
Roads	68	80	76	93
Rail	6	1	7	3
Waterways and river ports	9	1	6	3
Airports	16	18	11	1

In large cities the problems were aggravated by the important part played by roads, but elsewhere the negative effects of roads diminished. On the other hand, those caused by airports, which developed later, generally increased, but mainly in cities, which is understandable in view of the number of airports created there (cf Appendix II).

A comparison between the situation created in towns of the old type and those rebuilt after the second world war also reveals signs of change:

Planning requirements according to types of lines of communication	Towns consisting of old structures (over 150,000 inhabitants)	Towns rebuilt after 1945 (over 150,000 inhabitants)
	%	%
Roads	73	41
Rail	8	24
Waterways and river ports	7	18
Airports	12	17

The dynamism acquired by roads had also led to new planning requirements, though there were fewer of these in rebuilt towns than in those which had retained their old character. Railways and waterways or river ports, however, now made more such demands than formerly. But while airport needs were still increasing slightly in old towns, those occurring in rebuilt towns had fallen by 12% compared with the previous phase (cf Appendix II).

The requirements recorded inside towns of over 150,000 inhabitants can be seen from the following table:

Types of requirements	Percentage of total transport requirements
General atmosphere	22
Town centres	18
Problems of suburban links	17
Problems of links with outlying districts	16
Urban intersections	14
Transport of dangerous or bulky goods	13

Questions concerning the town's general atmosphere had already been partly dealt with previously (cf Appendix II), as had also those of town centres (introduction of one-way streets, pedestrian precincts, subterranean or multi-storey car parks, etc) and those of links with the suburbs; but demands were stepped up in three sectors: firstly at urban intersections where an extraordinary amount of nuisance was caused by the rise in traffic, the increased number of traffic lights and the resulting concentration of fumes and noise, especially during the summer. Suburban connections were far from adequate and this caused frequent congestion. The transport of dangerous or bulky goods, which had not created much of a problem during the previous phase, now became a serious obstacle in towns, which accordingly sought to divert through-traffic and to regulate the supply or discharge of the substances concerned.

At frontiers too the difficulties generally continued to mount. The delays which had occurred up till 1960, the time at which the Common Market frontiers began in practice to open up and trade between this market and the European Free Trade Association was intensified, were made up for at a sometimes excessive speed which created congestion and disparities of all kinds. Frontier areas, which were becoming more fragile than ever from the environmental point of view because they were being regarded less and less as ones to be avoided, were sought after for the construction of new roads, railway lines and motorway networks and the establishment of firms which it was necessary to link with the trunk routes and whose harmful effects had to be reduced. Our inquiry shows us how greatly in demand municipalities situated at frontier intersections had become for the introduction of transport systems and their accompanying equipment. These municipalities reserve a very much larger share of their budgets for this sector than did other municipalities: frontier towns spent on average 25-30% more than other towns on transport infrastructure and the combating of the resulting pollution; the

corresponding rate for rural municipalities was about 15-20%. Admittedly, however, these differences narrowed towards the end of the period under review and the discrepancies fell to under 10%, sometimes only 6% or 7%.

By around 1972 the crisis created by the large volume of planning demands and the protest campaign had reached such proportions that various changes had already been introduced in nearly all areas. The increasingly heavy tax pressures on the municipalities, the assessments of inconsistencies and the calculations of compensation costs, which had been reduced by the decline in the number of cases, as well as new forms of protest proposed by the social groups, led to the adoption of compromises which aimed at reconciling economic needs with social and human aspirations, the inevitability of "destroying" the environment with the possibilities of "conserving" it.

VI. ADVANTAGES OF REDUCING THE CONCENTRATION

A. Search for new forms of consultation

In the last phase of the period under review the number of new planning demands began to subside. The public discussions and the decisions taken related essentially to situations which had already arisen during the second phase, but for which it had not been possible to find an adequate solution or a consensus capable of reaching a precise decision or achieving a practical measure after a decision of principle had been taken. Sometimes too the amount of appropriations necessary for undertaking concrete action were insufficient to meet the needs, particularly at a time when it was necessary to incur numerous expenses for production equipment so that, where certain financial difficulties existed, the environmental aspects were neglected as having less priority. It now became necessary, therefore, to settle problems which had remained outstanding for quite a long period and to complete the granting of compensation for the damage caused to the environment. Thus the cases of planning demands indicated by the municipal authorities were generally fewer than those of the previous period; the share which lines of communication and transport had in this situation was also substantially reduced; it did not exceed on average one-third of the cases in urban areas and about 22% in rural areas. Very often, it is true, it was only with great difficulty that steps could be taken to reduce the harmful effects of the infrastructure created. Most of the time the destruction of the milieu was irremediable, at least in a society which hesitated to challenge systems which had been established and habits which had been acquired in the meantime: in order to satisfy some people it would be necessary to harm the interests of others. It was, therefore, preferred to maintain the status quo.

While roads have continued to receive most of the aid granted since 1973, such aid has been divided in a more balanced way between various pre-occupations. In towns there have been fewer cases of assistance to the town as a whole, while greater attention has been paid to specific questions: links with the suburbs and outlying districts; intersections with a high density of traffic where attempts are being made to establish early warning systems in the event of saturation of the atmosphere with a view to diverting the traffic, etc; transport of dangerous or bulky goods, taking previous measures into account (cf Appendix II, table IV). The results of the inquiry conducted into this subject are summarised below:

Types of requirements	Percentages of total transport requirements since 1973
General urban framework	19
Town centres	10
Problems of suburban links	21
Problems of links with outlying districts	17
Urban intersections	18
Transport of dangerous or bulky goods	15

The search for new planning goals, especially with regard to transport, is based on the experience acquired and the failures resulting from the former productivist conception, though there is little hope of transforming the already existing infrastructures. Aided by the decline in growth and the demographic stagnation, however, the consultation policy, based on different ethical values from those of the previous phase, is beginning to bear fruit. A better understanding of the toxic effects of road and other forms of traffic has led the authorities to seek techniques capable of remedying or at least reducing the harm done by other techniques. The findings of the biological and social sciences are beginning to infiltrate into territorial organisation, with the aid of "anti-pollution" techniques, and the economic sciences of Keynesian type have started to lose their ascendancy. International organisations are also taking up the question, such as the Council of Europe, the European Communities and the United Nations services in Geneva which deal with the area with which we are concerned. By means of periodical consultations with the various social groups it has gradually become possible to arrive at a conception of planning more in keeping with the basic demands of maintaining the quality of life, though there is still little scientific grasp of this notion. The new process has not escaped the danger of the contradictions arising from the behaviour of the defenders of the environment themselves, who frequently project on to the rural areas the nostalgia they feel as city-dwellers and who, once they appear to possess a secure income, would willingly block the most elementary economic dynamism. This process has nevertheless served to moderate the appetites of the technocrats and to protect more effectively than in the past the vulnerable areas where there is over-consumption as well as areas which are still more or less unspoilt. The excesses of partisans of a "hard" ecological line, who will scarcely tolerate any longer the construction of a motorway, the digging of a canal, the creation or extension of an airport or the establishment of a road bulking centre, have at least had the merit of drawing the public's attention to the biological hazards existing on both sides of trunk routes, the selling-off of the best agricultural land in order to make the management of public works more profitable,

the deterioration in psychic processes and in buildings which is taking place near airport runways. In the mountains the tunnelling of roads accompanied by the building of sports and residential complexes has slowed down. Between 1973 and 1980 projects to extend road networks were abandoned in a particularly spectacular way. The following table shows the change which occurred:

Period	Rate of road projects abandoned compared with total number of road projects worked out				
	large towns	small and medium-sized towns	surrounding rural areas	remote rural areas	mountainous regions
1973-1975	6	8	5	11	14
1976-1978	11	14	9	17	22
1979-1980	13	15	12	19	25

Towns of small and medium size, but especially the parishes of remote rural areas and of mountainous regions show an increasing rate of abandoned projects, although the development began to level off in 1979, if only because the previous braking has already included a large number of projects deemed to be unnecessary or unsuitable. Pressure nevertheless remains strong in the large cities and their suburbs, which are victims of the system they created themselves, whose advocates have noted and pointed out that discrepancies of a "high technological level" are occurring in the transport field between densely and sparsely populated areas.

The care given to the environment is also strengthening certain transport practices the most important of which are:

- multi-modal innovations in general,
- combined road and rail transport in particular,
- bypasses and alternative routes,
- road bulking centres.

Since 1973 the operations carried out in these various fields have pointed to a genuine desire to relieve urban congestion and a constantly reiterated concern to enable the rural areas to benefit from these measures:

Types of new practices	Rate of increase in the number of new practices compared with the average in the 1945-60 phase			
	1960-72		since 1973	
	in towns	in rural areas	in towns	in rural areas
Multi-modal innovations in general (including combined road and rail transport)	14	6	35	13
Combined road and rail transport	2	-	23	-
Bypasses and alternative routes	22	15	48	26
Road bulking centres	9	1	39	22

In conclusion we can affirm that the current changes herald a definite break between the present and the recent past. The present planning imperatives which have come to light as a result of fresh talks on environmental problems entail the adoption of specific practices designed to modify gradually and fundamentally transport techniques, the distribution of traffic flows and types of communications, with as a corollary a spatial re-organisation of networks. The results of the haphazard development which has occurred over the last thirty years have not all been negative ones since this development has now led to the whole subject being raised again and a more humane type of planning being devised.

B. Structural role of secondary roads and of small and medium-sized firms in interstitial areas

The general propensity for constructing major trunk routes into towns or rather through them has often caused people to overlook the effective structural role played by secondary roads in areas in which the size of firms is such as to require a network of links on a mainly sub-regional scale. This means that many of the small and medium-sized firms have been sacrificed to the interests of gigantism. Sometimes it even seems more important to construct a major route in a district which is somewhat isolated than to give areas which are already very active an even more central position. The social and economic effects of new lines of communication on under-developed sectors clearly demonstrate the value of the measure adopted. Investigations we have been able to make at the Porte d'Alsace (France) during the last few years, for instance, go to show that the building of the A36 motorway is a piece of engineering which is already having an important structural effect inasmuch as it is strengthening the growing number of links between Upper Alsace and

the Porte d'Alsace. The opening of the motorway has brought about profound changes in the local and sub-regional relationships created in the most varied fields of social life. The opening up of the territory, the reduction in travel time caused by faster speeds and the creation of access roads have transformed everyday existence. The result has been greater material and mental mobility, reinforced by the influence of the various forms of social communication and the craze for the motor car.

Changes seem to have occurred especially in the following five categories of behaviour: commercial customs, cultural practices, trends in secondary and higher education, the spatial relationships of employment, choices concerning the siting, extension or removal of firms and their territorial links with sub-contractors, suppliers, client firms and manpower pools.

The following table summarises the general development and indicates types of behaviour during the third and then the fifth year following the opening of the motorway section:

Period	Commerce % (*)	Culture % (*)	Education % (*)	Employment % (*)	Total % (*)	Number of firms or works established
3rd year after opening of motorway section	37	12	8	15	72	6
5th year after opening of motorway section	42	15	11	19	87	11

(*) Compared with the year preceding the opening of the section

If we compare these types of behaviour with those caused by a motorway section opened long before that of Mulhouse-Belfort, the southern end of HAFRABA (Hamburg-Frankfurt-Basle) - ie the sector from Lahr(1) onwards - for instance, we will note that the recent motorway generation appears to be helping to make up for the delay caused:

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(1) Lahr is a town situated in South Baden, north of Freiburg-im-Breisgau

Period	Commerce %	Culture %	Education %	Employment %	Total %	Number of firms or works established
3rd year after opening of motorway section	19	9	4	12	44	-
5th year after opening of motorway section	23	12	7	15	57	21

Motorways very quickly upset traditions, first in commerce and then with regard to daily migrations to work. But culture and education follow closely after and give the general movement such impetus that it creates new relationships which are more or less irreversible. As three-quarters of the traffic on this section is directed towards Mulhouse, one-fifth towards Belfort-Montbéliard-Sochaux and about five per cent towards the centres and localities along or near the motorway, it is clear that the degree of attraction depends on the size and multi-functionality of towns. Having been attached until 1871 to the Department of the Upper Rhine, the territory in question seems, moreover, to be renewing its special contacts with its old administrative framework, or at least with the town of Mulhouse. The present motorway section reveals more clearly than ever the barrier existing between the Franche-Comté and the "Alsace-Belfort" complex at the level of Isle-sur-le-Doubs. The intensity and rapidity with which the traffic flows have changed direction seem to indicate the existence of a motorway generation which favours development trends which have long been concealed and which seeks to regulate the present administrative divisions.

Although the inquiry was not as detailed with regard to the links between Belfort-Montbéliard and Basle as those between that urban complex and Mulhouse, we can nevertheless note that the motorway has led to more than double the number of Basle inhabitants travelling towards the territory and that the amount of travel in the opposite direction has nearly quadrupled. The motorway, moreover, has increased frontier permeability. The commercial artery of Basle, the "Freie Strasse", at present attracts Belfort customers even outside the weekend, which was rare before the coming of the motorway.

The north of the Franche-Comté and Southern Alsace thus form part of a polycentred metropolitan area supported by the Basle complex, without which the region would not have the same economic vigour nor the same social vitality. The gradual diversification of activities has given this multinational area a vigorous complementarity which is constantly asserting itself in the face of the neighbouring urban poles, Besançon, Strasbourg and Zurich. Having been somewhat curtailed, however, this development remains incomplete.

Quite apart from the major communication routes, tele-information is also likely to play a useful part in regional and sub-regional development. According to Y GASSOT, in "Journée de réflexion transports-télécommunications" of IDATE (Institut pour le développement et l'aménagement des télécommunications et de l'économie) (Montpellier, 4 June 1980), "It is in the tertiary sector that a new step towards the division of labour should be taken. People have become accustomed to regarding the proliferation of tertiary activities which take place in a town or region as a sign of a higher state of development. It is thus tempting to make a series of equations: teleprocessing = spreading of the tertiary sector = regional development ... Already during the sixties, when France was feeling the need for industrial expansion, the supporters of this view were expecting the wave of industrial decentralisation to lead to the gradual 'taking off' of the various regions. However, a process of hierarchisation of territories exists in France (which can be seen especially from the increase in differences between job qualifications from region to region). This process should be recognised as an objective fact. True, to draw attention to this fact does not imply that it is possible to change the trends to which it gives rise. But a regional planning policy which incorporates telecommunications (or 'telematics') must needs taken them into account ... As for the local networks, they might be managed in a more flexible and decentralised way which brings them close to the users and to the services they expect from the beneficiaries" (pp 18-21).

Local dynamism, moreover, depends partly on the inner vitality of a region, thus communication routes only constitute one more asset, however important it may be. This is the case, for instance, with the Austrian Tyrol (cf HERBIN, 1980) where, because of the region's strong social and economic system, the existing routes are undergoing a transformation of their original role and structure, which is leading gradually to the relativisation of the function performed by the Alpine range as a screen and an actual change in the role played by the Alps.

C. Importance of a decentralised politico-administrative system

In many cases the degree of efficiency of a regional or sub-regional system depends on the nature of the decision-making authority. In a decentralised régime (eg FRG, Austria), the existence of Laender and the importance of the powers possessed by the local authorities as a whole help to strengthen a region's transport structure more easily and rapidly. Even trunk routes which are the responsibility of the Federal Government are achieved with greater efficiency on the part of the regions and sub-regions than in a centralised country (eg France). The fact is that the Federal state's interlocutors carry considerable weight since as Laender they constitute inter-regional states. When an official request is made by a Land to the Bund, it takes on average nearly one-third less time for the works in question to be completed than it does in a centralised country such as France. When it is planned to create transport infrastructures for which the local authorities are responsible, the work is carried out on average twice as quickly in Austria, for instance, as in France and three times as quickly in the FRG as in France. Under the Swiss régime, however, the smallness of

the Cantons and their very great sovereignty have had the opposite effect to that produced by a centralised régime: all inter-Cantonal or national decisions depend on the views taken by the individual Cantons, the channelling of which may take a longer time than is required in a centralised country such as France. This Swiss peculiarity is illustrated by the prolonged blocking of the building of the Gotthard tunnel and the delay in the construction of the motorway network.

But Switzerland, like the Federal Laender of the FRG and Austria, does not possess such great differences in level as does France between transport infrastructures of the polarised regions and those of the peripheral or interstitial areas. These disparities are particularly irksome because when they occur at frontiers between a centralised state and a decentralised state, such as the multinational sector of the Upper Rhine, they create bottlenecks which are both worrying for the adjoining regions and prejudicial to the smooth functioning of the European area.

FUTURE PROSPECTS

Modern forms of transport or of communication have helped and are still helping to reshape the European area both as regards the flow of persons, goods and services and as regards their social and economic repercussions on the regions and sub-regions which are drained by these flows. These regions, however, only benefit to a very varied extent from having major traffic routes pass through them or near them. While the creation of a link road undeniably helps to open up a region, the effects produced by the new road do not appear to be necessarily positive. In general the effectiveness of a communication route depends on its capacity to meet real or potential economic needs. Thus it has to connect up points of activity which require such a route for ensuring supplies or the handling of marketable products, unless it brings closer together poles which exchange services or helps to benefit manpower pools, tourist or recreational areas and cultural centres. In the present circumstances, however, each route forms part of a graded transport system which has a centre and a periphery, an area of intense activity and sectors of low economic density. Peripheral routes do not have the same advantages as central routes, despite the social and economic congestion of the centre and the spatial or even human resources available in the marginal geographical sectors. Within this system the intermediary points between the poles of growth are not "irrigated" at the same pace; often they are even neglected in favour of places of proved centrality, and one is thus entitled to wonder whether the route is of any value to these abandoned sectors, in which it merely disturbs the environment which has already been roughly treated at the centres of high activity. On the periphery of the system distortions also abound, especially when its territorial limits coincide with one or more national frontiers or when its extremities consist of groups of islands or of isolated islands, mountain ranges or coastlines, or of border lines between differing political regimes (EEC/COMECON) or politico-administrative systems (centralisation/decentralisation).

Quite apart from the necessity to harmonise the various modes of transport in order to ensure maximum efficiency and a full and judicious use of the total resources of a country in the original sense of the term, taking into account the techniques of containerisation, palletisation and combined road and rail services, any new transport policy must abandon the exclusively Christallerian conception of central places, which tends to strengthen disparities by dividing regions into polarised areas and interstitial areas. Naturally, urban poles constitute the main spatial structure, particularly at a time of industrial development. They are supported by the ossature of the communication routes, which must enable them to expand as swiftly as possible. But the accelerated over-development of the poles caused by these same routes leads to multiple breakdowns in loading capacity, both on the demographic, economic and social plane and that of housing and buildings in general, with a consequent abuse of the environment and the quality of life. It has been too little understood that a transport route only serves its full purpose if it is able to "irrigate" fully the area concerned by possessing a sufficient number of effective ramifications, and if the beneficiary country exercises enough power of "resistance" in the social and cultural spheres, as it is not the essential task of such routes to bring about an exodus or overflow of tourists and residents of second homes.

This delicate balance cannot be obtained by technological power alone; quite the contrary, such power tends to ignore social realities and to favour quantity - that is, human conglomerations already possessing equipment which can be turned directly to account. Political resolve may well succeed in moderating the inopportune development which is inherent in the nature of the relationship between technical progress and its spontaneous application. A rugged piece of land which refuses to abandon its inhabitants or at least will only release them with difficulty loses all its powers of retention when a trunk route places it in a position of dependence on an urban centre. It is accordingly necessary to weaken the excessive attraction of distant areas by a corresponding strengthening of the structures of the interstitial area. Clearly, the public authorities have a decisive role to play in this field and it is important to create decentralised administrative institutions. The idea of major trunk routes connecting non-polarised areas will then acquire its full value and significance.

Until such time as such a re-organisation takes place, Europe continues to be confronted with a very clear-cut internal and international situation which has to be faced up to. Internally, a frantic race is being run towards the reduction of travel time, the creation of economic concentration and the increase of population along certain central routes, to the detriment of a more judicious distribution of activities and travel over the totality of space, particularly at a time when the cost of pollution exceeds that of opening up under-developed sectors. The rivalry started up by neighbouring towns or cities in order to increase their attractiveness by providing new or strengthened transport facilities often makes orderly planning difficult. The shifting of the centre of gravity, from Rhenish Europe to Central Europe of a certain number of flows of persons and goods coming from or proceeding towards the North-West, the Baltic Sea or the Western and Central Mediterranean region has increased the imbalances and placed technological efficiency at a premium. Simultaneously, Eastern Europe is playing an ever more important part in re-orienting traffic flows. It acts as a link between the Pacific seaboard - ie in particular Japan and the other major Far East exporters - and Western Europe which is relying more heavily than formerly on the links created with the COMECON countries. As part of this recentring process Western peripheral areas which border on the Communist countries are becoming less divorced from the polarised areas, just as the frontier regions of the neighbouring Socialist countries are experiencing renewed development. This new face of a Europe which has already been powerfully shaped by its communication networks demonstrates, despite many local and sub-regional indications to the contrary, the general importance of traffic routes for the social and economic development of the regions bordering these routes.

N O T E S

1. Cf in particular, in chronological order, the following Council of Europe publications many of which themselves contain very useful bibliographical references:

- ROTACH M: "Reconciliation of regional planning and transport planning in a European policy", Coll "European regional planning - Study series" No. 4, Strasbourg, 1977, 53 p (Ref: 49914-09.4)
- RADIUS R: "Report on recent developments concerning trunk communications and regional planning in Europe", Parliamentary Assembly, Doc. 4096, Strasbourg, 1978, 55 p
- Report on the joint CEMAT/ECMT seminar (21-23 November 1977, Paris): "The effect of transport on regional planning in Europe", Coll. "European regional planning - Study series" No. 13, Strasbourg, 1978, 33 p (Ref. 53973-09.4)
- JUILLARD E: "Trunk communications and balanced regional development", Coll. "European regional planning - Study series" No. 15, Strasbourg, 1978, 27 p
- Alpeninstitut für Umweltforschung and Entwicklungsplanung - Munich: "The function of Alpine regions in European regional planning", Coll. "European regional planning - Study series" No. 20, Strasbourg, 1978, 22 p (Ref. 53292-09.4)
- Parliamentary Assembly - Conference of Local and Regional Authorities of Europe: "Conference of Alpine regions - The future of the Alpine region", Lugano, 18-20 September 1978, Final Declaration, Strasbourg, AS/Coll./Alp (78) 10, 6 p
- ROBERT (J): "The Pyrenees: their role in European integration and the requirements of transfrontier co-operation", Coll. "European regional planning - Study series" No. 31, Strasbourg, 1980, 25 p Ref. 63747-09.4)
- European Conference of Ministers of Transport: Draft resolution on investment and trunk lines of communication in Europe", Paris, 24 April 1980, CM (80) 9, 4 p.
- European Conference of Ministers of Transport - Committee of Deputies: "Outline of scientific activities of the ECMT", Strasbourg, October 1980 11 p
- BUY M: "L'Europe du Sud-Ouest et le réseau européen des grands axes de communication", Conference of Local and Regional Authorities of Europe, Strasbourg, 18 December 1980, CPL/Am (15) 36, 61p
- Message of the Committee of Ministers to Steering Committees: "Declaration on balanced development in Europe", Strasbourg, 12 February 1981, SG (81) 3, 4 p

- CHENARD: "The European network of trunk communications", Conference of Local and Regional Authorities of Europe, Strasbourg, 25 March 1981, CPL/Am (15) 30
- Conference of Local and Regional Authorities of Europe: "Tenerife Declaration, 9 April 1980", Conference of European Island Regions, 7-10 April 1981, Strasbourg 1981, 8 p
- LAUDENBACH A: "Transport policies and new regional planning requirements", Coll, "European regional planning - Study series" No. 34, Strasbourg, 1981, 15 p (Ref: 65408-09.4)
- European Conference of Ministers of Transport: "List of publications", February 1981, OECD, Paris, 6 p.
- PLASSARD F: "Impact of transport infrastructural investment on regional development", CEMAT/CEMT (77) 3, Strasbourg, 1977, 23 p (51462-09.4)

2. A number of missions in Western and Central Europe and in the Eastern Communist countries have enabled us to analyse the connections between transport systems and space under the most varied conditions. Fact-finding journeys undertaken in the Far East (China and Japan) and in North America have given rise to valuable comparisons and confrontations.

3. We thank in particular certain colleagues who kindly agreed to take part in the study, whether on a general basis or with regard to a specific sectoral or geographical field, either verbally or in writing:

E AUPHAN, UER de Géographie et d'Aménagement spatial de l'Université de Lille

M BACKVAROV, Institute of Geography of the University of Sofia

J BILLET, Institut de géographie alpine, Grenoble

D BÖKEMANN, Institut für Stadt and Regionalforschung der Technischen Hochschule München

B BRABET, Institut pour le développement et l'aménagement des télécommunications et de l'économie, Montpellier

C CIACCIO, Facoltà Economia, Messina

J COPPOCK, Institute of Geography and Tourism, Edinburgh

J M CUSSET, Laboratoire d'Economie des transports, Lyons

G C EDMUNDS and J M B GOTCH, The Chartered Institute of Transport, London

G A ERIKSSON, Abo Academy (Finland)

H JEGLITSCH, Österreichisches Institut für Wirtschaftsforschung, Vienna

J L LASSERRE, Laboratoire d'Economie des transports, Lyons

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T LIJEWSKI, Institute of Geography and Spatial Organisation, Polish Academy of Sciences, Warsaw

J MAIER, Wirtschaftsgeographisches Institut, Bayreuth

K RUPPERT, Wirtschaftsgeographisches Institut, Munich

H U SULSER, Wirtschaftsarchiv und Universität, Basel

4. WACKERMANN G: "La recherche géographique sur la consommation-préservation d'espace par le tourisme et les loisirs", basic introduction to the Colloquy on "La consommation d'espace par le tourisme et sa préservation", Aix-en-Provence Records (1981) of the Committee on Geography, Tourism and Recreation of the International Geographical Union, published by the Centre des hautes études touristiques of the Université de droit, d'économie et des sciences, Vol. I, Coll "Etudes et Mémoires", Aix-en-Provence, 1981

5. Preparation of the International Colloquy of Mulhouse (May 1983) as part of the activities of the International Transport Institute, in conjunction with the Universities of Basle and Freiburg-im-Breisgau and with the participation of:

- Western and Central European universities (multidisciplinary)
- the national and international planning and transport administrations concerned
- professional transport bodies.

The theme adopted is worded as follows: "Major changes in trunk communications and transport in Western and Central Europe, with their Mediterranean and Atlantic implications and interactions."

6. According to Christaller the Upper Rhine regions, such as the Land of Baden and Alsace, still come under the same urban system despite the Rhine frontier introduced in 1918-19 (cf CHRISTALLER W: "Die zentralen Orte in Süddeutschland", Jena 1932, 2nd edition published in Darmstadt, 1968.

7. The inquiry conducted in the Rhine area as a river basin was based on the following cross-section:

- 38 simple rural parishes
- 22 villages
- 43 small towns
- 27 medium-sized towns
- 14 large towns.

8. As education in large towns is mainly dispensed in situ, this heading is irrelevant.

9. Cf WACKERMANN G: "Relations entre les types d'information des systèmes urbains et les natures d'évolution du monde rural - les pays rhénans depuis 1945", which appeared in a shortened form in "L'Information locale" (pp 62-69) of the Library of the Institute of Political Studies of Bordeaux, Pedone, 1980, complete text in "Mosella", UER de géographie, Metz, Vol IX, No. 3-4/1979, pp 74-85.
10. 32 ordinary rural parishes, 27 villages, 46 small towns, 31 medium-sized towns and 17 large towns.
11. Investigations conducted by the author of the present document while preparing his state thesis: "Les loisirs dans l'espace rhénan, de la région zurichoise à la frontière germano-néederlaïndaise", service for the reproduction of state Doctorate These, University of Lille - III, Lille, 1973, 673 p.
12. Cf among others MAIER J, WEBER J: "Tourismus und Naherholungsverkehr unter dem räumlichen Einfluss einer nationalstaatlichen Grenze: das Beispiel Nordost-Oberfranken" in "Bayeuther Geowissenschaftliche Arbeiten", Bayreuth, 1/1980, pp 103-113.

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BIBLIOGRAPHY

The information below is mainly designed to draw attention to new transport problems seen both from a general multi-modal point of view and from that of seeking as harmonious a socio-economic and socio-cultural development as possible. Thus the works mentioned are chiefly typical examples of current trends in the various discipline dealing with transport. This list may be usefully completed by the references indicated in the "Notes".

A P P E N D I X I

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INTERNATIONAL TRANSPORT INSTITUTE

12 rue d'Alsace
68100 MULHOUSE Tel. (89) 59 29 33

To the Director of the Institute of
Geography of

Our ref. WACK/ms

Subject: Request for documentation on the spatial
changes wrought by transport

Mulhouse.

Dear Sir

The Council of Europe has requested me to prepare by the end of the present calendar year a report concerning the changes which have occurred in the major transport routes and forms of communication in Europe; this report is intended for the European Committee of Regional Planning Ministers.

In particular this study must take into account the economic, social and cultural effects of the creation of new routes or new modes of transport as well as the consequences of the decline of other routes.

This report is also designed to serve as an introduction to the international colloquy to be held in Mulhouse-Basle in March 1983, concerning which I will send you in due course the information necessary for your possible participation.

I should be very much obliged if you could send me before the end of next November - possibly on a loan basis - the publications of your Institute or its researchers concerning the subjects mentioned above. This work will naturally be mentioned in the bibliography. The main results to which it has led will be indicated in the report.

Thanking you in advance for your kind assistance.

I am, Sir,

Yours faithfully

G WACKERMANN
Director

A P P E N D I X I I

Synoptic Tables

Table I

Planning requirements created by lines of communication (in %)

Roads		Rail		Waterways and river ports		Airports	
1945-60	1961-72	1945-60	1961-72	1945-60	1961-72	1945-60	1961-72
78	68	9	6	7	9	6	16

NB. Calculated as % of all lines of communication for the specified part of the period under review

Table II

Planning requirements created by lines of communication according to the size of towns (in %)

Types of requirements	1945-60	1961-72
<u>Roads:</u>		
- large cities	73	80
- other towns	79	76
- rural parishes	96	93
<u>Rail:</u>		
- large cities	9	1
- other towns	7	7
- rural parishes	3	3
<u>Waterways and river ports:</u>		
- large cities	6	1
- other towns	5	6
- rural parishes	1	3
<u>Airports:</u>		
- large cities	12	18
- other towns	9	11
- rural parishes	-	1

NB. % calculated according to each type of municipality for the specific part of the period under review.

Table III

Planning requirements in old towns and rebuilt towns according to types of lines of communications (in %)

Types of lines of communication	Towns consisting of old structures (over 150,000 inhabitants)		Rebuilt towns (over 150,000 inhabitants)	
	1945-60	1961-72	1945-60	1961-72
Roads	81	73	46	41
Rail	5	8	11	24
Waterways and river ports	4	7	14	18
Air	10	12	29	17

NB. % calculated according to each type of municipality for the specific part of the period under review

Table IV

Rate of urban requirements for each type of problem

Types of requirements	Percentage of total number of transport requirements		
	1945-60	1961-72	Since 1973
General atmosphere	29	22	19
Town centres	21	18	10
Problems of suburban links	19	17	21
Urban intersections	11	14	18
Problems of links with out-lying districts	14	16	17
Transport of dangerous or bulky goods	6	13	15

DOCUMENTS PUBLISHED IN THE STUDY SERIES
"EUROPEAN REGIONAL PLANNING"
1976-1981

Study n°

1. Co-ordination of planning in frontier regions -
- A case study,
prepared by Martine ARNOLD (1977)
2. Theories and methods of forecasting,
prepared by Claude LACCOUR and Colette DURAND (1977)
3. Outline of a concept of European regional policy - Pilot study,
prepared by Klaus R. KUNZMANN (1977)
4. Reconciliation of regional planning and transport planning in a
European policy,
prepared by M. ROTACH (1977)
5. Terminology of regional planning - Pilot study,
prepared by J.S. WOODFORD (1977)
6. Possibilities of using automated cartography,
prepared by H. BERNATH (1977)
7. The objectives of european planning,
prepared by ERIPLAN (1977)
8. Harmonisation of regional plans in frontier regions,
prepared by Viktor Frhr. von MALCHUS (1977)
9. Renewing Europe's inner cities,
prepared by Graeme SHANKLAND (1978)
10. The effect of increased tertiarisation of central urban areas and
policies to control it,
prepared by N. LICHFIELD (1978)
11. Seminar on "Territorial planning and long-range forecasting in Europe
(Report of the Seminar 28-29 November 1977) (1978)
12. The effect of changing demographic patterns and structures on urban
and regional planning,
prepared by Paul drewe (1978)
13. The effect of transport on regional planning in Europe
(Report of the Seminar 21-23 November 1977) (1978)
14. The use of long-range forecasting techniques and projections for the
definition of a European regional planning policy,
prepared by the "Association Internationale Futuribles" (1978)

15. Communication axes and balanced regional development,
prepared by Etienne JULLIARD (1978)
16. Long-range forecasting and regional disparities in Europe,
prepared by Jacques ROBERT (1978)
17. The scope for using automated cartography in regional planning,
prepared by Sylvie RIMBERT (1978)
18. The place of the peripheral regions in a European concept of
regional planning,
prepared by Georges PIERRET (1978)
19. Bilingual glossary of terms related to urban and regional planning,
prepared by Jacques ROBERT (RESEAU) (1978)
20. The function of alpine regions in European regional planning,
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