EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT

XIII

COUNCIL OF MINISTERS

RESOLUTIONS

BRUSSELS 11th-12th JUNE 1963
PARIS 25th-26th NOVEMBER 1963

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PART I

GENERAL PROBLEMS

Resolution No 13 concerning
FORECASTS OF GOODS TRAFFIC DEMAND UNTIL 1970

THE COUNCIL OF MINISTERS OF TRANSPORT,

Meeting in Paris on 25th-26th November 1963,

Having regard to the report below [CM (63)14], of the Committee of Deputies on forecasts of goods traffic demand in 1970.

Conscious of the importance of such long-term forecasts, particularly for the preparation of investment programmes;

I. NOTES with satisfaction :

a) that after a preliminary study limited to six countries, the number of Member countries taking part in the studies this time has risen to fifteen, i.e. practically the full membership;

b) that about half the Member countries which took part in the new study were able to draw up their forecasts on several different bases, one of which was common to all, thus enabling the results to be cross-checked and so increased in value.

II. INVITES Member countries which have not yet taken part in the study to make the necessary arrangements to enable them, in future, to take part in any forecasts prepared within the framework of the E.C.M.T.

III. EXPRESSES THE HOPE that, for the purposes of their research, Member countries will from now on use a method based on more clearly differentiated data, in addition to a global method referring to a general index such as the gross national product, under as uniform conditions as possible.

IV. FINDING that these studies have again demonstrated the inadequacy of statistics on goods transport by road, which had justified Resolution No. 9 of the Council,

URGES that special attention be given without delay in each country to the improvement of road transport statistics.

V. AGREES to resume, within the E.C.M.T., the study of goods traffic demand in relation to the period 1965-1975.

VI. INSTRUCTS the Committee of Deputies, in the light of the hope expressed in paragraph III :

a) to keep under constant review the trend of traffic demand and investment, referring as far as possible to the results of the present forecast;

b) to endeavour to find basic data as comparable as possible;

c) to organise the necessary contacts between representatives of Member countries, with the possible aid of experts, so as to promote the harmonization of research methods.

REPORT OF THE COMMITTEE OF DEPUTIES ON FORECASTS OF GOODS TRAFFIC DEMAND UNTIL 1970

[CM (63) 14]

I. INTRODUCTION

On 20th October 1959, the Council of Ministers instructed the Committee of Deputies to prepare a long-term forecast of goods traffic demand. A preliminary paper was submitted to the Council of Ministers in May 1962.

A prerequisite of any activity in connection with transport policy, and particularly as regards infrastructure, is an adequate knowledge of the long-term development of traffic and of the distribution of total traffic among the various forms of transport. The problem of acquiring such knowledge arises in all Member countries of the E.C.M.T. The preparation of a forecast of demand which might provide some of this knowledge and a joint study of the problem of method thus find a natural place in the work of the Conference.

As the purpose of the study was to prepare and improve forecasts of traffic in Member countries, it would have been desirable to start by preparing forecasts for the 18 countries as a whole, based on a uniform field of study and on valid and comparable statistics. In point of fact, differences in national traffic situations rendered this impossible.

The determination of the scope of the forecast already sets a number of problems; the terminal date should be far enough ahead to allow for the long life of infrastructure works and the time it takes to complete them, but not so far as to impair the informative value of the forecast by introducing too many political and structural causes of uncertainty. The terminal date adopted (1970) takes these matters into account and is also the same as that adopted for the O.E.C.D. study on economic growth in the Member countries of that Organisation.

A compilation has been made in this paper of national studies prepared by various methods and covering slightly different fields; the studies are then analysed and the findings compared. The result of course is that comparison has been made more difficult.

In order to remedy this state of affairs to some extent, it was considered advisable to recommend Member countries to use, as a minimum recourse, the so-called global method which is described below. This method, which can easily be applied by all countries, was developed following a preliminary study made in 1961.

This study was continued in 1962 and 1963 and the experience gained has enabled the content and scope of the forecasts to be appreciably improved.

The situation may be summed up as follows:

15 of the 18 Member countries of the E.C.M.T. took part in the forecasts. These were: Belgium, Denmark, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

As the legal bases for compiling statistics of goods transport by road in Austria were not introduced until 1963, Austria has not yet been able to contribute to this study. The hope has been expressed that Austria, whose geographical situation is very important for European transit traffic, will take part in future.

Although unfamiliarity with projections and the quality of the statistical information available compelled certain countries to apply relatively simple methods, others were able to operate on increasingly differentiated and detailed bases. Certain countries supplemented the global method recommended by the E.C.M.T. by various other methods which could be used to check results.

II. FORECASTS

A. Critical examination of forecasting methods

The remarks which follow are not intended as a pronouncement on the value of the national

studies prepared by Member countries. Their sole purpose is to compare the methods adopted in detail so that the reader can better appreciate the value as information and the comparability of the national results obtained.

1. *Preliminary considerations*

Any long-term forecast is founded on the principle that goods traffic demand is not any independent variable in the overall structure of the economy, but a derived variable. It depends mainly on the general economic activity and particularly on the production and distribution of goods; it also has its own effect on economic activity.

It follows that the trend of goods traffic cannot be explained by itself, as by extrapolating past tendencies. On the contrary, it is the resultant of a series of economic and technical forces.

2. *Global methods*

These methods consist in finding one or more relations between previous trends in goods traffic and certain reference values, and then in extrapolating from forecasts of the trend in such values.

One of these is real gross national product[1] : this is the global expression of the economic activity of a country, including transactions with other countries.

The method recommended by the E.C.M.T. involves only one relation with a single independent variable, namely G.N.P.

In spite of some obvious advantages, this method is open to serious objections, and special attention should be drawn to the following points :

a) There are factors of the gross national product which bear no direct relationship to goods traffic although their influence on the economic environment is subject to wide fluctuations. One example of this is the services sector, which represents an increasingly large proportion of the national product in most countries. From the mathematical point of view, this may produce a change in the correlation which has been established, though the extent of the change cannot be assessed.

b) Gross national product is moreover not independent of the volume of goods traffic. A global method based on a single relationship cannot take sufficient account of this process of economic interdependence.

c) Transport performances, expressed in ton-km., naturally depend on distances. This last factor has no logical relation with gross national product but depends more on the geographical structure of the country and on the distribution of industrial development areas and centres of consumption. Certain of these factors eventually undergo changes which the global method cannot be relied upon to take into account.

d) Gross national product provides no explanation for transit traffic.

Although global methods have their faults, the advantages which have caused them to be recommended must be pointed out. In the first place, they provide a common basis of comparison for the various national studies. Secondly, the statistics and volume of work required are relatively slight. Finally, as Table III shows, the results obtained give values which are comparable with those obtained by other methods.

3. *Detailed methods*

The disadvantages referred to above indicate the lines on which a differentiation would enable these drawbacks to be avoided. Such a differentiation is necessarily more individual, since it must take account of the factors, peculiar to each Member country, which act upon economic growth and traffic trends.

In many cases the method can be refined only at the expense of strict consistency as among national studies. Certain countries consider, however, that the detailed method makes for closer approximation; in particular, foreseeable changes of structure can more easily be allowed for. It may be reported that several countries have engaged in actual pioneer work in this connection.

The following methods may be distinguished :

a) *Forecasts by economic sectors*

Experience has shown that a closer relation exists between the development of certain

1. Goods traffic represents a real value expressed either in tons or in ton-km; care is therefore needed when comparing it with the gross national product, which is expressed in monetary values. In order to eliminate price fluctuations, G.N.P. is calculated at constant prices for a specified reference year.

economic sectors and the volume of goods traffic covered by those sectors. Hence, if a group of economic sectors is chosen, separate forecasts for each of these sectors can be prepared by using special reference values. Examples of this are fuel and power, the iron and steel industry, building, agriculture, etc. In certain countries, forecasting can fortunately be based on a considerable mass of reference information collected on occasion for other purposes (e.g. within the E.C.S.C.) and relating to the probable development of the economic sectors concerned.

b) *Forecasts by categories of goods*

Another method may be based on so-called representative categories of goods, i.e. those whose development faithfully reflects that of some transport sector. The quantities of each of the categories of goods carried are thus related to production and imports.

The number and nature of the categories of goods selected depend primarily on structural conditions in each country and on the statistics available.

c) *Forecasts by traffic axes or currents*

All traffic demand is determined geographically. In principle, therefore, goods traffic can also be forecast from the point of view of interregional economic connections by analysing trade between the main production and consumption centres. In order to do so, the territory must be divided into areas of various sizes and a matrix of trade must be established. From certain assumptions as to the probable trend, model forecasts of the development of traffic can then be prepared.

A prerequisite of this method is a sound knowledge of trade patterns and extensive facilities are required. So far it has been little used, but it is ideally suited to the solution of specific questions such as the transit problem and is the only method affording accurate conclusions in regard to the problem of investment.

d) *Forecasts by forms of transport*

Forecasting is even more difficult when it comes to separate forms of transport. Governmental transport policies and uncertainty as to competition are such that the figures given by Member countries are only valuable as landmarks.

This uncertainty also affects the methods used, which as a rule ultimately consist in an extrapolation of tendencies so far observed; they are rarely based on a more intensive analysis of probable changes in infrastructure, technical or tariff conditions, the transport pattern or the regional distribution of main lines of communication.

B. Distribution among forms of transport

If valid conclusions are to be drawn for transport and infrastructure policies, it is necessary to ascertain how traffic will be divided up among means of transport.

The distribution pattern is obtained automatically by method A(3)(d) and contingently by method A(3)(c), as referred to above. In other cases, the type of distribution has to be determined a posteriori. The uncertainties already mentioned obviously persist. In most cases, the only possible recourse is an extrapolation of tendencies, which may be weighted to allow for the total already obtained.

C. Comments and prospects

The purpose of these forecasts, as has already been pointed out, is to sketch out a picture of the long-term trend of goods traffic performances (in ton-km) and volumes (in tons), and their distribution among the various forms of transport. But such a picture could not alone be used as a basis for European investment projects in this field. These could only be determined from studies based on currents of traffic and means of transport.

A comparison of the aim in view with actual conditions shows that a sufficiently complete and detailed picture for all countries cannot now be drawn. Yet the outlines are fixed and, even in the form of a rough sketch, the elements already form a whole.

The national studies still contain various weak points, which are indicated below. It would seem desirable for countries to take advantage of the comparison of these studies to improve their forecasting methods:

1. Basic statistics are the feature which leaves most to be desired. A glance at Table I (column 3) will suffice to show that, with the exception of Germany and even there only for long-distance transport, there is no exhaustive reference material on goods transport by road in any country. The figures given are generally derived from a few scattered sample surveys or are deduced from the development of the number of vehicles and the consumption of fuel.

Inland waterways statistics are frequently inadequate.

The improvement and harmonization of transport statistics in Member countries is therefore essential if progress is to be made in forecasting.

2. The field of study varies from one country to another. Generally speaking, the forecasts were supposed to deal with all traffic, whether crossing a frontier or not, and regardless of the form of transport. Greater uniformity of national studies in this connection would seem necessary.

3. In view of the special function of transit traffic, it would be desirable to give separate figures, as has been done by the Netherlands and Switzerland, and to a certain extent by France and Norway.

4. It would presumably be worthwhile to supplement the figures for ton-kilometres with figures for the tonnage carried. The volume of traffic thus appears to bear an appreciably closer relationship than transport performances to certain economic reference values: e.g. tonnage of coal carried and coal production, etc. It is also an important adjunct for the preparation of such forecasts as those dealing with capacity.

So far France, Germany, Luxembourg, Norway, Spain, Sweden and the United Kingdom have supplied information on foreseeable trends in traffic volume. The corresponding figures for Switzerland apply only to transit traffic and the figures for the Netherlands to international traffic.

5. It also seems desirable that all countries should employ more than one method in studying the long-term traffic trends. This would make it possible to assess the margin of doubt and cross-check the estimates. This remark is valid for general forecasts and also for distribution among forms of transport.

III. RESULTS

A. Statement on preliminary conditions

However carefully projections concerning goods traffic are worked out, they always contain a certain amount of ambiguity, which is an inherent feature of all economic forecasts.

A knowledge of the economic environment, as to the accuracy of the basic statistics and nature of the fundamental assumptions made is essential for correctly interpreting the informative value of the results. In this connection it seems useful to give special consideration to the following aspects:

1. *Assumptions*

Certain assumptions, some implicit and some explicit, are inherent in any econometric model. The first relate to the political, economic and social stability of the external setting in which traffic develops. Thus, for example, it is acceptable to omit any allowance for unforeseeable causes of disturbance: economic crises, sudden changes in basic economic concepts, natural disasters, etc. For the period of the forecasts true economic equilibrium can also be assumed, which means that there is no appreciable divergence between supply and demand. In this study no special attention has been given to the consideration of this kind of assumption.

Conversely in the national studies other assumptions have been made which are specific to the method used and therefore explicit, such as those in regard to economic phenomena appreciably affecting the trend of transport. Such assumptions determine the choice of reference values and indicate the relation between reference values and dependent variables; they are reflected in the structure of the econometric model used. Finally, in this category of assumptions should also be mentioned those relating to the future trend of the independent variables and those relating to various changes in tariff policy, technical conditions, the structure of demand, etc.

These last-named assumptions are set out in a summary table (Table I) to give the reader a clear idea of the essential features of the studies presented and enable him to interpret the results accurately.

2. *Field of study*

The national studies show considerable differences of coverage. Theoretically the forecasts should relate to inland transport by rail, road, waterways and pipelines, whether or not the frontiers of the country are crossed. Yet many countries depart from this principle. The figures for Luxembourg are limited to railway transport and those of the United Kingdom to railway and road transport. The Italian and United Kingdom forecasts omit pipeline traffic although this is a form of transport which is developing intensively in those countries.

There are other differences in connection with coastal shipping. Certain countries include this in their forecasts, either because of their geographical situation or because of the proportion of total traffic which it represents. So far, only the Danish, Italian, Norwegian, Portuguese and Swedish studies include figures for coastal shipping.

Other countries, such as Belgium, have taken no account of transit traffic in their estimates. The Netherlands gave separate returns for international traffic and Switzerland for transit traffic, owing to their particular importance. The French study has distinguished transit traffic to Germany by pipeline as representing an important change due to the coming into service of the south European pipeline.

Table I (column 1) gives more ample information on the limits of the field of study.

3. *Basic data and statistical errors*

As has already been pointed out, the basic data for the previous period frequently leave much to be desired. The uncertainty attaching to all long-term forecasts is made all the greater as previous trends in transport are often known only in the form of variously approximate estimates. This is especially true of the total number of ton-kilometres as distributed among the different forms of transport, and such figures should be interpreted with caution.

It is not possible to make any general pronouncement on the margin of statistical error. It is nevertheless significant that the regression equations of national studies indicate, for the past, a high degree of correlation between predicated and dependent variables. Yet this does not justify the assumption that an equally close correlation will be maintained in future.

B. Traffic in 1970

1. *Presentation of results*

The calculations are set out in the form of four tables and four graphs. They can therefore be examined from different viewpoints so as to give prominence to the most interesting aspects of the results.

Table II shows the trend of total ton-kilometres, by countries, from 1955 to 1970. Where available, figures for tonnage are shown at the bottom of the table. The first two graphs depict the trend of traffic for that same period.

According to the size of the countries, it seemed advisable to adopt two different scales for presentation in graph form and to divide the figures for the fifteen countries into two groups.

Table III shows the results obtained by the global method and by more complex methods. It can be seen that the approximate values do not greatly differ. A comparison of the results provides some confirmation of the forecasts obtained, but the differences do not necessarily represent the margins of error for the methods.

To facilitate comparison between the figures for the different countries and the interpretation of the figures, Table IV expresses, in the form of indices (base 1960 = 100), both the development of the total number of ton-kilometres by countries and the trend of the characteristic standards of economic activity, generally speaking the gross national product. These results are also shown on Graph 3.

Table V gives a breakdown of the total number of ton-kilometres by type of transport facility in the various phases of the period under study. This breakdown is also illustrated by Graph 4.

2. *Comments*

Subject to the reservations already mentioned, the study can be used to illustrate the following aspects;

a) *General lines of the trend of goods traffic*

The figures in Table II and the tendency curves in Graphs 1 and 2 show a net increase between 1955 and 1970 for goods traffic as a whole. It is noteworthy that, with the exception of Germany and Luxembourg, all countries expect the average annual increase in goods traffic to be higher between now and 1970 than that recorded since 1955, even though these recent years have been marked by intensive development. Taking all the countries participating in the study, transport performances should have almost doubled between 1955 and 1970 and should increase by more than 50 per cent between 1960 and 1970. In absolute figures, the largest share in this enormous increase falls to France[1], followed at some distance by Germany and Italy.

So far as the available figures are able to show, a comparable general increase in tonnage is noted. The overall development of traffic performances seems chiefly influenced by the

1. This increase is partly due to transit traffic by pipeline.

quantities of goods carried, and to a lesser extent by changes in length of haul and the geographical structure of axes of transport. The apparent stability of the total tonnage carried in Luxembourg and the United Kingdom is probably due to the categories of goods selected.

On examining the indices of traffic performances in Table IV, it is striking to find how great the differences are between the various countries. By 1970, Spain and Denmark expect a considerable relative increase in their goods traffic. The indices for those two countries, calculated on the base 1960 = 100, stand at 184 and 177 respectively; then follow, in descending order, Switzerland, France, Belgium, Italy and the Netherlands, where the index for 1970 has been estimated at over 150. The indices for the other countries instead show a gain of less than 50 per cent compared with 1960.

b) *Comparison between the development of traffic and the growth of economic activity*

If traffic development is compared with the progress of economic activity, the 15 countries can be classified in 3 groups: first, those in which traffic shows an appreciably smaller increase than G.N.P., i.e. Germany, Luxembourg[1] and the United Kingdom[2]; then follows a group consisting of France (not including pipeline traffic), Italy, Portugal, Spain and Sweden, where development is approximately the same in both cases; and finally a third group consisting of Belgium, Denmark, the Netherlands, Norway (land transport only) and Switzerland, where traffic seems to have developed more rapidly than G.N.P.

These comparisons are evident from Table IV (columns 7 and 8), which shows by countries and for the periods 1955-1960 and 1960-1970 the average coefficients of elasticity of the total number of ton kilometres in relation to G.N.P.

These elasticities will be found to differ widely. It is difficult, however, to devise any adequate explanation for these divergencies, since they are unquestionably due to several factors which may either be cumulative or offset one another. Under these conditions the causes of the variations can only be a subject for speculation.

The coefficients of elasticity as calculated in Table IV[3] are only roughly approximate. They vary in fact for each point on the growth curve or, practically speaking, for each year. If average elasticity is calculated, as in this instance, for a relatively short period such as 5 or 10 years, the result will depend largely upon random factors arising out of the choice of period. Thus, average elasticity for 1955-1960 may differ appreciably from that calculated for the period 1956-1961. Hence the wiser course is to avoid drawing any unduly far-reaching conclusions from changes of elasticity in time.

On the other hand it would be perfectly logical to assume that the average elasticity of goods traffic, in relation to a value representing activity, may be subject to characteristic variations in time. An instructive example of this is given by the almost rigid behaviour of goods traffic by rail in the face of the striking increase in iron and steel production in Luxembourg, where railway traffic is very closely tied to the output of crude steel. The use of more high-powered sources of energy reduces the amounts of transferred energy needed to meet the demands of iron and steel production. The decline is constant. This effect, which is due to the improved efficiency of sources of power, must also occur in other countries and particularly those which convert coal into electricity at the pithead or in the port. Finally, the coefficient of elasticity falls because, in very highly industrialised countries, services which have no direct influence on the development of goods traffic exert more and more weight upon G.N.P. This might be another explanation for lowered coefficients of elasticity in France, Germany, the Netherlands and Switzerland.

An explanation for the extraordinarily high coefficients in Denmark and Norway, may thus initially be assumed to reside in such fundamental changes of economic structure as the resiting or concentration of firms, resulting in extended supply and marketing areas and rerouted traffic circuits.

In any case the differences ascertained—whether differences of level between countries or differences of development in time—should be examined in greater detail.

c) *Distribution of traffic among the various means of transport*

As regards the distribution of traffic among the various means of transport, all countries

1. The Luxembourg forecast relates only to railway transport.
2. The United Kingdom forecast relates only to railway and road transport.
3. See Table IV for the manner in which these coefficients of elasticity have been calculated.

show the following results : a considerable extension of pipeline traffic, and a general increase in road traffic, in both absolute and relative values.

A glance at Table V shows that, between 1960 and 1970, the railways may be expected to continue the tendency which has taken shape in the past few years. With the exception of the United Kingdom, the number of ton kilometres accounted for by the railways will still increase in absolute value but the percentage of overall goods traffic which it represents will decline steadily until 1970.

The position of inland waterways traffic is less clear; in absolute value, traffic is still expanding considerably in Belgium, France, Germany and the Netherlands but its relative share seems likely to be lower in 1970.

According to forecasts tonnages carried by road seem bound to increase considerably in both absolute and relative value, and in many countries this means of transport would account for the largest share of traffic in 1970. This emerges clearly from Graph 4.

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In spite of the gaps and uncertainties described, the general picture of the results given above may justify some optimism as to research on forecasting methods.

In addition to the fact that practically all Member countries have taken part in a study previously undertaken by only a few, it is gratifying to note the progress made in the approach to the problem, particularly with regard to methods.

If the maximum advantage is subsequently to be derived from the work attempted, the actual trend of traffic should be compared at regular intervals with forecasts which have already been made.

TABLE 1. COMPARATIVE SUMMARY OF METHOD

COUNTRY	SUBJECT OF STUDY	UNITS ASSESSED	NOTE ON DATA AVAILABLE FOR REFERENCE PERIOD	INFORMATION ON GLOBAL METHOD	
				INDEPENDENT VARIABLES	ASSUMPTIONS CONCERNING INDEPENDENT VARIABLES
	1	2	3	4	5
Germany	Internal traffic by rail, waterway, road (long-distance) and pipeline, not including coastal shipping.	Ton-km and tons	*Reference period:* 1950-1960 There are no useful figures for short-distance road transport (under 50 km radius).	Real G.N.P. (at 1954 prices)	*Essential conditions:* 1. Full employment during perio of forecast. 2. Total production absorbed b total demand. *Starting point:* Real gross national product, th components of which are : 1. Volume of work 2. Productivity The probable future developmen of these factors was assessed.
Belgium	Internal traffic by railway, waterway and road. Pipelines : nil. Not including transit.	Ton-km	*Reference period:* 1950-1960 Little known on road traffic. Estimates based on number of vehicles.	Real G.N.P. (at 1953 prices)	Forecast of an annual increase o 3.9 per cent in G.N.P. until 196 (by the Economic Programmin Office). This increase is projecte until 1970.
Denmark	Internal traffic by railways, waterway and roads, whether crossing a frontier or not.	Ton-km	*Reference period:* 1950-1961 Data concerning inland waterway and road traffic are estimated to some extent.	Real G.N.P. (at 1955 prices)	Annual increase of 3 per cent i G.N.P. until 1970.
Spain	Overall traffic by rail and inter-urban roads. Not including coastal shipping.	Ton-km and tons	*Reference period:* 1950-1961 Road traffic not known. Estimate based on fuel consumption and other hypotheses.	1. Time 2. National income	Two assumptions on incerase i national income : 1. Correlation between national income and time. 2. Economic Development Pla forecasts : annual increase i G.N.P. 6.5 per cent (1964-1967 and 5.5. per cent (1968-1970).
France	Internal traffic by rail, waterways, roads (long-distance) and pipeline. Not including transit by waterways.	Ton-km and tons	*Reference period:* 1954-1961 Figures for road traffic less reliable than for other means (statistical sources less reliable).	Real G.N.P.	Growth of G.N.P. 5.5. per cent until 1965 (target of 4th Plan), then 5 per cent.
Ireland	Internal transport by rail and road.	Ton-miles	1960 as base year.	Real G.N.P. (at 1954 prices)	Increase of 50 per cent in G.N.P. between 1960 and 1970.

USED FOR FORECASTING GOODS TRAFFIC DEMAND

METHOD OF FORECASTING TRAFFIC	APPLICATION OF MORE DETAILED METHOD	METHOD OF BREAKING DOWN TOTAL PERFORMANCES BY MEANS OF TRANSPORT	RESULTS BY CATEGORIES OF GOODS OR BY ECONOMIC SECTORS
6	7	8	9
Forecasts by means of regression equations (exponential functions).	In order to obtain a consistent evaluation, work was done by stages, the chief of which were : 1. Assessment of G.N.P. 2. Forecast of trend of goods traffic by global method. 3. Assessment of economic development of essential transport users (e.g. fuel and power industry) used as standard of reference for : 4. Detailed forecast of trend for 5 essential categories of goods. 5. Improvement of forecasts by specifying the determining standards (9 categories).	*Starting point :* Estimated future scale of total goods traffic. *Three methods :* 1. Deduction of pipeline transport (estimated from consumption of mineral oils). Followed by deduction of road transport (assessed from real G.N.P.); the remainder to be divided between railways and waterways. 2. Application of the same system to special traffic (e.g. transport of mineral oils). 3. Breakdown with reference to volume of future traffic for 9 categories of goods.	Results by 5 economic sectors : 1. Fuel and power 2. Iron and steel 3. Building materials 4. Food and luxury products 5. Other categories Results by certain selected categories of goods.
Omparison between tndency curves of G.N.P. and of total volume of traffic, Since these curves (continued to 1970) reach the same level in 1970, it was assumed that traffic forecasts should also be similar in scale to G.N.P.	Detailed study by the Department of Communications, based on correlation between main groups of national production and imports on the one hand, and performance of each means of transport, on the other.	*Starting point :* Extrapolation of tendencies for each means of transport until 1970 (indices based on 1953 = 100). Followed by calculation of percentage of total volume of transport represented by each means of transport in 1970, according to projection of these tendencies. In 1970, the index of overall traffic forecasts stands 24 points above the tendency curve. This difference is broken down by means of transport according to the said percentages to obtain different indices in 1970.	Results by 8 categories of goods (for railways and waterways only) in the detailed study by the Department of Communications.
Forecast by means of a regression equation (linear function).	Nil.	*Starting point :* Development of means of transport during reference period. *Assumptions :* Inland waterways traffic unchanged. Future trend of rail traffic as in base period. Road traffic as remainder.	Nil
Forecasts by means of regression equations (linear functions).	Nil	*Starting point :* Estimated future scale of all goods traffic. *Stages :* After deduction of railway traffic, remainder is road traffic. An annual cumulative rate is assumed for future rail traffic (resultant mean in the 17 E.C.M.T. countries from 1950 to 1959).	Nil
Total traffic expressed in ton-km. is assessed on basis of anticipated trend of G.N.P. either by linear adjustment or by logarithmic adjustment.	1. Detailed global method. Analysis and extrapolation of the tendency of traffic for recent years by means of transport (water, rail, road) and by category of products. 2. Direct method. Traffic demand for each sector was analysed directly according to assumptions regarding its development.	Breakdown of ton-km. between the various means of transport derived from the detailed global method. Pipeline transport was studies by a special method.	Results (ton-km.) by ten categories of goods.
?	Estimates obtained by the global method show an annual increase of 4.14 per cent in traffic until 1970. These are considered as an upper limit. A lower limit was calculated on the assumption of an annual increase of 3 per cent in traffic between 1960 and 1970.	Nil.	Nil.

COUNTRY	SUBJECT OF STUDY	UNITS ASSESSED	NOTE ON DATA AVAILABLE FOR REFERENCE PERIOD	INFORMATION ON GLOBAL METHOD	
				INDEPENDENT VARIABLES	QSSUMPTIONS CONCERNING INDEPENDENT VARIABLES
	1	2	3	4	5
Italy	Internal traffic by rail (licensed railways and F. S. lines), waterways, coastal shipping, roads. Pipelines not included.	Ton-km	*Reference period :* 1950-1961 Data available on coastal shipping and road traffic are incomplete. Certain original series were equated (road).	Real G.N.P. (at 1954 prices)	Annnual increase of G.N.P. 5 per cent (from 1963 to 1965) and 4.5 per cent (from 1966 to 1970).
Luxembourg	Internal traffic by rail only. The canalisation of the Moselle and the building of pipelines are not taken into consideration.	Ton-km and tons	*Reference period :* 1946-1962 There are nos tatistics on goods carried by road.	Crude steel production	?
Norway	Internal traffic by railway, road and waterway (log rafts). Figures for coastal shipping are assessed separately.	Ton-km and tons	*Reference period :* 1953-1961 Much uncertainty as to road traffic.	Real G.N.P. (at 1955 prices)	Annual growth of 3.5 per cent in G.N.P. until 1970.
Netherlands	A distinction is made between internal traffic (by railways, waterways and by lorries) and international traffic (railway, road, waterway, pipeline), both as on Netherlands territory.	Ton-km and tons	*Reference period :* 1950-1961 Goods traffic by road is known only for 1955. Figures for other years are estimated from certain assumptions.	Gross national income (at 1954 prices)	Annual increase of 5 per cent in gross national income until 1965 and 5.1 per cent thereafter.
Portugal	Total goods traffic by rail, road, and coastal shipping.	Ton-km	*Reference period :* 1950-1961 Only estimates available.	G.N.P. (at 1954 prices)	?
United Kingdom	Internal traffic by rail and road. Coastal shipping not included. Future transport by pipeline not estimated.	Ton-miles	*Reference period :* 1952-1961 Data available on road transport are largely incomplete.	Real G.N.P. and industrial production of cheap sectors.	Annual increase of 3 per cent in G.N.P. until 1966, then of 3 per cent and 4 per cent (two alternatives).
Sweden	Traffic by railway, road, and waterway. Log rafting (16 to 20 million tons a year) not included. Pipelines nil.	Ton-km and tons	*Reference period :* 1950-1961 Data on road transport leave much to be desired (special sample surveys in 1950, 1953, and 1960). Little known of ton-km. for inland waterways.	G.N.P. (at 1954 (prices and certain macro-economic values.	Three alternatives : annual increase. of 4 per cent, 3 per cent and 2 per cent respectively in G.N.P.
Switzerland	Internal traffic by road and rail. Figures for transit are estimated separately. Future transport by pipeline partially estimated.	Ton-km and tons	*Reference period :* 1950-1961 No data for road traffic (estimate only).	Real G.N.P. (at 1954 prices)	Annual increase of 4 per cent in G.N.P. until 1970.
Turkey	Railway transport only.	Ton-km	*Reference period :* 1950-1961 No statistics available for goods transport by road.	Real G.N.P. (at 1948 prices)	Annual increase of 7 per cent in G.N.P. until 1970 (aim of the Development Plan).

(Continued)

METHOD OF FORECASTING TRAFFIC	APPLICATION OF A MORE DETAILED METHOD	METHOD OF BREAKING DOWN TOTAL PERFORMANCES BY MEANS OF TRANSPORT	RESULTS BY CATEGORIES OF GOODS OR BY ECONOMIC SECTORS
6	7	8	9
Forecasts by means of regression equations (logarithmic and linear functions).	Nil	Separate forecasts by means of regression equations (G.N.P.) for : 1. Coastal shipping 2. Roads 3. F.S. lines. For inland waterways, extrapolation of the tendency. Goods traffic by licensed railways and on lakes estimated to be unchanged.	Nil.
?	Nil	—	—
Forecast by means of a regression equation (logarithmic function).	Detailed study based on assumptions concerning future trend of the volume of goods carried, length of haul and competition between means of transport.	*Two-methods are used :* 1. Extrapolation of past tendency for each means of transport. 2. Breakdown according to assumptions of the detailed method.	Separate results only for transit traffic in ores.
A linear relation was chosen between total volume of goods traffic and gross national income.	Several variables of activities, mainly production; imports and exports are used in a detailed method. *Forecast by sectors :* 1. Internal traffic 2. Imports 3. Exports 4. Various currents of transit traffic.	Percentages for the various means of transport were calculated for the reference period. These percentages were then extrapolated until 1970.	Results by several categories of goods (in tons only for international traffic).
Forecast by means of a regression equation.	Nil.	Nil.	Nil.
Analysis of industrial production.	Detailed study based on analysis of industrial production.	Forecast of rail and road traffic by means of several assumptions on future development of certain means of transport (by four categories of goods).	Results by following categories of goods : 1. Coal and coke 2. Iron and steel (crude) 3. Iron and steel (finished products) 4. Other goods.
Forecast by means of relations between increase of index of G.N.P. and increase of index of all goods traffic.	Partially. Certain macro-economic indices are used.	Breakdown among means of transport in conformity with trend ascertained during reference period.	Partially. (ton-km) by rail are broken down by Lapland ores and other goods.
Forecast by means of regression equations (linear functions).	Nil. But estimates were corrected to allow for major changes of structure in goods traffic during period covered by forecasts.	Forecast for each means of transport by means of separate regression equations. Estimate corrected afterwards.	Partially. Results by certain categories of goods (for railway traffic and transit only).
Forecast by means of a regression equation (logarithmic function).	Nil.	—	Nil.

TABLE II. TOTAL PERFORMANCES AND VOLUME OF GOODS TRAFFIC UNTIL 1970

Units: '000 million ton-km or million tons.

COUNTRY	'000 MILLION TON-KILOMETRES			
	1955	1960	1965	1970
1. Germany ...	102.5	129. *a*)	145.2	167.1
2. Belgium .. *b*)	16.1	17.9	..	27.7 to 30.3
3. Denmark ...	5.2	8.2	..	14.5
4. Spain	14.2	16.5	..	30.3
5. France.....	76.5	98.7	135.0	168.0
of which transit by pipeline	—	—	10.0	14.0
6. Ireland .. *e*)	—	1.6	..	2.2 to 2.5
7. Italy .....*c*)	48.7	60.7	79.5	98.2
8. Luxembourg. ..... *d*)	(0.61)	(0.64)	(0.66)	(0.66)
9. Norway	6.1	6.3	..	8.8
except coastal shipping traffic	2.8	3.1	..	5.5
10. Netherlands .	24.5	32.6	39.1	49.7
of which internal traffic	12.5	15.9	19.9	25.3
11. Portugal	3.6	4.0	5.0	6.1
12. United Kingdom .....*e*)	69.4	74.0	..	82.4 to 91.8
13. Sweden	17.5	20.1	..	25.6 to 30.4
14. Switzerland .	..	6.8	..	12.6
of which internal traffic.....	3.5	5.1	..	8.7
15. Turkey	4.4	4.6	..	10.5

COUNTRY	MILLION TONS			
	1955	1960	1965	1970
Germany	477.4	615.7 *a*)	658.8	789.6
Spain	74.8	90.4	..	163.0
France	..	495.0	626.0	804.0
Luxembourg... *d*)	(17.6)	(18.6)	(19.1	(19.1)
Norway	—	54.9	..	78.0
United Kingdom..*e*) *f*)	..	(215.1)	..	(212.3 to 222.6)
Sweden	..	276.0	..	340.0 to 444.0

a) Including the Saar since 1960.
b) Not including transit.
c) Not including pipelines.
d) Applies only to railway traffic.
e) Applies only to railway and road traffic.
(Original figures converted at 1 mile = 1,609 m.
1 ton = 1,015 kg.)

f) Figures for tonnage apply only to transport of coal and coke, iron and steel (raw materials and finished products).

.. not known.
— nil.

TABLE III. COMPARISON OF ESTIMATES OF NUMBER OF TON-KILOMETRES OBTAINED BY DIFFERENT METHODS

Unit: '000 million ton-km.

COUNTRY	ESTIMATE FOR 1970 IN RELATION TO	
	G.N.P.	OTHER STANDARDS OF REFERENCE
1. Germany	168.5	167.9
2. Belgium	25.7	27.7 to 30.3
3. Denmark	14.5	—
4. Spain	30.3	—
5. France	170 to 176	168
6. Ireland	2.5	(2.2)
7. Italy	98.2	—
8. Luxembourg	—	(0.66)
9. Norway.....	3.9	5.5
10. Netherlands	56.3	49.7
11. Portugal	6.1	—
12. United Kingdom	—	82.4 to 91.8
13. Sweden	25.6 to 30.4	—
14. Switzerland	11.5	12.6
15. Turkey	10.5	—

— nil.

TABLE IV. INDEX OF TRAFFIC (TOTAL TON-KILOMETRES) COMPARED WITH TREND OF GENERAL ACTIVITY

(1960 = 100)

COUNTRY	STANDARD	YEAR				AVERAGE ELASTICITY OF NUMBER OF TON KILOMETRES IN RELATION TO G.N.P. DURING THE PERIOD[1]	
		1955	1960	1965	1970	1955-1960	1960-1970
1	2	3	4	5	6	7	8
Germany	ton-km	79	100 *a*)	112	129	0.7	0.6
	G.N.P.	73	100 *a*)	123	151		
Belgium	ton-km *b*)	90	100	..	155 to 169	0.8	1.2 to 1.4
	G.N.P.	87	100	..	146		
Denmark	ton-km	63	100	..	177	2.1	1.8
	G.N.P.	80	100	..	137		
Spain	ton-km	86	100	..	184	0.9	1.0
	national income	84	100	..	182		
France	ton-km	78	100	137	170		
	ditto, not including transit by pipeline	78	100	127	157	1.2	1.0
	G.N.P.	81	100	123	154		
Ireland	ton-km *c*)	..	100	..	134 to 150	..	0.7 to 1.0
	G.N.P.	94	100	..	150		
Italy	ton-km *c*)	80	100	131	162	0.8	1.0
	G.N.P.	75	100	133	165		
Luxembourg	ton-km *d*)	(95)	(100)	(103)	(103)	(0.2)	(0.2)
	Crude steel production	(79)	(100)	(110)	(120)		
Norway	ton-km	97	100	..	140	0.2	0.9
	of which land transport	90	100	..	177		
	G.N.P.	83	100	..	144	0.6	1.6
Netherlands	ton-km	75	100	120	152	1.5	0.9
	G.N.P.	83	100	125	162		
Portugal	ton-km	89	100	125	153	0.5	0.8
	G.N.P.	79	100	130	166		
United Kingdom	ton-km *e*)	94	100	..	111 to 124	0.5	0.4 to 0.6
	G.N.P.	88	100	116	134 to 141		
Sweden	ton-km	87	100	..	127 to 151	0.9	1.0
	G.N.P.	85	100	..	127 to 152		
Switzerland	ton-km (internal traffic)	69	100	..	171	1.6	1.2
	G.N.P.	79	100	..	155		
Turkey	ton-km *d*)	94	100	..	227	0.2	1.2
	G.N.P.	74	100	..	201		

a) Including Saar since 1960.
b) Not including transit.
c) Not including pipelines.
d) Applies only to railway traffic.
e) Applies only to railway and road traffic.

.. not known.

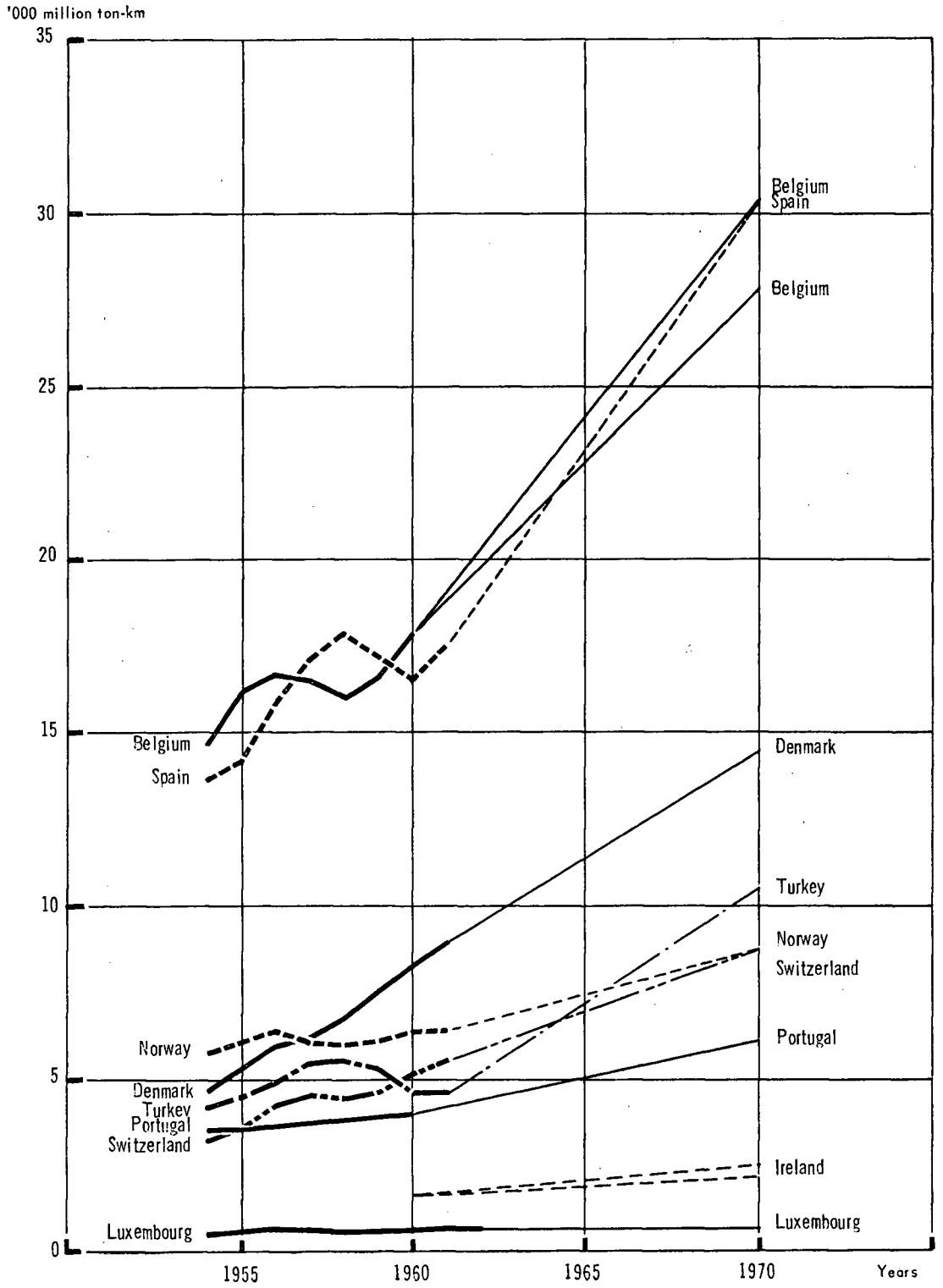
1. Calculated according to the formula : $e = \frac{\log T_2 - \log T_1}{\log P_2 - \log P_1}$, where T = ton-km and P = G.N.P.

TABLE V. BREAKDOWN OF TOTAL TON-KILOMETRES AMONG MEANS OF TRANSPORT

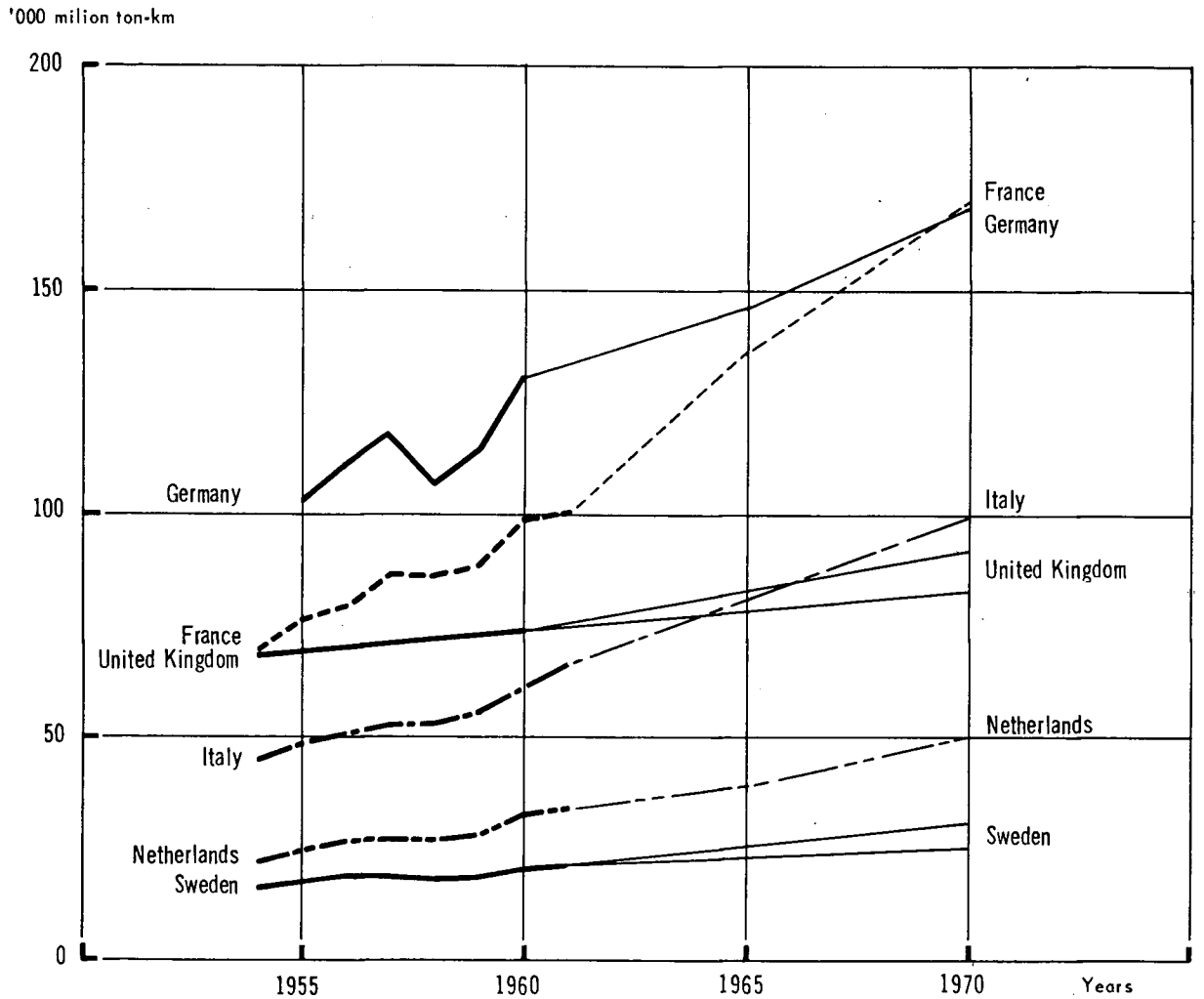
COUNTRY	MEANS OF TRANSPORT	MILLION TON-KM				PERCENTAGE			
		1955	1960	1965	1970	1955	1960	1965	1970
Germany *a*)	rail	57,200	63,100	65,200	71,100	55.8	48.8	44.9	42.5
	road	16,700	22,400	26,700	32,600	16.3	17.3	18.4	19.5
	water	28,600	40,300	44,000	50,000	27.9	31.1	30.3	29.9
	Total	102,500	125,800	135,800	153,700	100.0	97.2	93.6	91.9
	pipelines	—	3,600	9,300	13,400	—	2.8	6.4	8.1
	Grand total	102,500	129,400	145,200	167,100	100.0	100.0	100.0	100.0
Belgium ..... *b*)	rail	5,280	4,874	—	6,073	32.8	27.3	—	23.6
	road	6,478	8,181	..	12,508	40.2	45.8	..	48.7
	water	4,340	4,806	..	7,121	27.0	26.9	..	27.7
	Total	16,098	17,861	..	25,702	100.0	100.0	..	100.0
Denmark.....	rail	1,300	1,400	..	1,700	25.0	17.1	..	11.7
	road	3,400	6,200	..	12,200	65.4	75.6	..	84.1
	water	500	600	..	600	9.6	7.3	..	4.2
	Total	5,200	8,200	..	14,500	100.0	100.0	..	100.0
Spain	rail	9,018	7,946	..	10,575	63.7	48.2	..	35.0
	road	5,143	8,542	..	19,742	36.3	51.8	..	65.0
	Total	14,161	16,506	..	30,317	100.0	100.0	..	100.0
France.....	rail	50,400	60,000	72,334	85,260	65.7	60.9	53.6	50.7
	road	18,000	28,820	33,630	45,820	23.5	29.1	24.9	27.3
	water	8,100	9,450	12,036	13,920	10.4	9.6	8.9	8.3
	Total	76,500	98,270	118,000	145,000	99.6	99.6	87.4	86.3
	pipelines	300	430	17,000	23,000	0.4	0.4	12.6	13.7
	Grand total	76,800	98,700	135,000	168,000	100.0	100.0	100.0	100.0
Italy	rail	13,728	15,866	18,100	20,850	28.2	26.1	22.8	21.2
	road	30,068	36,822	49,300	60,160	61.7	60.7	62.0	61.3
	water (lakes, rivers and canals)	101	203	304	404	0.2	0.3	0.4	0.4
	Total	43,897	52,891	67,704	81,414	90.1	87.1	85.2	82.9
	Coastal shipping	4,802	7,800	11,800	16,810	9.9	12.9	14.8	17.1
	Grand total	48,699	60,691	79,504	98,224	100.0	100.0	100.0	100.0
Norway	rail	1,472	1,643	..	1,800	24.3	26.2	..	20.6
	road	1,014	1,173	..	3,400	16.7	18.7	..	38.8
	water (log rafts)	339	313	..	250	5.6	5.0	..	2.9
	Total	2,825	3,129	..	5,450	46.6	49.9	..	62.3
	coastal shipping	3,236	3,137	..	3,300	53.4	50.1	..	37.7
	Grand total	6,061	6,266	..	8,750	100.0	100.0	..	100.0
Netherlands	rail	3,670	3,650	3,760	3,990	15.0	11.2	9.6	8.0
	road	5,590	8,550	12,090	17,310	22.8	26.2	30.9	34.9
	water	15,260	20,020	22,030	26,730	62.2	61.4	56.4	53.8
	Total	24,520	32,220	37,880	48,030	100.0	98.8	96.9	96.7
	pipelines	—	390	1,200	1,630	—	1.2	3.1	3.3
	Grand total	24,520	32,610	39,080	49,660	100.0	100.0	100.0	100.0
United Kingdom	rail	34,946	30,537	..	28,700 to 30,300	50.4	41.3	..	35 to 33
	road	34.456	43,438	..	53,800 to 61,500	49.6	58.7	..	65 to 67
	Total	69,402	73,975	..	82,500 to 91,800	100.0	100.0	..	100.0
Sweden	rail	10,300	10,900	..	12,000 to 12,900	58.9	54.2	..	47 to 42
	road	4,500	6,800	..	11,200 to 15,100	25.7	33.9	..	44 to 50
	water	2,700	2,400	..	2,400	15.4	11.9	..	9 to 8
	Total	17,500	20,100	..	25,600 to 30,400	100.0	100.0	..	100.0
Switzerland... *b*)	rail	2,020	2,600	..	3,630	57.1	51.5	..	41.6
	road	1,520	2,450	..	4,890	42.9	48.5	..	56.1
	Total	3,540	5,050	..	8,520	100.0	100.0	..	97.7
	pipelines	—	—	..	200	—	—	..	2.3
	Grand total	3,540	5,050	..	8,720	100.0	100.0	..	100.0

a) Including Saar since 1960.
b) Not including transit.
... Not known.
— Nil.

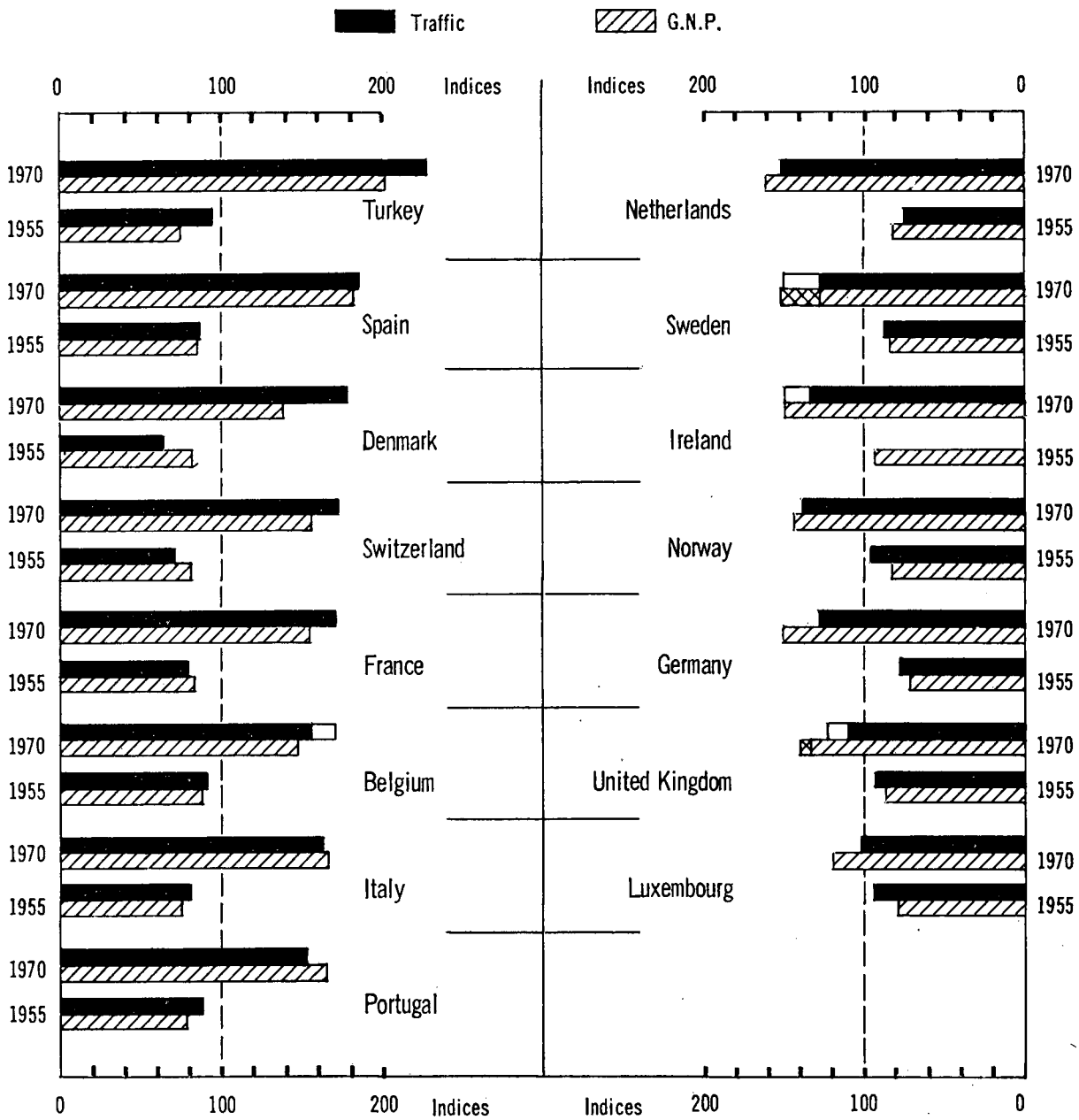
Graph I. TREND OF TOTAL TRAFFIC



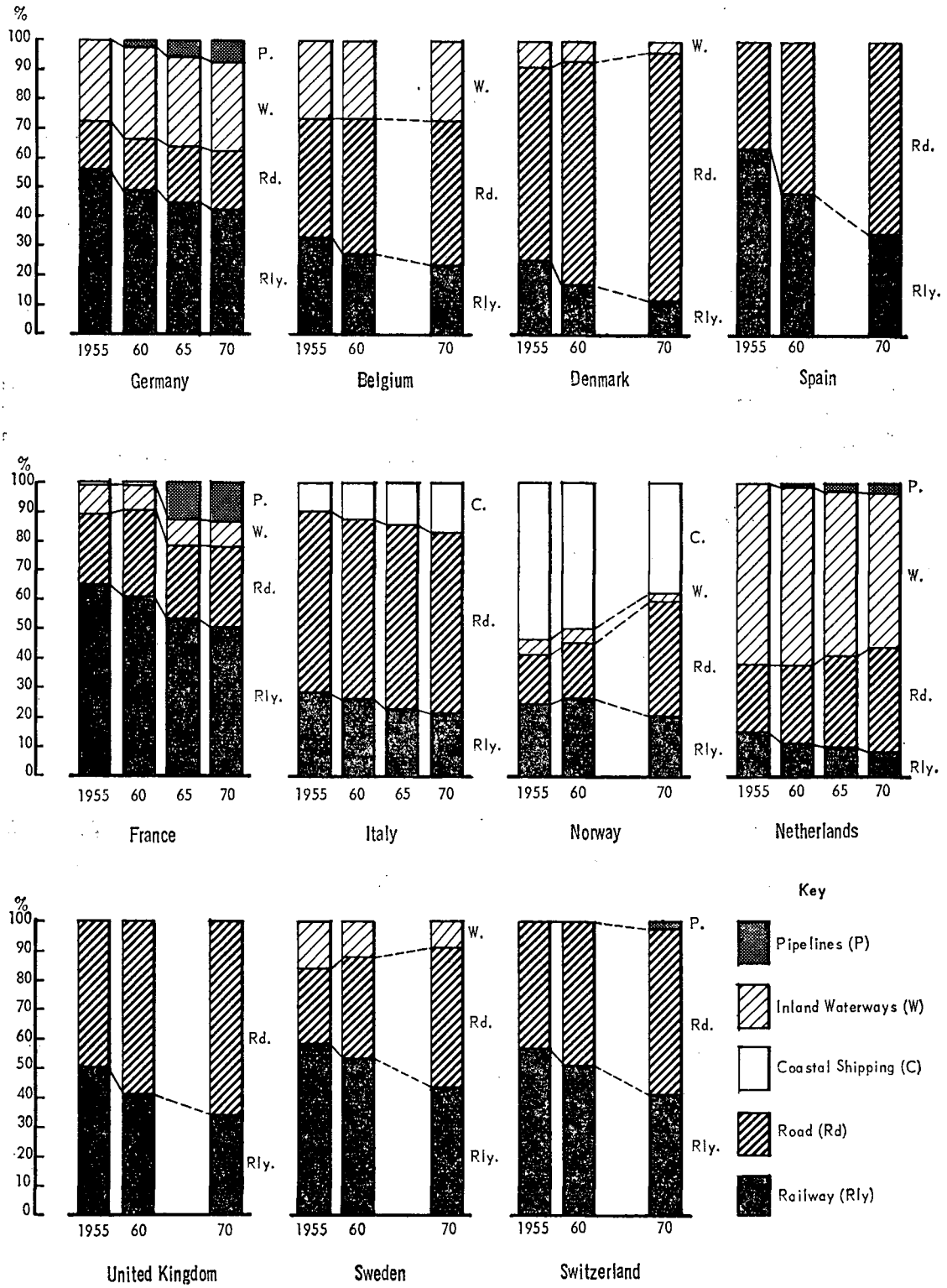
Graph II. TREND OF TOTAL TRAFFIC



Graph III. INDICES OF GOODS TRAFFIC COMPARED WITH GENERAL ACTIVITY (1960 = 100)



Graph IV. BREAKDOWN OF TOTAL TON-KM AMONG MEANS OF TRANSPORT



Resolution No. 14 concerning
MEASURES TO REDUCE TOWN TRAFFIC NOISE

THE COUNCIL OF MINISTERS OF TRANSPORT,

Meeting in Paris on 25th-26th November, 1963,

Having regard to the Report below (CM (63)19) of the Committee of Deputies concerning a plan of action for the reduction of town traffic noise;

FINDING :

— that the town traffic noise disturbs the population and may sometimes become a threat to public health, especially in residential quarters and in the neighbourhood of sanitoria, hospitals, schools, etc. and especially at the approaches to crucial traffic points,

— that such noise has a strong tendency to increase in towns, to the extent that the authorities of several Member countries have already taken measures to curb it.

CONSIDERING IT NECESSARY :

— that Member countries of the E.C.M.T. should decide on a standard method of measurement and uniform principles for reducing town traffic noise that will produce concrete results as quickly as possible and, for the same reason, considering it necessary to improve and standardize the regulations already in force.

RECOMMENDS that Member countries should :

i) Adopt a uniform and internationally recognised method of measuring the noise made by motor vehicles and ensure that it is used when vehicles are officially inspected;

ii) Define maximum permissible levels in accordance with the standardization recommended by the E.C.M.T., if this has not already been done;

iii) Conduct any studies needed in connection with the reduction of town traffic noise.

SUPPLEMENTARY REPORT BY THE COMMITTEE OF DEPUTIES ON MEASURES TO REDUCE NOISE CAUSED BY SURFACE TRANSPORT

[*CM (63) 19*]

TOWN TRAFFIC NOISE

At its 17th meeting, held in Brussels on 12th June 1963, the Council of Ministers of Transport considered the report CM(63)5 and adopted, on the proposal of its Chairman, a programme of action to reduce traffic noise, giving priority to the question of town traffic.

The programme, which originally consisted of seven items, specified that the method of measuring noise would have to be standardized and that maximum permissible levels and schemes to reduce those levels by stages should be defined.

At its 60th meeting, on 9th July 1963, the Committee of Deputies noted the programme of work drawn up by the Study Group on Noise Abatement as instructed by the Council of Ministers; this programme consisted of the following items, which apply to all rail and road transport vehicles as well as shipping on inland waterways :

i) Standardization of methods of measuring noise;
ii) Reduction of noise level;
iii) Regular checks on noise caused by vehicles, etc., and silencers in particular;
iv) Traffic restrictions to reduce noise.
v) Publicity in favour of noise abatement.

The Committee of Deputies considered that a report dealing with the first items on this programme should be submitted at the next session of the Council of Ministers.

As instructed by the Council of Ministers of Transport, a noise abatement programme was drawn up, with emphasis on action affecting town traffic, to include the adoption of a uniform method of measuring noise, commonly agreed noise levels and a uniform method of reducing noise by states.

I

A UNIFORM METHOD OF MEASURING NOISE

Methods of measuring noise caused by motor vehicles have been studied by Technical Committee No. 43 (CT 43) of the International Organisation for Standardization (I.S.O.), which drafted a recommendation (No. 419) for transmission to the Council of the I.S.P. for final approval.

The question as to whether the I.S.O. system should be adopted by the E.C.M.T. countries could be discussed when the recommendation comes up before the I.S.O. Council for official approval.

After considering this study and agreeing with its conclusions, the Working Party (Motor Vehicle Design) of the Economic Commission for Europe has submitted a draft recommendation to the Sub-Committee for Road Transport (Geneva), which the latter will probably adopt in the near future.

II

DEFINITION AND APPLICATION OF MAXIMUM PERMISSIBLE NOISE LEVELS

It will be necessary to consider how the various regulations already in force or about to be applied can be co-ordinated so that legislation may be introduced within a specified time to ensure the uniform acceptance of maximum noise levels in all countries.

For this purpose, contact should be made with the International Organisations concerned E.C.E., A.I.C.B., U.I.C. (O.R.E.), O.T.A., U.I.N.F.] and other experts.

A. As eight of the E.C.M.T. countries have already officially defined the maximum permissible noise levels, one of the next steps should be to ensure that the regulations in these countries were harmonized, due allowance being made for technical advances and medical considerations. Uniformity would have to include not only the permissible noise level for new vehicles, but also a reasonable margin of tolerance for noise due to wear and tear of vehicles in service. If necessary, the maximum permissible might be set provisionally somewhat higher during a transitional period.

B. To open the way for the harmonization and simultaneous application of these maximum levels by Member countries, the following arrangements should be considered :

a) the certificate of roadworthiness of the vehicle type or of the individual vehicle should mention the maximum noise level authorised;

b) adequate administrative regulations should be introduced to ensure strict observance of that noise level; for instance :

i) existing inspection arrangements should be extended to cover the question of noise;

ii) simplified checking procedure (e.g. official approval of silencers) to prevent alternations to the vehicles;

iii) care should be taken to ensure that the type of silencer approved for each type of motor vehicle is used and kept in good working order; prohibition, without prior authorisation, of any alteration to an approved silencer or replacement of any component by an unapproved model;

iv) heavier penalties for unauthorised alterations to a vehicle, with possibility of withdrawing the certificate of road worthiness.

The regulations already in force in Member countries might serve as a basis for similar provisions.

III
PROGRESSIVE REDUCTION OF TOWN TRAFFIC NOISE

The noise made by private cars and public service vehicles is constantly growing and might well have increasingly serious effects on town dwellers. Any policy likely to result in a steady reduction of traffic noise should therefore be given full encouragement in Member countries.

As already pointed out, the prime consideration for motor vehicles is to avoid exhaust noises; for rail vehicles, the use of rubber shock absorbers would already make an appreciable difference to the amount of noise.

It is therefore essential to define, for built-up areas and according to traffic intensity, the extent to which noise is increasing at crucial points (in residential areas for instance, or near schools, hospitals, etc.). This would enable directives to be prepared for the reduction of town traffic noise (maps and plans would indicate the crucial noisy zones for town traffic). Similarly noise could be reduced by giving attention to the possibilities of technical improvements in motor vehicle and road design. All these studies could then be transmitted to the international bodies and experts so that the best use could be made of them.

IV
OTHER MEASURES WHICH MIGHT BE CONSIDERED

Quite apart from the action already mentioned, the Study Group might immediately start to discuss a number of other administrative measures.

It is well known that, in some countries, taxation based on cylinder capacity has caused many manufacturers to adopt small capacity engines and boost their output by running at a very high engine speed. These high-speed engines are a source of considerable noise and of numerous complaints.

The services responsible for the placing of government transport contracts might also be required to ensure that the vehicles concerned conformed to noise abatement standards.

ANNEX

NATIONAL AUTHORITIES CONCERNED IN THE REDUCTION OF NOISE CAUSED BY SURFACE TRANSPORT

COUNTRY	NATIONAL AUTHORITY CONCERNED IN THE REDUCTION OF NOISE CAUSED BY					
	ROAD MOTOR VEHICLES		RAILWAYS		INLAND WATERWAYS	
1	2		3		4	
Germany	A	I + IV + V	A	I + IV + V	A	I + IV + V
	B	3	B	3	B	3
Austria	A	III	A	—	A	I
	B	2	B	—	B	—
Belgium	A	I + V	A	I + V	A	I + V
	B	—	B	—	B	—
Denmark	A	II	A	III	A	—
	B	—	B	—	B	—
Greece	A	I	A	I	A	—
	B	1 + 2	B	1 + 2		
Ireland	A	II	A	—	A	—
Italy	A	I + II	A	—	A	I
	B	2	B	—	B	—
Luxembourg	A	I	A	I	A	—
	B	3	B	1	B	—
Netherlands	A	I + II	A	—	A	I
	B	1 + 2	B	—	B	—
Portugal	A	I	A	—	A	—
	B	2	B	—	B	—
Spain	A	I + II	A	I		
	B	2				

Key to symbols :

A. *Ministries :*
- I. Transport or Communications
- II. Home Affairs or Justice
- III. Public Works or Commerce
- IV. Social Affairs
- V. Public Health.

B. *Other bodies :*
1. Central authorities.
2. Regional authorities.
3. Non-governmental organisations.

Resolution No. 18 concerning
THE STANDARDIZATION OF THE TRAINING OF CANDIDATES FOR DRIVING LICENCES AND OF CONDITIONS FOR THEIR ISSUE

THE COUNCIL OF MINISTERS OF TRANSPORT,

Meeting in Paris on 26th November 1963,

HAVING REGARD to the Report below [CM(63) 13(Revised)] of the Committee of Deputies,

RECALLING

that, in its Resolution No. 13 of 5th October 1960, it recommended :

a) a medical examination prior to the issue of a driving licence for drivers of motor-coaches and taxis;

b) a medical examination for all applicants for driving licences aged over 65;

c) a simple eyesight test for all applications for driving licences;

d) a minimum age for drivers of motor-coaches and taxis higher than the lower age-limit for drivers of private cars;

e) knowledge of first aid for drivers of motor-coaches;

NOTING

that the interests of road safety necessitate sound training and suitable testing for candidates for driving licences;

CONSIDERING

That certain minimum requirements for the training and testing of learner-drivers may help to raise the standard of driving skill among licence holders;

On the proposal of the Committee of Deputies

RECOMMENDS that Member countries take adequate steps :

1. Where it is compulsory or customary to attend a driving school, to raise the standard of training provided by such schools, particularly by approving professional instructors after making sure that certain minimum conditions have been fulfilled; such instructors to hold at least the driving licence appropriate to the categories for which they wish to teach and to offer personal guarantees of moral qualities and the necessary professional skills;

2. In the case of private instruction, to consider whether the person other than a professional instructor accompanying the learner should have held a licence to drive vehicles of the appropriate category for a definite minimum period;

3. To ensure that the person accompanying the learner during training and examination can take effective action at any moment;

4. To ensure that, as far as possible, the candidate's training covers his ability to drive on trunk road and during hours of darkness;

5. To ensure that the test deals less with technical knowledge of the vehicle than with behaviour in traffic, even for candidates for licences to drive motor-coaches and heavy lorries;

6. To ensure that the test deals, as far as possible, with the matters referred to in the foregoing paragraph 4;

7. To give special importance to the practical test[1] and ensure that it lasts long enough for the examiner to form a sound judgment of the candidate's capabilities;

8. To consider the possibility of providing training grounds, off the public highway, on which candidates and qualified drivers who lack experience could practise driving unaccompanied.

1. The Belgian Delegation, which would have liked the words "if any" to be added here, entered a reservation on this point.

REPORT OF THE COMMITTEE OF DEPUTIES CONCERNING THE STANDARDIZATION OF THE TRAINING OF CANDIDATES FOR DRIVING LICENCES AND OF CONDITIONS FOR THEIR ISSUE

[CM (63) 13 (revised)]

I. Introduction

At its 12th Session, held in the Hague on 5th October 1960, the Council of Ministers discussed the question of the issue of driving licences.

The discussion was based on the Report of the Committee of Deputies [CM(60)9 (Final), Part III], which was drafted by the Working Party on Road Safety and which dealt with matters relating to this problem.

From this report, the Council of Ministers adopted Resolution No. 13 of 5th October 1960, recommending :

a) a medical examination prior to the of a driving licence for drivers of motor-coaches and taxis;

b) a medical examination for all applicants for driving licences aged over 65;

c) a simple sight test for all applicants for driving licences;

d) a minimum age for drivers of motor-coaches and taxis higher than the lower age-limit for drivers of private cars;

e) knowledge of first aid for drivers of motor-coaches.

In the course of the general discussion, Mr. Seebohm (Germany) thought it desirable to harmonize the training of candidates for driving licences in Member countries. The Working Party considered that the best way of meeting this wish was to see whether and to what extent a harmonization of examination conditions was to be recommended.

Ten Member countries have replied in writing to a questionnaire drawn up by the Swiss Delegation. The replies are analysed in Chapter II of this report and summed up in Tables I to 4. A draft Resolution is also included.

II. Analysis of member countries' replies to the questionnaire and positions adopted

1. *The different systems of training in force*

The current systems may be grouped in the following five categories :

A. Driving is taught only by approved driving schools in Denmark and Luxembourg.

B. It is taught almost solely by approved driving schools in Austria, France, Germany, Italy and Sweden.

Notes : a) In Germany, any person aged not less than 23 who has held a driving licence for three years may teach driving provided he obtains a special authorisation. In practice, such authorisation is rarely given.

b) An intermediate solution is now being tried out in Austria : anyone who has held a licence for three years without causing an accident may teach provided he obtains a special authorisation. This system has given good results and a proposal that it be maintained will be made to Parliament.

C. The responsible person accompanying the driver must hold a driving licence, and the learner must first obtain a temporary licence (e.g. Italy, Switzerland and the United Kingdom).

D. The responsible person must hold a licence but the learner does not require a temporary licence (e.g. France and Sweden).

E. No regulations on the teaching of driving; no examination for learner-drivers (Belgium). The only requirement at present is that drivers of taxis, buses and coaches must undergo a complete medical examination.

Note: The Bill recently submitted to the Belgian Parliament provides that driving schools must be approved and that their staff must undergo practical and technical examination. Private individuals are not ruled out, but they will be required to produce a driving licence showing a clean sheet for at least five years. The candidate must give the name of the person who will teach him to drive, and that name will be entered on the temporary licence. Candidates presented by a private instructor will also have to take an examination in the theory of road behaviour.

2. *Temporary driving licence for learner-drivers: Table 1* (columns 2 to 7)

A. *Whether temporary licence is compulsory* (column 2)
Five countries do not require temporary driving licences.
Three countries require such a licence to be held.
Two countries require such a licence to be held for vehicles other than private cars (Personenkraftwagen), lorries, coaches, taxis or only in special circumstances (vehicles so constructed that there is no place for a responsible person beside the learner: disabled candidate).

B. *Conditions for the issue of temporary licences* (columns 3, 4 and 5)
Only one of the three countries which require candidates to hold a temporary licence insists on a previous knwoledge of traffic rules and even then only for motor-cyclist learner-drivers, because they are allowed to drive unaccompanied. This also applies to one of the countries which require a temporary licence only in special circumstances.
Before candidates are allowed to drive on the public highway (at least those who are to be taught by a private person), some countries feel it necessary to take certain precautions:
— by taking care to see that candidates are not suffering from any obvious physical disability (without holding a complete medical examination);
— by briefly testing the candidate's sight (card showing letters of diminishing size);
— by making sure that the candidate is not an alcoholic or a drug addict;
— by making sure that the candidate has not committed any criminal offence indicating defects of character inconsistent with the driving of motor vehicles (seriously diminished sense of responsibility).

C. *Duration and renewal of temporary licence* (columns 6 and 7)
The duration varies considerably according to country (e.g. six months in Switzerland and the United Kingdom, three months in Italy; for motor cyclists: two months in Switzerland).
Licences are renewable for the same period: once in Italy, twice in Switzerland; in the United Kingdom, the licence may be renewed in certain circumstances for an unlimited number of times.

3. *Person accompanying the learner: Table 2* (columns 9 to 11)

A. In the ten countries which replied to the questionnaire, learner drivers must be accompanied during training. In certain countries, however, this obligation does not apply to candidates learning to drive motor-cycles or light motor-cycles (France, Italy, Switzerland, United Kingdom) and even motor machinery or agricultural tractors (Luxembourg). In the Netherlands, learners who have obtained a temporary licence need not be accompanied.

B. About half the countries do not require the responsible person to be older than the minimum age for obtaining a licence for the category of vehicle used, but some of these countries impose a higher age limit for driving motor-coaches and buses.
A higher age limit is imposed in Austria (21 years), Germany (23 years), Luxembourg (25 years), and Sweden (21 years). In these four countries, the person accompanying the learner must have held a licence for three years; in Switzerland, for one year. Five countries do not specify the length of time for which a licence must have been held.

4. *Obligation to attend a driving school Table 1* (column 8)

This obligation is absolute in two countries (Denmark and Luxembourg). In Austria and

Germany it is tempered by the possibility of obtaining a licence to teach driving privately. In other countries where there is no legal obligation (e.g. France, Italy and Sweden), the percentage of candidates attending a driving school is very high compared with the numbers taking lessons from private instructors. The following table gives an idea of the practical position in these countries :

In percentage.

COUNTRY	TAUGHT BY DRIVING SCHOOLS	TAUGHT BY PRIVATE INSTRUCTORS
Denmark	100	
Luxembourg	100	
Germany	99.9	0.1
France	97.0[1]	3.0
Sweden	95.0	5.0
Austria	90.0	10.0
Italy	80 to 90	10 to 20

1. Unofficial figures.

As the majority of candidates in fact take lessons from a driving school, great care must be taken to ensure that the training of professional instructors is of a very high standard and specially that they hold at least the driving licence appropriate to the categories for which they wish to teach and offer personal guarantees of moral qualities and the necessary professional skills.

In the course of a detailed discussion, the following considerations were put forward by certain delegations concerning the advantages and disadvantages of compulsory attendance at a driving school.

a) *Advantages*

i) Professional instructors have a more thorough knowledge of the provisions of the highway code and of the most suitable teaching methods for this kind of instruction.

ii) They are better qualified to teach practical driving under all traffic conditions;

iii) The equipment, syllabus and methods used by driving schools are determined by experience whereas private instructors work according to their own ideas, which may not meet the requirements of methodical, all-round instruction.

b) *Disadvantages*

i) The instruction given by driving schools may be costly, or even prohibitive for candidates with low incomes;

ii) Driving schools are liable to give instruction too closely aligned on the habits of official examiners and thus to neglect certain theoretical or practical aspects of the instruction;

iii) The time-tables of driving schools do not always allow candidates to attend classes regularly.

c) *Special statements*

In Denmark and Luxembourg, for example, every driving-school instruction vehicle must be covered by special third-party insurance. Before they can operate, driving schools must furnish proof that they have taken out this special insurance and this is difficult, if not impossible, to check when private vehicles are used for instruction.

According to a statement by the Delegate for Sweden, the existence of private instructors may act as a stimulus to driving schools and compel them to improve their teaching in order to remain competitive. Moreover, when private persons are instructing members of their own family, they try to cover as much ground and to be as thoroughly as possible so that their pupil shall not fail the test. Finally, many privately taught candidates take a certain number of lessons from a professional instructor in order to get to know the examiners' requirements.

According to a statement by the Delegate for the United Kingdom, there is no proof that persons taught by private instructors are more dangerous on the road or fail the test more frequently than others.

According to a statement by the Delegate for Denmark there is less need for provisions concerning temporary driving licences for learner-drivers (see question 2) and qualifications as to the person accompanying the learner (see question 3) when a system of compulsory education by driving school is in force, particularly if the vehicle used for instruction and examination has to be provided with dual footbrake and clutch control, etc.

Owing to the diversity of points of view, the Working Party was unable to decide one way or the orther.

5. *Equipment of instruction vehicles:*
Table 2 (columns 12 to 14)

A. After thorough discussion, the Working Party concluded that it was impossible to recommend the various countries to make it compulsory to have a handbrake or footbrake readily accessible to the instructor. In view of the minute proportion of accidents caused by learners (e.g. in the United Kingdom) it scarcely seemed important from the point of view of road safety to make such devices compulsory.

B. Finally, the Working Party thought it sufficient to recommend the adoption of a rule by which the responsible person must be able to take effective action at any time.

C. With regard to the possible prohibition of the use of vehicles fitted with pre-selective gear-boxes or hydraulic or centrifugal clutches (Item 54 in the Report of 30th October 1962, page 3) the Working Party's discussion brought to light so many divergencies that it was found impossible to adopt conclusions on this point.

6. *Equipment of examination vehicles:*
Table 2 (columns 15 to 17)

The Working Party reached the same conclusions as under paragraph 5 B above, considering that there was no reason to adopt different solutions for training vehicles and examination vehicles.

7. *Examination of learner-drivers:*
Table 3 (columns 18 to 27)

A. *Knowledge of traffic rules* (columns 18 and 19)
The replies received show that most countries require candidates to pass an oral examination.
In two countries, the examination is generally written. In three countries, the examination may be written or oral at the examiner's discretion.
The Working Party's discussion on this topic brought out the following advantages and disadvantages of the written examination:

a) *Advantages:*
— possibility of laying down uniform conditions for all candidates;
— elimination of the "stage fright" which paralyses some candidates in oral examinations (e.g. those who find difficulty in expressing themselves orally);
— saving of time and staff.

b) *Disadvantages:*
— difficulty of drawing up satisfactory written questions so as to rule out the possibility of a "yes" or "no" arrived at by guesswork;
— unfavourable situation of candidates unable to express themselves in writing.
Since this problem is not of major interest to road safety, the Working Party refrained from making any recommendation.

B. *Practical knowledge of driving:*
Table 3 (columns 20 and 21)

a) *Chief manoeuvres required of the candidate*
A list of these manoeuvres is given in Table 4.
The survey shows that the great majority of countries require candidates to carry out all these manoeuvres correctly. Two countries did not specify or only partially specified, the various manoeuvres required, but stated that the candidate must demonstrate his ability to drive well in town under normal conditions. In the interests of road safety it should be urged, however, that the practical training should also include:
— driving on trunk roads (letter K);
— driving during hours of darkness (letter L).
The examination might include these from time to time.

b) *Duration of practical test*
The duration varies from 20 to about 60 minutes according to country. In Austria, France and Italy it is laid down that the test shall last until the examiner is able to form an opinion. The main part of the test should be devoted to its practical aspect and must last long enough for the examiner to form an opinion.

C. *Technical knowledge of the engine and vehicle*
a) Countries' replies to the question whether it is compulsory to pass a theoretical test on technical knowledge gave the following result:

— for private cars :
Yes, (4 countries)
Yes, to a limited extent (2 countries)
No, (4 countries)
— for motorcoaches, motorbuses and heavy lorries :
Yes, (7 countries)
Yes, to a limited extent (1 country)
No, (2 countries)

b) Countries' replies to the question whether it is compulsory to pass a practical test on technical knowledge gave the following result :
— for private cars :
Yes, (2 countries)
Yes, to a limited extent (2 countries)
No, (6 countries)
— for motorcoaches, motorbuses and heavy lorries :
Yes, (5 countries)
No, (5 countries)

The Working Party feels that, even for Categories III, IV and V, the test should deal less with technical knowledge than with the practical behaviour of the candidate on the road.

8. *Provision of training grounds off the public highway*

The Working Party considers that off-the-highway training grounds would be useful. They would enable candidates to practise unaccompanied by instructors and recently qualified drivers could use them to improve their driving.

The Working Party therefore recommends that the possibility of setting up such off-the-highway training grounds should be studied.

Such matters, however, are not primarily the business of the State or public authorities; private institutions such as Automobile Clubs and Road Safety Organisations might be associated with their introduction.

ANNEX

STANDARDIZATION OF TESTS FOR DRIVING LICENCES

CATEGORIES OF VEHICLES

DESIGNATED IN THE FOLLOWING TABLES BY THE CORRESPONDING ROMAN FIGURES

I. Light motor vehicles/private cars.

II. Taxis—maximum 8 passengers plus driver.

III. Motor-coaches—motor buses.

IV. Light lorries (including tractors).

V. Heavy lorries (including tractors).

VI. Motor cycles with or without side-car, for Italy
- VI*a*. Motor cycles weighing under 400 kg.
- VI*b*. Motor-cycles weighing over 400 kg.

for Sweden
- VI*c*. Motor-cycles weighing a maximum of 75 kg.
- VI*d*. Motor-cycles weighing over 75 kg.

VII. Light motor-cycles (F) — cylinder capacity between 50 and 125 cc.

Mopeds (Motorfahrräder) (Ciclomotori)
- (DK and CH) Constructed so as not to exceed 30 km.p.h.
- (F) Constructed so as not to exceed 50 km.p.h.

Cylinder capacity not exceeding 50 cc.

VIII. Fahrräder mit Hilfsmotor (D) / Motorfahrräder (A) / Ciclomotori (I)

Constructed so as not to exceed 40 km.p.h.

Cylinder capacity not exceeding 50 cc.

IX. Light motor-cycles (Kleinmotorräder) (Motoleggere) (Kleinkrafträder (D)

(CH) Cylinder capacity not exceeding 50 cc. speed unlimited

This category does not exist in Austria and Sweden.
In France, this category is assimilated to category VII.
In Italy, this category is assimilated to category VI.

X. Agricultural motor vehicles—constructed so as to not exceed 20 km.p.h. (30 km.p.h. in Denmark and Sweden). (27 km.p.h. in France).

General Remark: In Denmark and the United Kingdom, vehicles of categories VI, VII and IX are governed by common rules (category "motor-cycles")

This also applied to vehicles of category VIII in the United Kingdom,

TABLE 1. STANDARDIZATION OF TESTS FOR DRIVING LICENCES

COUNTRY	CATEGORIES OF VEHICLES FOR WHICH NO LICENCE IS REQUIRED ON THE PUBLIC HIGHWAY	IS THE CANDIDATE FIRST REQUIRED TO OBTAIN A TEMPORARY DRIVING LICENCE?	DOES THE AUTHORITY ISSUE A TEMPORARY LICENCE?			DURATION OF TEMPORARY LICENCE		IS IT COMPULSORY TO TAKE LESSONS FROM AN APPROVED INSTRUCTOR (DRIVING SCHOOL)?
			SUBJECT TO PREVIOUS KNOWLEDGE OF TRAFFIC RULES?	ONLY IF THE APPLICANT		NUMBER OF MONTHS?	LICENCE RENEWABLE FOR HOW LONG?	
				PROVES BY EXAMINATION THAT HE KNOWS THESE RULES?	MAKES A STATEMENT THAT HE KNOWS THESE RULES?			
1	1 *a*	2	3	4	5	6	7	8
Federal Republic of Germany	..	No	—	—	—	—	—	Yes**
Austria	VIII, X[4]	No	—	—	—	—	—	Yes**
Denmark	VIII, X[5]	No ***	—	—	—	—[1]	—[1]	Yes[2]
France	VIII, X	No	—	—	—	—	—	No*
United Kingdom	none	Yes	No	No	No	six months	In certain circumstances, unlimited number of licences valid for six months	No
Italy	VIII	Yes for I to V, VI *b*) and X	No	—	—	three months	three months	No
Luxembourg	VIII	Yes for the vehicles specified below****	No	No	No	2 months	2 months exceptionally	Yes*****
		No for all other motor vehicles	—	—	—	—	—	Yes
Netherlands	VIII, X[10]	Yes for I[1] [2], III[7] and V[2], VI and VII	Yes for 1[1] VI and VII	Yes for III[8] and V 8	No	1 month	for 1 month and V[1] under certain conditions	No
Sweden	VIII[11]	No	—	—	—	—	—	No[9]
Switzerland	VIII, X[12]	Yes for I to VII an IX	Yes for VI and IX	Yes for VI and IX	No	6 months (2 months for VI and IX)	2 × 6 months (2 × 1 month for VI and IX)	No

Notes :

* In practice, candidates are almost always trained by professional instructors (driving school).
** Two alternatives : instruction given by driving school or lessons by officially authorised persons.
*** Optional for tractors (IV and V), without preliminary conditions (columns 3 to 5).
**** Light motorcycles, motorcycles, motor machinery, agricultural tractors and trailers.
***** For the thoeretical part only.

1. Tractors : licence valid for three weeks and renewable for three weeks on failing examination.
2. Except for tractors (IV and V).
3. No licence is required for vehicles so constructed as to be unable to exceed 6 km.p.h. (10 km.p.h. for invalid carriages).
4. Unless such vehicles can exceed 9 km.p.h.
5. To some extent.
6. In case of restricted driving licences, i.e. for disabled persons.
7. Only if the vehicle is so constructed that there is no place for a responsible person beside the learner.
8. The learner driver must hold a B driving licence (under Annex 9 of the 1949 Convention).
9. In fact only 5 per cent of the candidates do not take lessons at a driving school but are trained by private persons.
10. In the case of vehicles which cannot exceed 20 km.p.h. (either by construction or by law).
11. Except for agricultural motor vehicles which are fitted with rubber tyres and habitually used on the public highway.
12. A licence is required only for persons under 18 years of age.

TABLE 2

COUNTRY	AT THE INSTRUCTION STAGE MUST THE LEARNER BE ACCOMPANIED BY THE HOLDER OF A DRIVING LICENCE?	QUALIFICATIONS REQUIRED OF THE PERSON REFERRED TO IN COLUMN[9]		TECHNICAL REQUIREMENTS FOR VEHICLES USED FOR					
				TRAINING			EXAMINATION		
		MINIMUM AGE	HOLDER OF LICENCE FOR HOW LONG?	HANDBRAKE: READILY ACCESSIBLE TO INSTRUCTOR?	DUAL FOOTBRAKE?	DUAL CLUTCH CONTROL?	HANDBRAKE: READILY ACCESSIBLE TO EXAMINER?	DUAL FOOTBRAKE?	DUAL CLUTCH CONTROL?
	9	10	11	12	13	14	15	16	17
Federal Republic of Germany	Yes	23 years	3 years	No	Generally Yes	Generally Yes	No	No	No
Austria	Yes	21 years 24 years (III)	3 years	*a*) — *b*) Yes	Yes No	Yes No	— Yes	Yes No	Yes No
Denmark	An instructor is compulsory[5]	—	—	Yes	Yes	Yes	Yes	Yes	Yes
France	Yes	16 years (VI, VII) 18 years (I, II, IV, V) 21 years (III)	Yes No conditions	Yes *a*)	Yes *a*)	Yes *a*)	No	No	No
United Kingdom ..	Yes (except for VI, VII and VIII and IX)	16 years (VI to X) 17 years (I, II, IV) 21 years (III, V)	Yes No conditions	No	No	No	No	No	No
Italy	Yes (except for VI)	18 years (I, IV, V[2]) 21 years (II, III)	Yes No conditions	No	Yes *a*)[3]	Yes *a*)[4]	No	Yes *a*)[3]	Yes *a*)[4]
Luxembourg	Presence of instructor compulsory except for vehicles specified below*	25 years	3 years	Yes	Yes	No[6]	Yes[7]	Yes	No
Netherlands	Yes for I to V[8]	18 years	Yes No conditions	—[9]	—[9]	—[9]	No	Yes	No
Sweden	Yes for I to VI	21 years	3 years	Yes *a*) No *b*)	Yes *a*) No *b*)	Yes *a*) No *b*)	Yes	No	No
Switzerland	Yes except for VI and IX	22 years (III) 18 years (other vehicles)	1 year	Yes	No	No	Yes	No	No

Notes :

* Mopeds, Motorcycles, Mobile machinery, Agricultural tractors and trailers.

a) In the case of a driving-school vehicle. (If the vehicle is equipped with a dual footbrake, a handbrake readily accessible to the instructor or examiner is obviously unnecessary.)

b) In the case of a private car.

1. Heavy vehicles (over 3 tons).
2. For category V lorries with heavy trailer, the minimum age is 21 years.
3. For categories I to V.
4. For categories I to III.
5. Except for tractors (See Note 1, p. 14).
6. All driving-school vehicles are equipped with dual clutch control.
7. The instructor sits beside the candidate.
8. Unless the candidate has obtained a temporary licence (cases referred to in Column 2).
9. The instructor or responsible person must be able to take effective action.

TABLE 3

COUNTRY	COMPULSORY EXAMINATION RELATING TO:								
	KNOWLEDGE OF TRAFFIC RULES		PRACTICAL KNOWLEDGE OF DRIVING (PRIVATE CARS)		TECHNICAL KNOWLEDGE OF THE ENGINE AND VEHICLE					
	WRITTEN EXAMINATION	ORAL EXAMINATION	CHIEF MANOEUVRES REQUIRED OF THE CANDIDATE	DURATION OF PRACTICAL TEST	THEORETICAL (FOR THE FOLLOWING VEHICLES)			PRACTICAL (FOR THE FOLLOWING VEHICLES)		
	18	19	20 (SEE TABLE 4)	21	I 22	III 23	V 24	I 25	III 26	V 27
Federal Republic of Germany	Generally Yes	Generally No	A B C D E F G H I J K* L* M	About 30 minutes	Yes[1]	Yes	Yes	Yes[1]	Yes	Yes
Austria	No	Yes	A B C D E F G H I J K* L* M	See note[2]	Yes	Yes	Yes	Yes[1]	Yes	Yes
Denmark ...	No	Yes[3]	A B C D E F G H - J K - M	30 minutes	Yes	Yes	Yes	Yes	Yes	Yes
France	No	Yes	A B C D E F G H I J K - M	See note[2]	Yes[1]	Yes[1]	Yes[1]	No	No	No
United Kingdom..	No	Yes	A B C D E F G H - - - - M	About 45 minutes	No	No	No	No	No	No
Italy	Yes[3]	Yes[3]	A B C D E F G H I J* K* L* M	See note[2]	Yes	Yes	Yes	Yes	Yes	Yes
Luxembourg.	No	Yes	A, C, G, H, L*, M	50 minutes	No	Yes	Yes	No	Yes	Yes
Netherlands .	Yes	Yes	A to I, M	20 minutes[4] 25 minutes[5]	No	No	No	No	No	No
Sweden	Yes	Yes	No specific manoeuvres Must be able to drive correctly in normal situations	20 minutes[4] 25 minutes[5]	Yes	Yes	Yes	No	No	No
Switzerland .	No[6]	Yes	A to J*, K*, L* M	About 60 minutes	No	Yes	Yes	No	No	No

Notes :

* An asterisk after the letter means "at the examiner's discretion".
1. Only to a limited extent.
2. Until the examiner is able to form an opinion.
3. The examination may be either written or oral.
4. For vehicles of categories I, IV, V and VI.
5. For vehicles of categories II and III.
6. To save time certain cantons require candidates to complete a questionnaire.

TABLE 4. LIST OF CHIEF MANOEUVRES REQUIRED (COLUMN 20)

An asterisk after a letter (in colum 20) means "at the examiner's discretion"

A. Starting on a hill.
B. Turning in a narrow road.
C. Reversing in a straight line and on corners.
D. Taking lefthand and righthand turnings correctly.
E. Behaviour at intersections (right of way).
F. Pre-selection.
G. Overtaking.
H. Parking correctly in a free space.
I. Immobilising the vehicle on a hill (up or down).
J. Use of lights.
K. Driving on trunk road.
L. Night driving.
M. Adaptability in heavy traffic.

PART II

CONCLUSIONS
CONCERNING THE CO-ORDINATION OF ROAD TRAFFIC RULES ADOPTED BY THE MINISTERS REPRESENTING 13 COUNTRIES

The Ministers representing the following countries : Austria, Belgium, Denmark, France, Germany, Italy, Luxembourg, the Netherlands, Norway, Spain, Sweden, Switzerland and the United Kingdom,[1]

Meeting in Paris on 1st and 2nd April, 1963 :

RECOGNISING once again the vital importance of coordinating national road traffic rules in order to develop international traffic and promote security;

NOTING with satisfaction the position adopted by the Council of Europe concerning the need to take all possible steps to achieve the co-ordination of road traffic rules and designating the E.C.M.T. as the best qualified body to carry out a work on this scale;

CONSIDERING that the contacts made by Restricted Group No. 3 with the World Touring and Automobile Organisation and with the International Union of Railways have produced useful results;

HAVING REGARD TO the proposals submitted to them, covering a second series of sections of the highway codes;

I. APPROVE the principles laid down in the document below [CM/GR3(63)3 (Final)][2].

II. CONFIRM THEIR INTENTION :

a) of taking steps to have these principles embodied as speedily as possible in their national legislation;

b) of keeping one another informed of any decisions of this kind which may be taken in their country;

III. As agreed, when the first series of texts were adopted;

REQUEST their Chairman to communicate CM/GR3(63)3 (final) to their colleagues of the E.C.M.T. Member countries who have not taken part in the work of the Group, with a request that they examine the possibility of adopting the conclusions hitherto reached;

IV. INSTRUCT THE EXPERTS :

a) to begin at once a study of the subjects still outstanding, giving priority to the co-ordination of road signs and signals with particular attention to the nature and significance of such signs and signals, the distance over which they are effective and their position in relation to that distance;

b) to submit, as early as possible, a comprehensive document embodying all the texts approved by the Ministers and proposed by the Group;

RECALL also that the experts have been requested to report on the advisability of giving form to the decisions taken and the legal procedure which might be envisaged for that purpose;

INVITE the experts also to submit in addition a list of the subjects remaining to be studied.

1. Later on these conclusions have been adopted by the Ministers of Transport of Greece, Portugal and Turkey.

2. Certain reservations have been made which are indicated in that document.

TEXTS ON THE CO-ORDINATION OF ROAD TRAFFIC RULES ADOPTED BY THE MINISTERS AT THEIR SESSION OF 1st/2nd APRIL 1963[1]

[CM/GR3 (63) 3 (final)]

CHAPTER XXII
LIGHTS AND SIGNALS FOR ALL ROAD USERS

I. ROAD USERS IN MOTION

Motor vehicles other than mopeds

A. *a)* Main-beam or dipped-beam headlights shall be switched on at night. Drivers shall, however, use main-beam headlights whenever their field of vision is insufficient to give complete safety, having regard to the speed at which they are travelling.

b) Main-beam headlights shall be switched off :

1. in adequately lit built-up areas;
2. outside built-up areas, where the carriageway is continuously lit, so that the driver can see clearly sufficiently far ahead;
3. when the vehicle is about to pass an oncoming vehicle sufficiently far ahead to enable the vehicle to proceed easily and without danger. This rule shall also be applicable when a rail vehicle or boat is approaching from the opposite direction on its own track or waterway alongside the road followed by the vehicle, if the driver or navigator might be dazzled by main-beam headlights;
4. when the vehicle is close behind another, except when overtaking.

c) Main-beam headlights shall be replaced;

1. In the case referred to in sub-paragraph (*b*) (1) : either by sidelights or by dipped-beam headlights;
2. In the cases referred to in sub-paragraphs (*b*), (2) (3) and (4) : by dipped-beam headlights, but without prejudice to the provisions of the foregoing sub-paragraph (1).

d) 1. Main-beam and dipped-beam headlights may be used simultaneously in all circumstances where the use of main-beam headlights is authorised;

2. In all cases where main-beam or dipped-beam headlights are used, sidelights may also be used. They must be used simultaneously with dipped-beam headlights if no point in the luminous area of the latter is less than 400 mm from the end of the line of overall width of the vehicle.

e) Dipped-beam headlights shall be used in place of main-beam headlights or sidelights :

1. in dense fog or falling snow, when visibility is appreciably reduced;
2. in built-up areas, when weather conditions or other circumstances render sidelights insufficient to make the vehicle visible to other road users from a safe distance.

f) Agricultural tractors and machines and special selfpropelled earth-moving machines incapable of exceeding a speed of 10 km.p.h. on the level, if not equipped with the lights required for motor vehicles, shall show at least the following lights attached to the lefthand side of the vehicle :

to the front, a white or yellow light,
to the rear, a red light.

1. The United Kingdom entered a general reservation on the grounds that some time would be needed to study how its own rules might be adapted to the rules given in this text.

B. At dusk and at dawn and during the day when weather conditions or other circumstances render it prudent, from the point of view of safety, to make the vehicle visible to other road users from a sufficient distance, either sidelights or dipped-beam headlights shall be used.

In dense fog or falling show, however, when visibility is appreciably reduced, dipped-beam headlights shall always be used. In the same conditions, national regulations may authorise the use of main-beam headlights during the day.

C. 1. If foglights are fitted to a motor vehicle other than a motor cycle, they shall be two in number and shall be placed low in such a position that the point of the luminous area furthest from the longitudinal axis of the vehicle is less than 400 mm from the end of the line of overall width.

2. Foglights shall be used only in case of fog or falling snow; they may then replace dipped-beam headlights.

3. National regulations may also authorise the use of foglights in other circumstances on narrow roads where there are numerous bends.

D. When a vehicle is fitted with a reversing light, this shall be switched on only when reversing; it must not, in any case, cause inconvenience to other road users.

E. The red tail-light or lights and the number-plate light or lights shall always be switched on simultaneously with sidelights, dipped-beam or main-beam headlights or foglights.

2. *Other road users*

Between dusk and dawn and during the day when weather conditions or other circumstances render it necessary, drivers of vehicles, persons in charge of animals and other road users referred to below shall use the following lights when travelling on the road :

1. Ridden cycles and mopeds :
   to the front, a white or yellow light,
   to the rear, a red light.

2. Pushed or drawn handcarts :
   to the front, at least one white or yellow light,
   to the rear, at least one red light.

The two lights required for the above handcarts may be replaced by a single lamp attached to the left-hand side of the vehicle. In this case the single lamp may project yellow light to both front and rear. The single lamp may also be carried by a person walking on the left of the vehicle but in this case it must show a yellow light to both front and rear.

The foregoing provisions shall be applicable to invalid carriages, whether self-propelled or drawn by dogs, when travelling on the carriageway.

3. *a*) Animal-drawn vehicles :
   to the front, two white or yellow lights;
   to the rear, two red lights.
   b) National regulations may nevertheless authorise such vehicles to carry only one white light in front and one red light at the rear, both on the left-hand side of the vehicle.
   c) If the vehicle is not towing another and if its length does not exceed 6 metres, the two lights referred to in the foregoing sub-paragraphs (*b*) may be shown from a single lamp attached to the left-hand side, provided that such lights can be seen from sufficiently far ahead or behind.
   d) If the lights referred to in paragraphs (2) hand (3) (*b*) cannot be attached to the vehicle, they may be carried by persons walking immediately on the left of the vehicle. In the same conditions, the single lamp may be carried by a person walking immediately on the left of the vehicle, but in that case it must show a yellow light to both front and rear.

4. Unharnessed draught animals, pack animals and cattle :
   to the front, one white or yellow light;
   to the rear, one red light.

These lights may be shown from a single lamp, except where the cattle form a herd of at least six head.

The single lamp must show a yellow light to both front and rear and shall be carried on the left-hand side.

National legislation may prescribe that these regulations do not apply in special areas marked at their point of entry by road sign No. 1,19.

5. Columns, processions or groups of pedestrians marching in rank and led by a guide, and military columns consisting of troops on the march[1] :
   to the front, at least one white or yellow light,
   to the rear, at least one red light.

These lights may be shown by a vehicle preceding the formation and another following

1. The Netherlands entered a reservation concerning military columns.

it, but the latter must in any case use its dipped-beam headlights.

If the formation is very long, the left flank shall be signalled by a sufficient number of yellow lights to ensure that the distance between two consecutive lights is not greater than that determined by national legislation.

Such lights shall not be required, however, if the formation is moving in a built-up area with adequate public lighting.

3. *General provision*

The lights referred to in Section I may in no case be used in such a way as to dazzle other road users.

II. STATIONARY ROAD USERS

1. *Motor vehicles*

Between dusk and dawn and during the day when weather conditions or other circumstances render it necessary, motor vehicles and all combinations consisting of a motor vehicle and a trailer when stationary or parked on the road shall show:

1. To the front, sidelight or lights,
2. To the rear, red tail-light or lights and number-plate light or lights.

In built-up areas, however, the lights referred to under (1) and (2) may be replaced by a parking-light showing white or yellow to the front and red or amber to the rear and attached to the side of the vehicle opposite to the edge of the carriageway along which the vehicle is parked, in the case of:

a) Passenger vehicles having not more than 8 seats in addition to the driving seat, provided that no trailer is attached,

b) Any other vehicle not more than 6 metres long and 2 metres wide, provided that not trailer is attached.

The use of the lights referred to above shall not be required when the road lighting enables the vehicle to be clearly seen from a sufficient distance.

The foregoing provisions do not apply to mopeds and motor cycles not fitted with batteries, which shall in such circumstances be drawn up at the extreme edge of the road.

2. *Other road users*

Between dusk and dawn and during the day when weather conditions or other circumstances render it necessary, the road users referred to in paragraph 2 of the foregoing section I, other than cycles and mopeds, shall show the same lights as those required when they are in motion.

Uncoupled trailers shall show either the same lights as other motor vehicles or one white light to the front and one red light to the rear, both attached to the side of the trailer opposite to the edge of the carriageway where the trailer is drawn up. If the length of the trailer does not exceed 6 metres, both lights may be shown from a single lamp attached to the left-hand side of the vehicle.

The use of the lights referred to above shall not be required when the road lighting enables the vehicle or other road users to be clearly seen from a sufficient distance.

3. *General provision*

The lights referred to in Section II may in no case be used in such a way as to dazzle other road users.

III. ADVANCE SIGNALLING OF VEHICLES STATIONARY ON THE CARRIAGEWAY

Chapter XXIII

ACTION TO BE TAKEN IN THE EVENT OF ACCIDENT

1. The driver of any motor vehicle which becomes involved in an accident shall:

1. stop immediately and ascertain the consequences of the accident;
2. take all necessary action for the safety of other traffic;
3. at the request of other persons involved in the same accident, produce official evidence of identity.

2. If the accident has caused only material damage, all the persons involved shall in addition remain on the spot and jointly establish all necessary evidence and, if necessary, call in a competent authority to establish such evidence.

However, if an injured party is not present, the persons involved in the accident shall as far as possible indicate on the spot their names and addresses and shall in any case produce this information at the earliest possible moment by the most direct means or, failing that, through the police.

3. If the accident has caused death or physical injury to any person, all the persons

involved must comply with the requirements of paragraph 1 and in addition must:

1. render any necessary assistance to the injured;
2. remain on the spot until the police have established all necessary evidence on the site of the accident[1].

Nevertheless, a person who leaves the site of the accident to render assistance to the injured or to call the police, after having given his name and address to persons present, does not evade this obligation.

4. The provisions of this chapter shall be applicable to all other road users in so far as they are appropriate.

5. Any person not involved in the accident shall render assistance to the injured to the extent required of him.

Chapter XXIV
FOLLOWING DISTANCE FOR CERTAIN VEHICLES

Except during the time necessary for overtaking, large or heavy vehicles and combinations of vehicles travelling outside built-up areas shall leave a sufficient space between them to facilitate overtaking by other vehicles. This distance may be determined by national legislation, in which case it may not be less than 50 m.

Chapter XXV
ROAD BEHAVIOUR AT A LEVEL CROSSING MARKED WITH THE CONVENTIONAL SIGNALS

1. On approaching a level crossing, road users shall take special care to avoid an accident, particularly by reducing speed, and shall then cross without unnecessary delay.

2. Road users are forbidden to cross a level crossing in the following cases:

a) When one or more red lights (steady or winking) are showing;

b) In the absence of red lights, when the gates are closed or are being closed;

1. Norway and Sweden entered a reservation against remaining on the spot and pointed out difficulties arising out of the geographical configuration of those countries.

3. If a level crossing has neither gates nor red lights road users may not cross until they have made certain that no rail vehicle is approaching.

Chapter XXVI
MOTORWAY TRAFFIC

1. Except where specifically provided to the contrary, traffic on motorways shall be restricted to motor vehicles other than mopeds, and their trailers or semi-trailers, which are fitted with pneumatic tyres and capable of attaining a speed of not less than 40 km.p.h. on the level.

2. Vehicles which are allowed to use motorways may enter or leave only by the special approach roads.

When the competent authorities think fit to mark the beginning of a motorway or of a motorway approach road, they shall use road sign No. III, C. 3a. Road sign No. III, C. 3b shall be used to indicate the end of a motorway.

3. *a*) Drivers who wish to enter a motorway shall give way to those already on it, and shall therefore stop if necessary before entering. If the approach lane is continued as an acceleration lane, the driver shall take this and continue to use it until he can enter the motorway proper while observing the foregoing requirements.

b) Drivers who wish to leave the motorway shall take the right-hand traffic lane in good time and enter the deceleration lane, if any, as soon as possible.

4. It is forbidden to drive on to the central reserve strip of a motorway, including the transverse junctions connecting the two carriageways.

5. It is forbidden to make a U-turn or to reverse on a motor way.

6. It is forbidden to stop a vehicle on the carriageways, shoulders[1] and approach roads of a motorway except in parking areas marked with road sign No. III, A. 1 and in service areas marked with an appropriate sign.

In the event of involuntary stoppage of a vehicle, the driver shall as far as possible draw up off the carriageway on his right-hand side. If this is not possible, all steps shall be taken to

1. The Netherlands entered a reservation against the ban on parking on the shoulder.

give early warning to other drivers of the obstacle which they are about to encounter.

If a vehicle is accidentally stopped on the carriageway or shoulder at night or by day when weather conditions or other circumstances render it necessary, the action required shall include the use of lights or reflectors.

Chapter XXVII
ATTACHMENT OF LOADS

The load of a vehicle shall be arranged and, if necessary, secured so that it can not :

a) constitute a danger to persons or cause damage to public or private property;
b) drag along the road, fall on to the road, or interfere with the driving and stability of the vehicle;
c) impair the driver's field of vision;
d) cause any avoidable noise.

All accessories such as chains, ropes, tarpaulins, etc. used for securing or protecting the load shall be tight and firmly fixed. They may in no case sway beyond the overall limits of the vehicle including its load, and may not drag along the ground.

Chapter XXVIII
MARKING OF OVERHANGING LOADS

1. Loads which overhang the rear of the vehicle by more than 1 m. shall be marked as follows :

a) by day, when visibility is normal, by a rigid sign coloured red or in two colours, one of which is red and the other lighter. Such a sign may have a reflecting surface.
National legislation may nevertheless authorise the use of a piece of red cloth in place of the rigid sign, in the conditions and within the limits determined by such legislation;
b) between dusk and dawn and by day when weather conditions or other circumstances render it necessary, a red light together with either a red reflector stud or some other reflecting device, either red or in two colours, one red and the other lighter.

The means used to mark the rear end of the load referred to in sub-paragraphs (*a*) and (*b*) shall be attached to the end of the load.

Between dusk and dawn and by day when weather conditions or other circumstances render it necessary, the reflector studs or other reflecting devices shall be placed low enough to reflect the dipped-beam headlights of vehicles.

National legislation may prescribe a maximum height for the upper part of the reflector stud or other reflecting device elements.

The signalling devices referred to above shall in all cases be visible from a sufficient distance. The red light must not dazzle other road-users.

2. *a*) Between dusk and dawn and during the day when weather conditions or other circumstances render it necessary, loads projecting sideways more than 400 mm beyond that point of the luminous area of any lights used which is furthest from the central longitudinal axis of the vehicle, shall be marked with a white light and reflector stud showing to the front and a red light and reflector stud showing to the rear. Such lights and reflectors shall be placed so that the point of the luminous or reflecting area furthest from the central longitudinal axis of the vehicle shall be less than 400 mm from the extreme edge of the load.

b) If a load which is more than 2.5 m wide and is being carried under special authorisation overhangs the side of the vehicle, the lights and reflector studs referred to in the foregoing sub-paragraph (*a*) shall be placed at the extreme edges of the load.

c) The signalling devices referred to above shall in all cases be visible from a sufficient distance. The red light must not dazzle other road-users.

The reflector studs referred to in the foregoing sub-paragraphs (*a*) and (*b*) shall be placed low enough to reflect the dipped-beam headlights of vehicles.

3. National regulations may prohibit, restrict, or submit to special authorisation, any lateral or forward overhanging of a load. They may also lay down suitable safety precautions.

Chapter XXIX
OPENING OF DOORS

Without prejudice to the provisions of Chapter XI, 2, it is forbidden to open the door of a vehicle, to leave it open unnecessarily or to get out of a vehicle without making sure that no danger or inconvenience is caused to other road users.

Chapter XXX

OBSTACLES OTHER THAN ROAD WORKS

It is forbidden to hamper traffic or to render it dangerous by throwing, depositing, leaving or dropping any objects or materials on the road or by creating any other obstacles.

If the creation of an obstacle is inevitable, all necessary action shall be taken to remove it as soon as possible and, if necessary, to give warning to other road users.

Texts on the co-ordination of road traffic rules

[CM/GR3 (62) 2 (final)]

AMENDMENTS ADOPTED BY THE MINISTERS AT THEIR SESSION OF 1st AND 2nd APRIL, 1963

[CM/GR3 (63) 2 (final)]

Chapter I. GENERAL PRINCIPLES

2. DEFINITIONS—THE FOLLOWING NEW SUB-PARAGRAPH *c*) TO BE ADDED

c) "Motorway" means any road which fulfills the following conditions :

1. The road shall be provided with separate carriageways for traffic travelling in each direction, divided by a strip which is not intended for traffic exceptions are allowed at specific points or temporarily.
2. There shall be no level intersection with other roads.

Chapter II. ROAD USERS

2. LAST SUB-PARAGRAPH TO BE REPLACED BY :

Drivers shall not leave their vehicles or their animals without having taken all advisable precautions to avoid accident and, in the case of motor vehicles, to prevent misuse.

Chapter IV. RIGHT OF WAY

THIS CHAPTER TO BE ARRANGED AND EXPANDED AS FOLLOWS :

1. *General rule*

Drivers approaching intersections or level crossings shall take particular care to avoid accidents.

2. *Priority to traffic coming from the right*

At intersections and public squares, with or without roundabouts, drivers shall always give way to traffic coming from the right.

3. *Exceptions*

Drivers approaching a junction shall always give right of way to traffic proceeding along the road which they propose to join :

1. when emerging from the road marked at the approach to the junction by a sign giving right of way to the other road;
2. when emerging from a lane or earth track on to a roadway intended for general traffic.

4. *Behaviour of drivers yielding right of way*

Drivers who have to yield the right of way shall not proceed until they can do so without danger to other vehicles, having regard to the position, distance and speed of such vehicles.

5. *Behaviour with regard to rail vehicles*

Where railway or tram lines run along the public highway, road users shall leave the road clear for approaching trams or trains as quickly as possible and shall stop, if necessary, to allow such vehicles to pass.

The provisions of the foregoing paragraph shall not apply in countries where trams or trains are subject to traffic rules forming part of the national highway code.

6. *Priority traffic*

Drivers shall leave the way clear and, if necessary, stop when warned of the appro-

ach of a priority vehicle by special visual or audible signals. Drivers of priority vehicles shall refrain from using such special signals except when warranted in an emergency.

The use of special signals shall not exempt drivers of such vehicles from the need to take care not to endanger other road users.

Chapter XII. TURNING

2. *d) The following to be added:*

A driver who is turning left to enter a carriageway which meets the conditions laid down in Chapter III, paragraph 1, (1), (2), or (3) may nevertheless do so without keeping close to the right hand edge of the carriageway which he proposes to enter.

CONCLUSIONS ADOPTED BY THE MEETING OF GOVERNMENTAL EXPERTS OF THE COUNCIL OF EUROPE AND THE E.C.M.T. ON ROAD SAFETY EDUCATION IN SCHOOLS

Paris, 1st to 4th October 1963

[*CM (63) 23*]

I. INTRODUCTION

1. In its Recommendation 276 (1961), the Consultative Assembly of the Council of Europe recommended to the Committee of Ministers that it should instruct the Council for Cultural Co-operation to convene a meeting of educational and road safety experts "for the purpose of:

a) exchanging experiences on methods of road safety education for children; and

b) making road safety education compulsory in schools as a separate subject in the curriculum."

2. On the proposal of the Council for Cultural Co-operation, The Committee of Ministers of the Council of Europe decided to adopt this Recommendation.

3. On being informed of this decision, the European Conference of Ministers of Transport (E.C.M.T.) expressed its willingness to organise such a meeting and asked the Council of Europe to secure the participation of educational experts.

4. The meeting in question was held at the "Centre International des Conférences", in Paris, from 1st to 4th October, 1963.

It was opened by Mr. Bertrand, Chairman of the European Conference of Ministers of Transport, in the presence of Mr. Gresham Cooke, M.P., member of the Road Safety Sub-Commission of the Assembly of the Council of Europe.

5. The following are given below:

— conclusions reached by the meeting;
— list of participants (Annex I);
— reports on which the work of the meeting was based (Annex II).
— excerpts from the official french brochure on "the teaching of safety" (Annex III).

II. GENERAL CONSIDERATIONS

6. From the human point of view, it is particularly deplorable that more than 5,000 children are the victims of fatal accidents each year in the countries represented; in addition to an even larger number of children who are seriously injured;

7. This situation, which rightly arouses public feeling, can be improved by the co-ordinated efforts of families, parents' associations and youth organisations, with the help of private institutions or associations and all public authorities concerned with road safety, but that really effective educational work in this field cannot be undertaken without regular, energetic action on the part of the schools;

8. Since children are compelled to attend school in all the countries represented, it is up to the public authorities to prepare them, by adequate education, to avoid the dangers to which they are exposed when moving from place to place;

9. Such training of school children may enable those accidents to be avoided which are caused through their own thoughtlessness or ignorance of traffic rules, and in the long run help to train a new generation of careful, well-informed drivers and law-abiding citizens; it is thus eminently favourable to the public interest.

III. ACCIDENT STATISTICS

10. The study of the needs which such education must meet, the points on which it should be intensified and the effects obtained according

to the means at its disposal must be based on statistics :

a) which supply the most detailed information possible on the circumstances of accidents;

b) which are internationally comparable.

11. To that end the following measures are recommended :

a) to determine clearly the category in which the child becomes an accident victim (pedestrian, cyclist, passenger in private car, etc.);

b) to standardize age-groups by adopting the division : 0-5 years, 5-10 years, 10-15 years, 15-20 years,[1] on the understanding that within this general framework each country may carry out special research on sub-divisions;

c) to use a common standard as regards the time limit within which an accident should be regarded as fatal.

IV. THE PLACE OF ROAD SAFETY EDUCATION IN THE SCHOOL CURRICULUM

12. The purpose of road safety education is to mould the character of school children of all ages in such a way that they will become good road users aware of their responsibility for the life and safety of others as well as their own.

For this reason, road safety education must be compulsory in all classes of every school and should be incorporated in every subject where the opportunity arises.

13. The object of the teaching of traffic rules should be to give school children the minimum knowledge required to enable them to behave as they should in present day traffic without endangering their own lives or those of others.

The teaching of traffic rules and safety first principles should also be compulsory in every class of all schools up to the school-leaving age and is desirable even above that age.

14. In the opinion of the vast majority of the participants at this meeting, there is at present no case for treating the teaching of road safety as a separate subject.

On the other hand, the following recommendations are made :

a) the teaching should be regular and systematic;

b) the content of the teaching should be incorporated in one or more specified subjects and, in addition, questions of road safety should also be discussed in the context of other subjects insofar as this is practicable;

c) when, in a given class, several teachers are concerned with the teaching of the subject, one of them might be responsible for the co-ordination of this teaching;

d) depending on possibilities, a specified number of hours (per month or per week) should be laid down for the teaching of the subject in each class;

e) if the teacher considers it appropriate, it should be possible for him to express his opinions of the results in writing; marks for the appraisal of results are not recommended;

f) the teaching should be suitably supervised by the appropriate authority.

V. OUTLINE PROGRAMME ON ROAD SAFETY EDUCATION

15. In the light of the general school structure in Europe, which varies appreciably from one country to another, it appeared preferable to distribute the subject matter of the road safety education programme according to the age-groups given below :

a) *from 5 to 10 years :* programme primarily aiming at training children as disciplined pedestrians and preventing them from becoming victims of road accidents;

b) *from 10 to 15 years :* well-defined progressive programme intended to train disciplined drivers of cycles, mopeds, horse-drawn or agricultural vehicles, according to regions; knowledge of traffic rules must therefore be made more thorough and more detailed each year;

c) *over 15 years :* programme laying special stress on the problems of speed braking and over-taking causes of accidents and their consequences of all kinds, in order to train future drivers of motor-vehicles.

1. i.e. from birth to the 5th birthday, from 5 years and 1 day to the 10 th birthday, from 10 years and 1 day to the 15th birthday, etc.

The detailed outline programme given as an Annex and corresponding fairly accurately to the current French programme, was approved as a whole, subject to the reservation that each State would be free to adapt it to national requirements if it proved essential to distribute subject matter somewhat differently among the three age-groups.

VI. METHODS OF ROAD SAFETY EDUCATION AND TEACHING AIDS

16. The use of an active method is particularly suitable for road safety education. Teachers may adopt different techniques for different age-groups (e.g. play methods for very small children, practical cycle training culminating in a recognised proficiency test for middle-age groups taking a traffic census or participating in discussions for seniors). It is possible to stimulate an interest in the subject by setting up local councils or clubs for young people for the specific purpose of promoting road safety, and these associations, as well as providing valuable training for public service in adult life, could be of immediate assistance to national research organisations in obtaining data or to local authorities in disseminating propaganda or in arousing public awareness of the problem.

17. Full use should be made of modern teaching aids, (such as slides, films, records, radio television, etc.).

Television is playing an increasingly important part in education generally, and this medium should be used to a great extent in developing road safety education in schools.

18. It is also desirable that in each country some text books should include suitable references to road safety.

19. There would be advantages in giving children practical training in road behaviour at special traffic training grounds. Unless there were several schools close together, it might not be economic to establish permanent training grounds, but mobile units could be used to transport equipment for setting up temporary training areas in the playgrounds of widely dispersed schools. The provision of such traffic training facilities, either fixed installations or mobile equipment, should be encouraged.

20. A central advisory organisation in each country, with members drawn from the teaching profession, educational authorities, the police, Government Departments, and non-governmental road safety bodies could provide a useful forum for the exchange of ideas on teaching methods and for supervision of the design of teaching aids needed in schools.

21. Scientific studies might be made of the methods of teaching road safety similar to the studies already made on other subjects. Time is not yet ripe to make a recommendation on this matter.

VII. TEACHERS OF ROAD SAFETY EDUCATION

22. Road safety education for pupils should be given primarily by the teachers. Collaboration with the Police can be very useful with the proviso that the teacher's responsibility remains intact.

23. Special attention should be given to road safety education as part of the training of all teachers. It is desirable that in the teachers' examination papers, the subject of road safety training should be included.

It is also desirable to give supplementary information to existing teachers, and the Police personnel who assist the teachers should have some pedagogical ability and preferably should be volunteers.

VIII. FINAL REMARKS

24. The hope was expressed that the work of the Joint Meeting be completed :

a) by organising, within a reasonable time, a meeting to study how far the foregoing conclusions have been put into effect, what new projects have been started, and also to put forward further information and suggestions on certain points.

b) by organising a general exhibition of current teaching aids of every kind in use in the various Member countries in order to contribute to the road-safety education of young people whether at school or not, such as text books, posters, pictures, models, publications, slides, films, records, traffic-grounds, etc.

c) by research into :

i) the best means of reaching young people who have left school, of completing their knowledge of road traffic rules and of inspiring in them the desire to behave correctly and with consideration on the road.

ii) the resources which can be obtained with the collaboration and support of outside organisations, for the road safety education of young people whether at school or not.

Annex I

LIST OF E.C.M.T. PARTICIPATING MEMBERS

Dr. LINDER
Chairman of the Conference

AUSTRIA :

Dr. FENZ
Ministerial Director, Federal Ministry of Commerce and Reconstruction

Dr. HAUFFE
Ministerial Secretary, Federal Ministry of Commerce and Reconstruction

BELGIUM :

Mr. PETIT
Director of the Road Traffic Department Ministry of Communications

DENMARK :

Mr. VESTBERG
Deputy Head of Section Ministry of Justice

FRANCE :

Mrs. LIGER
Deputy Director, Roads Department Ministry of Public Works and Transport

GERMANY :

Dr. EBELT
Ministerial Director, Federal Ministry of Transport

ITALY :

Mr. BOTTARO
Head of the Road Accident Prevention office Ministry of Transport

LUXEMBOURG :

Mr. LOGELIN
Government Adviser, Ministry of Transport and Power

NETHERLANDS :

Mr. VAN GILS
Director, Ministry of Transport and Waterstaat

Mr. QUIST
Highways Division, Ministry of Transport and Waterstaat

SWEDEN :

Mr. HANSSON
Executive Director, Statenstrafiksakerhetsrad

SWITZERLAND :

Mr. STEINAUER
Deputy, Federal Police Division

UNITED KINGDOM :

Mr. HOUGHTON
Head of the Road Safety Division, Ministry of Transport

Miss HALL
Road Safety Division, Ministry of Transport

YUGOSLAVIA :

Mr. ILJADICA
Director of the International Transport Section, of the Federal Executive Council

Mr. GRANIC
Director, Ministry of the Interior

Secretariat

Mr. MANGE
Miss HOUET
Mrs. ARRIBAT

LIST OF COUNCIL OF EUROPE PARTICIPATING MEMBERS

Mr. GRESHAM COOKE, M.P.
Member of the Road Safety Sub-Commission of the Assembly

AUSTRIA :

Dr. MAYER
Sektionsrat, Bundesministerium für Unterricht

Dr. BANNERT
Direktor des Bundesrealschule

Mr. KAAN
Direktor des « Verkehrserziehung » Osterreichisches Kuratorium für Verkehrssicherheit

BELGIUM :

Mr. VANDENBORRE
General Secretary, Ministry of National Education and Culture

DENMARK :

Mr. JOHANSSON
Government Inspector of Physical Exercice—Ministry of Education

FRANCE :

Mr. OLEON
Academy Inspector, Ministry of National Education

Mr. DUMAS
Academy Inspector for Seine Department

GERMANY :

Dr. KLATT
Oberstudienrat Kultusministerium des Landes Niedersachsen

Mr. RUST
Regierungsdirektor, Kultusministerium des Landes Baden—Würtemberg

GREECE :

Mr. SVORONOS
Director, Ministry of National Education

ITALY :

Mr. MATTEI
Inspector-General, General Directorate of Primary Education

Prof. PACIFICO PERRONE
Head of A.C.I. Schools Inspection Department

Mr. RENATO
Deputy-Prefect, Ministry of the Interior

LUXEMBOURG :

Mr. LEBEAU
Deputy Director, Technical Training Institute

NETHERLANDS :

Mr. STOOPMAN
Chief-Inspector of Primary Education

Mr. VAN DER ZIJDEN
Senior Official, Directorate of Primary Education, Ministry of Education, Arts and Sciences

NORWAY :

Mr. HOLM
Head of Section, Ministry of Education and Ecclesiastical Affairs

SPAIN :

Mr. TERNERO
Director of the Technical Private Office Jefatura Central de Traffico

SWEDEN :

Mr. A. THORSSON
Executive Director, National Society on Road Safety

Mr. BJARNHOLT
Head of Section, National Directorate of Education

SWITZERLAND :

Mr. ROUILLER
Director of Primary Education

UNITED KINGDOM :

Miss WATSON
H.M. Inspector of Schools

Secretariat

Mr. SFORZA[1]
Mr. RENBORG[2]
Mr. MOUCHOT
Miss ERAD

INTERNATIONAL ORGANISATIONS

United Nations Economic Commission for Europe

Mr. LE VERT
Director of the Transport Division

European Economic Community

Dr. SCHANS
General Transport Directorate

1. Meeting held on 1st October.
2. Meetings held from 2nd to 4th October.

Annex II

REPORTS SET UP FOR THE MEETING OF EXPERTS

Pages	*Subject*	*Names of* ECMT *Rapporteurs*	*Names of* Council of Europe *Rapporteurs*
	1. Report on the situation		Mr. OLEON
	2. The place of road safety education in the school curriculum (as a separate compulsory subject or a general theme)	Mr. EBELT	Dr. KLATT
	3. Outline programme on road safety education	Mr. STEINAUER	Mr. ROUILLER
	4. Methods of road safety education and teaching aids	Mr. HOUGHTON	Miss WATSON
	5. Teachers of road safety education	Mr. QUIST	Settled by Mr. STOOPMANN and introduced by Mr. VAN DER ZIJDEN
	6. School safety patrols	Mr. HANSSON	Mr. THORSSON

1. REPORT ON THE SITUATION

Rapporteur: Mr. OLÉON, Academy Inspector

I. BACKGROUND

a) COUNCIL OF EUROPE

On 26th April, 1961, the Council of Europe Consultative Assembly, following the report of its Economic Committee, presented by Mr. Czernetz (Austria), adopted Recommendation 276, from which I quote the following:

"The Assembly...

"Noting... that the teaching of traffic sense to children in most countries relies very heavily on the valuable efforts but inadequate resources of private associations and some local authorities,

"Recommends to the Committee of Ministers that it should instruct the Committee of Cultural Experts to convene a meeting of education and road safety experts for the purpose of:

"*a*) Exchanging experiences on methods of road safety education for children; and

"*b*) Making road safety education compulsory in schools as a separate subject in the curriculum."

The Committee of Ministers of the Council of Europe decided to transmit this Recommendation to the Council for Cultural Co-operation set up on 1st January, 1962, in the place of the former

Committee of Cultural Experts. In May 1962, the Council for Cultural Co-operation (C.C.C.), after consulting its Committee for General and Technical Education recommended that the Committee of Ministers call a meeting of educational and road safety experts in conjunction with the European Conference of Ministers of Transport (E.C.M.T.).

On reconsidering the whole problem of road safety during its 14th Ordinary Session on 21st September, 1962, the Consultative Assembly took note of the new and important report prepared on behalf of the Economic Committee by Mr. Czernetz, which stressed the need for including compulsory road safety instruction in the primary school curriculum. Mr. Czernetz remarked, however, in his speech presenting the report to the Assembly :

"We are now faced with a peculiar situation... The Ministers... expressed their view that while the positive recommendations were interesting, there was no need for making road safety education compulsory". He went on : "We therefore deem it necessary to raise this problem once again. It was gratifying to us to learn that the E.C.M.T. supported our opinion and recommended the introduction of compulsory road safety education at school."

If you will allow me to digress with a purely personal interpretation, it seems that the negative attitude taken by the Committee of Ministers of the Council of Europe may result not from any failure to appreciate the gravity of the problem, nor from any doubt as to the effectiveness of the means suggested for its solution, that is to say, making road safety education as general as possible in schools, but simply from the recognition of one fact—the extreme diversity of the laws governing education in member States, which would make it impossible to employ identical means to achieve a result that is unanimously desired. This difficulty was very clearly seen by the working parties that met in November 1957 at Bonn and Berlin and in London in February 1959 at the instigation of W.E.U. I shall return to these meetings later.

The Assembly, repeating its positive proposals and expressing in less rigid terms its opinion regarding the obligation, then adopted a further Recommendation, No. 331, from which I quote :

"The Assembly...

"Convinced that the greatest hope of reducing the number of road accidents lies in the education and training of the road users, since a very high percentage of all accidents are due to human faults...

"Reiterating its belief in the necessity of introducing road safety as a separate subject in the curriculum in primary schools and expressing its satisfaction that, following Assembly Recommendation 276 (1961), the Council for Cultural Co-operation has recommended to the Committee of Ministers that an international meeting be arranged to compare experience of the most recent methods of instructing school children in road safety, to be organised in conjunction with the European Conference of Ministers of Transport...

"Recommends that the Committee of Ministers...

"Invite the Assembly Sub-committee on Road Safety to appear before the Joint Council of Europe/E.C.M.T. Committee of Experts, which it trusts will soon be convened to discuss road safety instruction in schools."

b) European Conference of Ministers of Transport

It should also be pointed out that the Council of Ministers of Transport for their part had been considering the problem of road safety since 20th October, 1959, and in Resolution No.10 had asked their Deputies "to pursue, in collaboration with the other international organisations competent in the field, their efforts to find appropriate ways of improving road safety, in particular... as regards road safety education..." A Working Party was formed which conducted a wide and valuable investigation into the problem of road safety education in schools, the conclusions of which were approved by the Council of Ministers of Transport and incorporated in Resolution No. 11 of 5th October, 1960, from which I quote :

"Particular importance should be attached to road safety education in secondary and technical as well as primary schools, since it generally produces satisfactory and lasting results. This education, which teaches children road behaviour and brings home to them their responsibilities as road users, must be given regularly and methodically by competent teachers. It is therefore essential that these conditions should as far as possible be complied with everywhere...

"International co-operation in road safety education and the training of road users should

be established and intensified, particularly by exchanges of experience."

It was in these circumstances that the E.C.M.T., through its Road Safety Working Party under the Chairmanship of Mr. Linder, continued its analysis of the factors in the problem, and that contacts were made with representatives of the Council of Europe. To cut short my account of this preparatory work, I shall merely say that during a meeting of E.C.M.T. and Council of Europe experts on 14th December, 1962, arrangements were made for the organisation and the programme of work of the Committee of Experts, to be considered by the E.C.M.T. Road Safety Working Party and the Council for Cultural Co-operation of the Council of Europe.

This was the origin of our joint committee, the full title of which is "E.C.M.T./Council of Europe Joint Conference of Senior Officials on Road Safety Instruction in Schools".

c) Previous studies

Naturally this meeting was prepared for by study groups, which established the content and main lines of the reports. The Rapporteurs chosen by the Council of Europe met at Strasbourg on 24th and 25th June, and the delicate task fell to me of reporting on the position to our meeting of Experts. This choice is certainly due to the fact that I had the privilege of attending the deliberations of the two W.E.U. Working Parties to which I have already referred that met at Bonn and in Berlin in 1957 and in London in 1959. I may add that on this first item on our Agenda, the "General Report on the Position", the E.C.M.T. appointed as joint Rapporteur Mrs. Liger, Deputy Director of Traffic at the Ministry of Public Works and Transport in Paris, who also had attended the meetings of the two Working Parties. Mrs. Liger, with whom I spoke on the subject, told me that since for years our views on these problems had always been identical, she entirely agreed with the statement and its conclusions, and asked me to communicate this agreement. I hope that this friendly understanding is but a forerunner to that which I trust will crown our work on all essential points.

It is thus in the light of the earlier recommendations of W.E.U. Working Parties and of the ideas of our Study Group at Strasbourg that I shall deal with the questions that face us.

II. STATISTICAL DOCUMENTATION

a) Present position

The joint meeting of 14th December, 1962, had suggested as a first point for consideration the collection of information on the nature, number and gravity of accidents of which children are victims.

This is, of course, an indispensable basis for any further serious investigation of courses of action that might have some influence on such accidents, essential for any comparison in time or space, as well as for any study of significant differences and variations and the factors on which they depend. It is of course possible even at the outset to submit well-presented and useful statistical publications, such as that issued annually by our Ministry of Public Works and Transport.

At international level, however, our Study Group was considerably embarrassed in tackling the problem, as previously were the W.E.U. Study Groups, who had also taken it up as the first and most obvious question. In fact, from the international point of view it is no paradox to say that at present I do not know what a child is or what a fatal accident is. No calculations or comparisons can be made except with like units corresponding to a strictly identical definition.

At what age for instance does childhood begin? More important, at what age does it finish? Sometimes it is considered as beginning at birth, and sometimes, from the point of view that concerns us, it seems to be related to the beginning of school life at the age of 4, 5 or 6. Sometimes it finishes at the end of compulsory schooling at 14, 15 or 16; sometimes it more or less corresponds with school attendance even after the compulsory age; sometimes it is referred to even up to the age of 20. In the midst of conflicting national regulations it is quite impossible, save by intuition, to make any valid statistical comparison.

This is no mere mental bias or arbitrary criticism, but a regret which is frequently felt when consulting international documents. To give only one example, the Working Party in London, coming up against the same difficulty, drew up a table of fatal accidents to "children", but took the precaution of mentioning on each line the corresponding age-group in the country referred to.

The result was :

Great Britain	= children under 15
France	= of 5-18
Fed. Rep. of Germany	= of 0-18
Italy	= of 5-18
Belgium	= of 5-14
Netherlands	= of 0-18
Luxembourg	= of 3-14

It is obviously not easy to make use of such data. However, since there is no limit to the ingenuity of statisticians, they had the idea of comparing for each country the number of fatal accidents, e.g. 717 for Great Britain, with the total number of children in the same age-group (in this case 0-15 years), which gives a percentage, and it is thereafter possible to compare percentages—with due reservations.

These, however, are very poor working methods, which do not allow serious and careful study of data in relation to a variable.

Another cause of uncertainty, which is apparent even in this brief analysis, is the absence of any international definition of a fatal accident. For some it is an accident causing instant death; for others, one causing death immediately or during transport; for others, within three days; for others again, within a longer period, even up to a month. Thus, the 717 deaths in Great Britain, other things being equal, might be reckoned as only 650 in another country, or perhaps as high as 750, which makes any comparison inaccurate.

In addition the year referred to varies from country to country, so that the 1956 figures for France may be compared with those for 1957 or 1958 in Great Britain.

For these reasons the Berlin working party expressed the following wish :

"Accident statistics should contain more detailed information of a kind that can be used for the international comparison of accidents to young people. It is recommended that in drawing up statistics the requirements of traffic investigation and the need for comparability should be borne in mind."

May I draw your attention to the words "detailed information" with one example. We are told that there were 717 child victims of fatal accidents in Great Britain. It would be useful to us to know how many of this total were pedestrians or cyclists, on whom education could have some influence, because they are to some extent responsible for their own behaviour, and how many of the children were passengers in cars, whose responsibility was in no way involved in the accident, and who represent accordingly a minimum which cannot be affected —at least, no directly by education. Thus, if the number of child victims of fatal accidents can be affected by education, it will be possible to determine what actual percentage can be so affected. In the present state of information received from each country, it is almost impossible to investigate such points, which, however, are important as a guide to joint action.

b) PROPOSAL

Faced with this problem, our Study Group at Strasbourg felt that it should make a preliminary suggestion, not with any hope or ambition of solving it, but to indicate a line of procedure for standardising statistical factors. This suggestion bears on one of the most important and controversial points, namely age-groups. Our Study Group considered that the simplest solution is the best, and that consequently the following age-groups might be adopted : 0-5 (inclusive); 5-10 (inclusive); 10-15 (inclusive); 15-20 (inclusive).

In no country do these age-groups entirely correspond to the succession of stages in school life, but they represent an average, which almost everywhere is very close to the ages corresponding to such stages. Thus, the standardised statistical information that they would provide would make it possible to assess correctly the requirements of education at the various levels, and consequently to devise the most suitable courses.

This, I repeat, is merely a first step towards less empirical working methods than those hitherto available.

III. WORK OF WESTERN EUROPEAN UNION AND AGENDA OF OUR CONFERENCE OF EXPERTS

a) COMMON POINTS

Our Agenda includes five other questions which have also been considered by W.E.U. Working Parties : four are very general—programmes, staff, methods, and the place of road safety education in teaching—and one is specialised—school patrols. If you will allow me, because of the length of this introductory report, I shall not speak of them for the moment, but shall naturally reserve the right during

the discussion to communicate and comment on the conclusions reached by the W.E.U. Working Parties. This constituted a most valuable preliminary study which your experts' meeting will certainly wish to take fully into account in drafting their final resolutions. The conclusions are embodied in a document entitled "Summary of the recommendations adopted following the meetings of experts on the road safety education of young people". I must point out, however, that this document, because it is a rather concise summary, does not always give a complete picture of the ideas of the Working Parties, nor of their logical sequence, and it would perhaps be better in some cases to refer directly to the original reports. It should like just to give one example here: Point 3 of the report of the Berlin Working Party was concerned with instruction in schools. I must explain that when the Berlin meeting took place, the French Act making road safety education compulsory in schools had just been passed, and I waited for the conclusions of the Berlin meeting before preparing the decree in application of it. The conclusions under point 3 of the Berlin report were the solid foundation on which we in France faithfully modelled all our regulations, starting with the principle of compulsory instruction. This gives you an idea of its importance.

To conclude, I will pass on to you a simple comparison that I have made between our Agenda and the summary conclusions of which I spoke. Points 3, 6 and 18 of the summary correspond to Item 3 of our Agenda, and might therefore be useful for our discussions; the same is true of points 5, 7, 8 and 18, which correspond to Item 4 of our Agenda; also for point 4, which corresponds to Item 5 of our Agenda, and point 10, which corresponds to Item 6.

b) SUPPLEMENTARY STUDIES

I notice, however, that points 2, 9, 11, 12, 13, 14, 15, 16 and 17 of the summary conclusions do not correspond directly to any item on our Agenda. They deal with the role of parents, youth organisations, private organisations, wireless and television and films in road safety education; they also raise problems relating to schoolgrounds, playgrounds and parks as well as the special one of physically or mentally handicapped children. This is in fact a whole group of problems which, except for the last, are not directly concerned with school life, although they have a close connection with it. It is therefore logical that they should not have been included in our Agenda, which deals with "Road safety education in schools", in itself a sufficiently wide and complex subject.

Admitting, perhaps optimistically, that we can deal with the subject effectively and can work out a plan leading to clear conclusions and the adoption of effective methods, we shall still no doubt be prompted to wonder whether it might not be desirable to take concerted steps, not necessarily confined to the sphere of school education proper, to investigate how all group and individual efforts to educate young people in road safety might best be co-ordinated.

These are the proposals to submit to the meeting on behalf of the Study Group convened for this purpose by the Council of Europe in June. They have, I repeat, the full support of Mrs. Liger, the Rapporteur appointed by the European Conference of Ministers of Transport.

2. THE PLACE OF ROAD SAFETY EDUCATION IN THE SCHOOL CURRICULUM (AS A SEPARATE COMPULSORY SUBJECT OR A GENERAL THEME)

Rapporteur: Mr. EBELT (Germany), E.C.M.T. expert

A. INTRODUCTION

Whenever the subject of road safety education in schools is mentioned nowadays the discussion has come to turn on totally different questions from those which were raised ten or fifteen years ago.

At that time, it was largely a question of *whether* the teaching of correct behaviour on the roads *really* had a place in schools. Since then, this question has been answered in the affirmative in nearly all countries of Europe; schools are required to provide road safety education either by law or by instructions issued by the authorities on which they depend, or, being convinced of its necessity, they provide it of their own accord without any actual obligation [see Table B in Annex I to CM(60)9 (Final) which members of this meeting have ready to hand].

Nowadays on the other hand, the essential subject of discussion is *how* road safety education should be dispensed in schools with the greatest possible promise of success.

On this subject, Resolution No. 11 of the Council of Ministers of the E.C.M.T. of 5th October, 1960, said for instance :

> "Particular importance should be attached to road safety education in secondary and technical as well as primary schools, since it generally produces satisfactory and lasting results. This education, which teaches children road behaviour and brings home to them their responsibilities as road users, must be given regularly and methodically by competent teachers. It is therefore essential that these conditions should as far as possible be complied with everywhere".

Similar considerations led the Consultative Assembly of the Council of Europe to recommend (Recommendation No. 276) that educational and road safety experts should be instructed to study means of making road safety education compulsory in schools as a separate subject in the curriculum.

It was this Recommendation No. 276, among other things, which gave the idea of holding this meeting.

B. The problem

There are two opposing points of view as to how road safety education should be given in schools.

1. According to one of these, road safety education should constitute a "general teaching theme"; in other words, the teaching of matters relating to road traffic shoud be, as far as possible, incidental to the teaching of all school subjects, whenever a useful opportunity happens to arise.

For example :

Religious instruction	: Duty towards one's neighbour, responsibility towards others dictated by religion.
Arithmetic lessons	: Questions of speed.
Physics lessons	: Braking problems.
German lessons	: Compositions on subjects relating to road traffic, etc.

2. Although the other school of thought subscribes to this procedure, it also insists that road safety education should be made a separate subject in the school curriculum and assessed, if possible, by means of marks incorporated in end-of-year reports. This would put road safety education on the same footing as other subjects, such as geography, history, physical training, etc.

C. Considerations in favour of making road safety education a separate subject

To enable an opinion to be formed on the problem as a whole, it is first necessary to throw some light on the aims which should be rendered possible by the proposed solution.

Two points demand consideration :

1. General purpose of road safety education.
2. Practical conditions which must first be fulfilled if adequate road safety education is to be put into practice.

I. *Purpose of road safety education*

1. Road safety education in schools—like road safety education in general must fulfil two aims :

a) It must endeavour to make every pupil a good road user, by so moulding his character that he will realise his responsibilities with regard to the life and health of others as well as to his own, and will be capable of suiting his behaviour to whatever circumstances arise;

b) It must also provide the pupil with a certain stock of "positive knowledge" to enable him to use the roads in accordance with traffic rules and the practical experience he has acquired.

2. If the solutions proposed in Section B for incorporating road safety education into the school curriculum are now studied from the angle of this twofold purpose, the following conclusions must inevitably be drawn :

a) Road safety education treated as a "general teaching theme" (see B. 1), enables the first aim of acting upon the pupil's character to be adequately met. If the pupil is brought into contact with the problems of road safety and accident prevention in different ways and in widely differing circumstances, he will be led to take an interest in the subject and become more and more aware of his responsibilities and ready to do the best he can to avoid the dangers inherent in road traffic, both for himself and others.

b) On the other hand, if road safety education as a "general teaching theme" is spread over a great diversity of subjects, it does not meet the requirements of the second aim, which is to give the pupil a well-defined minimum of positive knowledge, for the following reasons :

except in schools where there is only one teacher, several teachers would be responsible for this matter in a single class;

as a general rule, these teachers would not know exactly what had been done already in the teaching of other subjects;

each teacher would necessarily deal with the matter from haphazard starting points during the lessons which he normally teaches;

it is thus highly probably that certain essential sectors of road safety education would be neglected and others would be duplicated.

The need for systematic road safety education, conceived on well established bases and leaving no gaps, can only be satisfied by the solution referred to in B. 2, namely its incorporation into school curricula as a separate subject. There is indeed no other solution which can really guarantee that a preselected body of information can be distributed over a definite number of lessons for systematic study in class.

A general didactic influence would also be quite naturally exerted through other subjects, taking the angle of moral, religious, civic and human responsibilities.

II. *Practical arrangements for road safety education as a separate school subject*

1. An answer to our question whether road safety education should be a separate subject cannot be provided only by general considerations as to the aims of such teaching, but must also take into account the equally important factor of the practical necessities arising out of the present situation in schools. The following questions will therefore play a determining part in any decision :

a) Will student teachers be obliged to study road safety education during their training or, in other words, for the purposes of the proposed solution, should road safety education be introduced as a separate subject in training colleges and included in their examination syllabuses?

b) Will all practising teachers—or at least a sufficient number to cover road safety education in all schools—be obliged to familiarise themselves with the subject matter and teaching methods implied by road safety education?

c) Apart from any personal interest, are pupils indirectly induced, through the marking of their work, to attach the same importance to road safety education as to other subjects?

d) Is care taken to make parents conscious of the fact that it is just as important for them to supervise their children's efforts in road safety education as in other subjects?

e) Is a situation 'being created in which teaching equipment for road safety education can be financed from the resources already available for teaching equipment for other subjects, e.g., the purchase of apparatus used for demonstrations in physics classes or gymnasium equipment?

2. The very fact of asking these questions is tantamount to admitting that only road safety considered as a separate subject can fully satisfy the requirements for the following reasons :

a) Only a separate subject can call for the inclusion of a corresponding subject in the final examination for training colleges;

b) Only a subject with its place in the time table and an obligation on the teacher to award marks for end-of-term reports can compel teachers to familiarise themselves with the subject matter to be taught and enable the supervisory authorities to keep track of the teaching methods used;

c) and *d*) It is an established fact, on a readily understandable human level, that pupils and parents do not take a school subject really seriously unless the pupil's effort in that subject is marked and marks are taken into account in assessing his efforts and general results;

e) Experience shows that appropriations for the purchase of equipment are granted only for branches of study which constitute definite subjects in the curriculum. Otherwise it would be difficult to explain why, even today, in most countries of Europe, private organisations donate teaching equipment to enable road safety education to be given or why it happens that such equipment is purchased through the various Ministries of Transport out of the funds at their disposal for road safety purposes.

III. *Conclusions*

From general considerations arising out of road safety education regarded as a mission of

the school and from practical considerations concerning the efficiency of the measures proposed it follows that :

the best solution to the question can only be to recognise road safety education as a separate, compulsory subject in the school curriculum, involving the award of marks for inclusion in reports.

D. OBJECTIONS ON THE PART OF SCHOOLS TO THE IDEA OF MAKING ROAD SAFETY EDUCATION A SEPARATE SUBJECT

This idea constantly encounters violent opposition by a number of teachers, who never tire of putting forward the following two arguments, to the effect that :

1. Road safety education, laid down as a general teaching theme for moulding the character of pupils, is more useful than road safety education specifically designed to inculcate knowledge of this kind;
2. The modern school is already overloaded and, at a time when efforts are being made to reduce the number of subjects there can be no question of introducing new ones into the curriculum.

Yet these arguments do not stand up to close examination.

1. The great part which road safety education can play as a general teaching theme, namely the action it may exert on the pupil's attitudes from the point of view of character, is fully appreciated by the other school of thought which is defended here. Road safety education understood in this sense is necessary and most useful, but does not dispense with the need for a certain minimum stock of positive or practical knowledge. What happens on our public highways and the rules—regulations, road signs and signals, indications of all kinds—intended to put some law and order into it, are such complicated matters that it is no longer sufficient to mould the character of schoolchildren until they are capable of dealing with the inponderables of road traffic when they meet them. Intensive class-work devoted solely to road safety education is also required if children are to be really well armed in this respect and their behaviour on the road is to be all that can be desired.

2. The modern school has resolutely rejected the principle of overloading children's memories with more or less theoretical knowledge; it aims at striking a balance between mind and body, so as to make its pupils capable of overcoming the difficulties of life and of forming useful members of society.

This essential aim of schooling cannot be attained simply by reducing the number and volume of traditional school subjects; on the contrary, schools will have to include a number of new subjects in their curriculum.

When a school comes to deciding what new teaching subjects to include in its curriculum it cannot neglect road safety education, for road traffic has undoubtedly developed into one of the most essential factors of inter-human relations in modern society. The 50,000 fatal accidents which occur each year in Western Europe alone constitute an alarming and depressing fact; it should therefore be pointed out that the purpose of road safety education in schools is not only to save the lives (or prevent the deaths) of the pupils directly concerned, but at the same time to save the lives of an unknown number of their fellow citizens who are exposed to danger on the public highway at any time.

E. COMPROMISE

Notwithstanding the considerations outlined above, it must be admitted that there is at present very little chance that the idea of introducing road safety education in the form of a separate subject can take shape in the manner desired. The resistance to this system on the part of the schools themselves and, it must be admitted, the real difficulties which cause them to act as they do, still seem to be too great in most European countries for it to be regularly adopted.

A solution has been found in France which broadly speaking fulfills the conditions for effective teaching of road safety whilst making generous allowance for the difficulties which occur in the schools themselves, and might therefore constitute a valuable compromise.

The line to be followed under this compromise solution is to integrate the teaching of road safety matters into an existing school subject; since a division is possible, the "theory" part would go with the teaching of civics and the "practical exercises" to physical training. It would be as if certain new ideas emerging from space travel were taught in geography lessons.

While this would avoid creating a new subject, a course followed on these lines might guarantee :

that the subject matter taught in road safety classes would be mastered by the teacher and therefore included in his training and in the examinations which he has to pass;

that the assessment of the work done by the pupils in the subject to which road safety education was attached would also show the value of their efforts in road safety education;

that, on the technical side, provision of equipment, etc., the needs of road safety education could be met from funds derived, as for any other subject, from the school budget.

To make even more certain that the subject matter of the road safety education syllabus is effectively treated, the number of hours to be devoted to it should be fixed.

It cannot be concealed, however, that this new solution also gives rise to some apprehension. A subject entitled "Road Safety Education", clearly indicated in the time-table and in end-of-term reports, would catch the eye and hold the attention better than it could if it were somewhat overshadowed by another subject of which it formed an integral part. But it would no doubt be wise to make the best of the situation so that, in the present state of affairs, it finally becomes possible to make some new progress.

2. THE PLACE OF ROAD SAFETY EDUCATION IN SCHOOLS

Rapporteur: Ministerialdirigent Dr. KLATT

The members of the present conference will recall that the question of compulsory road safety education in schools was dealt with at some length in the report presented to the Consultative Assembly of the Council of Europe in April 1961, and that it was the subject of a separate Recommendation, No. 276, which was unanimously adopted by the Assembly. The Recommendation suggested that "road safety education be made compulsory in schools as a separate subject in the curriculum".

In Recommendation No. 331 (1962) the Consultative Assembly reiterated its belief in the curriculum of primary schools, and the rapporteur of the Economic Committee, in his explanatory memorandum, placed all the emphasis he could on the introduction of systematic courses of road safety education in schools, preferably as a separate discipline. However, the numerous measures introduced with regard to children's education in road safety being neither very systematic nor very regular, the rapporteur was at that time convinced that the governments of all the member countries should follow the example of France, where road safety education was supposed to be compulsory as a separate subject. It was then the general belief that the problem had been tackled in this way by France only. In the meantime, however, it has been made clear that the place of road safety education is not quite so exceptional in France compared with other countries. In fact, road safety education does not exist, even in France, as a separate subject, but is part of moral and civic education.

At its 3rd Session (Strasbourg, January 1963) the Council for Cultural Co-operation adopted the recommendation of the Committee for General and Technical Education based on Assembly Recommendation No. 276, and concerning the organisation of a meeting held in liaison with the European Conference of Ministers of Transport of educational and road safety experts for the purpose of exchanging experiences on methods of road safety education.

In this respect the Committee of Ministers were of the opinion that "road safety is not and cannot be made a regular feature of school curricula, although it is a necessary ancilliary service". Moreover, *they did not deem it necessary to render such teaching compulsory.*

The Study Group of educational experts to prepare the present joint meeting has studied the various reasons and arguments for and against road safety education as a compulsory subject.

First of all, the meaning of "compulsory teaching" as well as that of a compulsory separate subject ("discipline séparée, autonome, distincte") should be made clear. Road safety education in schools is regarded everywhere as an essential factor in the improvement of road traffic conditions. It has become a known fact, and not only among experts, that road safety education has a most important contribution to

make towards reducing accidents among children and also towards improving their behaviour from the point of view of road safety, whether as drivers or as pedestrians.

The young people of today will be the drivers of tomorrow, and the rising generation should be familiarised from its early childhood with the road traffic problems of our age. However, the consequence of this idea need not necessarily be the establishment of a new separate subject in the curriculum. When comparing the various measures taken in the different countries one can notice that they sometimes lead to excellent results, in spite of the fact that teaching methods and the place of road safety education in the curriculum are different. It can be stated that road safety education is compulsory in most countries in one form or another. This does not necessarily mean that it is a separate subject appearing on the pupils' curriculum and on their annual reports. That would neither be necessary nor desirable, since road safety teaching is not one of the traditional subjects in schools and specially trained and qualified teachers are not available as for other subjects.

It should also be borne in mind that every teacher should be entrusted with the task of teaching road safety. All teachers should bear the same responsibility as regards road safety education since all of them are responsible for the moral and civic education of the younger generation. The right place for road safety education is therefore, as the examples of France, the Federal Republic of Germany and other countries show, within traditional subjects such as moral and civic education. Further instruction and practical exercises can be done in various other subjects, e.g. languages, arithmetic and physical education.

Therefore every teacher should be able to give road safety lessons. In this connexion, it should be mentioned that there is a trend in the present development of education to reduce the number of school subjects, especially in the upper grades of secondary schools, since the material of each subject is increasing more and more. Educators would probably not agree to the introduction of a new separate subject, causing additional trouble for pupils and parents.

If road safety education is regarded as a compulsory part of general education as explained above, the question of how many lessons per month should be provided for is of secondary importance. The regulations in some countries, where their success has been proved by experience, are that at least one lesson of road safety education per month or half a lesson per week is compulsory for all grades of elementary schools, in some cases even for the middle and upper grades of secondary education. Thus road safety education will prove to be more effective.

In this context, it seems necessary to say a word on the much discussed question whether marks should be given in road safety education. Since it is not an independent subject, regular marks cannot be given. Nevertheless, private Road Safety organisations have for many years demanded that the importance of road safety education in schools should be underlined by making it a separate subject with separate marks on the reports. Discussion of this problem among educationists has always led to the same conclusion, namely that marks are neither necessary nor desirable. The reasons are as follows:

The activities and knowledge of pupils as regards road safety education cannot be measured and compared as in other subjects. It may be true that the pupils' interest in road safety activities can be encouraged by the hope of getting good marks, but the result in such cases would be that bright and assiduous children would show better knowledge of traffic *rules* and *signs*. One would, however, not be able to judge from a good mark whether a child behaves well as a pedestrian or a cyclist outside the school.

One aim of road safety education is to make all road users, and especially youth, realise that on ethical, civic and religious grounds, they are personally responsible for the smooth running of road traffic, which is an important part of community life and for their own lives and safety as well that of others. In the endeavour to achieve this aim the value of marks cannot be important. Suggestions have been made for the establishment of special remarks on annual reports in cases where a pupil had been outstanding in road safety activities or on school patrol.

SUMMARY

a) Road safety education should be compulsory in all schools and in all grades, without being made a separate subject in the curriculum.

b) A fixed number of lessons per month on road safety education should be established in all classes.

c) For various educational reasons regular marks in road safety education should not be given.

3. OUTLINE PROGRAMME ON ROAD SAFETY EDUCATION

Rapporteur: Mr. STEINAUER (Switzerland), E.C.M.T. expert

A. GENERAL PRINCIPLE

"The fact of making road safety a separate school subject either by law or by decision of the education authorities is the best guarantee that road traffic rules will be regularly and methodically taught to schoolchildren. But, up to the present, the problem has been tackled in this way by only one country, namely France, where action has recently been taken to this end" (Principle drawn up by the Working Party and approved by the Council of Ministers [CM(60)9 (Final), Annex I, Section D, paragraph 17]). The way in which the programme of road safety instruction will be carried out in schools is the subject of Item 5 on the Agenda.

B. AGE OF CHILDREN TAUGHT

The International Road Safety Congress held in Salzburg (Austria) from 13th to 16th September, 1962 reached the conclusion that instruction on road safety should already be given to children under school age. In this connection, it adopted a Resolution No. 2 (paragraphs 6 and 7) according to which road safety instruction appropriate to their age should be provided in all institutions for these children, ("International Road Safety and Traffic Review", published by the O.T.A., Vol. XI, No. 2, Spring 1963). The Congress put this resolution into the form of an appeal to the appropriate national and international organisations.

C. PROGRAMME

General remark:

Nowadays when the visual image (photographs, cinema, slides, coloured pictures) has assumed such importance in life, stress should be laid on the educational value of all visual means for children of all ages but especially for the youngest.

a) *Lower grades* (infant schools and junior classes in primary schools)

Age: 5-10 years.

The teaching of traffic knowledge should aim at bringing up children as disciplined pedestrians and preventing them from becoming victims of road accidents. Children must be progressively integrated into traffic, accustomed to going about alone and brought up to observe fundamental traffic rules. Their attention, caution and discipline must be trained and gradually developed. That is why it is necessary to take them out into the street. They will be taught:

- how to use the pavement or to walk at the extreme edge of the road;
- how to cross the road;
- how to respect police signs and road signals;
- not to play in the roadway (balls, tricycles, scooters);
- how to move about in dense traffic.

The principles taught in the street will be illustrated in class with the aid of coloured pictures, slides and short films. Certain serious accidents which have occurred to imprudent children can be related and commented upon, using the daily press as a source.

b) *Middle grades* (senior classes in primary schools—junior classes in secondary schools)

Age: 10 to 15 years.

At this age, many schoolchildren own cycles or at least are learning to use them. In the country, very young boys already drive animal-drawn vehicles or even agricultural tractors. In certain countries, children aged 14 are already allowed to ride mopeds (speed limited by construction to 30 or 40 km.p.h.). The question is therefore to bring up schoolchildren as disciplined cyclists and to point out all the dangers which they may run themselves or may create for others. This principle also applies to young drivers of animals or of agricultural tractors. Furthermore, they should be made to realise the responsibilities they will one day assume when driving fast motor vehicles.

The children might be taught:

1st stage:

- to develop in more detail the subject mentioned under (a);
- to drive on the right and overtake on the left;
- to give clear and early indication of intention to turn to right or left;
- to select the correct traffic lane and halt at STOP signs;
- to respect safety lines scrupulously;

— to respect the priority rights of other road users;
— not to overtake vehicles which have already stopped at pedestrian crossings;
— to know road signs and signals.

2nd stage:

— knowledge of the cycle (equipment and maintenance);
— observance of special traffic rules for cyclists;
— use of cycle tracks;
— behaviour in case of accident;
— good manners for cyclists and pedestrians.

3rd stage (Drivers of mopeds and agricultural tractors):

— knowledge of the vehicle (equipment, mechanism, maintenance);
— stopping distance to allow for reactions and braking time;
— dangers inherent in the use of tractors;
— goods manners for moped drivers (noise abatement, etc.).

For the practical application of this teaching it is recommended that pupils should be made to practise in "traffic training grounds".

c) *Higher grades* (senior classes in secondary schools)

It is from the age of 15 onwards that the spirit of competition, the love of risk, imprudence, over-confidence, and recklessness become more acute. It is thus more than ever necessary to bring home a sense of responsibility to scholars of this age and thus train future disciplined drivers of motor-cars and motor-cycles.

Consequently, special stress should be laid on demonstrating the following points:

— the difference between traffic-flow and competition;
— the problem of speed;
— the causes of accidents, demonstration to be backed up with statistics;
— the consequences of accidents, which are frequently severe and may be moral, emotional, material, or pecuniary;
— striking examples from law reports (responsibility involved by the fault committed).

Theoretical training must be backed up by judicious practical instruction. This part of the teaching can scarcely be carried out by a schoolmaster; the co-operation of police instructors is absolutely essential, for they have the necessary technical knowledge. It would be useful:

— to put traffic rules into practice;
— to try out stopping distances and overtaking distances on the road (with the co-operation of experienced adult drivers);
— to bring out the part played by wear and tear of tyres;
— to check the efficiency of brakes and lighting.

This programme may perhaps seem too heavy to be assumed by schools, which are already overloaded with jobs of all kinds. But, remembering the number of people killed or injured in road accidents each year, it is not easy to see how schools could neglect such a distressing problem.

3. SYLLABUS FOR ROAD SAFETY EDUCATION

Rapporteur: Mr. ROUILLER, Director of Primary Education, Member of the Cantonal Commission for Road Traffic in Geneva

PREVIOUS RECOMMENDATIONS:

1. Two closely linked questions should be studied:
— At what age should children receive road safety education?
— What syllabus should be laid down for each age group?

2. Road safety education should include rules of behaviour for children who use school buses.

I. a) *Age:*

The experts who met in Strasbourg on 24th and 25th June 1963 were unanimously of the opinion that road safety education should begin at the earliest age and be continued at least up to the end of compulsory schooling. Children under school age should receive such education from their parents or from the institutions which care for them.

b) *Syllabus:*

Several countries have already drawn up a syllabus for road safety education.

In France a ministerial decree of 31st July 1959, in application of the law of 26th July 1957 and the decree of 28th November 1958, gives detailed syllabuses for "education in the rules of safety relating to road traffic". In nursery schools the teachers' advice, recitations, games and the acting out of simple sketches demonstrate to children the precautions to be taken when walking on the roadway, particularly near the school. In primary schools, talks are given on the precautions to be taken on footpaths and on the side of the road, no playing in the road, the direction of traffic flow, crossing roads, squares and crossroads (pedestrian crossings, traffic lights, the duties of traffic police, and the way pedestrians should proceed outside town boundaries, walking by night or in a group.

In the middle school the accent is placed on the use of bicycles, their functioning and maintenance, as well as the traffic rules which a cyclist must obey.

In the final stage of schooling, one year is devoted to revision of what it is necessary for the pedestrian and cyclist to know, before dealing in the least two years with the rules for driving first an auto-cycle and then a light motor-cycle. Emphasis is placed on signalling and manoeuvring prior to turns, on road signs, discipline and respect for the rights of others.

In addition to theoretical instruction practical exercises are organised in fields or grounds especially fitted up for the purpose.

Finally there are textbooks (with a teacher's key volume) containing exercises on the main points of the syllabus.

In the United Kingdom, in addition to general directives contained in "Primary Education", a Ministry of Education booklet entitled "Safety Precaution in Schools" devotes a chapter to the question of road safety. Following a paragraph on the frequency of accidents and their principal causes, advice is addressed to teachers (without distinction as to the grade of their pupils) on practice exercises to be carried out with the object of initiating children into observance of the highway code. Mention is made of the assistance provided by police and certain associations such as the Royal Society for the Prevention of Accidents, as well as of special precautions to be taken in the case of handicapped children. Special emphasis is placed on the education of the young cyclist, who sometimes has to earn the right to ride a bicycle by passing a test imposed after a course including both theory and practice. Finally the driving of farm vehicles receives special attention, as it does in France.

The Federal Republic of Germany and the Netherlands have also drawn up syllabuses for road safety education.

In Sweden a text-book describes the principal notions to be taught, grading them according to difficulty.

In Switzerland each Canton has autonomous responsibility over matters of education and it is therefore only possible to give an outline of the various trends.

In the great majority of Cantons road safety education has its place in primary school syllabuses.

With the help of road safety associations, various publications for children have been issued, whilst certain towns have opened parks where children may circulate in safety or even special roads on which children can go to school without being exposed to too great danger.

In Geneva a Committee on Road Safety Education has prepared a graded syllabus which covers in stages, from nursery school to higher secondary school, the principal rules of circulation for the young pedestrian, the school-age cyclist, the teenager on a light motor-cycle, the future motor-cyclist and car driver.

It is intended to prepare for each grade of school a system of lessons printed on cards consisting of pictures to colour questions and problems for the pupils, and, for the teachers, documentation and suggestions with regard to methods and media.

II. It would seem advisable to give suitable training to children using public transport, especially in countries or regions where regular collection schemes operate, as for example in Sweden and France.

4. METHODS OF ROAD SAFETY EDUCATION AND TEACHING AIDS

Rapporteur : Mr. A.M. HOUGTHON (United Kingdom) expert for E.C.M.T.

The methods of teaching road safety to children are primarily matters on which teachers and other experts in education can best advise. Teaching aids are likely to vary with the methods adopted, and again, the experts in teaching will know the aids best suited to the methods in use. But it should be possible for Ministries of Transport and private road safety organisations to be of assistance to those concerned with the practical task of educating children in road safety at schools.

Road safety covers a very wide field, and when teachers are planning their methods of instruction, it may be of use to them to have factual information about accidents to children of different ages. Statistics relating to accidents to children of various age groups can be made available and, where possible, details of the risks to which particular age groups are exposed can be publicised. Factual information about the circumstances in which accidents happen and the times of day when the risk is high can also be made known.

Ministries of Transport can also conduct special studies of road accident problems known to exist among children. A special study of this sort into accidents to child cyclists was carried out in the United Kingdom by the Minister of Transport's Committee on Road Safety. An outcome of the study was the setting up of a working party to consider training of child cyclists. Nominees from Education Committees and the National Union of Teachers were among the members of this working party. An outcome of its discussions was the approval of a syllabus for training children in cycling and of a test of proficiency at the end of the course. It was also decided that the Ministry of Transport should pay the cost of the employment by the Royal Society for the Prevention of Accidents (a non-governmental road safety organisation) of regional cycling organisers who would advise teachers and others concerned with child cycling training on methods of instruction, standards of testing and establishment of training grounds. The Ministry of Transport also provide a free copy of the Highway Code for all children enrolled for training and have made a film about the child cycling training scheme.

It seems to be desirable to establish a central body where representatives from the teaching profession, local education authorities, Ministries of Education and Transport, the police and non-governmental road safety organisations can consider their common problems. These representatives can advise on the way material in the Highway Code can be presented so as to be understood by children of different ages. They can also advise on the design and content of books, posters, pamphlets, films, film strips and other training aids. Road safety material if approved by them can be produced by the one organisation and made available to all schools. It would then be for the teachers to select that material which is most suitable for use in connection with the methods they are employing.

Where there is playing space incorporated in school premises road safety training areas can be set out or improvised to meet the needs of the pupils at those schools. But where playing space is not available, properly equipped traffic training grounds can be set up in places accessible to several schools. Roads, traffic signs, etc. can be installed and these areas are particularly useful for the teaching of cycling.

However, it must be recognised that it will not always be easy to find land suitable for use as a traffic training ground and sufficiently close to the schools. But where land is available, it seems worth considering whether it should be used also for more advanced forms of road safety training. It is clear that many young people ride motor cycles or drive cars as soon as they reach the age at which they are legally entitled to do so. There is already a strong case for teaching motor cyclists off the public highway, and it might be possible to use the traffic training grounds for teaching senior pupils motor cycling. It also seems worthwhile to consider whether methods of car driving instruction should be developed so that senior pupils can learn the elements of driving on traffic training grounds off the public highway.

4. METHODS OF ROAD SAFETY EDUCATION AND TEACHING AIDS

Rapporteur: Miss WATSON, H.M. Inspector of Schools

a) METHODS

Methods must be suited to the age of the child, but should always be active, giving the pupil something to do and not merely keep him passive, listening to a lecture. The French booklet "Enseignement de la Sécurité" offers very useful and practical advice on this question. The teacher must be ingenious and constantly think of new ways of presenting the same material. I propose to give examples of the kind of work I have seen in progress in English schools for children of different ages, to illustrate the methods that are appropriate.

Children of nursery school age (under five) must be taught by play, and it is important for the teacher to impress on the mothers that they should train their children and set them a good example. Children of infant school age (in England five to seven) must in the first instance learn their kerb drill, which involves often teaching them which are their right and their left hands. They learn by songs, games, dressing-up and making models.

Juniors (in England seven to eleven) must continue to be trained as pedestrians, particularly as they are more likely to be allowed in the streets on their own. They can do paintings for posters (local and national competitions are held), write stories on a road safety theme, make puppets and write little plays for them, make models. The older juniors will most probably be cyclists, and in many United Kingdom schools they are trained by the teachers to pass the national cycling proficiency test, for which they receive a certificate and a badge. This cycle training is sometimes given in school-hours but is often undertaken after school or in the dinner-hour. Senior pupils also take the cycling proficiency test and older boys and girls can train to become instructors of the younger cyclists. Seniors need to be well instructed in the Highway Code, as they will probably have a motor-bicyle as soon as they leave school, and will drive a car once they reach the age for having a licence.

Matters of road safety can be incorporated in the teaching of various other subjects, for instance mathematics, in making graphs, woodwork in making model road signs or traffic lights, and in art, for posters. But since, basically, road safety is one's attitude to other people, and consideration for them in using the roads, such lessons as religious instruction or moral education lay fondations for this attitude. Moreover, the whole atmosphere of the school, the relationships between children and adults, and the development of independence and self-reliance in the pupils will all contribute to the greater safety of the children on the roads.

In schools in the United Kingdom, the day begins with an assembly of the whole school for an act of worship. The headmaster or headmistress often talks to the whole school at this assembly on appropriate and topical road safety matters, e.g. weather conditions, fog or ice which require special vigilance, or some recent example of very good—or very bad—conduct as a road user, or an accident to a child in the school. Particularly before the start of the holidays the Head usually gives reminders and warnings, for example about the dangers of playing in the street.

b) AIDS

These include posters, books, toys, models, songs, filmstrips, a flannel-graph, the marking-out of cross-roads or cycle-training areas in the playground.

c) PARENTS AND TELEVISION

However hard the schools may work at road safety training, the parents of the children have considerable responsibility, Children spend many more hours every week in the charge of their parents than in school. If parents do not take road safety seriously, or set their children a bad example when crossing the road or driving a car, this may well have more influence on children's habits than the instructions given in school. Before children come to school, their habits in road behaviour are formed by their parents.

How can parents be reached to impress on them the importance of setting a good example? Parent-teacher associations and parents' meetings are very useful, but unfortunately the very parents one wants to meet often fail to attend. The spread of television, which is now penetrating into most homes, offers a good way of reaching these parents. A very short "Flash" item on some point of road safety training makes a visual impression that is likely to last.

In the United Kingdom we have two televis-

ion systems, the B.B.C. which has no advertisements and the Independent Television which shows advertisements that are very expensive. Both systems however show road safety items free of charge. Radio is also used in this way and many cinemas show short films. Since this material cannot be often repeated without losing its impact, a large quantity is needed and this is costly. Some material is produced by R.O.S.P.A., but big firms, such as Shell, spend money on road safety films. Industry might well offer further help.

5. TEACHERS OF ROAD SAFETY EDUCATION

Rapporteur: Mr. QUIST (Netherlands) E.C.M.T. expert

Human adaptability is not great enough to cope adequately with the rapid development of road traffic. The result is incorrect use of the road. Children must be given a sound road safety education in order to overcome this evil.

Responsibility for training of this kind necessarily falls on parents and the teaching staff of the schools attended, compulsorily or not, by the children. In several countries, the police also help with the education of schoolchildren.

The traffic policeman knows the problems and dangers. However, as shown by Mr. Stoopman's report, which approaches this matter from the teaching angle, it may well be asked whether this educational task is really the responsibility of the police. Generally speaking, the policeman has not had any particular teacher training, though it should be mentioned that special courses are now arranged in several countries for police officials concerned with the road safety education of children. The bulk of such education should nevertheless be given at school. Above all, the accent should be put on the educational element. Children must first acquire the state of mind appropriate to proper use of the road; the police could then be extremely useful in a complementary way. Road safety education must be considered so important that the rule of the road is a compulsory subject in all educational establishments attended by pupils from 4 to 20 years old.

This subject could be entrusted to ordinary teachers in the case of schools for children of 4 to 12 years of age, but it would often be advisable to have a special teacher in other schools.

Particular attention should be paid to "road safety" in teacher training and driving lessons should be included in the course. Courses could also be organised for practising teachers, attendance being optional. Reference should, in addition, be made to Mr. Stoopman's report.

The reports of the experts on road education and safety have given rise to the following conclusions :

1. Road safety should be taught in all schools attended by pupils of 4 to 20 years of age.
2. This subject should wherever possible be made compulsory by law.
3. It should as far as possible be taught by school teaching staff, with the cooperation of the police if practicable.
4. This means that the government would have to assume responsibility for training the teaching staff.
5. If possible, police officials who have any work to do of this kind should be given some teacher training.
6. Parents, who are the natural educators of their children, should be interested in their road safety education, particularly before they go to school.

7. TEACHERS RESPONSIBLE FOR ROAD SAFETY EDUCATION

Settled by Mr. B.J.A. STOOPMANN, Chief Inspector of Primary Education and introduced by Mr. VAN DER P.W. ZIJDEN, Primary Education Direction

The enormous growth in traffic circulation during the last 25 years, especially in the United States and in Europe, plus people's inability to adapt themselves to this develop-

ment, are the principal causes of the considerable increase in the number of road accident victims of all ages.

It goes without saying that everywhere attempts are being made to remedy this alarming situation by teaching people road sense. Special thought has been given to the education of young people since, although parents are responsible for the proper education of their children and consequently for teaching them road safety precautions, the results are somewhat inadequate. That is why the schools are considered to be the most appropriate terrain for such training: the future belongs to the young.

Primary schools have been the first to assume the responsibility. In the Netherlands the "Verbond voor Veilig Verkeer" (Road Safety Union) organised lessons which in the beginning were given by members of the police forces.

In order to help the teachers the Union published a useful and instructive textbook as early as 1937. This publication aimed at instilling the requisite knowledge while adhering to sound teaching principles and at the same time introducing a certain degree of uniformity. Moreover, in order to provide an incentive a school examination was instituted, to be taken at the end of the period of instruction on road safety.

Since 1st January, 1959, road safety education has been compulsory in primary schools. At present it forms part of the geography syllabus, a fact which arouses strong criticism in the Netherlands. The Ministry of Education, Arts and Sciences accordingly intends to recognise road safety as a separate subject.

Apart from the textbook already mentioned, teachers have other means of instruction at their disposal. It has already been pointed out that for educational reasons, such instruction should generally be given by the teachers themselves, the more so as it is becoming increasingly difficult to call on members of the police. It is difficult to release officers from their normal duties in view of the undermanning problem. However, it is necessary to maintain collaboration between the police and the teachers. It is also useful if suitable police officers can be given a modicum of teacher training.

Compulsory road safety education, in the primary schools implies that the teachers possess the necessary qualifications. In the Netherlands, road safety education is beginning to be made compulsory in the teachers' training colleges as well as in the primary schools. Lectures are given by experts holding a special road safety teaching diploma. Between 1956 and 1959, the State, in collaboration with the Road Safety Union, organised examinations for the staff of teachers' training colleges. Preparation for these examinations, which were taken by geography and physical training teachers among others, was conducted by police officers.

Students in teachers' training colleges now take an annual examination organised by the Inspectorate of Teachers' Training Colleges in liaison with the Road Safety Union. The examining board is composed of one inspector of training colleges and a number of experts on road safety appointed by the Ministry of Education. In 1961, 5,043 candidates sat for the examination and 4,943 passed. In 1962, the figures were 5,390 candidates and 4,990 passes.

In the near future thousands of new teachers will possess a live interest in road safety and be qualified to give lessons on the subject, for the greater benefit of their charges. They will be better equipped than those of their colleagues who have not had the advantage of such instruction in the course of their training.

The activities of certain local committees of the Road Safety Union, assisted by the police, are enabling a large number of more senior teachers to follow special courses in road safety. A similar scheme exists in England, where "One-day Courses for Teachers" are organised. Discussions take place at the Institute of Education of London University and cover various road traffic problems. In this way many teachers become more competent instructors, with beneficial effects on the safety of children.

We have so far only mentioned road safety education in primary schools and in teachers' training colleges, where it is compulsory. However such education is just as necessary in secondary and nursery schools.

In the Netherlands the Road Safety Union, in 1958, took the initiative of requesting that road safety instruction be introduced in nursery schools. The Pedestrians' Union has contributed to the development of such instruction under the direction of Miss Vreugdenhil. Numerous lectures, demonstrations and film shows are organised with the object of interesting teachers and parents in the matter. Nursery schools are beginning to accept the idea of road safety education and the time is now ripe to make it compulsory, since several private schools have already placed the subject on their syllabuses.

In post-primary education, the different types of school would need different kinds of road safety instruction, and in order to provide a solid foundation, the teachers of these various schools should receive proper training. In the Netherlands, a large number of lecture courses were held for this purpose during the winter season of 1962-1963.

For the assistance of both teachers and pupils, the Road Safety Union published a review entitled "Veilig Uit" (Safety First) which appears five times in the year and has a circulation of 15,000 copies. In addition, teachers take their pupils on regular visits to the Travelling Road Safety Exhibition composed of eight elements on an illuminated board. A written examination also forms part of this instruction and the number of candidates increases regularly; in 1963, it was 19,000.

The conclusions which can be drawn from the present report together with that of the Netherlands representative on the Conference of European Ministers of Transport are as follows :

1. It is necessary for road safety education to be included in the syllabuses of schools of all categories and for all age groups from four to twenty years.
2. As far as possible such education should be compulsory.
3. As far as possible it should be provided by school teachers, ideally in collaboration with the police.
4. The authorities should consequently assume responsibility for training teachers in this subject.
5. The police officers who help to impart such instruction should themselves receive some teacher training.
6. Parents, who are in fact the educators of their children, should play a part in road safety education, especially prior to school age.

6. SCHOOL SAFETY PATROLS

Rapporteur : Mr. H. HANSSON (Sweden) expert for E.C.M.T.

As has already been mentioned, a programme of school safety patrols was introduced in Sweden around 1950. Although the programme hos now been in operation for more than ten years, the legal status of patrol members has not yet been investigated in detail, and is even less spelled out in the law itself. The same state of affairs probably prevails in other countries. It cannot be said that the need for legal regulation is especially acute. To the best of my knowledge, no Swedish court has had to deal with a single case involving the activities of school patrols.

On the other hand, the ever increasing volume of traffic and the broadened scope of safety education in schools justify some treatment of the legal problems, which may arise in connection with the school patrol programme. Unfortunately, it seems only too likely that these problems will manifest themselves in the real world sooner or later.

First of all, an apology is due. The time available to me for preparing my paper was so short that I could not study how other countries analyse this subject. I am therefore unable to present a more general survey. The observations I shall be making will be entirely based on Swedish law.

WHAT IS THE STATUS OF PATROL MEMBERS?

To begin with, there are the Rules of the Road, which embrace traffic signs and signals, right-of-way and other rules which road users are required to observe. In addition, a specially authorised body of persons—the police—are empowered to issue instructions to road users either orally or by means of signals. Such authorisation is vested only in this professional body and in no other group. Obviously it is of the greatest importance that not each and everyone be entrusted with these duties. That would generate traffic chaos. Examples may be cited from Swedish case law of individuals who, in trying to guide a fellow road user, created a dangerous traffic situation. Such unauthorised action has also come under the sanction imposed by criminal law.

In principle, therefore, a member of a school patrol is not legally entitled to stop other road users or in any other way to give orders to them. This point is emphasized in the training of patrol members. *They must never intervene*

in motor traffic. Their sole job is to provide safe conduct to other pupils.

In consequence, the distinction is very clearly drawn in theory. But in my opinion it is obvious that a patrol member can come to intervene indirectly in motor traffic while in the line of duty, even though this is not directly intended. Traffic conditions may occasionally compel such action. For example, the patrol member has to decide when his fellow pupils should proceed to cross the street at a crosswalk. Data on breaking distances and related matters therefore form a special part of his training. It goes without saying that other road users are influenced by a patroller's judgment of "all clear" on the road.

Indeed, if the traffic volume continues to grow at the present rate it may some day be necessary to authorise school patrols to halt the never-ending flow of vehicles, at least at specially marked crosswalks. According to an account based on American experience (reported in "Ljuspunkten", Issue No. 1, 1962, pp. 5-6), such authorisation may have to be granted in the United States. In practice this is the only way to permit free passage across a road. I do not propose here to go into the question of whether patrol members are qualified to carry out these extra duties or, if not, whether they can be made qualified.

How can extended authority for school patrols be regulated in law?

Swedish law already makes limited provision for others than policemen to take action against road users. Here I have the traffic wardens (parking attendants) chiefly in mind. Although their chief duty is to enforce parking regulations, the traffic wardens are also empowered to issue certain other orders which road users are required to obey. Should it be deemed necessary to entrust school patrols with limited powers of intervention in motor traffic, they could conceivably be given a status similar to that of the wardens; or such status might be conferred on certain members of a patrol. Obviously, a very high degree of restrictiveness must be observed, the more so when one considers that patrollers are always below legal age, 21 years; in fact, most of them are younger than 15 and as such not punishable under criminal law.

Other approaches could be tried to strengthen the status of school patrols. For example, amendments to the traffic statues would require road users to exercise special caution when passing an intersection guarded by school patrols (however, compare Article 46 of the Road Traffic Ordinance, paragraph 2, section j). An admonition to the road user—usually the motorist—that he is under obligation to ensure free passage for schoolchildren across a road might also be appropriate. Also worth considering is the introduction of an internationally standardized warning sign indicating the presence of school patrols. This sign ought to be movable so that it can be taken down when a patrol is off duty. A final suggestion I would like to make under this head is to equip patrol members with a special stop sign and at the same time make it mandatory for road users to comply with this sign under penalty of legal sanctions.

The relationship of patrol members to other pupils

As I pointed out earlier, school patrols are not now legally empowered to issue orders to other road users. This rule, however, does not apply to *other pupils.* However, the duty of obedience here imposed is not legally enforceable, but is purely a matter of school discipline. Disobedience is punishable only under the rules prescribed by the school itself. From the legal point of view, the orders of patrol members to other pupils are regarded as no more than *advice or guidance rendered by one road user to another.*

Is a patrol member liable to punishment or damages for his actions?

The legal status of patrol members, as I just mentioned, is not specially regulated. This means that they are subject to the same stipulations as all other road users.

Thus a patrol member can incur punitive liability by giving a mistaken and hence careless order requiring performance by other pupils in traffic. If other circumstances are present, he may be found guilty of negligence. For the purpose of this discussion, I assume of course that the patrol member is old enough to be punishable under criminal law, which in Sweden may not be the usual case. The determination of whether or not an act is punishable by law is made with reference to the same criteria as for other road users. Even a person who makes an accessory contribution to criminal negligence in traffic is subject to penalties. In order to show that other road users can also comport themselves in a way which brings the activities

of school patrols to mind, I should like to cite the following example: a motorist who carelessly gives the all-clear signal for overtaking is partly responsible for any resulting accident, and legal action may be taken against him.

I now turn to the matter of damages, which are of greater practical significance in the Swedish legal framework because liability also extends to persons under 15 years of age. The member of a school patrol undoubtedly exposes himself to considerable economic hazards. Let us say that he tells his schoolmates to cross a street at the wrong time and that one of them is injured; the patrol member is liable for damages. Not only that, but other road users may file claims for damages against him. The guiding principle in Swedish law under this head is that liability for damages comes from culpable action.

Theoretically, liability for damages is also imputable to a teacher or policeman who provides a school patrol with wrong instructions. By way of example, let us assume that a patrol member, in observance of the instructions given him by a policeman, tells other pupils to cross a street even though they cannot do so without risk. A traffic situation arises which culminates in an accident. In this case it is probable that a claim for damages will be filed against the policeman.

With these economic hazards in mind, I would suggest that school patrols be given insurance coverage to protect them against the consequences of damage suits. The premium rate for a policy of this kind need not be very high, but in exceptional cases the insurance could provide valuable protection. At the same time the policy would ensure that the victim of an accident could always count on receiving the indemnity to which he is entitled. As far as Swedish law is concerned, however, it is at any rate for the time being hardly a feasible suggestion to have the community at large assume the liability of school patrols for damages.

6. THE SCHOOL PATROL SERVICE

Rapporteur: Mr. A. THORSSON, Executive Director at the National Road Safety Society

INTRODUCTION

As part of their efforts to reduce the number of road accidents involving children, many countries have put into effect a programme of school safety patrols. Favourable experiences are reported wherever the programme has been introduced, and the instructive and guiding activities of school patrols have no doubt saved the lives of numerous children.

The idea of school patrol services originated in the United States, where they were first established in 1919. According to latest estimates for Europe, school patrols now number about half a million members each academic year.

AIM

School patrols are composed of volunteers recruited among the most dependable and mature pupils. Their task is to assure safe conduct to pupils who cross roads and streets in the school vicinity, usually at designated crosswalks. Other duties may also be assigned to the patrols; for example, they may be required:

a) to maintain order in school buses;
b) to stand guard at dangerous railway crossings near the school;
c) to fetch the youngest pupils at special assembly points and then assure them safe conduct to the school;
d) to make sure that pupils who cycle to school abide by the regulations especially issued for them;
e) to walk in front and at the rear of school classes who are marching on roads without pavements.

The value of school patrols is not restricted to the safeguarding of children among road traffic on their way to and from school. As examples of sound judgment, the patrol members also inspire other pupils to form proper traffic habits and an appropriate sense of responsibility.

Therefore, the patrol service should not solely be regarded as a safety measure in its own right, but also as a practical aspect of the safety education taught in schools.

PRINCIPLES

1. The only legitimate task of patrol members is to guide other pupils; they should not in any way interfere with road traffic in general.

2. Only pupils who have the consent of their parents or guardians should be considered for patrol duty.

These two principles are of fundamental importance. Adherence to them is essential in order to gain the support not only of the school and the police force, but also of the parents. These principles constitute a guarantee that the risks connected with this service will be largely eliminated. In spite of this, some countries are opposed to school patrol service on the grounds that the risks are far too great. It is true that exceptionally sound and mature judgment is required in order to determine the right course of action to be taken in different situations, such as helping fellow pupils cross a street in heavy traffic; such mature judgment cannot reasonably be expected of people as young as the members of school patrols.

Nevertheless my refutal of this argument will be brief and direct: in all the 13 years which we have had school patrols in Sweden, not one accident has occurred at any place where they were on duty. During this same period two minor accidents have been reported from Denmark, and no accidents at all from Norway and Finland. These figures speak for themselves.

Organisation

The chief responsibility for a patrol service must rest with the school. However, the planning, training and supervision are to be carried out in close collaboration with the police. This is only natural, since patrol members perform their duties out on the roads or streets, which are of course the sphere of activity of the traffic police. A decision to set up school patrols should be made jointly by the highest local authorities in education and the police force. The best means of instituting such co-operation would be for the educational authorities to determine, in consultation with the police, the schools in front of which patrols are to be on duty, and for the police authorities to make suitable staff available as instructors. Here it must be said that patrol services should only be established for schools that really need them, that is, where traffic next to or near the school premises involves such great risks for the pupils that special safety measures must be taken.

The headmaster of a school in charge of this service should see to it that a teacher on his staff who takes a special interest in traffic problems should direct the work of the patrols. At the same time, the local police authorities ought to be represented in school-patrol questions by a specially designated police officer. The two persons in charge can then work out a joint detailed plan for patrol activities. This plan ought to specify where the patrols are to operate, their times of duty, etc.

Selection of pupils

Acting on behalf of the headmaster, the teacher in charge of co-ordination then asks for volunteers, boys and girls, to be chosen from the highest classes in the school. In Sweden we have found the minimum age to be 12 or 13. If older pupils are available, they should of course be given preference. Patrol leaders are appointed from among selected pupils. Consideration must be paid in this selection to where the pupils live. Since patrol members begin their school day earlier and finish later than other pupils, they ought to have the shortest distances to travel.

Qualifications for selection

The pupils to be considered for patrol duty must be responsible, dependable, punctual, courteous and attentive. Those who are selected as leaders must also have proved qualities of leadership and be exemplary in their general conduct. It should be impressed on those selected that the membership of a patrol is a position of trust and honour which calls for reliability and vigilance.

Term of duty

Patrol duty should preferably be for one week at a time, with provision made for two to four reliefs during this period. The number of substitutes is a matter to be decided according to each case. Every substitute should be placed under the supervision of the patrol leader appointed for each place of duty.

Training

The training of patrol members is important and much attention should be given to it. It should get under way well before the service starts and follow a scrupulously prepared plan. (A copy of a training plan is available for distribution to the conference delegates.)

Orientation of teachers and pupils

Once the training of patrols is completed and all preparations are made, it is advisable

to assemble all the teachers of the school as well as the pupils for an orientation meeting on the duties of patrols, their methods of work, etc. It is important that the headmaster should himself take part in this meeting and underline the necessity for all pupils to comply with the orders issued by the patrols. The attention of the pupils should be called to the fact that the patrol system is backed by the school, the police force, and by parents and guardians. The co-ordinating teacher may review what duties the patrols are supposed to perform at their different stations and go through the rules the pupils are to observe. The police representative gives his views, instructions and recommendations and explains to the pupils the close relationship of the duties performed by the police force and the school patrols.

Patrol meetings

After the patrol service has started, its members should meet from time to time under the direction of the liaison teacher with the assistance of the police representative. In addition to discussing the work, these meetings can deal with suggestions by patrol members or others for the improvement of traffic conditions at the school.

Incentives to serve

Inasmuch as patrol members perform extra work as compared with the other pupils, they should be offered various incentives. For example, special arrangements can be made for them to take field trips, to attend sport events, go to the theatre or cinema, and the like. After having completed their term of duty, patrol members who have shown particular merit can be given a diploma or other suitable award.

Co-operation with homes

Meetings of parent-teacher associations provide a made-to-order opportunity for giving guidance on the work of school patrols.

Experience shows that adult road users are favourably influenced by the day-to-day activities of patrols. It is therefore desirable to make the public in general, and the parents of pupils in particular, fully informed and appreciative of the important work that school patrols perform.

In presenting this broad survey of the school patrol service, I have largely followed the guide lines which we apply in Sweden. These guide lines, however, are common for most countries having such a service. The variations that exist occur in matters of detail, arising from the need to make adaptations to different circumstances from one country to the next.

I have exclusively dealt with the patrol service in terms of enlisting pupils as its members. Another system is applied in some countries based on the participation of adults, such as housewives and retired persons. In many cases this requires the payment of remuneration to these people. The use of adults is perhaps justified on the grounds that the risks allegedly run by pupils in school patrols are thereby avoided. The ensuring discussion ought to provide answers to this question.

For my part I warmly recommend that the recruitment of pupils for patrol duty be adopted as the general system in European countries. As I mentioned earlier, the experiences gained to date argue strongly for this approach. When the pupil members of school patrols themselves become adults, they will become models of good behaviour in traffic—and every country is deserving of such paragons in our highly motorised age.

Annex III

EXCERPTS FROM THE OFFICIAL FRENCH BROCHURE ON « THE TEACHING OF SAFETY »

INTRODUCTION

by Mr. OLÉON, Academy Inspector

In order to avoid misunderstanding, it is necessary to make clear the following points with regard to road safety education in France :

When it is said that a certain type of instruction given in schools constitutes a "subject" or a "separate", "autonomous" or "distinct" discipline, this signifies that the following factors are present : a special teacher; lesson periods arranged in the time-table; an individual syllabus; and marks taken into account in assessing a pupil's general level of attainment. Such a subject is accordingly distinguished by its independent character.

In the present French system, however, nothing of the kind exists. Theoretical instruction in the rules of road safety is incorporated into lessons on ethics and civics and the time devoted to it (half an hour per month) has been simply taken out of the time allotted to these subjects without any corresponding adjustment being made to the total. The graded syllabus drawn up for each phase of school education up to the end of the "first cycle" (the end of compulsory schooling, at age sixteen) has been added to the existing syllabus; the teacher responsible for road safety is the ethics and civics master; marks, if any are awarded, appear under "ethics and civics".

Practical exercises, allotted one and a half hours per month, are incorporated in exactly the same way into physical training and outdoor activities.

Consequently, the teaching of road safety regulations does not really constitute a "separate discipline" in France. It is a section of two previously existing subjects, but naturally this is no bar to an individual syllabus and methods.

The system appears to have two main advantages. On the one hand, it avoids the inevitable opposition attendant upon the introduction of a new discipline which would curtail the time devoted to history, letters, science, etc. in a time-table incapable of extension. On the other hand, it underlines the essential links which, in our view, bind this subject to ethics and civics. Indeed, it may be considered, after the painless assimilation of a few simple rules, to be merely the application of the latter branch of instruction to a particular problem of modern life.

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Excerpts from "The teaching of safety"

ROAD SAFETY SYLLABUSES

Road safety syllabuses in State primary, secondary and technical schools are as follows :

A. Nursery schools—kindergartens; infant classes in primary schools;

Advice, stories, games and simple sketches showing the precautions to be taken in the streets, especially those in the neighbourhood of the school.

B. Lower primary school;

Precautions to be taken on footpaths and on the side of the road; no playing on the road; direction of oncoming traffic; crossing the road; use of pedestrian crossings; meaning and use of traffic lights; duties of traffic police; crossing squares and major cross-roads; pedestrians walking on the side of the road outside town boundaries (recommendation to keep to the left); pedestrians using the roads at night; groups of pedestrians on the road.

C. Middle primary school;

How a bicycle works, how to check and maintain its main parts, compulsory accessories (brakes, lights, bell); number plates; use in normal conditions, mistakes and imprudent

practices; use of cycle tracks; control of speed; danger of unforeseen obstacles; risks due to the state of the road; passing other vehicles; rounding bends; rules of priority, main road signs; riding a bicycle at night; driving one or more animals or herds of animals on the roads by day or by night.

D. Upper primary and lower secondary school and secondary modern (first year).

Revision of what the pedestrian and the cyclist need to know, and of the rules for driving one or more animal or herds of animals by day or by night.

E. Secondary and secondary modern school (second and third years), apprenticeship centres (first year) :

How a motorised bicycle ("moped") works, and how to check and maintain its main safety equipment; drivers equipment; use in normal conditions; dangers peculiar to two-wheel motor vehicles; speed limits; road markings; precautions to be taken in the event of changing to another lane, changing direction or speed; rules to be observed in heavy traffic and when encountering files of stationary vehicles; additional road signs; driving by night; driving light farm vehicles by day and by night; steps to be taken in the event of an accident.

F. Secondary and secondary modern school (fourth year), apprenticeship centres (second and third years) :

How a light motor-cycle works, how to check and maintain its safety equipment; effects of increased speed on roadholding and braking distance; precautions with regard to tractor or animal drawn farm vehicles, particularly at dusk, at night and in fog; statistics of numbers and causes of accidents; the good driver, respect for the rights of others, road courtesy; how to report an accident.

During the year, from ten to fifteen hours are reserved for practical exercises which are included in the physical training and open-air activities timetable.

These hours are spread out at the average rate of one or one and half per month, according to the equipment available and the time required for the excursions planned. Practical exercises are organised in the school-ground, in special parks fitted up for the purpose, or at appropriate places on the open road.

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METHOD APPLICABLE TO ROAD SAFETY AND GENERAL SAFETY (ELECTRIC APPLIANCES, ETC.)

The method employed will depend on the aims to be attained in each particular class. Indeed, the knowledge to be acquired would be of little value if habits calculated to avert danger were not inculcated at the same time, if, in addition to having the necessary information, our pupils were not also disposed to act sensibly and if, furthermore, concern for their personal safety were not accompanied by a desire to respect the rights of others and to help them. Both the general interest and individual protection should be constantly borne in mind, and instruction in safety must comprise practice as well as theory. Adapted to the age of the children receiving it, using carefully graduated methods, vocabulary and syllabuses, this instruction will be effective (that is, will be of national and human value) only if it really governs the conduct of the child when he is thrown back on his own resources and is free and unsupervised; it must aim to build up an inner law where the casual observer would see only rules and precepts. If this can be achieved, then the accidents of all kinds, of which children and adolescents are victims, will become less numerous and perhaps less serious, and a 'safety consciousness', hostile to bravado, awake to responsibilities, alert to the intentions of others, will take root and gradually grow in family and workaday circles.

This explains the important place given to practical exercises on which it might be useful to offer a few general directives for the guidance of teachers, particularly at the beginning.

Lessons on theory do not call for any particular suggestions : they are lessons in ethics or science. The former will generally have a specific subject taken from the syllabus of the class for which they are intended. They will consist of reading, comments and questions and will be supported by appropriate teaching aids : books, pictures, blackboard, diagrams, drawings, small figures and models designed to arrest and hold the children's attention and make the teachers explanations clear even to the dullest intelligences and facilitate the inevitable repetition and revision.

Hence, concrete, lively instruction as for the other subjects. If the teacher has the ability to relate his lessons to real life, if he can show that the applications of rules he explains and justifies are not confined within the school boundaries but extend to all circumstances of

everyday life—since familiarity with them has become a necessity even for the smallest children, as a result of modern technical progress and the innumerable dangers to which it exposes all of us, be it on the farm, in the factory, in the kitchen or in the road—he will have no difficulty in arousing interest, animating the lesson and inspiring sincere and firm resolves.

Based on observation and experiment, the science lessons will preserve their essentially inductive character. The syllabuses laid down in the decrees of 31st July 1959 and 17th June 1960 introduce no new element in this respect. They merely provide that safety questions included in the syllabus shall be dealt with as fully as possible within the context of corresponding science lessons. For instance, a lesson on blood circulation will include some essential information on how to stop an external haemorrhage; a lesson on respiration will include basic notions of the causes of asphyxia and how to deal with it. As a rule, these additional topics no doubt form part of the subject-matter of these lessons, being sometimes even expressly presented as in technical education. It is right that they should be mentioned explicitly in a general compulsory syllabus in order to give a meaning and rational foundation to the practical exercises.

These exercises are only partly distinguishable from the lesson proper when it calls for manual or physical activity by the pupils. The lesson given in the classroom should be as practical and lively as possible, involving the use by the teacher of improvised or specially designed illustrative material. Interest can be sustained by the projection of films or filmstrips and the playing of specially made recording. Instruction can also be supported by gestures, actions and series of movements carried out by the pupils in the classroom, diagrams, experiments, handwork and individual or group exercises of all kinds which the ingenious teacher will devise, thereby applying inside the classroom the principles of a "knowledge through action" method which takes into account the child's instinctive repugnance to the abstract.

By this time theory and practice have become inextricably entwined—a desirable result in itself. Hence one might argue that the classroom is the proper place for them. Depending on requirements they are, of course, normally organised, at least in part, outside the classroom (in the open or covered playground, the gymnasium, sports-field, swimming-pool, experiments room, domestic-science room) or outside the school, for instance for road traffic "in special parks fitted up for the purpose or at appropriate places on the open road" (A. 31-9-57).

For practical traffic exercises in the playground, it is easy to draw outlines with chalk to represent a street or crossroads, etc. with pedestrian crossings, traffic lights and traffic signs. All the pupils should participate in turn in the exercises based on the lessons. It would be wrong to have a handful of pupils perform the role of pedestrian or cyclist and allow the rest of the class to act merely as spectators. It is not sufficient to understand the rules; the important thing is to become accustomed to them and practise applying them and occasionally also overcome fears. All the children must therefore be made to take part in the exercises, either individually or in groups, and fulfil different roles in order that they may learn to take their own decisions and know exactly how to act in a given situation.

In the middle primary school, bicycles will be used for the exercises. Most children of 9 or 10 can either ride a bicycle or want to learn; nearly all of them already possess one and many cycle to school. Any who might require a few lessons would no doubt be quick to learn. Since such instruction has become legally compulsory, head-masters could, if necessary, purchase one or more cycles with the appropriations allocated for school material, in the same way as he might buy a projector or gramophone. These strictly practical exercises will consequently be designed to train pupils to manœuvre (pass between obstacles, cycle along a track 1 m or 0.75 m wide, keep to a chalked line, stop on a level with a given mark and start off again without zigzagging, etc.). At the same time habits indispensable to their own safety and that of other road-users will be inculcated into them (keeping their proper place on the road, braking properly, indicating change of direction with outstretched arm, approaching crossings and corners correctly, etc.).

Exercises on the open road will include observation of traffic and the application of rules studied in the classroom or other parts of the school. Nothing would be more contrary to the very principle of methodical training than to take a class along a road at random, trusting to chance to supply subjects for observation. Each expedition should be organised with a specific, clearly-defined aim in view. The smallest children might, for instance, be taken to a particular spot, carefully selected for educative and safety reasons and invited to watch and comment (discreetly) on the way in which

pedestrians cross the street. They should then be shown the correct way and be made to practise it, first individually and then in groups, in one direction and then in the other. For the middle primary classes speed-control exercises might be organised in which four or five cyclists following each other in single file over a short course are required to keep 10 m apart despite deliberate changes or speed by the leader. Later, on reaching the "traffic lights" lesson, pupils might effect a crossing at a cross-roads under the supervision of a policeman and carefully observing the rules. The groups practising such exercises will not be large. An extra supervisor will be employed as an additional safety measure if the number of pupils exceeds 30. When the nature of the traffic exercise or activity justifies it, a policeman may be asked to assist.

Some may consider exercises in school premises sufficient without practice on the open road. Perhaps in certain instances where traffic is very intense and real danger exists despite precautions, it will be necessary to forgo road exercises, but this should be the exception rather than the rule. Besides the fact that it is generally possible, even in the worst cases, to choose a time when conditions are more favourable, it must be admitted that exercises carried out in the street or on the road have an aura of reality and authenticity which gives them greater educational value than can ever be attained by exercises performed inside the school precincts, however well devised they may be. Under the teacher's guidance, the children learn to perceive danger and avoid it by prompt, rational decisions. Above all, they learn to dominate any fears they may experience on passing from the closed, secure school environment to the public highway where danger ceases to be entirely imaginary, from the sphere where they obey to the sphere where they must make their own decisions and where knowledge and alertness are no longer qualities for which marks are awarded, but forces which they must be able to count on. What value would an education have whose purpose and result were not to free the pupil from the teacher's tutelage? If we shrink from exercises under real conditions, how will our consciences permit us to open the school-doors at the end of the day and let our pupils return home alone? Are they not exposed then to far greater dangers than under our supervision? Are not on-the-spot exercises the only way of teaching children to avoid such dangers and showing them the correct and sensible way to act in real everyday conditions. If any educator dreads such exercises, let him be reminded of the need for an all-out educational effort which will have the effect of saving the lives of a great many children. The teacher's personal responsibility is covered for these exercises in the same way as for other school exercises.

Different types of exercises will have to be organised for pupils studying traffic rules for auto-cycles and light motor-cycles. Whilst there is no age-limit for cyclists, the minimum age for drivers of auto-cycles is 14. Hence exercises in traffic are impossible for pupils aged 12 to 14 and even undesirable for older pupils. Auto-cycles are at present less numerous than bicycles and cost more; their speed being greater, they present a considerable danger and supervision would be very difficult. Indeed, most families would, not without reason, be opposed to such exercises. Moreover, since the rules are practically the same as for bicycles, cycling already constitutes a good training in itself. It will consequently suffice to draw attention to a few differences—additional road signs, road markings, functioning of safety equipment and, above all, the effects of increased speed on road holding—particularly by means of direct observation or research, in order to train our pupils, when the time comes, to be prudent and capable drivers.

The time devoted to practical road safety exercises may be limited at this level to five lessons a year.

PART III

PRELIMINARY REPORT OF THE COMMITTEE OF DEPUTIES ON THE ACTIVITIES OF THE STUDY GROUP ON NOISE ABATEMENT

[CM (63) 5]

I

At its session of November 1962, the Council of Ministers of Transport decided to study this question on the basis of a proposal by the Austrian Minister of Transport, which was later supplemented by a note.

II

At the request of the Committee of Deputies, the Secretariat asked Member countries for written information on the technical, legislative, administrative and publicity measures taken with a view to reducing noise caused by the various means of transport. Sixteen countries replied and provided reports many of which were very detailed. An analysis of the country replies was prepared for the first meeting of the Study Group.

At the first meeting, which was held in Paris on 7th March, 1963, certain Delegations also produced interesting reference material: thus for example the United Kingdom Delegation presented a report by a Government Committee on Noise Abatement; the French Delegation made a statement on regulations governing the measurement of noise caused by motor vehicles and on the corresponding specifications; the Portuguese Delegation submitted a Report on general questions and the principles to be followed for any studies undertaken and the Swiss Delegation gave the Study Group detailed information on the final report of the Federal Commission of Experts on Noise Abatement, including the reduction of noise caused by motor vehicles, railways, boats and telfer railways, which was submitted to the Federal Council at the end of last year.

III

The international governmental and non-governmental organisations concerned were also asked to give the E.C.M.T. information on the studies they had undertaken on this subject and the results obtained. These organisations also provided a considerable amount of reference material. Some of these documents such as the Hubert Report of the Council of Europe and the documents of the Inland Transport Committee of the E.C.E. and the Report of the General Transport Directorate of the Commission of the E.E.C., have been communicated fully or partially. It is proposed to make these documents available to the Study Group, as far as is necessary, either in extenso or in the form of extracts. Owing to its special importance, Recommendation 341 of the Consultative Assembly of the Council of Europe is attached as an annex. A summary has also been made of the work of the Organisations which has been brought to the knowledge of the Study Group.

IV

In their reports certain countries have already proposed technical and other measures to reduce noise. Others have pointed out difficulties in applying noise abatement measures, such as the inadequacy of measuring instruments, technical defects in motor-cycle silencers, the insufficient number of control bodies for the effective verification of the noise caused by motor vehicles and also certain contradictions between regulations concerning the use of audible signals for traffic purposes and efforts to reduce noise.

Country proposals have been grouped so

that discussions may give prominence to the following themes :

1. Exchange of information between E.C.M.T. countries on present and future measures to reduce noise;
2. Assembly of documentation prepared by the various International Organisations;
3. Surveys to be carried out and administrative measures concerning certain restrictions on transport [1] and on other governmental measures [2]; co-ordination of such measures.
4. Standardization of regulations on the measurement of noise and determination of an admissible noise scale;
5. Co-ordination of the work of the various international organisations;
6. Measures taken for progressively reducing the maximum admissible limits for noise caused by vehicles, with a view to achieving a reduction in the noise level or at least preventing that level from increasing;
7. Measures to introduce or intensify noise abatement publicity and regular organisation of noise abatement weeks.

1. In a few countries, for example, the use of commercial vehicles is already prohibited at weekends, there are areas closed to motor boats and speed limits for the latter, and also silent zones for certain tourist and rest areas.

2. E.g. consideration of the question of noise in transport palnning.

V

At the 57th session of the Committee of Deputies, the directives of the Officers of the Council of Ministers, which had been drawn up at their meeting of 18th February, 1963, were communicated to the Committee. The Officers wished to have a report prepared so that advantage could be taken of the work done in this field and proposals for the subsequent activities of the E.C.M.T. considered with a view to co-ordinating the efforts made in various quarters. As shown by the analysis of country replies, the situation differs considerably from one country to another. A thorough discussion by the Council of Ministers would therefore appear useful, with a view to carrying out the measures listed in paragraph IV so as to make it possible to produce directives for the subsequent work of the Study Group. It is envisaged to submit the results of this work to the Council of Ministers at its autumn session, in the form of a report and a draft resolution.

ANNEX

RECOMMENDATION 341 (1963) of the Consultative Assembly of the Council of Europe on the Anti-Noise Campaign [1]

The Assembly,

Having examined certain Anti-Noise Campaign studies and plans in course of preparation in Member countries of the Council of Europe and the legal requirements in force in those countries;

Having noted the work undertaken by intergovernmental and non-governmental organisations on this subject;

Concerned about the harmful effects that noise may have on the physical health and the mental balance of the individual;

Considering that the information in its possession justifies the belief that means already exist to combat noise at places of work and noise production by traffic or emanating from other sources;

Having learnt that the Committee of Ministers has awarded three co-ordinated medical fellowships for the year 1963 to three experts of Austrian, Swiss and Irish nationality respectively for the purpose of studying the problem of noise-abatement;

Fully aware of the need to improve working and housing conditions in respect of noise of all kinds, but realising that all traffic noise, in particular that of aircraft, can be effectively combatted only if measures are taken at international level;

Having learnt that some Governments are sponsoring the construction of supersonic aircraft for civil transport,

Recommends that the Committee of Ministers :

1. Call the attention of Governments to the urgent need to compel builders to comply with specifications ensuring that the noise from such civil supersonic aircraft shall not constitute a nuisance for the everyday life of the people, still less a danger to health;

2. *a*) Transmit the present report to the three co-ordinated fellowship specialists so that they may take into account in their research and, in particular, may give their opinion on the conclusions reached by the Consultative Assembly and on the anti-noise measures recommended by the Assembly;

b) Transmit the specialists' report to the Consultative Assembly for opinion as soon as it is available;

3. Consider whether it is possible, without awaiting the result of the three specialists' work, to have standard units of measurement adopted throughout Europe;

4. *a*) Foster research work into reducing noise, both by calling on governmental committees of experts and by giving effective assistance to all governmental and non-governmental organisations dealing with this matter;

b) Promote the exchange of information between specialised institutions dealing with all aspects of the anti-noise campaign;

5. Support the general dissemination of information to educate public opinion as to the dangers to health inherent in noise.

1. Text adopted by the Consultative Assembly on 15th January, 1963.

REPORT BY THE COMMITTEE OF DEPUTIES ON THE PRACTICAL MEASURES TO BE TAKEN FOR THE EDUCATION OF ROAD USERS

(CM(63)7]

I. INTRODUCTION

1. On the proposal of the Committee of Deputies, the Council of Ministers, in its Resolution No. 11 of 5th October 1960, concerning the education of road users, stressed that

> "International co-operation in road safety education and the training of road users should be established and intensified, particularly by exchanges of experience."

and that it would also be advisable to

> "organise international demonstrations on selected themes and to give them official status, perhaps in the form of the patronage of the Ministers of Transport. The co-operation of the international and national road safety organisations might be sought in arranging these activities."

It further instructed the Committee of Deputies

> "to proceed with the framing of measures with a view to the training of road users on as uniform a basis as possible."

In approving the Report [CM(60)9 (Final)], of the Working Party on Road Safety, the Council of Ministers endorsed the following observations in Paragraph 28 of the Report :

"International co-operation in road safety education and the training of road users should be intensified :

a) the exchanges of information instituted by the E.C.M.T. have enabled Member countries to pass on their experience to each other, to make suggestions and to achieve valuable results. These exchanges of information through the Working Party on Road Safety should be continued regularly;

b) combined demonstrations through suitable contacts with the appropriate national bodies should be organised in as many countries as possible and with government support, in order to make the general public more aware of the essential factors of road safety;

c) in the matter of organisation, steps should be taken to ensure that :
- — the information used by the authorities and private bodies in the E.C.M.T. countries is regularly and methodically exchanged;
- — films produced in the E.C.M.T. countries are periodically shown at meetings of experts to ascertain whether they are suitable for use in all countries;

d) the E.C.M.T. experts should be able, by visiting each others' countries, to familiarise themselves on the spot with the methods used in road safety education and the training of road users and to consider whether these methods might not be adopted in their own countries.

The knowledge thus acquired should be used by the Working Party."

2. The documents quoted above refer to the following two points, which are to be considered in greater detail

a) the organisation of international meetings, namely :
- *i*) meetings of experts,
- *ii*) organisation of road safety campaigns,

b) the intensification of the exchange of experience through the Working Party.

II. ORGANISATION OF INTERNATIONAL MEETINGS OF EXPERTS

1. With regard to Item 4, paragraph 2 of Resolution No. 11 of 5th October, 1960, the question arises whether it is necessary and

desirable at present to organise under E.C.M.T. patronage, meetings of experts on certain themes of road safety and accident prevention.

Before dealing with this question, it is necessary to ascertain whether any meetings of this kind have already been arranged, and if so by which Organisations and on what themes.

2. In practice, note should be taken of the following:

a) periodic meetings:

the International Traffic Engineering Week, organised every two years by the World Touring and Automobile Organisation, the International Road Federation and the Permanent International Association of Road Congresses;

the International Road Safety Congress,

organised every two years by the World Touring and Automobile Organisation, the International Federation of Senior Police Officers and the Prévention Routière Internationale;

the International Congress of Traffic Police,

organised every two years by the World Touring and Automobile Organisation and the Internation Federation of Senior Policy Officers.

b) meetings not regularly repeated:

Council of Europe

Meetings of experts from national and international organisations concerned with Road Safety, held in Strasbourg on 12th, 13th and 14th April 1962, to examine the possibilities of preventing accidents and prepare a long-term programme of road accident prevention.

Western European Union[1]

One study group of experts on road safety education in schools and on traffic generally, held in Bonn and Berlin in 1957, and another in London in 1959, on the subject of road safety education in schools.

World Health Organisation

Conference on the prevention of accidents, especially road accidents involving children, held in Belgium in 1959.

European Coal and Steel Community (E.C.S.C.)

European Economic Community (E.E.C.) and

European Atomic Energy Community (EURATOM)

Meeting on the theme of "Technical Progress and the Common Market", during the course of which the Road Group of the Transport Working Party dealt with questions of road safety, especially the harmonization of traffic regulations in Western Europe.

3. A thorough study of the question whether in these circumstances the E.C.M.T. should likewise make use of public meetings in addition to the sessions of its own bodies involves striking a balance between the following factors:

a) the efforts to find a solution to the most urgent road safety problems by broad exchanges of views between experts, and to emphasize the legitimate claim of the E.C.M.T. as the outstandingly competent body, to play a leading part in any international examination of these problems, and

b) the fear lest too many international meetings of experts may lead to duplication and waste, both of time and money, which would not help the aim in in view.

4. Moreover, the periodic meetings referred to in 2 (*a*), give adequate opportunity for public discussion at international level of road safety problems of common interest.

It should however, be remembered that government departments have no official means of influencing the choice of themes or the running of meetings held by private organisations. There are however possibilities of exercising an influence of this kind through the national private organisations and particularly through the P.R.I. with which the E.C.M.T. co-operates closely.

5. In view of the foregoing, the E.C.M.T. should cease to hold its own meetings of experts for the examination of general themes.

6. It should however retain the possibility of organising a few sessions of this kind if special concrete questions ought to be dealt with at international level and, in particular, if governmental experts in different subjects were needed to study them. A first example of a session of this kind is the meeting of governmental experts

1. W.E.U.'s powers in cultural matters have now been transferred to the Council of Europe.

on "the teaching of road safety in schools", which is to be organised by the E.C.M.T. in October 1963, in co-operation with the Council of Europe.

7. CONCLUSION

a) Apart from well defined special cases, the E.C.M.T. should, for the present at least, refrain from organising its own international meetings and

b) where necessary, should endeavour to exercise appropriate influence on the choice of themes and the running of meetings of other Organisations.

III. ORGANISATION OF ROAD SAFETY CAMPAIGNS

1. Here again it seems desirable to establish in the first place what international demonstrations have already been organised.

In this connection the following should be mentioned :

Road Safety Days, and
Traffic Engineering Weeks

the first organised every spring, the second every autumn by the Prévention Routière Internationale (P.R.I.) and the National Associations affiliated to it.

2. The fears already expressed in II, 3 about E.C.M.T. activities duplicating those already in existence, are to some extent also relevant here. It must also be remembered that

the general public would hardly be ready to welcome in one and the same year more than two large-scale demonstrations of this kind;

such events could scarcely be organised without the help of private associations expert in traffic matters and more than two spectacular events a year would be beyond their capacity;

the financing of large-scale events, usually fairly costly, would create difficulties, especially since in many countries the two campaigns already referred to are largely paid for out of public money.

3. On the other hand, it may be noted that co-operation between the E.C.M.T. and the P.R.I. has developed in a highly encouraging manner. At the request of the P.R.I., the E.C.M.T. sponsored the Road Safety Days in 1961, 1962 and 1963 and made an appeal to the general public in connection with them. In 1963 the E.C.M.T. has also sponsored the International Schools Cup and the Road Safety Technical Week, both organised by the P.R.I.

The E.C.M.T. also made a suggestion, through the Chairman of the Working Party on Road Safety, that publicity to encourage the use of safety belts and crash helmets should form part of the activities of the Traffic Engineering Weeks organised by the P.R.I. in 1962; this suggestion was welcomed by the P.R.I.

4. In these circumstances, the best course seems to be as follows :

a) The E.C.M.T. should not conduct any safety campaigns of its own, but should give every encouragement to private international organisations in the arrangement of such activities.

b) On the other hand, co-operation with the P.R.I. should be encouraged in every way and the possibility it offers of exercising appropriate influence on the choice of themes and the planning of Road Safety Days and Traffic Engineering Weeks should be turned to good account.

c) The authorities of all Member countries should use their influence to induce their national road safety organisations to take part in the P.R.I. activities so as to give them the broadest possible international basis.

IV. INTENSIFICATION OF EXCHANGES OF EXPERIENCE BETWEEN MEMBER COUNTRIES OF THE E.C.M.T., ESPECIALLY THROUGH THE WORKING PARTY ON ROAD SAFETY

1. Mutual exchanges of experience could doubtless best be arranged by allowing experts of Member countries of the E.C.M.T. to put forward their views on topical problems of common interest within the Working Party more than once a year.

In the course of deliberations on the report on Road Safety Education [CM(60)9 (Final)], it had already been realised that in addition to certain technical and organisation methods it might also be appropriate :

to consolidate co-operation still further;
to make better use of the experience acquired

by various countries using the means and methods of propaganda and in this way; so to arrange matters that the funds available to Member countries for road safety education would be used with greater economy and profit—allowing for the expenditure involved in such technical and organisation methods for intensifying mutual exchanges of experience.

2. It is recommended that the activities of the "Prévention Routière Internationale" (P.R.I.) should be used for this purpose. In accordance with its desire for the closest possible co-operation with the E.C.M.T., the P.R.I. has already expressed its willingness to do whatever it can and, as far as possible, to adapt the measures previously employed for the exchange of material to the needs of the E.C.M.T.

The exchange arrangements might cover propaganda material (booklets, catalogues, posters, etc.), basic programmes for road safety education activities, films and slides, and documentation on books and reviews.

a) EXCHANGE OF BOOKLETS, CATALOGUES, POSTERS, ETC.

The Prévention Routière Internationale receives from its members and affiliated Organisations either originals or photostats of the propaganda material, especially posters, used in the countries concerned. It compiles a catalogue of this material, with reference numbers, and sends it to members and to affiliated Organisations. This ensures that all the Organisations interested in the exchange arrangement are kept constantly informed of the propaganda material used in the various countries. Generally speaking, this procedure would meet the requirements of the E.C.M.T.

A satisfactory solution has been reached on the following two special questions:

i) As only private Organisations are informed by the P.R.I., arrangements have been made to enable official Organisations to have access to this documentation when necessary.
Governments found a solution to this problem at national level. The P.R.I. has already declared itself willing to supply national private organisations with the additional material intended for official organisations, either regularly or in specific cases.

ii) This material is also available to Member countries of the E.C.M.T. whose private Organisations are not covered by the P.R.I. Exchange Service.
The P.R.I. is prepared to send reference material for these countries either to the Government itself or to any other address notified to it.

b) EXCHANGE OF INFORMATION ON ROAD SAFETY EDUCATION PROGRAMMES

It has become clear that there is a need for an international exchange of information not only on the propaganda material used but also on the programmes for major road safety education carried out in the various countries (e.g. theme and duration of action, nature of event and manner of staging it, intended audience, use and dissemination of propaganda material etc.).

The P.R.I. proposes to proceed in the same way as for the propaganda material itself. It is prepared to meet the E.C.M.T.'s wishes in this field in the manner indicated in (*a*) above.

It is recommended that advantage be taken of this generous offer of the P.R.I.

c) EXCHANGE OF DOCUMENTATION ON BOOKS AND REVIEWS

It is important to provide systematic information on what has been written on Road Safety (in books, reviews, etc.) through the use of well-chosen reference material.

The P.R.I. has not yet reached any conclusions on this matter, but the "Verbond voor Veilig Verkeer" in the Netherlands has begun detailed studies and it is to be expected that the P.R.I. will turn them to good account.

On this question too it seems desirable to maintain contact with the P.R.I., which has already agreed to proceed in this matter on the lines indicated in (*a*).

d) FILMS AND SLIDES

As the report [CM(60)9 (Final)] of the Working Party on Road Safety recalls, it has been found that savings can often be made on high production costs by using films outside their country of origin after dubbing, although the conditions of road traffic may differ to some extent. The same is true for slides.

In this connection, and quite as much as for the printed matter previously mentioned in (*a*) it may be regretted that, while it certainly happens from time to time that a film on

road safety produced abroad may be seen on the screen, there is still no systematic and exhaustive information available on the production of such films.

This gap might be filled by organising a film show for the experts, at least once a year, when all the films of general interest produced in the previous twelve months could be projected.

The P.R.I. has noted these ideas with interest and expressed its readiness to co-operate with the Secretariat of the E.C.M.T. in organising the showing of films and slides. Suitable contacts might also be made so as to provide an opportunity for Directors of Organisations which are members of the P.R.I., as well as members of the E.C.M.T. Working Party on Road Safety, to attend these shows in connection with their meetings in Paris.

3. CM(60)9(Final) Annex 1, paragraph 28 (*d*) states that "the experts of E.C.M.T. Member countries should be able, by visiting each other's countries, to familiarise themselves on the spot with the methods used in road safety education and the training of road users."

Practical experience shows, in fact that such visits provide valuable information about road safety problems and give a clear idea of the ways in which various countries are endeavouring to solve them. Study visits of this kind obviously require careful preparation and must bear on judiciously selected objectives, the questions of chief interest to the visitor being kept in mind. It follows that visits by members of the Working Party on Road Safety should be centred on the incidence of certain road traffic regulations which the Working Party would in fact be engaged in studying and ought also to include the inspection of installations used for road safety education and the training of road users, as well as a visit to institutions dealing with these two matters. On the other hand, technical questions of road construction and the problems of town planning and local traffic could be left out however interesting from a general point of view.

The suggestion made in CM(60)9 (Final) and referred to above could perhaps be most profitably implemented by arranging matters so that the Working Party on Road Safety would meet once a year not in Paris but in a town in another Member country, of special interest for the task in hand and this meeting might be extended by one or two days to allow time for inspection on the spot.

While it must be admitted that the application of such ideas might well involve certain difficulties, it nevertheless appears clear that this is the solution which would cause Member countries least expense, and members of the Working Party least loss of time.

V. SUMMING UP

1. *a*) Apart from well-defined special cases the E.C.M.T. should, for the present at least, refrain from organising its own international demonstrations, and;

b) Where necessary, it should endeavour to exercise appropriate influence on the choice of themes and the running of meetings of other International Organisations.

2. *a*) The E.C.M.T. should not at present conduct any road safety campaigns of its own but should give every encouragement to private international organisations in the arrangement of such activities.

b) On the other hand, co-operation with the P.R.I. should be encouraged in every way and the possibility it offers of exercising appropriate influence on the choice of themes and the planning of "Road Safety Days" and "Traffic Engineering Weeks" should be turned to good account.

c) The authorities of all Member countries should use their influence to induce their national road safety organisations to take part in P.R.I. activities so as to give them the broadest possible international basis.

3. *a*) It is noted with satisfaction that the P.R.I. has already taken steps to ensure the regular exchange, between private organisations concerned with road safety, of reference material of various types (booklets, catalogues, posters, etc.), outline programmes for road safety education activities and documentation on books and reviews.

Advantage has been taken of the P.R.I.'s generous offer to make this information available for the official purposes of Member countries of the E.C.M.T.

b) Experts of Member countries of the E.C.M.T. should also be given an opportunity of regularly attending the showing of films and slides produced in other countries so as to see whether they could be used in their own countries.

Arrangements have been made, in conjunction with the P.R.I. which is also interested, to organise this year a show of films and slides of general interest produced in the previous

12 months, and it is proposed to repeat this event each year if possible.

4. It is suggested that the Working Party should be allowed to hold one of its annual meetings in a town in a Member country of special interest for the questions being studied by the Working Party so that its members could see for themselves how road safety problems are solved in that country or learn what measures have been taken to solve them. In such cases, the host country will pay all the expenses incurred by the meeting, in accordance with Article 10 of the Protocol concerning the E.C.M.T.

OUTLINE PLAN FOR THE DISCUSSION AND REPORT BY THE E.C.M.T. COUNCIL OF MINISTERS ON "GENERAL TRANSPORT POLICY"

(approved by the Council of Ministers at its session of 25th November 1963)

1. AIMS IN VIEW

   a) Constant adaptation of the transport system to fulfil the requirements of the development of the recognised needs of users and the community, in quality and in quantity, whilst maintaining optimum technical progress and safety of operation.

   b) Economic target (co-ordination) : with due regard to the need for constant adaptation to promote the operation of the transport system at the lowest economic and social cost.

2. BASIC PRINCIPLES

   a) Equality of treatment for means of transport and for transport undertakings, implying the greatest possible co-ordination of basic conditions, with due regard to their structural differences, their special characteristics and any public service obligations which may prove necessary.

   b) Freedom of choice for users, including recourse to transport on own account.

   c) Equality of treatment for users under comparable conditions.

   d) Pursuit of the profitability of undertakings and sufficiently independent management.

3. MEANS OF ACTION

   a) Access to the transport market :

      i) Qualifications for acceptance as a carrier.

      ii) Conditions of access by the carrier to the market proper and problem of transport capacity.

   b) Organisation of the transport market :

      i) Policy governing the formation and publication of rates.

      ii) Working conditions of the market :
      — chartering;
      — agreements;
      — concentrations.

      iii) Orderly competition between means of transport and between transport undertakings.

   c) Co-ordination of the market from the point of view of :

      i) Taxation.

      ii) Social questions.

      iii) Technical requirements.

      iv) Public service obligations.

      v) Carriers' responsibilities and insurance.

      vi) Allocation of infrastructure costs.

   d) Investment :

      i) Determination of public investment.

      ii) Priority of investment projects.

      iii) Private investment.

   e) Transit.

   f) Forecasting, programming and rationalisation of transport systems, and measures to encourage and supervise the co-ordination of transport.

REPORT BY THE COMMITTEE OF DEPUTIES ON INVESTMENT AND THE TREND OF TRAFFIC IN 1962

[*CM(63)16*]

Chapter I. GENERAL

In accordance with its now traditional duties, the Committee of Deputies has the honour to submit herewith to the Council of Ministers a study on investment in 1962 for railways, roads and inland waterways, together with an analysis of the activities of each of these means of transport.

As in previous years, the situation of each form of transport is described in a separate chapter in which all the relevant facts are assembled in a general statement compiled from data supplied by the governments, supplemented in certain cases by information on national situations which are worthy of special mention.

In this first chapter, required in any cases as an introduction, it was believed advisable to include a few general comments and a summary of results best describing the year under study.

Table I, a natural adjunct to this chapter, sets out amounts invested in each form of transport by the E.C.M.T. Member countries for 1960, 1961 and 1962. Since figures are now available for a sufficiently long period (1958 to 1962), the Committee of Deputies proposes to analyse them and to make such comments as may appropriately be brought to the notice of the Council of Ministers.

As in previous years, results have been combined into general figures relating to all the Member countries of the E.C.M.T. and to the six Member countries of the European Economic Community.

Finally, it must once again be regretted that inadequate road traffic statistics still prevent this sector from being subjected to the same type of analysis as railway and inland waterway traffic.

It has thus been necessary to limit the study to the trend of the number of road vehicles and of infrastructure equipment.

Results

The characteristic features of 1962 for the various means of transport were as follows:

a) *Railways:*

Electrification is still a major operation for the railways. Although the programmes are nearing completion in certain countries, the results reached a higher level than in the previous period: 914 km instead of 572 km of European main lines.

The Railway Administrations plan to equip a further 2,800 km of main lines by 1967, of which 2,100 km will be accounted for by the European Economic Community.

This year the study has dealt more specifically than before with lines other than the European main line network. Thus it can be seen that, between 1953 and 1963, the total length of electrified lines (main lines and others) rose from 27,295 km to 42,780 km of which 22,500 was main line, representing a growth of 56.5 per cent. By 1957, 48,600 km will be electrified, according to known programmes.

The increase in the number of diesel locomotives continues at a rapid rate, bringing the figures up from 10,352 at the end of 1961 to 13,500 at the end of this year. The gain is particularly marked for locomotives of more than 350 h.p., which represent 80 per cent of deliveries for this year, their share in total numbers having risen from 8 per cent in 1950 to 60 per cent in 1963.

The EUROFIMA Company has made a valuable contribution to diesel equipment by financing 506 locomotives, of which 298 are now in service.

A slight increase is also to be seen in the number of goods wagons, associated with a greater gain in capacity since modern wagons

are larger than those which have been scrapped.

New building is proceeding at a satisfactory rate (3.9 per cent), similar to that of last year.

On average traffic remained largely steady, as it did last year : more specifically, the number of passengers carried is down by 1.3 per cent and the number of tons carried by 0.7 per cent; yet the number of passenger kilometres and ton kilometres have risen by 0.7 per cent and 1.7 per cent respectively.

Certain national situations appreciably depart from this average : in Spain and France there was a considerable increase in passengers (11 per cent and 6 per cent) whereas the United Kingdom experienced a drop of 6.1 per cent. This last country is in the same situation as regards the number of ton kilometres, whereas distinct progress was made in Spain, the Netherlands and Switzerland.

b) *Roads :*

Numbers of vehicles are still growing at a high rate, giving an average increase of 13.6 per cent during last year. The increase was particularly heavy for private cars (15.6 per cent).

For the first time an attempt was made to assess the average distance travelled by countries and by categories of vehicles. The figures collected show fairly considerable variations : between 9,300 km (France) and 18,700 km (Netherlands) for private cars, and between 12,000 (France) and 28,200 (Germany) for lorries.

Investment in the infrastructure of the international road network was higher ($610 million in 1962 compared with $520 million in 1961). A speciale ffort in this connection was made by Switzerland ($98 million against $41 million).

Forecasts for 1963 show considerable improvements for Spain and France.

A general study of major improvement works is given later : for the first time most of them have been grouped according to the classification of European highways.

c) *Inland Waterways :*

The chapter dealing with this mode of transport describes the status of studies and achievements relating to the twelve projects recognised by the E.C.M.T. as being of European importance. In this connection it is appropriate to note the Belgo-Netherlands Agreement of May 1963 on the ScheldtRhine link, which provides that a canal suitable for pusher navigation shall be built, and also to point out that the main part of the work on the canalisation of the Moselle is nearing completion.

The increase in cargo capacity was considerably greater in 1962 than in 1961 (414,000 tons against 271,000 tons).

Modernisation centred on the introduction of new selfpropelled barges of greater cargo capacity than before. Stress should also be laid on the outstanding development of the pusher technique in Germany and the Netherlands, but especially in France. This development sets problems as to specifications for infrastructure works and particularly as regards the dimensions of locks. In this connection the representative of the industry has requested that, for all future building, the E.C.M.T. reconsider the dimensions it had previously adopted.

Where traffic is concerned, the tonnage carried in 1962 was similar to that recorded in 1961 (340 million compared with 339), though the number of ton kilometres fell off slightly (80,700 million compared with 81,160). The 1962 drought had a serious effect on Rhine transport, as is shown by the register of crossings at the German-Netherlands frontier. A danger which now threatens is that the frosts in the winter of 1962/1963 will have considerable repercussions on the traffic of this last year.

Chapter II. RAILWAYS

I. ANALYSIS OF RAILWAY TRAFFIC

A. Traffic in 1962

a) *Passenger traffic*

1. A traffic analysis shows that the number of passengers carried in the Member countries as a whole declined by 1.3 per cent (E.E.C. countries—1.7 per cent) and that the number of passenger kilometres was 0.7 per cent higher (E.E.C. countries + 2.1 per cent) compared with the results for 1961.

2. The very slight movement of 1961 is thus seen to have continued (see Graph No. 1). Apart from Denmark and the Netherlands, the movement in each country continued in the same direction as in 1961. Changes in absolute value were slight (except for the rise in Spain).

The reduction in the number of passengers carried is partly explained by the introduction of bus services in replacement of certain railway lines. The average length of journey per passenger again increased, showing however that more journeys are taken over longer distances and that it is mainly the short-distance passengers who are making less use of the railways.

3. The most striking results are those for Spain (+ 11.8 per cent in terms of passengers carried and + 12.8 per cent in passenger-kilometres) and France (+ 6.4 per cent in passenger-kilometres). The sharpest drop occurred in the United Kingdom (— 6.1 per cent in passenger-kilometres).

b) *Goods traffic*

4. The number of tons carried in the 18 countries as a whole was practically unchanged : 0.7 per cent (E.E.C. countries + 0.2 per cent) and the number of ton-kilometres rose by 1.7 per cent (E.E.C. countries + 3.5 per cent). As in the case of passenger traffic, the trend was thus similar to that observed in 1961, but slightly more intensified. In particular, the average length of haul per ton was distinctly higher (see Graph No. 1).

5. If each country is considered separately, the deviations from the mean for the 18 countries are smaller in absolute value than in 1961. On the downward side the greatest variations in the figures for ton-kilometres occurred in the United Kingdom (— 8.4 per cent) and Turkey (— 5.8 per cent) and on the upward side in Spain (+ 13.6 per cent), the Netherlands (+ 9.2 per cent) and Switzerland (+ 5.6 percent).

6. Generally speaking, it will again be noted that the volume of goods traffic carried by rail, in terms of ton-kilometres, can scarcely manage to keep pace with the economic growth of the E.C.M.T. countries as a whole. It will be seen, however, that traffic makes a better show in the six E.E.C. countries.

B. TREND OF TRAFFIC IN THE EARLY MONTHS OF 1963

a) *Passenger traffic*

7. The comments made elsewhere in analysing traffic developments in 1962 are valid for the trend in the first quarter of 1963, namely a reduction of 0.3 per cent in the number of passengers carried and an increase of 2.6 per cent in the number of passenger kilometres (figures for Sweden and the United Kingdom are not included).

8. Fairly sharp rises in the number of passenger-kilometres were recorded by Spain (+ 14.1 per cent), France (+ 11.9 per cent), Ireland (+ 8.1 per cent) Yugoslavia (+ 5.5 per cent), and Austria (+ 4.7 per cent).

b) *Goods traffic*

9. It will be remembered that the first quarter of 1963 was marked by an exceptionally long freeze-up, which blocked a large amount of inland waterway transport and even road transport in some countries. Fortunately the railways were able to carry essential traffic, though the overall volume was reduced by the bad weather owing to the stoppage of certain work (e.g. building).

10. This explains the growth (which was especially pronounced in terms of ton-kilometres at + 7.3 per cent) of goods traffic carried by rail during these three months in the 18 Member countries as a whole. The rates for each country separately vary considerably :

RESULTS FOR FIRST QUARTER

COUNTRY	TON-KM % 1963/1962	COUNTRY	TON-KM % 1963/1962
Germany.....	+ 23.6	Austria	+ 6.3
Netherlands	+ 22.8	Greece	+ 4.5
Denmark	+ 20.9	Portugal	+ 4.5
Luxembourg ...	+ 16.1	France	+ 0.6
Spain	+ 15.4	Italy	— 1.3
Belgium	+ 15.1	Switzerland ...	— 1.7
Yugoslavia	+ 12.2	Norway	— 2.7
Turkey	+ 11.6	Ireland	— 4.5
Sweden	+ 7.3	Great Britain .	— 5.7

11. The figures in the table show that three Railway Administrations were able to increase the performances (in terms of ton kilometres) by more than 20 per cent, three others by more than 15 per cent and two others by over 10 per cent. Exceptional performances were made necessary in countries where a considerable proportion of traffic is normally carried by waterways. The exceptionally low increase in the number of ton-kilometres for France was due to strikes during that period.

This was undoubtedly an exceptional period and no valid long-term tendency can be deduced from these results.

12. The preliminary results for the first six months of 1963 already differ largely from

the results for the first quarter. The following table clearly illustrates the tendency in eight Member countries :

RESULTS FOR THE FIRST SIX MONTHS
COMPARED WITH THE RESULTS FOR THE FIRST QUARTER

In percentage.

COUNTRY	TON-KILOMETRES	
	JANUARY-JUNE 1963/1962	JANUARY-MARCH 1963/1962
Netherlands	+ 16.5	+ 22.8
Germany	+ 13.9	+ 23.6
Belgium	+ 8.1	+ 15.1
Luxembourg	+ 7.2	+ 16.1
France	+ 4.7	+ 0.6
Austria	+ 4.4	+ 6.3
Switzerland	+ 2.7	— 1.7
Italy	+ 0.7	— 1.3

II. SURVEY OF SELECTED CATEGORIES OF INVESTMENT

A. ELECTRIFICATION[1]

a) *Increase between October 1962 and October 1963*

1. A review of the progress made since October 1962 shows that that the length of electrified main lines amounted, in round figures, to 22,500 (15,800) km as at October 1963; it had increased by 914 (489) km of which 458 (367) km of line were electrified with 16 2/3-cycle single-phase AC, 145 (20) km with 50-cycle single-phase AC and 337 (102 km) with 3,000-volt DC, of which 26 (26) km previously used three-phase AC. For the first time, no line was electrified with 1,500-volt DC. In addition, 589 (309 km) of line not ranking among the European main-line network have also been electrified.

2. Over the total of 187,900 (93,700) km electrified lines now amount to about 42,800 (23,500) km representing in round figures 23 (25) per cent. The following table shows the breakdown of electrified line among the various types of current :

TYPE OF CURRENT	ALL E.C.M.T. COUNTRIES			E.E.C. COUNTRIES		
	KM	%		KM	%	
DC 600-1,200 Volts	1,880	4.4		158	0.7	
DC 1,500 Volts	7,308	17.1	45.0	6,355	27.0	62.7
DC 3,000 Volts	10,048	23.5		8,214	35.0	
Single-phase AC, 16 2/3-cycles	18,789	43.9		4,992	21.3	
Single-phase AC, 50 cycles	3,879	9.0	55.0	2,914	12.4	37.3
Three-phase AC	876	2.1		845	3.6	
Total	42,780	100.0		23,478	100.0	

1. The figures in brackets refer to the six countries of the E.E.C.

3. The growth of electrified lines between October 1962, and October 1963, was greater than in the previous year in spite of the fact that the electrification programmes of certain countries are completed or are nearing completion.

The following table gives a general picture of achievements under the electrification programme since the end of 1953 :

SITUATION	LENGTH OF ELECTRIFIED NETWORK (KM)	LENGTH ELECTRIFIED DURING THE YEAR (KM)
End of 1953	27,295	1,061
End of 1954	28,356	1,639
End of 1955	29,995	2,022
End of 1956	32,017	1,755
End of 1957	33,772	1,682
End of 1958	35,454	1,592
End of 1959	37,046	1,589
End of 1960	38,635	1,465
End of 1961	40,100	1,520
End of 1962	41,620	—
October 1963	42,780	1,503[1]

1. October 1962-October 1963.

4. The overall increase from the end of 1953 to October 1963 amounts to 15,485 km, equivalent to an increase of 56.5 per cent, which shows that the railways have made the most of the advantages of electrification, even on lines not ranking among the European main-line network.

5. The Swedish railways had the longest electrified network until the end of 1956, but since 1957 the first place has been held by the Italian railways (7,980 km), followed by the French railways (7,681 km), the Swedish railways (6,911 km) and the German railways (5,000).

b) *Programmes until 1967*

6. Under the existing programmes of the Railway Administrations, the network of European electrified main lines will be extended by a further 2,800 (2,100) km, between October 1963, and the end of 1967 : the four principal types of current, in the order referred to in paragraph 1, will account for 55 (64 per cent), 27 (29) per cent, and 22 (12) per cent respectively and 1 (1) per cent for 1,500-volt DC. In the same period, the proportion represented by 3-phase AC will fall to 5 (6) per cent. The largest programmes are those of the railways in Germany (about 1,300 km), France (about 600 km), Spain (about 350 km), and Austria (about 200 km). Italy is also continuing its programme of changing over from 3-phase AC to 3,000-volt DC on 128 km of European main lines and 89 km of other lines. The Spanish railways propose to change over from 1,500-volt DC to 3,000-volt DC on 224 km of line.

7. In order that a general picture of electrification in the coming years might be obtained, Member countries were asked, for the first time to state their programmes for other lines. About 3,000 (1,800 km) of these lines are scheduled for conversion to electric power between October 1963 and the end of 1966. This means that in all about 5,800 (3,900) km are earmarked for electrification in the next four years or, in other words, that the favourable result of the past year may again be repeated for some years to come.

8. On the basis of these programmes, the network of European electrified main lines will have a total length of 25,300 (17,900) km by 1967, whereas the length of all electrified lines will be 48,600 (27,400) km, the proportions represented by the four principal types of current being 14.6 (23.3) per cent using 1,500-volt DC; 23.6 (31.7) per cent using 3,000-volt DC; 44.6 (27.1) per cent using 16 2/3-cycle single-phase AC cycles; 11.9 (14.8) per cent using 50-cycle single-phase AC. The proportion using 3-phase AC will be 1.4 (2.3) per cent and that using 600 to 1,200-volt DC 3.9 (0.8) per cent.

9. Graph 2 (*a*) shows the growth of European electrified main lines between October 1955 and October 1963, with estimates up to 1967, broken down among the four principal types of current, and graph 2 (*b*) shows the annual growth of all electrified lines for the years 1954 to 1963.

c) *The electrification map*

10. The map of European electrified main lines has been brought up to date as at October 1963. It also shows the connections between Belgrade and Greece and between Belgrade and Turkey, which represent about 2,600 km of main line. To enable a comparison to be made with the figures given in the past, the percentage of electrification for the two networks is reproduced below :

LENGTH OF THE NETWORK OF EUROPEAN MAIN LINES	WITHOUT	WITH
	CONNECTIONS FROM BELGRADE TO GREECE AND TURKEY	
	31,100 (21,300) km	33,700 (21,300) km
of which :		
electrified by October 1963	72 (74) %	67 (74) %
probably electrified by the end of 1967.	81 (84) %	75 (84) %

11. In addition to the electrification of the main lines, the map also shows all other electrified lines (except narrow-gauge lines). The total length of electrified main line now amounts to 22,466 (15,753) km and the length of other electrified lines is 20,314 (7,725) km.

d) *Multi-current locomotives and railcars*

12. As the number of points of contact between electrified networks using the different systems will increase in the near future, especially between E.E.C. countries, there is considerably greater need for locomotives or railcars which can run on two or more types of current. Thus in eight countries the number of multi-current locomotives, etc., now in use amounts to 98 (75), while 82 (82) are under construction and orders are likely to be placed for 32 (32) others. These figures include 8 (7) locomotives for three types and 24 (10) for four types of current. The total number of multi-current locomotives etc., in service, under construction or planned is therefore 212 (189).

13. In its Resolution No. 7 of 1955, the Council of Ministers drew the attention of the countries concerned to the importance of closing the existing gaps between networks operating on unlike currents. Nearly all such gaps have been closed in the meantime or are scheduled for electrification under programmes up to

1967. The use of multi-current locomotives greatly simplifies the running of passenger trains, since the transition between two electrified networks using different current systems can be made without change of locomotive and without even stopping at the frontier. One electric train, the "Edelweiss", crosses five countries with four current systems, and other electric railcars and trains drawn by electric locomotives pass through three countries which use three types.

B. Diesel Traction[1]

a) *Trend of numbers*

1. At the end of 1961, the number of diesel locomotives reached a total of over 10,000 for the first time; by the end of 1963 about 13,500 (7,000) will be in service. The special feature of this growth in numbers is that the proportion of locomotives of more than 350 h.p. represented about 80 per cent of deliveries in 1963.

2. Whereas locomotives of more than 350 h.p. accounted for only 8 per cent of the total in 1950, the proportion will probably reach 52 per cent by the end of 1963.

Of the total number of diesel locomotives of more than 350 h.p., about 35 (55) per cent will be used chiefly for shunting and about 65 (45) per cent for main-line service at the end of 1963.

3. The growth in numbers of diesel locomotives, broken down by power categories, is shown in the following table and in the attached graphs Nos. 3 and 4.

A determining factor of this development has been the progress of dieselisation in the United Kingdom. As at the end of 1963, more than 50 per cent of the 1,001 to 2,000 h.p. class and 80 per cent in the category above 2,000 h.p., or about 30 per cent of the total of some 13,500 diesel locomotives will be owned by British Railways. This development is due to the prime consideration given by other main railway systems to electrification for heavy traction.

4. Up to the end of 1962, the Eurofima Company had financed a total of 506 (413) diesel locomotives, of which 294 were in service and 212 under construction, for nine Railway Administrations. In 1962, deliveries amounted to 74 locomotives, i.e. 5 per cent of all the locomotives delivered in the 18 Member countries in that year.

POWER CATEGORY	NUMBER OF DIESEL LOCOMOTIVES			
	END OF 1950	END OF 1954	END OF 1962	END OF 1963[1]
Up to 350 h.p.	2,047 (1,627)	2,228 (1,741)	5,040 (3,169)	5,353 (3,367)
From 351 to 1,000 h.p.		839 (392)	4,382 (2,497)	4,888 (2,780)
From 1,001 to 2,000 h.p.	166 (144)	51 (13)	2,058 (500)	2,643 (769)
2,001 h.p. and over		6 (2)	390 (58)	610 (130)
Total	2,213 (1,771)	3,124 (2,148)	11,870 (6,224)	13,494 (7,046)

1. Estimates.

5. The trend in numbers of diesel railcars is shown by the following table:

SITUATION	NUMBER OF DIESEL RAILCARS
End of 1950	2,664 (1,880)
End of 1956	4,617 (3,110)
End of 1960	8,252 (3,401)
End of 1962	8,874 (3,453)
End of 1963[1]	9,036 (3,503)

1. Estimates.

In 1963, the estimated increase will be only 162.

6. Of the total of 9,036, the number belonging to British Railways alone is 4,150. At the end of 1963, only three other Railway Administrations will have more then 1,000 diesel railcars, namely.

France	1,118
Germany.....	1,048
Italy	1,011

The trend of the number of diesel railcars is shown in Graph No. 5.

1. The figures in brackets refer to the six countries of the E.E.C.

b) *Standardization*

As the Council of Ministers decided at Oslo that the next general study would deal with results for the period 1960-1963, this report gives no figures to show the proportion of total numbers represented by standardized diesel locomotives.

8. Studies by the U.I.C. have dealt mainly with homologation tests for diesel locomotives and motors and the revision of the various regulations concerning them, in the light of experience gained.

9. A new table of classes of locomotives has also been adopted by the U.I.C. taking into consideration only locomotives whose specifications seem likely to be approved in future.

C. RELATIVE IMPORTANCE OF ELECTRIC AND DIESEL TRACTION[1] [2]

1. In 1962, the proportion of steam traction was reduced still further to 30.4 (29.0) per cent, in terms of train kilometres, and 35.5 (34.5) per cent, in terms of gross ton-kilometres.

2. Electric traction accounted for 44.2 (45.5) per cent, in terms of train-kilometres, compared with 25.4 (25.5) per cent for diesel traction. In terms of gross ton-kilometres, electric traction accounted for 53.0 (55.5) per cent of total traffic, although only 25 (24) per cent of the total network was electrified in 1962, whereas diesel traction accounted for 11.5 (10) per cent.

3. The power consumed for electric traction rose from 7,410 million kWh in 1953 to 12,450 million kWh in 1960 and 14,710 (9,090) million kWh in 1962. The consumption of diesel fuel amounted to 1.17 million tons in 1961 and 1.44 (0.62) million tons in 1962.

D. GOODS WAGONS[1] [3]

a) *Trend of numbers*

1. In contrast to the trend in previous years, the number of goods wagons, amounting in all to 1,097,196, of which 789,766 belonged to the E.E.C. countries, slightly increased; total capacity may also be regarded as greater, since the maximum loading of newly built wagons is generally higher than that of scrapped stock.

2. The above total comprises 422,173 (291,251) covered wagons, 440,513 (311,875) open wagons and 234,510 (186,640) other wagons; the number of wagons of standard type was 92,365 (77,239) and the number of unified type 72,691 (54,108). The proportion of the whole represented by standard and unified types together was thus brought up to 14.9 (16.7) per cent, the individual percentages for covered wagons, open wagons and others being 14.6 (15.3), 14.2 (15.6) and 17.5 (20.3).

3. Of the 214,248 (194,034) wagons allocated to the EUROP Pool at the end of 1962, 67,397 (56,333) or 31.5 (29.0) per cent, compared with 14.9 (16.7) per cent for all wagons, were of either standard or unified type, 26.6 (21.4) per cent of these being covered whilst 34.3 (33.2) per cent were open wagons.

b) *Deliveries in 1962*

4. In 1962, a total of 28,044 (21,979) new wagons and 14,851 (14,047) reconditioned wagons were delivered, making an overall addition of 42,895 (36,026) wagons, representing 3.9 (4.5) per cent of total numbers.

5. Of the number of new wagons delivered, 12,343 (11,641) were of standard type and 8,409 (5,699) of unified type, the two together representing 74 (79) per cent of all deliveries of new wagons. Of the number of wagons reconditioned as new, 74 (77) per cent were of the unified type.

6. Up to the end of 1962, the Eurofima company had financed a total of 8,027 (7,101) wagons, of which 6,776 were in service and 1,251 under construction, on behalf of nine Administrations. In 1962, 508 wagons were delivered, i.e. 1.8 per cent of all deliveries of new wagons.

c) *Standardization studies*

7. Standardization studies on wagons "of classical design" related to the two-axle, automatic gravity-discharge wagon, and on "wagons of the future", to two prototypes, one a large-capacity two-axle covered wagon and the other a two-axle flat wagon. It should be emphasized

1. The figures in brackets refer to the six countries of the E.E.C.

2. The figures in this section do not include British Railways, as these do not supply figures for gross ton-kilometres.

3. The figures in section D do not include United Kingdom and privately owned wagons.

that this last prototype is designed to be fitted direct with impact and traction automatic coupling.

8. The U.I.C. has recently taken an outstandingly important decision on this subject, designed to encourage the introduction of automatic coupling. Railway Administrations must in future build only wagons capable of being fitted with automatic couplings without major conversion work; this decision takes the form of a recommendation for wagons built on or after 1st January 1964, but is compulsory for wagons to be built on or after 1st January 1965.

9. All the efforts of the O.R.E. (Office for Research and Experiments of the U.I.C.) will therefore focus on the prompt redesigning of standard wagons complying with this condition. In the meantime, use can be made of studies already carried out by various Administrations.

d) *Incorporation of other types of wagons in the EUROP Pool*

10. For various reasons, the number of specialised wagons has been increased. The appropriate bodies of the Europ Pool are actively investigating the possibility of extending the application of the Europe Convention to such wagons.

E. AUTOMATIC COUPLING

a) *Technical problems*

1. As a result of the new call for tenders by the O.R.E. during 1962, on the basis of U.I.C. and O.S.J.D.[1] joint specifications, three models were accepted out of the six proposals received. These three models will now be subjected to tests.

2. Pending the tests, in order to gain time, the French and German railways, in agreement with the O.R.E., have already equipped a certain number of wagons with controlled coupling before the closing date for tenders. These couplings do not exactly fulfil all the conditions of the joint specifications, but the tests they have undergone since the spring of 1963 have already thrown light on many problems. The tests are expected to last for two years.

3. Mention should also be made of the agreement reached between the U.I.C. and the O.S.J.D. on standardizing the height of the knuckle-pins for normal-gauge and wide-gauge stock.

4. Another question under active investigation is the development of a composite coupling device which would smooth the transition from manual to automatic coupling without unduly disturbing operations. Progress has been made and original devices have been submitted, but none of these yet fulfils all the desirable conditions.

b) *Economic problems*

5. Now that couplings have actually been constructed, a fairly accurate estimate can be made of mass production costs, whereupon the cost of introducing automatic coupling can be assessed. The U.I.C. is now collecting the necessary information for such an estimate, and the results will be one of the essential elements of technical and financial studies. These studies can make little further headway until the main principles of the transition method have been determined, and these depend essentially on the system of mixed coupling yet to be worked out.

Chapter III. ROADS

I. TREND OF NUMBERS OF MOTOR VEHICLES

Table II traces this trend for the past three years.

The absence of data covering 1962, for Greece prevents any overall comparison with previous years. It can be clearly seen, however, that the upward tendency continues in the three main categories of vehicles. The general increase in the percentages of private cars shows that the rise chiefly affects that category.

If the comparison is limited to the 16 countries for which statistics are available for both years, it will be seen that the overall increase from 1961 to 1962 was 14.5 per cent, the rates of growth for the various categories being as follows :

Private cars	16.0 per cent
Motor-buses	9.1 per cent
Lorries	7.8 per cent

1. O.S.J.D. = Railway organisation of the East European countries.

The overall increase for the E.E.C. countries was 15.6 per cent, figures for each category being as follows:

Private cars	16.8 per cent
Motor-buses	11.7 per cent
Lorries	10.4 per cent

II. Two-wheeled motor vehicles

Table III shows the situation at the end of 1962. Here again it is difficult to make comparisons with the previous year. If the comparison is limited to countries which supplied information for both 1961 and 1962, it will be seen that the number of two-wheeled vehicles was lower, the overall rate of decrease being 0.5 per cent for vehicles of small cylinder capacity and 2.7 per cent for those of larger capacity. The rates of decrease for the E.E.C. countries were 0.4 and 2.5 per cent respectively.

Although the number of vehicles of large cylinder capacity is lower almost everywhere (except in Italy, Luxembourg, Portugal and Spain) it should be pointed out that the number of vehicles of small capacity has risen in most countries. It fell only in Denmark, Germany and Switzerland. This greatly reduces the significance of the low percentage of decrease given above.

III. Average distance travelled by vehicles each year

For the first time since these reports have been issued, countries were asked for information on the average distance travelled each year by the various categories of vehicles.

Only nine countries supplied estimates, which are given in Table IV. These estimates were obtained from direct enquiries addressed to users, from traffic counts or from motor-spirit consumption figures. Certain countries also indicated the trend shown by these figures. This is shown in Table IV by conventional signs, but it is not possible to indicate any general trend. Table IV also gives a general average for each category of vehicles in the countries as a whole, weighted according to the number of vehicles in each category. The fluctuations about this average are considerable, with maximum divergences ranging from — 44 to + 41 per cent. It will be found in fact that the maximum distance is nearly double the minimum in each category, and even treble for lorries.

It is remarkable that the average distance is lowest in France and highest in Italy for each category of vehicles.

IV. Road infrastructure

Table V gives a breakdown by categories of the existing international network:

- — Category A means all motorways actually in service at the end of 1962;
- — Category II means all roads having at least three traffic lanes i.e., generally speaking, all roads which have a carriageway at least 9 m wide or which, though not motorways, have more than one carriageway;
- — Category I means all roads not included in either of the other categories.

Motorways represent 12 per cent and Category II roads represent 10 per cent of the total length. (For the E.E.C. countries these proportions are 24 and 15 per cent respectively).

Table VI gives, by countries, the normalized length in each category and the overall normalization ratio. The length of motorways in service has increased by some 501 km or about 9 per cent; their normalization ratio is obviously 100 per cent. The ratio for Category II roads is 56 per cent and for Category I roads only 48 per cent. Yet it is in Category II that the need is most pressing, as is shown by a comparison of Tables V, VI and VII. This last table gives the few statistics it has been possible to collect on the length of sections which may be considered of adequate standard, having regard to the traffic using them. Although the figures collected are too fragmentary for any general conclusion to be drawn it is nevertheless clear that, for the ten countries concerned as a whole, 81 per cent of the network is of adequate standard. This percentage rises to 83 for Category I roads but drops to 44 per cent for Category II roads. It seems therefore that it is in this category that congestion is most acute.

There is not necessarily any correspondence in space between normalized sections and sections which are adequate for the traffic they carry. One of the maps appended shows in red where sections occur which may be considered below standard i.e. where the volume of traffic is already higher than the normal capacity for the category to which they belong.

In France, for example, of the 1,970 km of Category II roads, only 495 km (or 25 per

cent) are of adequate capacity although 520 km have already been normalized.

In the Netherlands, only 77 km (49 per cent) are adequate out of the 157 km of Category II roads, although 105 km are normalized.

In Germany on the other hand, the 128 km of Category II roads are considered adequate although only 64 km are normalized.

On the whole, the length of the sections of Category II roads considered to be adequate is less than the normalized length, which means that, even if 100 per cent normalized, certain sections would still be inadequate. In such cases, normalization is not enough to cope with traffic needs; certain sections should be raised to a higher category or duplicated.

The situation is less serious in Category I, where the length of adequate sections is greater than the normalized length and where it can thus be concluded that no measures other than normalization are necessary. There can be no doubt, however, that this margin of safety will diminish, especially if the normalization effort is relaxed. The conclusion to be drawn from all this is that work is lagging behind traffic requirements on Category II roads, some sections of which, even where normalized, are already inadequate for present-day traffic needs.

This means that it will one day be necessary to duplicate certain sections or convert them into motorways.

A second map shows the present concept of the future network, which is intended to make good the deficiencies of the existing network for some time.

V. Investment

On the whole, investment in the international network was up in 1962, as Table VIII shows. It was slightly down only in Germany (which easily holds the record in absolute figures) and in Austria, Turkey and Yugoslavia. Mention must be made of the remarkable effort by Switzerland, where investment has more than doubled and estimates for 1963 up by a further 20 per cent, thus placing Switzerland immediately after Germany for absolute level of investment. Forecasts for 1963 are generally higher than for 1962. The overall increase in countries for which information is available is about 20 per cent. It is particularly remarkable in France and Spain, where expenditure is expected to be roughly doubled. This will represent about one-fifth of total expenditure on the roads in 1963.

VI. Current development works on the main European Arteries

Work is in progress practically all along the main arteries of European importance (highways with numbers below 30). There is no doubt that these efforts go beyond the national interest and in some cases form part of the concerted improvement plan defined in Geneva in 1950.

Among the most important of these works, which concern in particular the construction of motorways, the following should be mentioned :

— *on Highway E 1* (3,661 km through the United Kingdom, France and Italy), leading from Paris to the Mediterranean and terminating in Italy with a section of the "Sunshine Motorway", 276 km of motorway are under construction in France, of which 72 km will come into service during 1963 and 200 km in the two following years.

— *On Highway E 3*, the 3,912 km of which constitute an immense artery running from Portugal to Sweden via Spain, France, Belgium, the Netherlands, Germany and Denmark, work is in progress practically everywhere. In France 102 km of motorway are under construction, of which 50 km will come into service in 1965. An agreement has been concluded with Spain concerning the bridge over the Bidassoa between Hendaye and Irun. In Belgium, an inter-municipal company has recently been set up to finance and build a motorway over the entire length of the Belgium section of Highway *E 3*. Finance will be provided through loans issued by the company. No toll charges will be payable by users but the State will pay an annual sum to be determined by the amount of traffic recorded. In the Netherlands, work is in hand to the south of Eindhoven and an adjacent section has recently been put up for tender. Contacts have also been made with the Federal Republic of Germany, through an E.C.M.T. Restricted Group, for the improvement of conditions at the Venlo-Herongen frontier crossing. In Germany, where the greater part of the highway has already been brought up to motorway standards, a 15 km section of the Hannover-Hamburg motorway is to be brought up to six lanes and the motorway is to be extended, with

four lanes, to the north of Hamburg. A 22 km section including the Hamburg by-pass will be ready in 1967. Finally, in Sweden, a 2 km motorway section will come into service this year east of Göteborg.

— *On Highway E 4* (Portugal-Sweden, 4,932 km) which more or less duplicates the previous highway, though serving other regions, and is already 70 per cent normalized, especially in Germany where it includes 810 km of motorway (HAFRABA). In Switzerland work is in hand on the Geneva-Lausanne section and in the canton of Berne, where the Berne-Schönbühl section of National Road No. 1 was opened to traffic in 1962. In Germany itself, near Hamburg, a south motorway bypass has just come into service. A 38 km section of the "crow's flight route" involving a 960 km bridge over the Fehmarn strait was opened at the beginning of this year.
A joint Swedish-Danish committee has, in november 1962, submitted a report on the establishment of a firm link across the Oeresund. On the basis of the investigations carried out, the Committe is of the opinion that a firm link across the Oeresund migth advantageously replace the ferry traffic in the middle of the 1970's. The Committee recommends, that the link should be established as a combined road and rail bridge across the northern part of the Sound. It his, however, stressed tha this link on the long view should be considered as the first part of a development by stages where the question of an establishment later on of a firm southern link is kept open.

— *On Highway E 5*, the 4,110 km of which constitute the main East-West axis, starting from the United Kingdom and running to Turkey via France, Belgium, Germany, Austria, Yugoslavia, Hungary and Greece, work is under way in Belgium on the building of 50 km of motorway between Liège and the German frontier, which will probably come into service towards the end of 1964, as well as the by-pass south of Aachen, which is underway in Germany. Highway *E 5* will then be a continuous motorway from Liège to Würzburg.
Germany is working on the rebuilding of the bridge over the Lahn (near Limburg, between Köln and Frankfurt and on the extension of the motorway beyond Würzburg, towards Nürnberg and Regensburg. In Austria, various sections of motorway are being built between Linz and Vienna, over a total length of some 60 km. In Yugoslavia, improvement works are being carried out on the highway, a new section of which is under construction to the south-east of Beograd.

— *On Highway E 6* (2,520 km through Norway, Sweden, the Federal Republic of Germany, Austria and Italy, without counting about 500 km in Eastern Germany, which it traverses from north to south) it is worth mentioning that, in Germany, the München-Murnau section, south of München is being converted to motorway standards, but completion is not expected before 1968. Work is also being done in Austria on the Brenner road, where two major civil engineering projects are being carried out.

— *On Highway E 7* (Rome-Warsaw, via Austria) which includes 1,247 km on the territory of E.C.M.T. countries, work in Austria on the building of a 9 km motorway section south of Vienna is nearing completion.

— *On Highway E 8* (London-U.S.S.R., via the Netherlands and Germany) which includes 631 km—of which 377 km are normalized—on the territory of E.C.M.T. countries, conversion to motorway standards is in progress in the Netherlands. The Amersfoort South by-pass was opened to traffic in 1962. Land is being acquired for the continuation of the motorway towards the German frontier.

— *On Highway E 9* (1,193 km through Italy, Switzerland, France, Luxembourg, Belgium and the Netherlands) work is in progress in Switzerland, in the canton of Ticino, near the Italian frontier and towards the St. Gothard Pass. In France, 15 km of motorway are being built south of Strasbourg and 20 km between Metz and Thionville should come

into service shortly. Finally, in the Netherlands, the completion of a motorway section about 60 km long between Maastricht and Eindhoven is expected for 1965.

— *On Highway E 10* (Paris-Brussels-Groningen)—541 km, not including the section in common with *E 3*—normalization has been carried out over a length of 410 km. The capacity of the roads, which constitute this Highway however is becoming increasingly inadequate, principally in Belgium, and there are plans for replacing them by motorways over the greater part of the Highway. Nothing much more than a start has been made on this programme, however, at least in France, where contacts have been made with Belgium for the construction of the Combles—Quiévrain branch, and in Belgium, where work has begun on a first section 3.5 km long in the neighbourhood of Mons. In the Netherlands, on the other hand, 96 km are already up to motorway standards and work would have already begun on improvements south of Breda in the direction of Antwerp, if Belgium had not so far been unable to find the necessary funds.

— *On Highway E 11* (Paris-Salzburg, 788 km), already up to motorway standards over the greater part of the German portion, capacity seems still generally sufficient except near Paris and Strasbourg. Between Strasbourg and Appenweer, the road is classified as Category II. Germany is continuing work to bring the road up to four-lane standards without single-level junctions, which will give it practically the capacity of a motorway, and is improving its junction with the HAFRABA Motorway (*E 4*) at Appenweer. France plans the building of 10 km of motorway to the east of Paris and various widening work.

— *On Highway E 12* (France-U.S.S.R., 621 km), which partly coincides with Highway *E 11* in France. Germany is building a 96 km section of a new motorway between Mannheim and Heilbronn which is scheduled for completion in 1966.

— *On Highway E 13* (Lyon-Venice, 726 km), no new information has been received. This Highway has already been improved to motorway standards over 389 km, i.e., the major part of the Italian section.

— *On Highway E 14* (Baltic-Adriatic, of which 560 km on the territory of E.C.M.T. countries), which partly coincides with Highway *E 7*, 19 km of motorway are under construction in Austria between Salzburg and Linz.

— Nothing to report on Highway *E 15* (which has only 47 km on E.C.M.T. territory) and *E 16* (which has none).

— *On Highway E 17* (Paris-Salzburg, 780 km), work is in hand at various places in Austria and Switzerland to normalize the existing road. So far, this Highway includes no motorways.

— Finally, *on Highway E 21* which, with its branches *E 21 A* and *E 21 B*, constitutes a three-branched link between Italy, Switzerland and France (482 km total length), mention should be made of work on the Mont Blanc Tunnel, which is nearing completion.

No other information has reached the Secretariat on Highways with numbers below 30, which are the most important from the European point of view.

On the others, development works of varying importance are in hand :

in Germany, on *E 36, E 42, E 63, E 70, E 71* and *E 73*,
in Belgium, on *E 39, E 40, E 41*,
in the Netherlands, on *E 35, E 36* and *E 37*,
in Portugal, on *E 50*,
in United Kingdom, on *E 31* and *E 33*,
in Switzerland, on *E 61* and *E 70*.

VII. Other major road works

Among the road works which, though not forming part of the international network, are nevertheless of some importance from the European point of view, the following may be mentioned :

in Germany

1. Continuation of the conversion to four lanes of Federal Road 75 (Lübeck-Travemünde), on which the completion of the Lübeck-Herrenbrucke section (5 km) is planned for the beginn-

ing of 1964. By 1966, it is planned to complete the junction of this road with the Hamburg-Lübeck motorway, which will include a three-level junction.

2. Continuation of the 220 km Bremen-Kamen Federal Motorway. A first 14 km section, including a bridge 539 m long over the Weser, was opened to traffic in July 1963. Completion of the whole is planned for 1966.

3. Building of the Dortmund-Hagen-Siegen-Giessen Federal Motorway, as an alternative to the Ruhr-Köln-Frankfurt Motorway. Its total length will be about 190 km. A first section 5 km long near Dortmund will be completed this year, but completion of the whole is not expected before 1967.

4. Continuation of work on the Köln-Koblenz-Worms-Speyer express road on the left bank of the Rhine, to relieve Federal Road 9. The 11 km section already under construction near Bingen is to be extended by a further section, 10 km long, in a north-westerly direction.

5. Continuation of works linking Koblenz-Trier-Landstuhl.

6. The bridges over the Rhine near Schierstein and Weisenage were completed at the end of 1962, and the Rhein-Main Express Road was opened to traffic between Frankfurt and Wiesbaden.

in Austria

1. In Burgenland : the main road is the north-south link. The following should be mentioned : completion of the Kemeten-Litzeldorf-Oberpullendorf section; the St. Martin Neutal and St. Michael by-passes; and the improvement of the road through Jennersdorf.

2. In Carinthia : branching out from the Ossiach road and constituting the cross-country link between St. Veit and Villach the last remaining section from Annenheim to Villach is in hand.

3. In Upper Austria : the work of widening the Category I and II roads to 7.50 m which is now in hand will provide an important cross-country link which can serve as an alternative to *E 5*.

4. In Styria : final work is in hand on the Wechsel-Bundestrasse, the Hartberg by-pass (20 km) and the Sobother-Bundestrasse.

5. In the Tyrol : work is in progress on the Seefeld by-pass, where two level crossings have been abolished; on the Achensee road; on the continuation of the toll road over the Gerlos pass; the Kitzbühl by-pass and the road over the Thurn pass; and the Lienz by-pass in the eastern Tyrol.

6. In the Vorarlberg : improvement of the Bregen-Zerwald Federal Road via the Hochtannberg pass; work on the road to Bavaria via the Walsertal.

in Belgium

The most important road works now in hand in Belgium, apart from the international network, are those concerned with the building of the Antwerp-Liège motorway, the first half of which at the Antwerp end, which also constitutes a section of Highway *E 39*, is already in service.

The rest will be completed in 1964 in conjunction with the Liège-Germany motorway *(E 5)*.

in France

— Motorway east of Marseille—16 km—came into service in 1962;

— Motorway : west of Lille—16 km—state of progress 80 per cent;

— Etampes by-pass (Paris-Orléans)—8 km—came into service in 1962;

— Rive-de-Gier by-pass (Lyon-St. Étienne)—10 km—state of progress 60 per cent;

— Second roadway of bridge over the Loire at Nantes—preliminary work;

— Sannois-Franconville by-pass (north-west of Paris)—state of progress 60 per cent;

— Transverse mining road from Lens to Valenciennes—preliminary work;

— Exits from Paris :
Bagnolet-Rosny (east)—purchase of land
Bercy-St. Maurice (south-east)—expropriations
Vanves-Villebon (south-west)—preliminary work
Neuilly-La Défense (west)

— Rebuilding of bridges at Martrou and Tonnay Charente (Charente-Maritime), Choisy, Châtou, Créteil and Courbevoie (near Paris, the Gallieni Bridge at Lyon (Rhône) and the Sèvres Bridge at Paris.

in the Netherlands

Apart from work on the building of new motorways, mention should be made of major works to bring international roads previously

classified as Category I up to the true motorway standards.

This means building a second carriageway, for which land had already been reserved when the road was originally built and for which in many cases earth-moving work was already completed.

It should be remembered that, before the war, the Netherlands had already planned a network of motorways. A start was made on building these roads by stages, prefering to offer traffic the maximum length of single-carriageway, two-lane roads reserved for motor traffic but taking all necessary precautions to facilitate the future conversion of the road into a motorway proper as soon as the density of traffic made it necessary.

in Portugal

The completion of the Arrabida Bridge may be mentioned; its main characteristics were given in the previous report.

in the United Kingdom

1. *London-South Wales Motorway (M 4)*

a) On the *Chiswick-Langley* section (2 × 3 lanes), work is in hand on a new 11 mile stretch which will form a westward extension of the already completed Maidenhead and Slough by-passes. To the east, the motorway will be carried over the ordinary road system for several miles as a viaduct.

b) Work continues on the *Severn Bridge* (3,240 ft.) and its approaches. It is thought that the bridge will be opened in 1966.

c) Work is beginning on the *Newport by-pass;* in particular a start has been made on the building of a large bridge (770 ft.) and two tunnels at Crindau. The complete project, which totals 7 1/4 miles, will be finished in 1965.

d) At *Almondsbury*, immediately to the east of the Severn Bridge, at the junction of the *M 4* (London-South Wales) and *M 5* (Birmingham-Bristol) motorways, the building of a very large clover-leaf junction is to begin this year. This is a four-level construction designed so that a speed of 50m.p.h. can be maintained in the connecting lanes, owing to an amount of traffic changing roads at this point.

2. *Birmingham-Bristol Motorway (M 5)*

An immediate start is to be made on the building of a new 5 mile section in the Birmingham direction where it will eventually connect up with the *M 6*. It will have two 2 lane (24 ft.) carriageways with the usual 10 ft. hard shoulders and 15 ft. central reservation.

3. *Darlington by-pass (A 1)*

Work has begun on this 13 mile section as a first instalment of the projected Durham Motorway, which will facilitate access to the industrial city of Newcastle-on-Tyne, where there are shipyards. This motorway will have two 2-lane (24 ft.) carriageways.

4. *Medway Motorway (M 2)*

This motorway is intended to link London with the Channel ports.

The first 13 miles were opened in May; the other 12 will be opened next summer.

5. *Projects of local importance*

About a third of Government expenditure on roads goes to classified roads; projects in hand include the Dartford-Purfleet tunnel (to be opened in 1963), the Tyne Tunnel, the Forth Bridge and the Clyde Tunnel.

in Sweden

The following table sums up the principal road works.

HIGHWAYS	TOTAL LENGTH	LENGTH OF MOTORWAY	ESTIMATED INVESTMENT IN $ MILLIONS	READY FOR USE
E 3. Göteborg-Alingsas	1.9	1.9	1.2	1963
E 4. Huskvarna-Gränna	12.3	12.3	4.7	Sept. 64
E 4. Mjölby by-pass	9.1	—	1.1	Oct. 63
E 4. Norrköping-Nyköping	25.8	9.6	4.4	Oct. 65
E 4. Södertälje by-pass	4.5	4.5	7.8	June 65
E 5. Stockholm-Arlanda	11.0	11.0	4.2	Nov. 63
E 6. Malmö-Angelholm	26.7	9.9	4.7	Dec. 64

in Switzerland

The Government programme is being carried out with the greatest energy, to judge from the amount of Confederation funds advanced for the building of national roads. These advances, which amounted to S.Frs. 3.2 million at the end of 1961, had risen to 312 million by the end of 1962 and 450 million will be needed to carry out the 1963 programme.

The following sections of national roads were opened to traffic in 1962 :

N 1 BE Grauholzstrasse, Wankdorfplatz-Schönbühl
N 1 b ZH Approach to Kloten airport, Oberhausen-Eichlibrunnen section
N 3/13. SG/GR Heiligkreuz-Sargans-Maienfeld
N 4 ZH Andelfingen-Flurlingen
N 8 OW Alpnachstad by-pass

The opening of the following sections planned for 1963 :

N 1 VD Geneva-Lausanne (section)
BE Schönbühl (Kirchberg)
N 1 b ZH Approach to Kloten airport (section)
N 3 SZ Lachen by-pass
GL Walensee road
N 4 SH Swiss frontier-Bargen
N 5 NE Neuchâtel-St. Aubin (section).

in Yugoslavia

In addition to the *E 5* motorway, the Adriatic Highway is now being built with a 7 m carriageway and two 1 m shoulders. The Rijeka-Sibenik section is already completed and the remainder should be finished by 1964.

Chapter IV. INLAND WATERWAYS

I. Traffic development

Table IX gives, for all E.C.M.T. countries in which inland waterways transport is of some importance, an idea of the volume of traffic in 1962 compared with the years 1955, 1960 and 1961.

It will be evident from this table that the volume of traffic for these countries as a whole, expressed in tons,[1] remained largely unchanged in the year under review, whereas the number of ton kilometres[2] was slightly lower. The explanation is to be found primarily in the drought which prevailed in Western Europe in the autumn of 1962 and the consequent fairly low water levels in the rivers. The favourable development early in the year was thus nullified. The extremely long and severe winter of 1963, which almost completely paralysed waterways traffic during the first quarter of the year, presages much the same volume of traffic this year as in 1962. This is because in the first quarter of 1963 part of the traffic demand was concentrated through force of circumstance on the alternative offered by railway transport, so that the deferred traffic demand was less heavy. It may be wondered whether the sum of the deferred demand and the structural increase in traffic demand will be enough to offset the temporary drop which occurred in the spring. That willdepend largely on weather conditions.

The trend of traffic in 1962 was not the same, however, in all countries. In Belgium, the Netherlands and Switzerland, a further slight increase occurred. Actual traffic performances for Belgium, France, the Federal Republic of Germany and the Netherlands can be compared with the partial forecasts of inland waterways traffic included in the studies made by a number of countries on the development of goods traffic as a whole until 1970. No similar comparison can yet be made for the other countries listed in Table IX, either because it has not been possible to make forecasts or because the data given in Table IX are not complete. In some cases, these forecasts have been partially revised since 1960. Forecasts of inland waterways traffic for Belgium and France are unchanged. In the Federal Republic, the forecasts are higher because growth in 1959 and 1960 was far more rapid than had originally been foreseen. In the Netherlands, the forecasts are slightly lower.

The growth rate for actual traffic performances in the first two years of the period covered by the forecast did not a agree with the accepted estimates in any of these four countries. In

1. The total tonnage carried (internal and international traffic) was 340,339 million in 1962 as compared with 339,389 million in 1961.
2. The total number of ton-kilometres was 80,706 million in 1962 compared with 81,167 million in 1961.

1961, development was as forecast only in Belgium and France. But final conclusions cannot be drawn from a comparison between a long-term forecast and development limited to two years, since a point taken at random in the curve of anticipated growth does not necessarily agree with the result for the corresponding year.

As an example, the trend for all countries from 1959 onwards can be seen from the following table, although the curve is regular :

1959[1]		1960		1961		1962	
ton-km	tons	ton-km	tons	ton-km	tons	ton-km	tons
+ 2 %	+ 4 %	+ 18 %	+ 13 %	0 %	+ 3 %	— 1.7 %	+ 0.5 %

1. Not including Italy and Yugoslavia.

For 1962 a lag must no doubt be expected, due to the bad weather rather than to any structural change.

The decline in inland waterways traffic caused by the low water levels (1962) and severe winter (1963) is particularly evident from Table XI which shows the monthly trend of Rhine navigation at the German-Netherlands frontier. It can also be seen that developments were favourable until August 1962.

As a result of this situation the decline which has been in progress since 1960 still continued in 1962, as shown in Table X on the composition of Rhine traffic.

An analysis of this table brings out the increase in upstream hydrocarbon traffic; this rise was due largely to extra traffic in finished products, although crude oil traffic was also higher. There was also an increase in upstream coke traffic. On the other hand, upstream iron ore traffic fell sharply though its volume is still considerably above the level of 1959 and previous years. As it is not possible to verify how far these changes in the composition of Rhine waterways traffic are due to low water levels, no definite conclusion can be drawn.

The drop in upstream iron ore traffic (2.4 million tons) is only partially due to increased transport by rail. The carriage of iron ore by rail from the Netherlands to Germany rose by 10,000 tons in 1960 (the level had been largely constant since 1955) to 165,000 tons in 1961 and reached 502,000 tons in 1962. The decline in inland waterways traffic in 1962 may be attributed to clearance of stocks and to a drop in the production of cast iron (which was 1.1 million tons down compared with 1961 in the Federal Republic). Representatives of inland waterways carriers also attribute it to railway competition with regard to rates.

II. Fleet investments

The development of the fleet is shown in three tables. Table XII shows the number of boats, broken down by cargo capacity, at the end of 1962. Table XIII outlines the overall trend for 1955 and for 1960, 1961 and 1962. Finally, Table XIV gives a breakdown by cargo capacity of boats brought into service for the first time in 1962.

The tables indicate that the increase in total tonnage was considerably greater in 1962 than in 1961, namely + 414,000 tons in 1962 (+ 2 per cent) compared with + 271,000 tons in 1961.

The modernisation of the fleet observed in past years continued during this period.

In Belgium, Germany, Italy and the Netherlands, modernisation mainly consisted in the commissioning of new motor-driven barges with larger cargo capacity. The building of pushed units continued in Belgium, Germany, the Netherlands and Switzerland, and especially in France.

In all countries it is the small obsolete boats which are mainly replaced. In Belgium and France, although new vessels are brought into service, this form of replacement is so common that the total number of vessels is declining without any corresponding reduction in total tonnage.

The average tonnage per vessel is progressively increasing except in Italy and Yugoslavia.

In Yugoslavia, the accent is on the building of dumb barges. In Belgium, the first pushed convoys were brought into service.

The tables reproduced as Annexes give an outline of the development of the entire pusher fleet in the last three years, together with figures for the proportion of that fleet which has operated on the Rhine in the last two years.

It follows from these figures that the pusher fleet on the Rhine still represents but a small fraction (about 2 per cent) of the total capacity of the inland waterway fleets of the bordering States.

PUSHER FLEET IN SERVICE ON THE RHINE AT 1st JULY 1962 AND 1st JULY 1963

NUMBER		TOTAL CAPACITY		TOTAL HORSE-POWER	
1962	1963	1962	1963	1962	1963
184	272	228,300	342,400	42,700	68,300

As a result of the modernisation of the fleet, its absolute capacity has been multiplied by a factor which cannot be numerically calculated.

In view of what has been said in the previous section, it can only be stated that in 1962 capacity increased faster than the volume of traffic.

In this connection it is interesting to point out a Netherlands study which attempts a quantitative determination of fleet capacity in 1970[1].

This study, which deals exclusively with countries bordering on the Rhine and with Belgium, gives a forecast of transport performances to be provided in 1970 by extrapolating the development of inland waterways traffic in the period 1953 to 1960. Allowance has also been made for additional demands for inland waterways transport resulting from the extension of the network (Rhine-Main-Danube link and canalisation of the Moselle and Neckar) and the structural change in energy supplies.

According to the study, traffic demand will increase by 50 per cent between 1960 and 1970.

The study then analyses the development of average traffic performance per ton of cargo capacity, as determined by continuous motorisation and the structural change of traffic (e.g. reduction of seasonal navigation, longer hauls, improvement of the waterways network).

The average performance per ton cargo capacity was 4,885 ton kilometres in 1960 according to the study; an average performance of 6,630 ton kilometres is forecast for 1970. Owing to this improvement in productivity the increase in total tonnage for the fleet as a whole between 1960 and 1970 would be about 10 per cent.

This conclusion will have to be compared with the results of similar studies undertaken elsewhere.

III. Infrastructure investments

A. With regard to the effective dimensions of locks, the representatives of the U.I.N.F. recalled the request made by their Organisation as early as March 1959 for a revision of the standards for waterways of international importance laid down by the E.C.M.T. in 1954, at a time when the pusher technique was unknown in Europe. Opinion in the industry was that experience with this new technique showed the technical and social impossibility of using pushers in locks less than 110 metres long for a single barge-length and 185 metres long for 2 barge-lengths, which are the minimum dimensions required on waterways of international importance, especially connections between main river basins designed to ensure uniformity of the European waterways network. The industry therefore declared that it could not agree to any measure or decision which directly or indirectly resulted in smaller dimensions.

As pointed out in the Report of the Group of Experts which is reproduced as Annex I, this request would have the effect of bringing waterways of international importance up to specifications exceedings those of Class IV.

B. In addition to the 12 projects adopted by the Council of Ministers of the E.C.M.T. (see section C) the following development works should be mentioned :

1. The Henrichenburg barge lift near the port of Dortmund came into service in August 1962; this device, measuring 90 m × 12 m × 3 m overcomes a difference of level of 14 m and replaces the old lift dating from 1899. This achievement means that the entire length of the Dortmund-Ems canal can be used by 1,350-ton vessels of normal draught. The Küsten-Kanal linking the Dortmund-Ems canal with the Lower-Weser has been improved so that, since June 1962, 1,000-ton vessels drawing 2.20 m of water can use the entire length of the canal and can pass each other at certain points.

2. The improvement of the Rhine below Strasbourg is the subject of Franco-German studies. This adaptation, the purpose of which is to improve shipping facilities, the production of hydro-electric power and the protection of adjacent lands against erosion of the river bed and flooding, would involve the building of two dams; one near the mouth of the Ill and the other near the mouth of the Moder.

3. In Belgium, the submerged profile of the Elbe canal will be increased by stages from 150 to about 300 sq.m. Local widening projects are already in hand and the addition of new locks measuring about 185 m × 24 m is being studied.

1. "The future development of the inland waterways fleet of Western Europe" by the "Stichting Verkeerswetenschappelijk Centrum".

C. *Progress report on studies and results concerning waterways of interest to Europe as a whole* [Resolution No. 1 (Inland waterways transport)]

1. *Improvement of the Dunkirk-Scheldt link and international extensions*

The adaptation of the Dunkirk-Denain link to larger vessels, which is part of the IVth Economic and Social Development Plan, was continued actively on French territory. All work on the locks (effective dimensions of main locks : 12 m × 144.60 m) and diversions will be started during 1963 at the latest. The Dorignies lock was completed in February 1962; the Pont Malin lock will come into service at the beginning of 1964. At Courchelette, the main lock chamber will be completed at the end of 1963.

There is reason to believe that the use of pushed convoys between Dunkirk and Denain will be authorised by the end of 1965.

In Belgium, work on the upper Scheldt which was planned for 1962 could not be carried out. The straightening work at Audenaerde will be resumed in 1963; it should be pointed out that the locks are already up to Class IV specifications (1,350-ton type barges). The Ghent Circular Canal can be expected to come into service as a Class V waterway (2,000-ton vessels) during 1966. A plan revising the whole layout of this system on both French and Belgian territory has also been worked out by common agreement between experts of both countries. A concise note stating the main points of the plan will be prepared for the E.C.M.T.

2. *Improvement of the Scheldt-Rhine link*

Agreement was reached in Belgian-Netherlands negotiations in May 1963, but the matter has yet to be submitted to the parliaments of both countries for ratification. The agreement provides for the building of a waterway capable of taking Rhine-type pushed convoys. The minimum dimensions of the navigable channel will be :

width	90 m
depth	5 m

The bridges, all of the fixed type, will have 9.10 m headroom above water level and will allow for a navigable channel 110 metres wide.

The waterway will run northwards from the Antwerp port system near Zandvliet, into the eastern Scheldt through twin locks with effective dimensions of 320 × 24 metres. It then crosses the eastern Scheldt and passes through the Eendracht, which is to be widened. Before joining the Krammer, the canal runs through the dike which connects with the former island of St. Philipsland. After joining the Krammer, the course follows the existing waterways leading to the Rhine, through the Volkenak locks (twin locks measuring 320 m × 24 m) which were built as part of the Delta plan.

3. *Improvement of the Meuse and its international connections*

For the position on French territory, the Ministry of Public Works undertook studies in 1962 (to be completed before 1965) on the economic value and working conditions involved in developing the Meuse and waterways connections capable of linking the Meuse basin to the general European waterways system.

In Belgium, the adaptation of the Meuse below Liège to Class V (2,000-ton) standards will shortly be begun; preliminary work on the building of the Lixhe dam will also start in 1963.

Modernisation studies on the section above Ben-Ahin are in hand and actual work will probably begin in 1964. The object of these studies is the reduction of the number of locks and the building of locks 12 m wide and about 185 m long.

In the Netherlands, the work is mainly concerned with the widening of the Juliana canal. The existing lock at Maasbracht will be replaced by three locks now under construction. In 1963 it is expected that contracts will be awarded for the building of new locks at Sambeek and Belfold.

4. *Meuse-Rhine link, with connection to Aachen*

The technical study by the "ad hoc" Sub-Group of Experts is completed. The results of the study carried out by a German economic institute will shortly become available to the Sub-Group.

5. *Canalisation of the Moselle*

Work is proceeding normally. The completion of the dams and locks at Lehmen, Detzem and Trier was mentioned in the previous report. In 1962, work was completed on the dams and locks at St. Aldegund, Zeltingen and Apach. It is also possible to report that the work at Müden, Fankel, Enkirch, Wintrich, Grevenmacher and Palzen, and on the second lock at Koblenz, is proceeding so rapidly that the main

work will be done by the end of 1963 and navigation between Koblenz and Thionville can start at the beginning of 1964.

The use of Rhine barges and convoys between Thionville and Hagondange can begin at the same date.

The opening of the Hagondange-Metz section to vessels of this same type is planned early in 1965.

Preparatory work to bring the Metz-Frouard section up to large-vessel standards (extension towards the works in the South of the Lorraine Basin) is now in hand. The main part of the work is to begin in 1964.

The effective dimensions of the locks are :

— width ..... 12 metres
— length ..... at least 175 metres.

6. *Deepening of the Rhine between Mainz and St. Goar*

Preparatory surveys have made considerable progress, and experiments with scale models for improvements to the Binger Loch will be completed by the end of 1963

7. *Rhône-Rhine link*

Technical surveys are still in progress. In France, investigation of the Rhône-Rhine link is part of broader research into the problem of inland transport by waterways between the North Sea and the Mediterranean. In Switzerland studies have been continued on the Aar and the Jura lakes section as far as Yverdon.

8. *Development of the upper Rhine for larger vessels*

Ten of the twelve hydro-electric reaches which are to make up the upper Rhône between Basle and Lake Constance have already been built. As for the remaining two, work on the Säckingen reach has been in progress since 1961 and work is to start on the Koblenz reach in 1964. The two old power stations at Schaffhausen and Rheinfelden, which date from the end of the last century, are to be entirely rebuilt. Work began at Schaffhausen in 1960. German-Swiss negotiations concerning the award of the new Rheinfelden plant concession are in progress. Once this work has been completed, the prerequisites for development of the waterway will have been met. In this connection it should be noted that the joint studies of the German and Swiss technical services in anticipation of a waterways development project were completed early in 1963. They are to be published towards the end of the year.

9. *Rhine-Main-Danube link*

The canalisation of the Main over a length of 400 km between its mouth and Bamberg was completed in September 1962 by the opening of the port of Bamberg. The use of Class IV (1350-ton) barges as far as Bamberg has since then been authorised.

Work is in full swing on the next section from Bamberg to Nürnberg. Work continued on stabilization of the water level of the Danube. In the rocky part of the Hilgartsberger Kachlet a channel wide enough for two boats to pass has been blasted guaranteeing a 2 m draught even at extremely low water levels.

Work on the canalisation of the Neckar is continuing between Stuttgart and Plochingen.

10. *Development of the Elbe, with link from Hamburg to the inland waterways network of Western Europe.*

The preliminary technical and economic study of the northsouth canal to link Hamburg with the west European waterways network is completed. Negotiations between the Ministry of Transport of the Federal Republic and the Länder concerned have already begun to determine joint means of action for getting the plan under way.

11. *Oder-Danube link*

Question held over.

12. *Link between Lake Maggiore and Venice*

There have been no new developments since last year.

13. A question raised in the course of the Sub-Committee's work was whether this might not be the proper time to review the list of links of European importance so as to take into consideration various projects whose specifications certain governments had decided to raise to Class IV.

The Sub-Committee intends to go into this matter at coming meetings and make any necessary proposals.

IV. Inland waterways prospects

In order to meet the wishes of the Council of Ministers and the hope expressed by the Consultative Assembly of the Council of Europe, the Committee suggests making a general survey of the part played by inland waterways and their outlook for the future. This study might include likely technical developments, major changes

to be expected in the pattern of traffic, repercussions of the general economy and particularly the effect of land improvement plans on the development of inland waterways. Such a study should therefore include traffic forecasts.

In the meantime, the Group of Experts will draw up a draft map of European waterways of Class IV and above, distinguishing those which are in service and those which are in course of construction or improvement.

Annex I

REPORT OF THE GROUP OF EXPERTS ON INLAND WATERWAYS[1]

I. Trend of pusher navigation in 1963

Pusher navigation continued to develop, but the tonnage of barges in service still makes up only a small proportion of the total tonnage of the inland waterways fleets. For the present at least it constitutes an evolutionary rather than revolutionary trend in waterways transport practice.

The pusher fleet on the Seine and Meuse did not undergo any appreciable change from 1962 to 1963.

The list of the pusher fleet in service on the Rhine prepared by the Central Commission for Navigation of the Rhine (C.C.N.R.) on 13th April, 1963, gives a picture of the changes which have occured since 1962.

LIST OF PUSHER FLEET IN SERVICE ON THE RHINE
AT 1st JULY, 1962, AND AT 1st JULY, 1963[1]

	NUMBER		TOTAL CAPACITY IN TONS		TOTAL HORSEPOWER	
	1962	1963	1962	1963	1962	1963
A. Non-cargo-carrying pushers	28	42	—	—	28,150	48,000
B. Self-propelled barges used as pushers	15	21	16,900	23,300	12,350	17,000
C. Pushed barges						
C.1. Purpose built	113	176	172,000	274,800	1,400	2,000
C.2. Converted barges similar to self-propelled barges	13	20	16,500	24,300	800	1,300
C.3. Other converted barges	15	13	22,900	20,000	—	—
Totals	184	272	228,300	342,400	42,700	68,300

1. According to ducoments No. 900, 1962 and No. 1010, 1963 of the Central Commission for Navigation of the Rhine.

The 342,400 tons of the pusher fleet employed on the Rhine represents about 2 per cent of the total cargo capacity of the waterways fleets of States bordering on the Rhine, which is about 16,000,000 tons.

The power of new pushers tends to increase. Thus, on the Seine, the first pushers developed only 450 h.p. whereas the most recent units brought into service are of 1,200 h.p.; two 1,500 h.p. pushers are under construction.

It is clear from table No. 1,010 of the C.C.N.R. already mentioned that by far the commonest type of barge (about 77 per cent of the tonnage) on the Rhine and its affluents measures 70 m × 9.5 m, thus corresponding to the standard type for Class IV waterways. Barges measuring 76.5 m × 11.4 m represent only 8 per cent of the total tonnage of Rhine barges.

More than 20 self-propelled barges are at present in use as pushers.

According to the figures for the tonnage carried by the pusher technique drawn up by the "Office National de la Navigation Française" the trend of traffic in France is as follows :

Total 1961 :	Total 1962 :
250 million ton-km (3.1 per cent of total traffic)	500 million ton-km (4.6 per cent of total traffic)
July 1962 :	July 1963 :
36 million ton-km	51 million ton-km
August 1962 :	August 1963 :
34 million ton-km	44 million ton-km.

1. The Group consisted of Prof. Willems (Belgium) in the Chair, Mr. Vadot (France), Mr. Seiler (Germany), Mr. Boom (Netherlands) and Mr. Jaccard (Switzerland).

The Group of Experts finds that the pusher technique may be applied on any inland waterways, provided that the dimensions of the craft correspond to the class of waterway to be used. Where there is plenty of room, a number of small units can be grouped together to form a large convoy.

II. Standard type of barge for Class V

As stated above, about 77 per cent of the barges operating on the Rhine measure 70 m × 9.5 m, which are the standard dimensions for Class IV.

It is generally advantageous to use barges on a Class V waterway which can also travel on Class IV waterways, so as to increase their range of action.

For certain kinds of bulk transport only operating on Class V waterways, however, barges are now used which have maximum dimensions of 76.5 m × 11.4 m. Owing to the small number of these barges and to the fact that only those already in service or under construction at 1st September 1963 are allowed to operate, there is no advantage in considering standardization for the time being.

It should be recalled that the C.C.N.R. has now limited the width of pushed convoys on the Rhine to a multiple of 11.2 m (not more than three units in certain cases and on certain sectors).

Consideration is now being given to the admission of these large Rhine barges to certain waterways connected with the Rhine where dimensions are greater than those of Class IV but not up to those of Class V.

III. Standard type of barge for Class I

The "Office National de la Navigation Française" has set up a working party to consider the question of the standardization of a Class I barge.

At the present stage of the studies, the dimensions of such a barge would appear to be 38.25 m × 5.05 m, its maximum depth 2.65 m and its headroom 3.40 m.

Such barges might be made up into pushed convoys on waterways above Class I. For use on Class I waterways they would be fitted with a removable propulsion unit, the details of which are being worked out.

For operation of Class IV waterways, where the locks measure 85 m × 12 m, convoys might consist of four of these barges, one of which would be self-propelled.

IV. Articulated convoys

No conclusions can yet be drawn from tests carried out with articulated convoys as regards their effect on the geometrical characteristics of waterways.

V. Lock approaches

The study of the best arrangement of approaches to locks for pusher navigation, with due consideration to conventional navigation, is not yet completed.

VI. Effective dimensions of locks

The representative of the U.I.N.F. referred to his Organisation's request that certain of the projects adopted by the E.C.M.T. as links of European importance should be designed to allow the passage of the largest Rhine barges, measuring not more than 76.5 m × 11.4 m.

The Group of Experts considers that acceptance of this request would lead to the inclusion of these waterways in Class V whereas the E.C.M.T. has adopted Class IV for the European net work.

In order to be able to use the pusher technique on waterways of international importance and especially on connections between the main river basins, the Representative of the U.I.N.F. again urged the need for locks to have a minimum effective length of 110 metres or 185 metres (for one or two barge-lengths respectively). In this connection, the Group of Experts recalls that, generally speaking, the effective dimensions of locks must be determined partly by the class of waterway to which the locks belong, and partly according to the volume and nature of the traffic carried.

It was in accordance with such an idea that the report of the Experts approved by the Council of Ministers in Resolution No. 7 of 5th October 1960, stipulated that: "the lock dimensions for a pushed convoy depend directly on the dimensions of the convoy: splitting a pushed convoy at a lock and passing barges through individually is to be avoided".

VII. E.C.M.T. waterways map

The new improved, up-to-date edition of the waterways map will be completed by 1st November 1963.

At the meeting of the E.C.M.T. of 27th November 1962, Mr. Seebohm had suggested that a new waterways map be prepared showing which waterways were fully accessible to Class IV

barges, which were suitable for pushing, and which were in urgent need of construction or development.

In order to meet this request, the Group of experts decided to prepare a new map as at 1st November 1963, based on the map referred to above and showing, for Class IV and above :

— waterways in service, by thick black lines;
— waterways in course of construction or development by thick black broken lines;
— projects decided upon by the governments by crossed black lines;
— projects for waterways of European importance already adopted by the E.C.M.T. by similar red lines.

The draft map could be submitted at the next session of the Council of Ministers of the E.C.M.T.

The experts consider there is no point in including any special indications in regard to pushing on this map, since with a few special exceptions the system is generally applicable on all waterways.

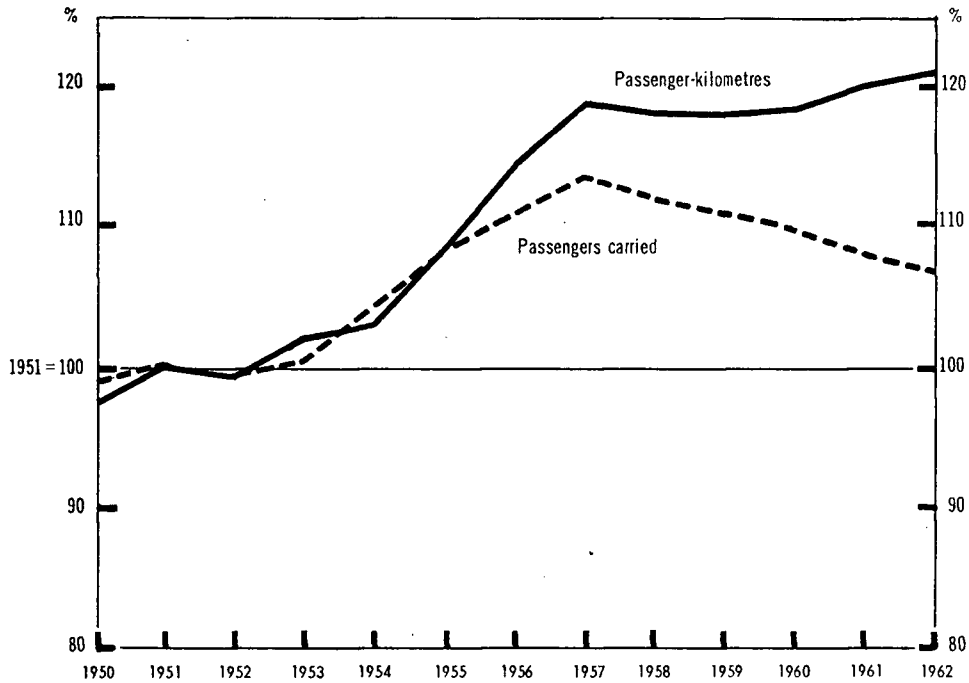
G. WILLEMS
Professor,
Chairman of the Group of Experts

COUNTRY	END OF YEAR	NUMBER OF PUSHERS	NUMBER OF BARGES	CARGO CAPACITY OF BARGES
Germany	1960	5	29	29,439
	1961	4	30	30,307
	1962[1]	—	41	44,120
France	1960	28	120	97,049
	1961	34	159	146,309
	1962	41	209	204,142
Netherlands	1960	2	14	22,396
	1961	4	37	61,069
	1962	10	59	98,191
Switzerland	1960	—	5	7,334
	1961	1	5	7,966
	1962	1	11	17,925
Belgium	1960	—	—	—
	1961	—	—	—
	1962	—	2	982
Italy	1962	1	1	350

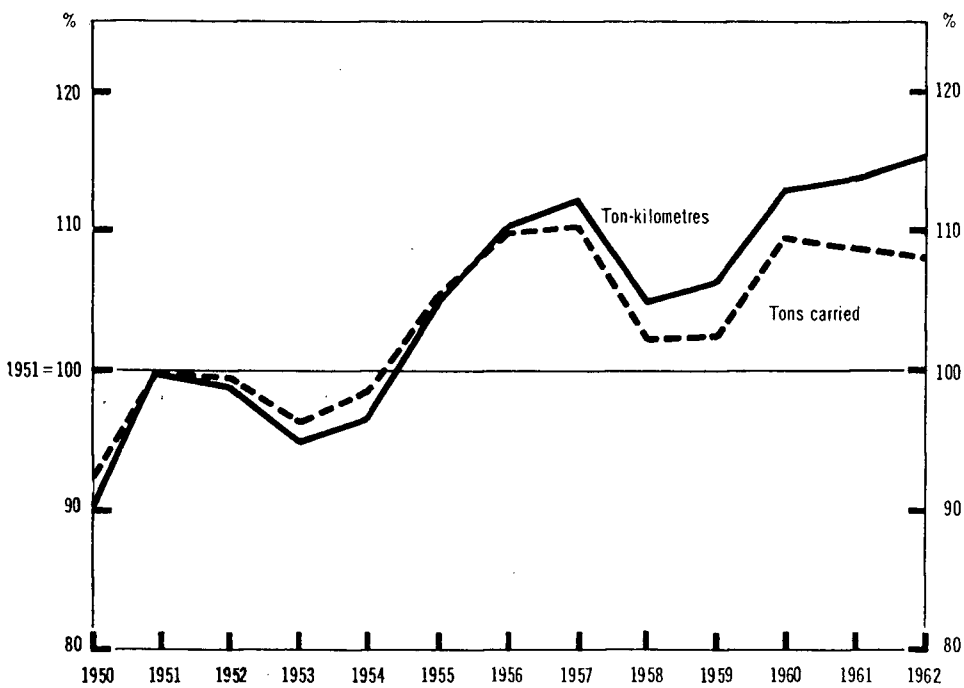
1. Provisional figures—source: Deutsche Binnenschiffahrt 1962.

Graph 1. TREND OF RAILWAY TRAFFIC

a) PASSENGERS

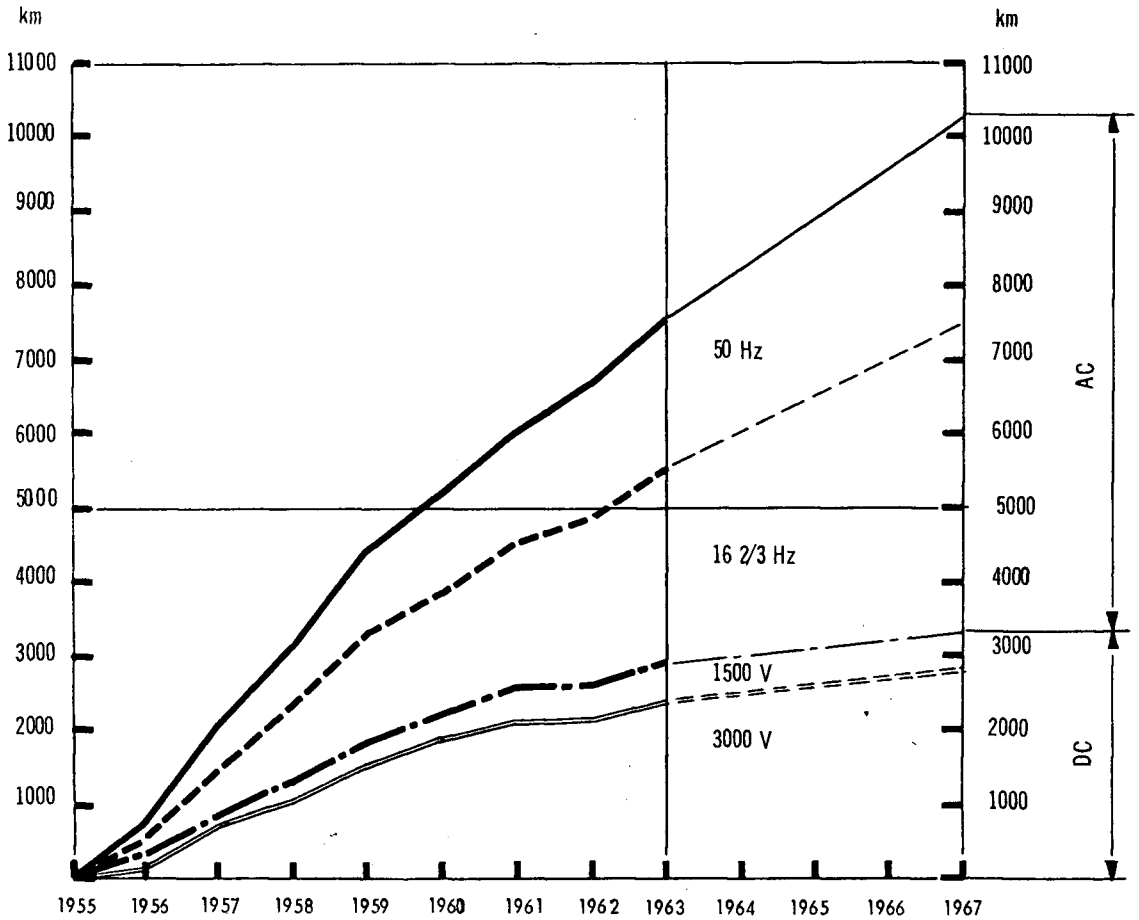


b) GOODS



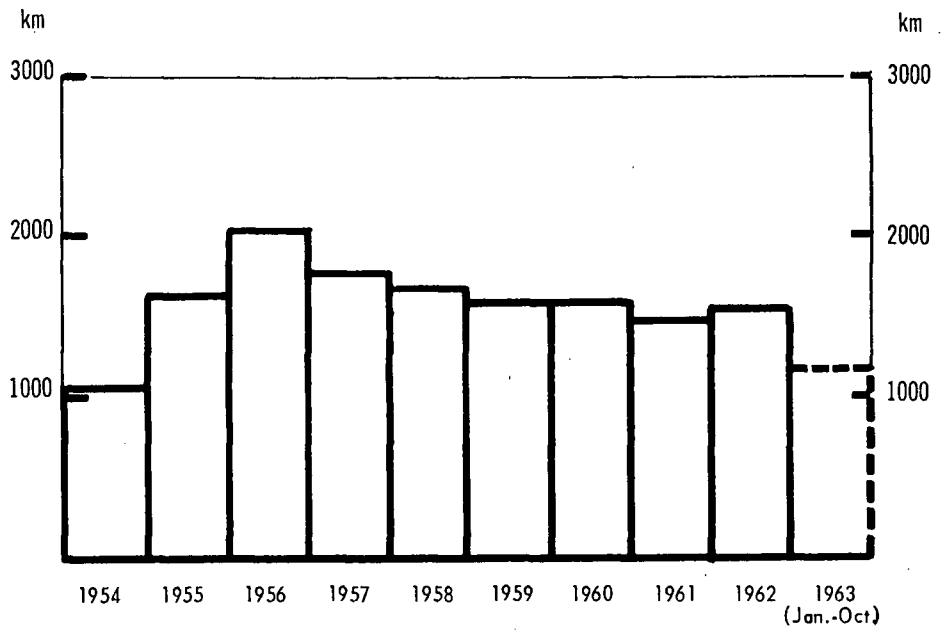
Graph 2. TREND OF ELECTRIFICATION

a) GROWTH* OF ELECTRIFICATION OF EUROPEAN MAIN LINES
(October)

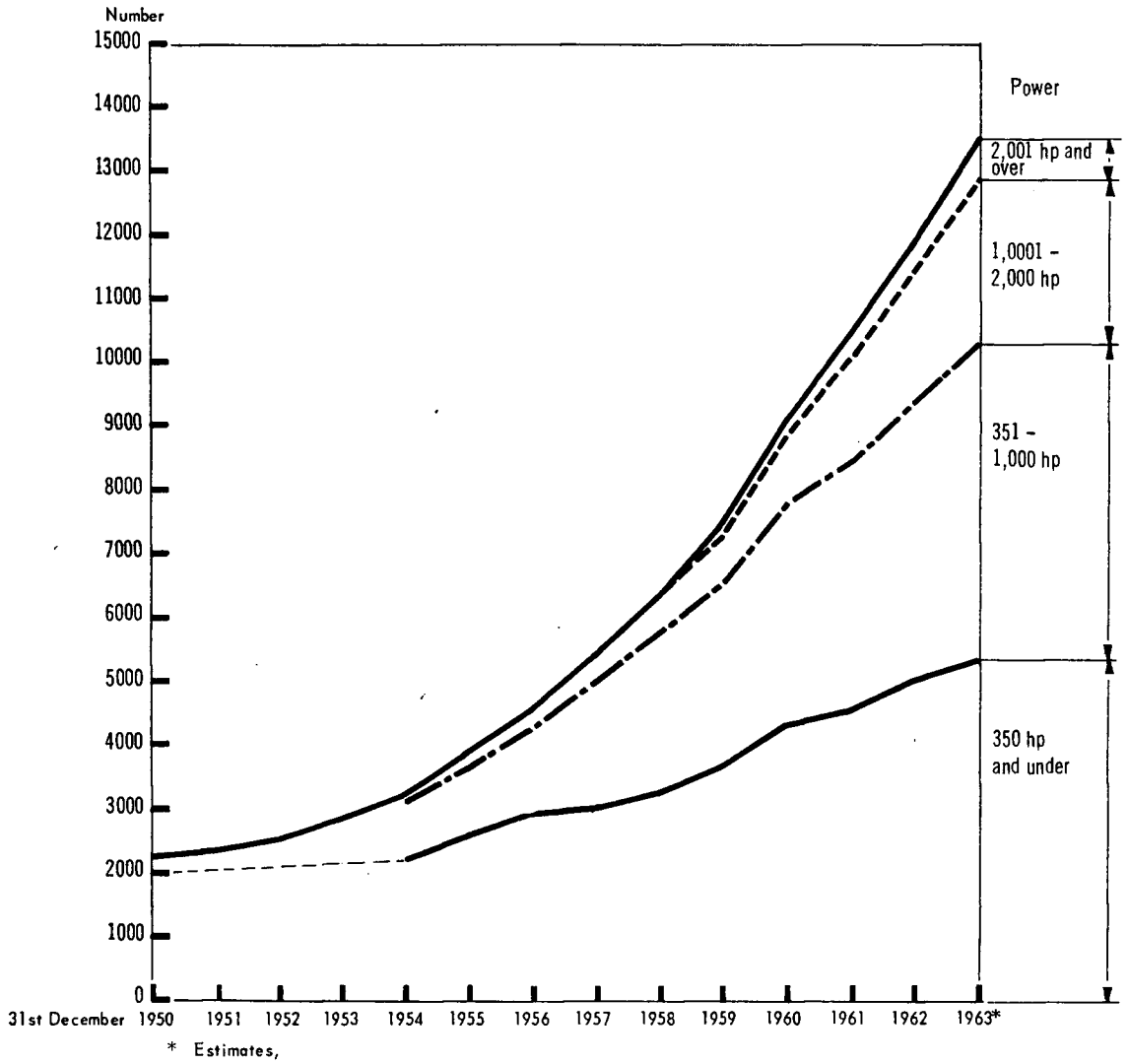


* The results of programmes for conversion to a different type of current are not included.

b) ANNUAL GROWTH OF ALL ELECTRIFIED LINES
(January-December)

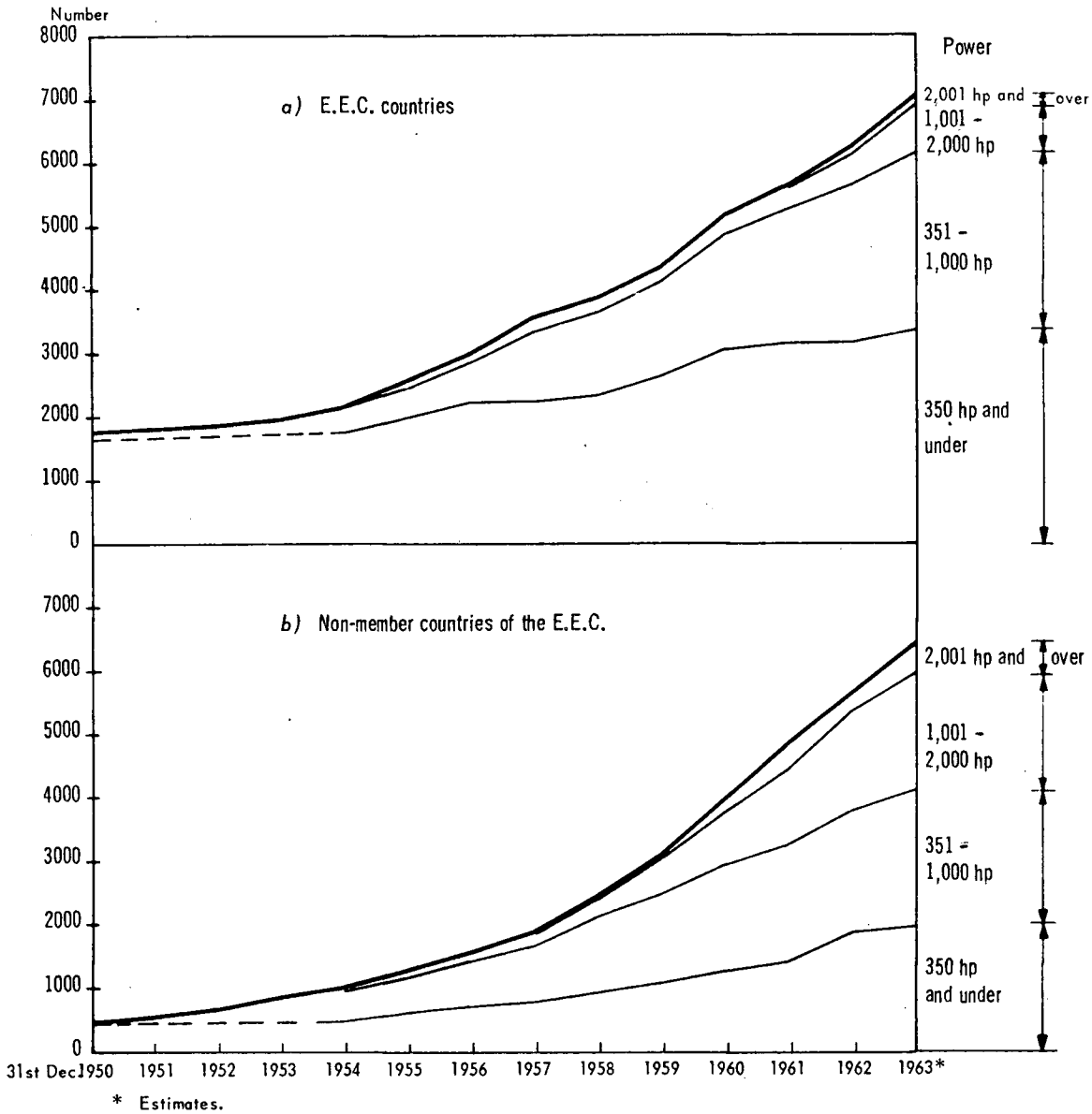


Graph 3. TREND OF NUMBERS OF DIESEL LOCOMOTIVES
BY POWER CATEGORIES

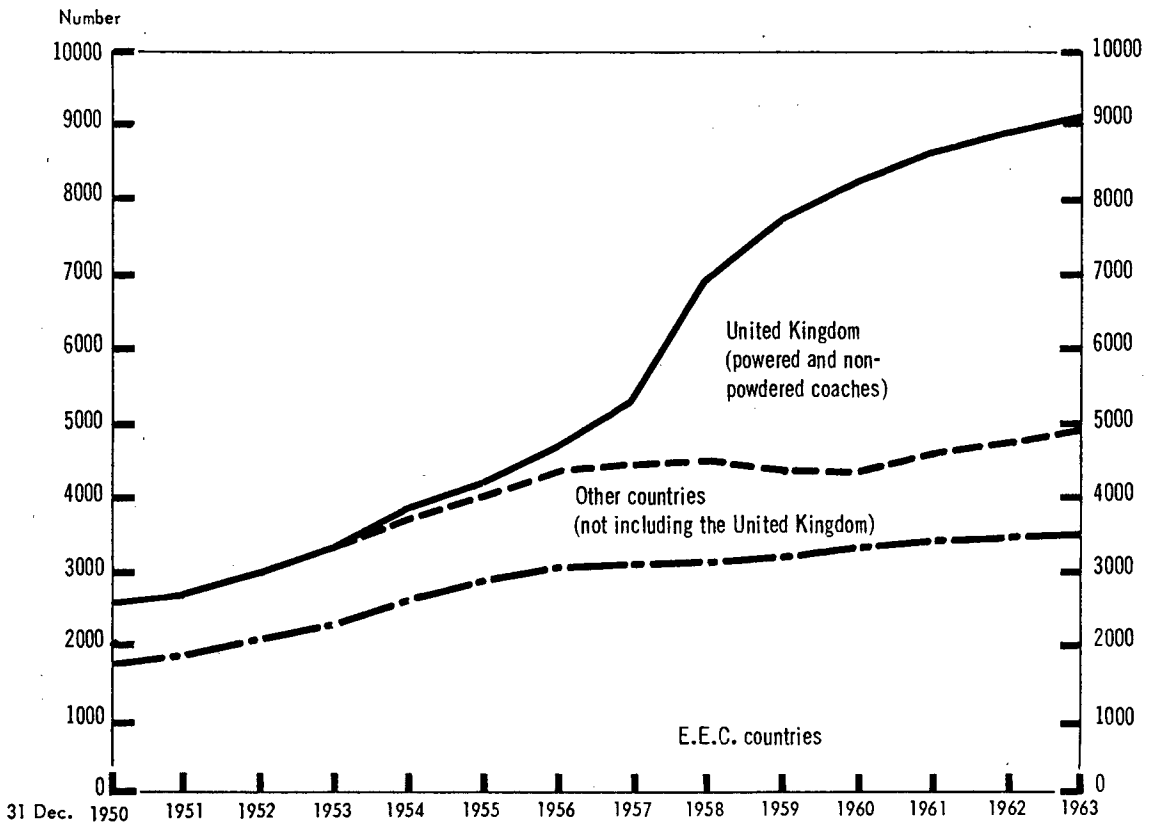


* Estimates,

Graph 4. TREND OF NUMBERS OF DIESEL LOCOMOTIVES
IN E.E.C. COUNTRIES AND IN NON-MEMBER COUNTRIES OF THE E.E.C.

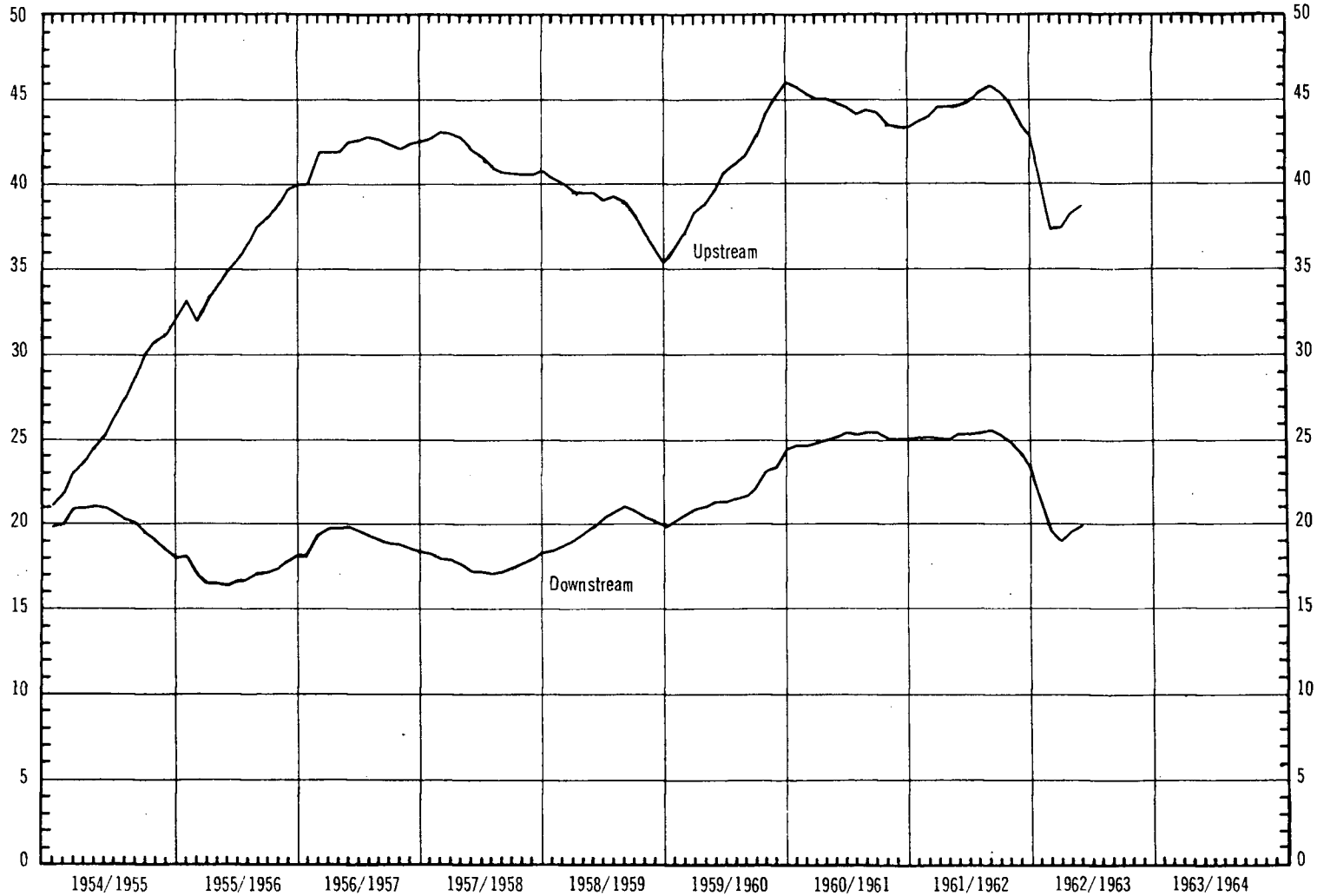


Graph 5. TREND OF NUMBERS OF DIESEL RAILCARS



Graph 6. MOVEMENT OF GOODS AT THE GERMAN-NETHERLANDS FRONTIER

SUCCESSIVE PERIODS OF 12 MONTHS, IN MILLIONS OF TONS



Graph 7. DEVELOPMENT OF INLAND WATERWAY TRANSPORT

INDICES : 1955 = 100

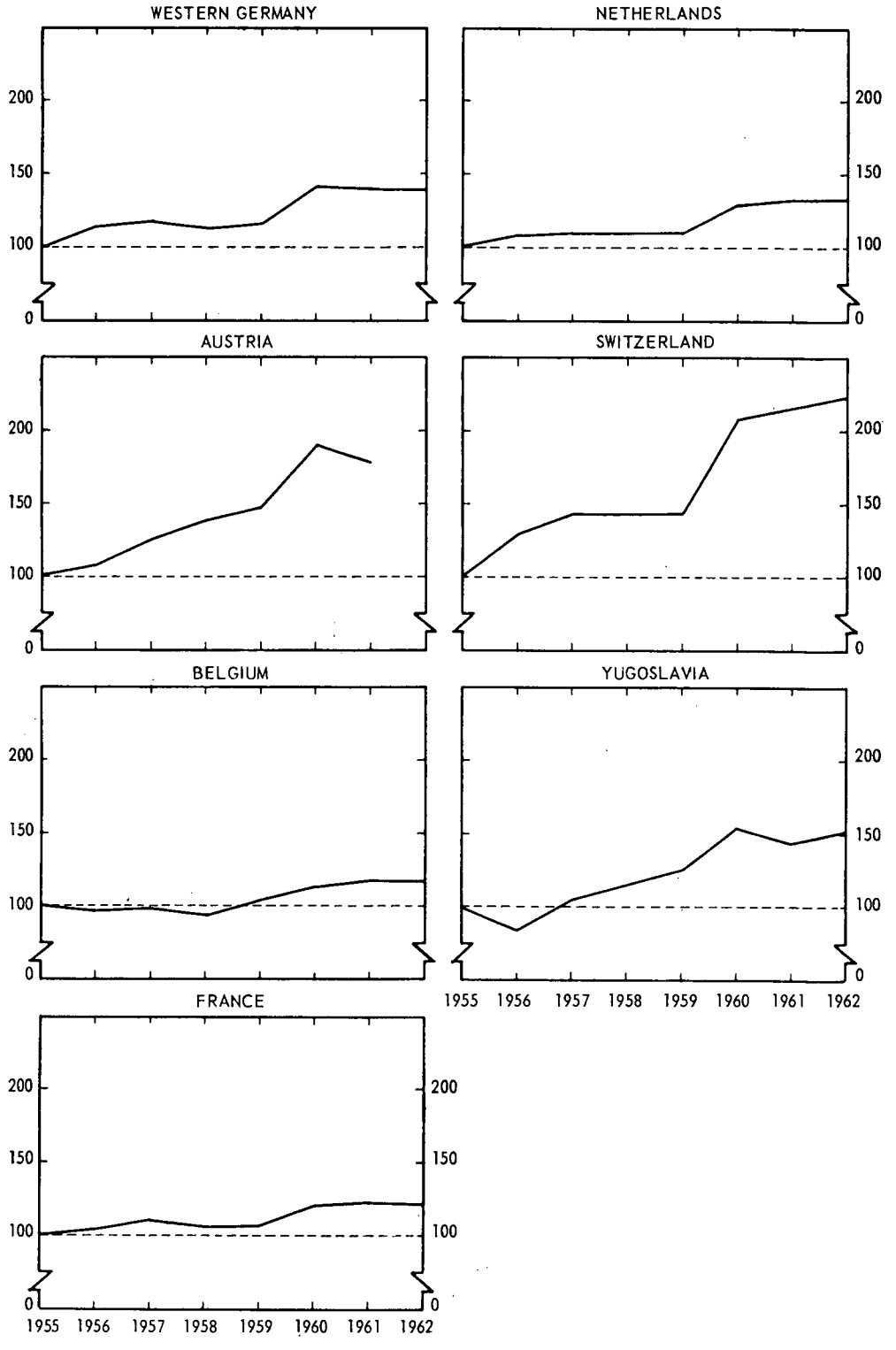


TABLE I. INVESTMENTS IN INLAND TRANSPORT
EQUIPMENT AND INFRASTRUCTURE

In millions of national currency units (thousands of units for Ireland).

COUNTRY	YEAR	GROSS NATIONAL PRODUCT[1] (CURRENT PRICES)	GROSS FIXED ASSET FORMATION[1]	RAILWAYS			BRANCH AND SUBURBAN LINES	ROADS				INLAND WATERWAYS			TOTAL INVESTMENT IN INLAND TRANSPORT (5 + 6 + 10 + 13)
				EQUIPMENT	INFRASTRUCTURE	TOTAL (4 + 5)		EQUIPMENT		INFRASTRUCTURE	TOTAL (7 + 8 + 9)	EQUIPMENT	INFRASTRUCTURE	TOTAL (11 + 12)	
								GOODS VEHICLES	OTHER VEHICLES[2]						
		1	2	3	4	5	6	7	8	10	9	11	12	13	14
Germany	1960	282,400	67,700	713.6	1,508.0	2,221.6	261.7	2,843.9	5,769.0	3,014.0*[3]	11,626.9	90.4	151.1	241.5	14,351.7
	1961	310,400	77,600	1,017.7	1,725.6	2,743.3	250.3	3,310.4	6,614.1	4,330.0	14,254.5	102.8	230.3	333.1	17,851.2
	1962			1,162.8	1,747.1	2,909.9	276.0	3,280.6	7,232.8	...	...	138.2	308.5	446.7	...
Austria	1960	161.350	36,630	361.2*	685.0	1,046.2	494.1	1,133.0	3,505.0	1,786.0*	6,424.0	—	58.4	58.4	8,022.7
	1961	176,100	41,350	344.7*	586.6	931.3	300.6	1,213.0	3,602.0*	2,014.0*	6,829.0	—	49.2	49.2	8,110.1
	1962			477.2	705.7	1,182.9	183.0	1,125.0	4,018.0	1,983.0	7,126.0	—	37.3	37.3	8,529.2
Belgium	1960	572,200	106,300	1,215	1,996	3,211	135	2,730[4]	11,269*[4]	3,757	17,756	390[4]	1,143.1	1,533.1	22,635.1
	1961	601,200	113,000	1,715	2,042	3,757	138	3,000[4]	12,254[4]	3,957	19,211	510[4]	1,207.3	1,717.3	24,823.3
	1962			1,913	1,973	3,886	157	3,040[4]	13,186[4]	4,779	21,005	750[4]	1,781.0	2,531.0	27,579.0
Denmark	1960	41,227	8,045	68.1	76	144.1	2.9	518	1,173	539	2,230	—	—	—	2,377.0
	1961	45,359	9,230	86.1	117	203.1	3.6	587	1,300	657	2,544	—	—	—	2,750.7
	1962			69.0	114	183.0	3.0	577	1,696	...	...	—	—	—	...
Spain	1960	615,100	99,700	957.7	2,281.6	3,239.3	187.3	4,424	7,519	1,915	13,858	—	—	—	17,284.6
	1961			926.5	2,123.1	3,049.6	213.8	6,691	11,276	3,030	20,997	—	—	—	24,260.4
	1962			1,133.7	2,372.3	2,506.0	263.7	9,475	12,649	3,491	25,615	—	—	—	29,384.7
France	1960	296,210	55,240	647	1,017	1,664	28	1,719	4,570	1,177	7,466	37	134	171	9,329
	1961	319,670	62,390	673	1,087	1,760	34	1,890	5,004	1,456	8,350	43	159	202	10,346
	1962			685	1,134	1,819	48	1,990	6,200	1,676	9,866	42	190	232	11,965
Greece	1960	97,326	25,225	27	111	138	24	854	40	1,720	2,614	—	—	—	2,776
	1961	109,672	25,570	110	116	226	34	1,408	83	1,741	3,232	—	—	—	3,492
	1962			227	78	305	18	1,489	61	1,536	3,086	—	—	—	3,409
Ireland[5]	1960	655,800	85,100	1,427.8	17.7	1,445.5	—	6,228.0	16,344.0	5,009.8	27,581.8	—	4,000	4,000	33,027.3
	1962	696,000	101,000	408.9	48.5	457.4	—	7,446.0[6]	17,328.0[6]	6,588.6	31,382.6	—	22,000[6]	22,000	53,840.0
	1962			2,923.6	38.3	2,961.9	—	...	...	...	...	...	...	...	...
Italy	1960	19,917,930	4,441,000	27,931	71,541	99,472	—	140,300*	303,900*			325	820	1,145	
	1961	21,912,000	5,058,000	25,139	88,638	113,777	—	207,200*	422,400*			352	640	992	
	1962			25,244	77,764	103,008	—	235,800[6]	576,300[6]			700	640	1,340	
Luxembourg ..	1960	24,413	5,125	113.6	113.4	227.0	—	180.8	301.5	124.5	606.8	—	3	3	836.8
	1961			7.5	75.0	82.5	—	190.0	340.0	140.3	670.3	—	—	—	752.8
	1962			54.3	74.2	128.5	—	136.4	337.7	260.0	734.1	—	—	—	862.6
Norway	1960	31,839	8,759	42.4	130.2	172.6	45	250	597	347	1,194	—	—	—	1,411.6
	1961	34,458	10,070	45.0	136.0	181.0	51	272	838	382	1,492	—	—	—	1,724.0
	1962			82.7	154.3	237.0	60	590	968	454	2,012	—	—	—	2,309.0
Netherlands ..	1960	42,530	9,970	42	82	124	19	282	794	420	1,496	58	141	199	1,838
	1961	44,450	10,800	75	87	162	9	442	919	527	1,888	80	157	237	2,296
	1962			74	94	168	8	381	1,099	603	2,083	120	186	306	2,565
Portugal	1960	69,122	12,593	64.9	132.5	197.4	368.0	397.0	505.4	283.6	1,186.0	—	—	—	1,751.4
	1961	74,601	13,723	154.2	199.6	353.8	65.5	436.8	572.8	305.2	1,314.8	—	—	—	1,734.1
	1962			33.7	136.8	170.5	70.3	455.4	565.5	304.7	1,325.6	—	—	—	1,566.4
United Kingdom[7]	1960	25,446	4,107	86	62	148	7	214	670	87	971	—	—	—	1,126
	1961	27,036	4,570	74	66	140	9	218	614	107	939	—	—	—	1,088
	1962			63	51	114	9	195	635	130	960	—	—	—	1,083
Sweden	1960	63,503	13,938	157.4[8]	164.6[8]	322.0[8]	91	511*	1,800*	1,017*	3,328*	0.2	0.8	1.0	2,742.0
	1961	69,271	15,376	146.8[8]	143.9[8]	290.7[8]	97	582*	2,080*	997*	3,659*	0.4	0.8	1.2	4,047.9
	1962			142.9[8]	152.4[8]	295.3[8]	—	581[6]	2,358[6]	1,057[6]	3,996[6]	1.0	0.7	1.7	4,293.0
Switzerland ..	1960	36,120		112.6	107.2	219.8	48.9	174.8	874.2	352.4*	1,401.4	15	—	15	1,685.1
	1961	40,020		112.2	113.1	225.3	47.7	279.9	1,061.3	492.3*	1,833.5	3	—	3	2,109.5
	1962			127.9	140.3	268.2	48.7	428.1	1,220.3	741.2	2,389.6	10	—	10	2,716.5
Turkey	1960	48,963	7,779	9.8	83.2	93.0	—	844.8	32.6	729.2	1,606.6	—	—	—	1,699.6
	1961	49,213	7,500	80.9	56.3	137.2	—	665.2	51.1	818.9	1,535.2	—	—	—	1,672.4
	1962			44.8	70.6	115.4	—	880.1	70.8	747.8	1,698.7	—	—	—	1,814.1

* Revised figure.

1. *Source:* O.E.C.D. statistical bulletin.
2. Purchases of private passenger vehicles and motorcycles are counted as investment in inland transport, despite the fact that in most countries some purchases of this kind are classified as consumer goods. The considerable differences in the proportion of such purchases classified under the heading "consumer goods" suggest that the distinction between consumption and investment in this sector may be based on legal or fiscal grounds rather than on economic considerations.
3. Figure for the period April-December.
4. Estimated.
5. All figures for Ireland are given in thousands of national currency units.
6. Provisional figure.
7. Great Britain only.
8. These figures relate to the financial year 1.7/30.6 for 1959/60, 1960/61 and 1961/62.

TABLE II. TREND OF NUMBERS OF MOTOR VEHICLES

FIGURES IN BRACKETS INDICATE PERCENTAGES

E.E.C countries are in italics

COUNTRY	PRIVATE CARS	MOTOR-BUSES AND MOTOR COACHES	LORRIES	TOTAL
		1960		
1. *Germany*	4,697,718 (86.4)	32,860 (0.6)	710,798 (13.0)	5,441,076
2. Austria	412,478 (65.2)	4,806 (0.8)	215,149 (34.0)	632,433
3. *Belgium*	754,255 (81.4)	5,233 (0.6)	167,312 (18.0)	926,800
4. Denmark	408,190 (70.6)	3,372 (0.5)	166,305 (28.9)	577,867
5. Spain	290,519 (64.5)	11,992 (2.6)	147,365 (32.9)	449,876
6. *France*	5,549,603 (77.5)	36,922 (0.5)	1,572,443 (22.0)	7,158,968
7. Greece	43,224 (53.8)	6,364 (0.7)	30,683 (45.5)	80,271
8. *Italy*	1,994,724 (79.6)	24,324 (0.1)	485,189 (20.3)	2,504,237
9. *Luxembourg*	37,042 (81.1)	399 (0.9)	8,221 (18.0)	45,662
10. Norway	225,269 (66.7)	4,915 (1.4)	107,391 (31.9)	337,565
11. *Netherlands*	539,872 (75.7)	9,500 (1.3)	164,128 (23.0)	713,500
12. Portugal	150,921 (74.9)	3,400 (1.6)	46,948 (23.5)	201,269
13. United Kingdom	5,540,371 (78.9)	76,155 (1.0)	1,403,311 (20.0)	7,019,837
14. Sweden	1,087,533 (89.4)	8,086 (0.6)	120,267 (10.0)	1,215,886
15. Switzerland	509,279 (88.7)	3,127 (0.5)	61,374 (10.8)	573,326
16. Turkey	37,616 (39.8)	8,881 (9.4)	48,094 (50.8)	94,591
17. Yugoslavia				
E.C.M.T. (15 countries)	22,273,604 (79.6)	240,336 (0.9)	5,454,678 (19.5)	27,973,628
E.E.C.	13,573,214 (80.8)	109,238 (0.6)	3,107,791 (18.6)	16,790,243
		1961		
1. *Germany*	5,592,461 (87.4)	34,914 (0.6)	769,230 (12.0)	6,396,605
2. Austria	474,538 (66.2)	5,043 (0.8)	236,421 (33.0)	716,002
3. *Belgium*	865,000 (81.9)	6,000 (0.6)	184,000 (17.4)	1,055,000
4. Denmark	469,592 (71.3)	3,512 (0.6)	185,206 (28.1)	658,310
5. Spain	358,926 (65.7)	13,024 (2.4)	174,328 (31.9)	546,278
6. *France*	6,158,210 (78.0)	38,388 (0.5)	1,684,394 (21.5)	7,880,992
7. Greece				
8. *Italy*	2,443,873 (81.8)	18,423 (0.6)	522,935 (17.6)	2,985,231
9. *Luxembourg*	41,581 (81.3)	383 (0.7)	9,233 (18.0)	51,197
10. Norway	276,077 (70.2)	5,578 (1.4)	111,875 (28.4)	393,530
11. *Netherlands*	615,906 (77.1)	9,158 (1.2)	172,317 (21.7)	798,381
12. Portugal	170,513 (76.9)	3,614 (1.6)	47,736 (21.5)	221.863
13. United Kingdom	5,991,800 (79.8)	76,200 (1.0)	1,457,300 (19.2)	7,525,300
14. Sweden	1,193,913 (90.3)	8,250 (0.6)	121,858 (9.1)	1,324,021
15. Switzerland	579,000 (89.4)	3,275 (0.5)	65,300 (10.1)	647,575
16. Turkey	45,767 (40.4)	10,981 (9.6)	57,460 (50.0)	114,208
17. Yugoslavia	78,823 (44.4)	5,681 (3.9)	60,501 (41.7)	145,005
E.C.M.T.	25,355,980 (80.6)	242,424 (0.8)	5,861,094 (18.6)	31,459,498
E.E.C.	15,707,031 (82.0)	107,266 (0.6)	3,343,109 (17.4)	19,167,406
		1962		
1. *Germany*	6,562,530 (88.6)	35,669 (0.5)	805,317 (10.9)	7,403,516
2. Austria	556,757 (67.8)	5,226 (0.6)	259,288 (31.6)	821,271
3. *Belgium*	975,000 (82.7)	6,275 (0.5)	197,500 (16.8)	1,178,775
4. Denmark	547,841 (72.8)	3,563 (0.5)	201,602 (26.8)	753,006
5. Spain	440,611 (66.7)	14,472 (2.2)	205,363 (31.1)	660,446
6. *France*	7,031,861 (79.7)	40,225 (0.5)	1,749,441 (19.8)	8,821,527
7. Greece				
8. *Italy*	3,006,839 (80.2)	18,722 (0.5)	722,353 (19.3)	3,747,914
9. *Luxembourg*	45,502 (82.4)	393 (0.7)	9,317 (16.9)	55,212
10. Norway	321,767 (72.4)	5,834 (1.3)	116,546 (26.3)	444,147
11. *Netherlands*	730,051 (78.9)	9,322 (1.0)	185,534 (20.1)	924,907
12. Portugal	193,259 (77.4)	3,926 (1.6)	52,369 (21.9)	249,554
13. United Kingdom	6,783,000 (81.4)	79,000 (1.0)	1,470,000 (17.7)	8,332,000
14. Sweden	1,424,000 (91.1)	9,200 (0.6)	128,600 (8.3)	1,561,800
15. Switzerland	655,000 (89.7)	3,400 (0.5)	71,700 (9.8)	730,100
16. Turkey	52,381 (40.0)	13,956 (10.6)	64,706 (49.4)	131,043
17. Yugoslavia	99,130 (60.7)	6,239 (3.8)	58,132 (35.6)	163,501
E.C.M.T. (16 countries)	29,425,529 (81.7)	264,594 (0.7)	6,317,628 (17.6)	36,007,751
E.E.C.	18,351,783 (82.9)	110,606 (0.5)	3,669,462 (16.6)	22,131,851

TABLE III. TWO-WHEELED MOTOR VEHICLES

E.E.C. countries are in italics

COUNTRY	CYLINDER CAPACITY NOT EXCEEDING 50 CC.	CYLINDER CAPACITY OVER 50 CC.
SITUATION AT END 1961		
1. *Germany*	1,980,000	1,597,648
2. Austria	416,684	288,406
3. *Belgium*	435,438	225,000
4. Denmark	1,704	112,342
5. Spain		677,228
6. *France*	5,300,000	1,225,621
7. Greece		
8. *Italy*	1,081,469	2,776,742
9. *Luxembourg*	15,500	10,260
10. Norway	102,550	79,004
11. *Netherlands*	1,200,000	170,257
12. Portugal		25,452
13. United Kingdom	396,100	1,394,100
14. Sweden	700,000	167,593
15. Switzerland	201,000	135,000
16. Turkey		9,380
17. Yugoslavia		84,173
E.C.M.T.	11,830,445[1]	8,978,206
E.E.C.	10,012,407	6,005,528
SITUATION AT END 1962		
1. *Germany*	1,458,000	1,315,579
2. Austria	439,769	267,205
3. *Belgium*	446,484	200,000
4. Denmark	1,036	108,779
5. Spain	279,000	803,264
6. France	5,600,000	1,120,000
7. Greece		
8. *Italy*	1,200,437	3,045,000
9. *Luxembourg*	16,500	10,306
10. Norway		
11. *Netherlands*	1,250,000[2]	162,517
12. Portugal		26,478
13. United Kingdom	397,400	1,248,400
14. Sweden	750,000	126,000
15. Switzerland	114,000	120,000
16. Turkey		
17. Yugoslavia		92,500
E.C.M.T.	11,952,626[1]	8,646,028[3]
E.E.C.	9,971,821	5,622,889

1. 12 Countries.
2. Estimated.
3. 14 countries.

TABLE IV. AVERAGE DISTANCE TRAVELLED BY VEHICLES EACH YEAR (KM)

COUNTRY	PRIVATE CARS	MOTOR-BUSES	LORRIES	ALL VEHICLES
1. Germany	18,600	45,500	28,200	19,000
2. Austria				
3. Belgium				13,500
4. Denmark	15,500 +	57,100 —	20,500 +	16,300 +
5. Spain				
6. France	9,300	30,000	12,000	10,500 =
7. Greece				
8. Italy	20,000	70,000	60,000	30,000 =
9. Luxembourg				
10. Norway	11,000	33,600 +	..	
11. Netherlands	18,700 —	47,000 =	..	
12. Portugal				
13. United Kingdom	12,400 =	50,700 =	20,800 +	12,700
14. Sweden	15,000	43,000 =	23,800 =	15,900
15. Switzerland				
16. Turkey				
17. Yugoslavia				
Weighted average	14,600	46,500	23,600	15,900

Key: + indicates rising trend;
— indicates falling trend;
= indicates constant trend;
.. indicates no data available.

TABLE V. PRESENT INTERNATIONAL NETWORK

SITUATION AT END OF 1962

COUNTRY	LENGTH IN EACH CATEGORY AND PERCENTAGE OF TOTAL LENGTH						TOTAL LENGTH
	A (MOTORWAY)		II (MORE THAN 2 LANES)		I (2 LANES)		
	Km	%	Km	%	Km	%	Km
1. *Germany*	2,737	47	128	2	2,949	51	5,814
2. Austria	227	12	86	5	1,498	82	1,811
3. *Belgium*	165	15	516	47	420	38	1,101
4. Denmark	69	8	343	39	474	53	886
5. Spain	39	1	376	6	5,517	93	5,932[1]
6. *France*	190	3	1,970	33	3,783	64	5,943
7. Greece	—	—	22	1	3,029	99	3,051
8. *Italy*	1,360	21	338	5	4,729	74	6,427
9. *Luxembourg*	—	—	90	100	—	—	90
10. Norway	—	—	14	1	2,264	99	2,278
11. *Netherlands*	477	35	157	12	720	53	1,354
12. Portugal	32	3	—	—	1,203	97	1,235
13. United Kingdom	178	11	827	51	608	38	1,613
14. Sweden	106	3	62	2	3,257	95	3,425
15. Switzerland	13	1	56	4	1,201	95	1,270
16. Turkey	—	—	51	1	5,454	99	5,505
17. Yugoslavia	455	21	—	—	1,703	79	2,158[1]
E.C.M.T.	6,048	12	5,036	10	38,809	78	49,893
E.E.C.	4,929	24	3,199	15	12,601	61	20,729

1. Spain: 396 km of unidentified roads classified as Cateogry I.
Yugoslavia: 440 km of unidentified roads classified as Category I.

Table VI. IMPROVEMENT OF INTERNATIONAL ROAD NETWORKS

Situation at end 1962

E.E.C. countries are in italics

COUNTRY	TOTAL LENTGH (IN KM)	LENGHT NORMALIZED IN CAT. A. KM	CAT. II KM	CAT. II %	CAT. I KM	CAT. I %	TOTAL LENGTH NORMALIZED (IN KM)	OVERALL RATIO OF NORMALIZED LENGTH (%)
1. *Germany*	5,814	2,737	64	50	1,149	38	3,950	68
2. Austria	1,811	227	55	68	412	27	694	38
3. *Belgium*	1,101	165	310	60	175	41	650	59
4. Denmark	886	69	343	100	237	50	649	73
5. Spain	5,931	39	238	63	2,874	52	3,151	53
6. *France*	5,943	190	520	26	2,892	76	3,602	61
7. Greece	3,051	—	22	100	753	24	775	25
8. *Italy*	6,427	1,360	338	100	2,998	59	4,696	72
9. *Luxembourg*	90	—	49	54	—		49	54
10. Norway	2,278	—	10	79	629	27	639	28
11. *Netherlands*	1,354	477	105	66	467	64	1,049	77
12. Portugal	1,235	32	—		192	15	224	19
13. United Kingdom	1,649	178	639	74	68	11	885	54
14. Sweden	3,425	106	30	48	2,360	72	2,496	73
15. Switzerland	1,270	13	53	94	779	64	845	67
16. Turkey	5,505	—	51	100	3,138	57	3,189	58
17. Yugoslavia	2,157	455	..		..		..	..
E.C.M.T.	49,893	6,048	2,827	56	19,123	48	27,543	55
E.E.C.	20,729	4,929	1,386	43	7,681	59	13,996	67

Table VII. INTERNATIONAL ROAD NETWORK

Length (in km) of sections of adequate capacity and percentage of total length

COUNTRY	CATEGORY A KM	CATEGORY II KM	CATEGORY II %	CATEGORY I KM	CATEGORY I %	ALL CATEGORIES	% OF TOTAL NETWORK
1. Germany	2,737	128	(100)	2,306	(78)	5,171	89
2. Austria	227	86	(100)	1,137	(76)	1,450	80
3. Belgium	165	267	(52)	395	(94)	827	75
4. Denmark							72
5. Spain						637	
6. France	190	495	(25)	3,350	(88)	4,035	68
7. Greece							
8. Italy							
9. Luxembourg	—	49	(54)	—		49	54
10. Norway	—	10	(71)	2,101	(93)	2,111	93
11. Netherlands	474	77	(49)	494	(69)	1,045	77
12. Portugal						1,126	91
13. United Kingdom	178	589	(71)	216	(36)	983	61
14. Sweden							
15. Switzerland							
16. Turkey							
17. Yugoslavia						2,158	100
Length with adequate capacity		*1,701*		*9,999*		*19,592*	81
Total length		2,875		10,136		20,847	
Average percentage with adequate capacity	100 %	43.6 %		82.5 %			

TABLE VIII. ROAD INVESTMENT (INTERNATIONAL NETWORK)

GROSS INVESTMENT IN MILLIONS OF DOLLARS

E.E.C. countries are in italics

COUNTRY	1961	1962	ESTIMATES FOR 1963 (INTERNATIONAL NETWORK)	COMPLETE NETWORK
1. *Germany*	188.0	156.9	143.0	1.400
2. Austria	13.2	8.4	9.9	81
3. *Belgium*	23.7	25.0	36.0	72
4. Denmark	4.8	6.5		31
5. Spain		59.0	92,0	698
6. *France*	44.0	50.0	108.0	486
7. Greece	23.4	27.9[1]		
8. Italy	32.6	38.0[1]		
9. *Luxembourg*	0.5	0.6	0.6	4
10. Norway	8.0	9.6	11.6	65
11. *Netherlands*	25.9	31.8	30.9	178
12. Portugal	4.7	5.7	1.7	15
13. United Kingdom	45.0	59.5	61.6	549
14. Sweden	25.0	24.0	28.0	121
15. Switzerland	41.0	98.0	120.0	210
16. Turkey	10.2	6.9[1]		
17. Yugoslavia	30.2	2.8	2.7	8
Total	520.0 (16 countries)	610.6		
E.E.C.	314.7	302.3		

1. Estimates prepared in 1961.

TABLE IX. GOODS TRAFFIC CARRIED BY INLAND WATERWAYS

'000.

COUNTRY	YEAR	INTERNAL TRAFFIC	INTERNATIONAL TRAFFIC		GOODS IN TRANSIT	TOTAL TONNAGE CARRIED	TOTAL TON-KILOMETRES (MILLIONS)	AVERAGE LENGTH OF HAUL (KM)
			LOADED	DISCHARGED				
Federal Republic of Germany[1]	1955	64,418	21,908	31,606	6,680	124,612	28,624	230
	1960	86,797	31,775	45,847	6,943	171,362	40,390	236
	1961	90,817	32,167	42,680	6,551	172,215	40,214	234
	1962	90,795	30,569	42,310	6,379	170,053	39,626	233
Austria	1955	284	616	1,738	473	3,112	507	163
	1960	1,190	1,304	3,016	692	6,202	962	155
	1961	664	1,219	2,941	670	5,494	904	164
	1962	691	1,239	2,708	753	5,391	919	170
Belgium	1955	22,572	15,826	16,441	2,001	56,840	4,617	81
	1960	24,379	13,214	20,573	2,991	61,158	5,226	85
	1961	24,821	14,921	21,877	3,496	65,115	5,473	84
	1962	25,522	15,709	22,156	3,254	66,641	5,421	81
France	1955	40,211	7,752	5,475	4,817	58,255	8,917	153
	1960	46,152	7,420	6,955	7,522	68,049	10,773	158
	1961	48,718	7,543	7,759	7,138	71,158	11,262	158
	1962	49,713	6,470	8,064	7,289	71,536	11,234	157
Italy	1955	2,135	1	120	—	2,256	..	..
	1960	2,422	—	118	—	2,540	..	..
	1961	2,356	—	331	—	2,687	..	..
	1962	2,553	..	291	—	2,844	..	..
Netherlands	1955	44,426	33,889	20,369	13,589	112,273	15,255	136
	1960	58,117	50,173	22,983	18,394	149,671	20,020	134
	1961	61,131	49,082	23,475	18,855	152,543	20,247	133
	1962	63,292	49,558	22,868	18,047	153,765	20,281	132
Switzerland	1955	2	457	4,131	164	4,763	14	3
	1960	2	502	6,460	228	7,192	29	4
	1961	2	324	6,493	208	7,027	30	4
	1962	2	294	6,788	182	7,266	31	4
Yugoslavia	1955	2,763	400	122	2,875	6,160	2,106	342
	1960	4,511	692	690	4,152	10,045	3,272	326
	1961	4,839	719	662	3,714	9,934	3,037	306
	1962	4,154	757	736	3,854	9,501	3,194	336

1. Provisional figures for 1962.

TABLE X. RHINE TRANSPORT AT THE GERMAN-NETHERLANDS FRONTIER (EMMERICH/LOBITH)

	UNIT	1955	1960	1961	1962
1. Total traffic	1,000 tons	50,116	70,624	68,422	66,150
	index	*100*	*141*	*137*	*132*
2. Downstream movements	1,000 tons	18,033	24,506	25,031	23,248
	index	*100*	*136*	*139*	*129*
3. Upstream movements	1,000 tons	32,083	46,118	43,391	42,911
	index	*100*	*144*	*135*	*134*
4. Upstream movements not including hydrocarbons	1,000 tons	26,823	37,528	36,509	33,900
	index	*100*	*140*	*136*	*129*
5. Coal and coke (upstream)	1,000 tons	5,563	3,108	2,733	3,407
	index	*100*	*56*	*49*	*61*
6. Iron ore and manganese (upstream)	1,000 tons	8,266	15,955	16,309	13,846
	index	*100*	*193*	*197*	*167*
7. Hydrocarbons (upstream)	1,000 tons	5,260	8,590	6,882	9,011
	index	*100*	*163*	*131*	*160*
8. Other goods (upstream)	1,000 tons	12,994	18,465	17,467	16,647
	index	*100*	*142*	*134*	*132*

TABLE XI. RHINE TRANSPORT AT THE GERMAN-NETHERLANDS FRONTIER (EMMERICH/LOBITH).

('000 tons)

	1961	1962	1963	1963 as % of 1962
Upstream movements :				
January	3,548	4,011	1,022	25
February	3,192	3,398	907	27
March	3,727	4,275	4,354	102
April	3,591	3,618	4,359	120
May	3,713	3,758	4,269	114
June	3,819	4,100		
July	3,876	4,463		
August	4,037	4,361		
September	3,858	3,468		
October	3,130	2,506		
November	3,422	2,170		
December	3,478	2,783		
Year	43,391	42,911		
Downstream movements :				
January	1,958	2,022	230	11
February	1,872	1,996	154	8
March	2,344	2,235	1,650	74
April	2,003	1,882	2,460	131
May	2,134	2,428	2,694	111
June	2,284	2,286		
July	2,132	2,219		
August	2,137	2,308		
September	2,197	1,926		
October	1,946	1,560		
November	2,011	1,219		
December	2,013	1,167		
Year	25,031	23,248		

TABLE XII. NUMBER OF BOATS, BROKEN DOWN BY CARGO CAPACITY, AT END OF 1962

	CLASS	SELF-PROPELLED BARGES			DUMB BARGES[2]			TOTAL CARGO-CARRYING BOATS			TUGS + PUSHERS			
		NUMBER	CARGO CAPACITY		NUMBER	CARGO CAPACITY		NUMBER	CARGO CAPACITY		TYPE	NUMBER	HORSE POWER	
			TOTAL (TONS)	AVERAGE (TONS)		TOTAL (TONS)	AVERAGE (TONS)		TOTAL (TONS)	AVERAGE (TONS)			TOTAL	AVERAGE
WESTERN GERMANY[1]														
Up to 250 tons	O	1,237	173,185	140	203	28,353	140	1,440	201,538	140	Up to 250 h.p.	298	55,899	188
From 251 to 400 tons	I	870	277,733	319	245	78,823	322	1,115	356,556	320	From 251 to 400 h.p.	281	93,457	333
From 401 to 650 tons	II	954	493,664	517	482	262,206	544	1,436	755,870	526	From 401 to 1,000 h.p.	156	91,853	589
From 651 to 1,000 tons	III	1,622	1,399,512	863	995	838,809	843	2,617	2,238,321	855	Over 1,000 h.p.	32	41,475	1,296
From 1,001 to 1,500 tons	IV	200	248,153	1,241	659	869,496	1,319	859	1,117,649	1,301				
Over 1,500	V	6	11,227	1,871	128	231,696	1,810	134	242,923	1,813				
Total		4,889	2,603,474	533	2,712	2,309,383	852	7,601	4,912,857	646	Total	767	282,684	369
AUSTRIA														
Up to 250 tons	O	—	—	—	1	222	222	1	222	222	Up to 250 h.p.	1	105	105
From 251 to 400 tons	I	1	341	341	1	333	333	2	674	337	From 251 to 400 h.p.	3	900	300
From 401 to 650 tons	II	1	555	555	34	19,817	583	35	20,372	582	From 401 to 1,000 h.p.	28	22,720	811
From 651 to 1,000 tons	III	—	—	—	235	197,264	839	235	197,264	839	Over 1,000 h.p.	8	9,370	1,171
From 1,001 to 1,500 tons	IV	—	—	—	41	46,805	1,142	41	46,805	1,142				
Over 1,500	V	—	—	—	—	—	—	—	—	—				
Total		2	896	448	312	264,441	848	314	265,337	845	Total	40	33,095	827
BELGIUM														
Up to 250 tons	O	527	76,848	146	65	8,224	127	592	85,072	144	Up to 250 h.p.	159	17,723	111
From 251 to 400 tons	I	3,426	1,213,184	354	246	88,175	358	3,672	1,301,359	354	From 251 to 400 h.p.	16	4,850	303
From 401 to 650 tons	II	743	375,311	505	233	115,966	498	976	491,277	503	From 401 to 1,000 h.p.	2	1,070	535
From 651 to 1,000 tons	III	327	273,238	836	53	45,850	865	380	319,088	840	Over 1,000 h.p.	—	—	—
From 1,001 to 1,500 tons	IV	90	110,724	1,230	151	203,891	1,350	241	314,615	1,305				
Over 1,500	V	7	11,590	1,656	59	102,852	1,743	66	114,442	1,734				
Total		5,120	2,060,895	403	807	564,958	700	5,927	2,625,853	443	Total	177	23,643	134
FRANCE														
Up to 250 tons	O	455	71,521	157	1,170	100,727	86	1,625	172,248	106	Up to 250 h.p.	309	27,079	88
From 251 to 400 tons	I	4,226	1,496,465	354	1,868	662,657	355	6,094	2,159,122	354	From 251 to 400 h.p.	43	14,567	339
From 401 to 650 tons	II	499	224,791	450	666	292,723	440	1,165	517,514	444	From 401 to 1,000 h.p.	101	65,919	653
From 651 to 1,000 tons	III	244	202,687	831	233	181,964	781	477	384,651	806	Over 1,000 h.p.	10	21,290	2,129
From 1,001 to 1,500 tons	IV	10	11,224	1,122	115	147,892	1,286	125	159,116	1,273				
Over 1,500	V	1	1,516	1,516	85	141,033	1,659	86	142,549	1,656				
Total		5,435	2,008,204	369	4,137	1,526,996	369	9,572	3,535,200	369	Total	473	128,855	272
ITALY														
Up to 250 tons	O	558	44,696	80	2,037	103,258	51	2,595	147,954	57	Up to 250 h.p.	116	7,221	62
From 251 to 400 tons	I	—	—	—	—	—	—	—	—	—	From 251 to 400 h.p.	—	—	—
From 401 to 650 tons	II	11	5,538	503	—	—	—	11	5,538	503	From 401 to 1,000 h.p.	—	—	—
From 651 to 1,000 tons	III	2	1,800	900	2	1,200	600	4	3,000	150	Over 1,000 h.p.	—	—	—
From 1,001 to 1,500 tons	IV	—	—	—	—	—	—	—	—	—				
Over 1,500	V	—	—	—	—	—	—	—	—	—				
Total		571	52,034	91	2,039	104,458	51	2,610	156,492	60	Total	116	7,221	62

1. According to situation at end of 1961.
2. Including pushed barges.

TABLE XII. *(Continued)*

	CLASS	SELF-PROPELLED BARGES			DUMB BARGES[2]			TOTAL CARGO-CARRYING BOATS			TUGS + PUSHERS			
		NUMBER	CARGO CAPACITY		NUMBER	CARGO CAPACITY		NUMBER	CARGO CAPACITY		TYPE	NUMBER	HORSE POWER	
			TOTAL (TONS)	AVERAGE (TONS)		TOTAL (TONS)	AVERAGE (TONS)		TOTAL (TONS)	AVERAGE (TONS)			TOTAL	AVERAGE
LUXEMBOURG														
Up to 250 tons	O	1	10	10	7	2,360	337	32	10,770	337	Up to 250 h.p.	1	...	...
From 251 to 400 tons	I	24	8,400	350							From 251 to 400 h.p.	—	—	—
From 401 to 650 tons	II	—	—	—	3	1,500	500	3	1,500	500	From 401 to 1,000 h.p.	—	—	—
From 651 to 1,000 tons	III	1	900	900	—	—	—	1	900	900	Over 1,000 h.p.	—	—	—
From 1,001 to 1,500 tons	IV	—	—	—	1	1,400	1,400	1	1,400	1,400				
Over 1,500	V	—	—	—	—	—	—	—	—	—				
Total		26	9,310	358	11	5,260	478	37	14,570	394	Total	1	...	...
NETHERLANDS														
Up to 250 tons	O	7,076	798,980	113	5,889	459,855	78	12,965	1,258,835	97	Up to 250 h.p.	1,791	195,998	109
From 251 to 400 tons	I	1,962	642,501	327	451	145,377	322	2,413	787,878	327	From 251 to 400 h.p.	204	63,350	311
From 401 to 650 tons	II	1,386	707,991	511	837	428,737	512	2,223	1,136,728	511	From 401 to 1,000 h.p.	154	84,022	546
From 651 to 1,000 tons	III	556	460,575	828	491	410,966	837	1,047	871,541	832	Over 1,000 h.p.	25	40,180	1,607
From 1,001 to 1,500 tons	IV	162	203,213	1,254	534	690,256	1,293	696	893,469	1,284				
Over 1,500	V	11	23,515	2,138	320	643,040	2,010	331	666,555	2,014				
Total		11,153	2,836,775	254	8,522	2,778,231	326	19,675	5,615,006	286	Total	2,174	383,550	176
SWITZERLAND														
Up to 250 tons	O	5	940	188	—	—	—	5	940	188	Up to 250 h.p.	3	575	192
From 251 to 400 tons	I	26	8,196	315	1	358	358	27	8,554	317	From 251 to 400 h.p.	—	—	—
From 401 to 650 tons	II	53	28,439	537	1	647	647	54	29,086	539	From 401 to 1,000 h.p.	4	2,330	583
From 651 to 1,000 tons	III	164	138,974	847	12	11,584	965	176	150,558	855	Over 1,000 h.p.	9	25,205	2,801
From 1,001 to 1,500 tons	IV	91	109,370	1,202	48	63,080	1,314	139	172,450	1,241				
Over 1,500	V	18	30,553	1,697	14	24,024	1,716	32	54,577	1,706				
Total		357	316,472	886	76	99,693	1,312	433	416,165	961	Total	16	28,110	1,757
YUGOSLAVIA														
Up to 250 tons	O	12	2,058	172	115	23,951	208	127	26,009	205	Up to 250 h.p.	154	14,659	95
From 251 to 400 tons	I										From 251 to 400 h.p.			
From 401 to 650 tons	II	5	3,082	616	192	102,870	536	197	105,952	538	From 401 to 1,000 h.p.	63	46,318	735
From 651 to 1,000 tons	III	1	651	651	290	215,071	742	291	215,722	741	Over 1,000 h.p.			
From 1,001 to 1,500 tons	IV	—	—	—	57	62,268	1,092	57	62,268	1,092				
Over 1,500	V	—	—	—	—	—	—	—	—					
Total		18	5,791	322	654	404,160	618	672	409,951	610	Total	217	60,977	281

2. Including pushed barges.

TABLE XIII. DEVELOPMENT OF THE FLEET

COUNTRY	AT END OF YEAR	SELF-PROPELLED BARGES			DUMB BARGES[2]			TOTAL CARGO-CARRYING BOATS			TUGS		
		NUMBER	CARGO CAPACITY		NUMBER	CARGO CAPACITY		NUMBER	CARGO CAPACITY		NUMBER	HORSE POWER	
			TOTAL (TONS)	AVERAGE (TONS)		TOTAL (TONS)	AVERAGE (TONS)		TOTAL (TONS)	AVERAGE (TONS)		TOTAL	AVERAGE
Federal Republic of Germany[1]	1955	3,094	1,363,870	441	3,614	2,650,609	733	6,708	4,014,479	598	834	319,130	383
	1960	4,560	2,380,679	522	2,931	2,459,086	839	7,491	4,839,765	646	788	290,678	371
	1961	4,889	2,603,474	533	2,712	2,309,383	852	7,601	4,912,857	646	767	282,684	369
	1962	5,168	2,846,974	551	2,470	2,121,883	859	7,638	4,968,857	651	761	282,434	371
Austria	1955	2	1,118	559	261	205,729	788	263	206,847	786	35	26,490	757
	1960	2	896	448	299	249,233	834	301	205,129	831	38	30,885	813
	1961	2	896	448	303	253,662	837	305	254,558	835	40	31,905	798
	1962	2	896	448	312	264,441	848	314	265,337	845	40	33,095	827
Belgium	1955	4,386	1,522,546	347	1,764	879,238	498	6,150	2,401,784	391	225	26,140	116
	1960	5,128	1,952,619	381	963	614,040	638	6,091	2,566,689	421	176	24,529	139
	1961	5,153	2,021,587	392	877	586,776	669	6,030	2,608,363	433	171	23,573	138
	1962	5,120	2,060,895	403	807	564,958	700	5,927	2,625,853	443	177	23,643	134
France	1955	3,925	1,396,719	356	6,506	2,378,053	366	10,431	3,774,772	362	429	135,025	315
	1960	5,037	1,849,895	367	4,706	1,701,925	362	9,743	3,551,820	365	475	129,751	273
	1961	5,243	1,935,459	369	4,404	1,611,997	366	9,647	3,547,456	368	468	126,865	271
	1962	5,435	2,008,204	369	4,137	1,526,996	369	9,572	3,535,200	369	473	128,855	272
Italy	1955	353	36,766	104	1,256	102,686	82	1,609	139,452	87	80	6,323	79
	1960	536	47,426	88	1,902	104,150	55	2,438	151,576	62	99	7,140	72
	1961	572	50,378	88	1,882	104,167	55	2,454	154,545	63	97	6,935	71
	1962	571	52,034	91	2,039	104,458	51	2,610	156,492	60	116	7,221	62
Luxembourg	1955	—	—	—	—	—	—	—	—	—	—	—	—
	1960	—	—	—	—	—	—	—	—	—	—	—	—
	1961	26	9,310	358	11	5,260	478	37	14,570	394	1	..	..
	1962	26	9,310	358	11	5,260	478	37	14,570	394	1	..	..
Netherlands	1955	8,068	1,473,189	195	7,420	2,732,459	368	15,488	4,205,648	272	..	..	..
	1960	10,411	2,391,367	230	8,513	2,737,446	322	18,924	5,128,923	271	2,119	352,965	167
	1961	10,736	2,583,410	241	8,506	2,741,857	322	19,242	5,325,267	277	2,128	363,097	171
	1962	11,153	2,836,775	254	8,522	2,778,231	326	19,675	5,615,006	286	2,174	383,550	176
Switzerland	1955	274	203,896	744	64	63,636	994	338	267,532	792	19	24,800	1,305
	1960	351	305,639	871	56	70,141	1,253	407	375,780	923	16	23,355	1,460
	1961	353	312,048	884	59	76,036	1,289	412	388,084	942	16	25,205	1,576
	1962	357	316,472	886	76	99,693	1,312	433	416,165	961	16	28,110	1,757
Yugoslavia	1955	18	5,137	285	726	302,327	416	744	307,464	413	145	34,685	239
	1960	21	6,304	300	600	361,458	602	621	367,762	592	167	50,834	304
	1961	18	5,915	329	610	383,328	618	628	389,243	620	188	47,306	252
	1962	18	5,791	322	654	404,160	618	672	409,951	610	217	60,977	281

1. For 1962 : provisional figures—source : Deutsche Binnenschiffahrt 1962, published by the Federal Ministry of Transport.
2. Including pusher barges.

Table XIV. NEW BOATS BROUGHT INTO SERVICE DURING 1962

COUNTRY	CLASS	SELF-PROPELLED BARGES			DUMB BARGES[2]			TOTAL CARGO-CARRYING CRAFT			TUGS + PUSHERS			
		NUMBER	CARGO CAPACITY		NUMBER	CARGO CAPACITY		NUMBER	CARGO CAPACITY		TYPE	NUMBER	HORSE POWER	
			TOTAL (TONS)	AVERAGE (TONS)		TOTAL (TONS)	AVERAGE (TONS)		TOTAL (TONS)	AVERAGE (TONS)			TOTAL	AVERAGE
WESTERN GERMANY[1]														
Up to 250 tons	O	75	9,360	125	4	359	90	79	9,719	123	Up to 250 h.p.	9	1,557	173
From 251 to 400 tons	I	56	18,110	323	8	2,627	328	64	20,737	324	From 251 to 400 h.p.	2	585	293
From 401 to 650 tons	II	83	43,168	520	8	4,505	563	91	47,673	524	From 401 to 1,000 h.p.	1	430	430
From 651 to 1,000 tons	III	121	105,938	876	9	7,796	866	130	113,734	875	Over 1,000 h.p.	—	—	—
From 1,001 to 1,500 tons	IV	31	39,190	1,264	4	5,630	1,408	35	44,820	1,281				
Over 1,500 tons	V	2	3,863	1,932	2	3,413	1,707	4	7,276	1,819				
Total		368	219,629	597	35	24,330	695	403	243,959	605	Total	12	2,572	211
AUSTRIA														
Up to 250 tons	O	—		—	—	—	—	—	—	—	Up to 250 h.p.	—	—	—
From 251 to 400 tons	I	—	—	—	—	—	—	—	—	—	From 251 to 400 h.p.	—	—	—
From 401 to 650 tons	II	—	—	—	—	—	—	—	—	—	From 401 to 1,000 h.p.	2	1,700	850
From 651 to 1,000 tons	III	—	—	—	2	1,760	880	2	1,760	880	Over 1,000 h.p.	—	—	—
From 1,001 to 1,500 tons	IV	—	—	—	7	8,898	1,271	7	8,898	1,271				
Over 1,500 tons	V	—	—	—	—	—	—	—	—	—				
Total		—	—	—	9	10,658	1,184	9	10,658	1,184	Total	2	1,700	850
BELGIUM														
Up to 250 tons	O	1	81	81	—	—	—	1	81	81	Up to 250 h.p.	—	—	—
From 251 to 400 tons	I	40	15,188	380	—	—	—	40	15,188	380	From 251 to 400 h.p.	—	—	—
From 401 to 650 tons	II	11	6,274	570	—	—	—	11	6,274	570	From 401 to 1,000 h.p.	—	—	—
From 651 to 1,000 tons	III	20	16,684	834	—	—	—	20	16,684	834	Over 1,100 h.p.	—	—	—
From 1,001 to 1,500 tons	IV	11	12,938	1,176	1	1,413	1,413	12	14,351	1,196				
Over 1,500 tons	V	—	—	—	—	—	—	—	—	—				
Total		83	51,165	616	1	1,413	1,413	84	52,578	626	Total	—	—	—
FRANCE														
Up to 250 tons	O	3	563	188	4	388	97	7	951	136	Up to 250 h.p.	—	—	—
From 251 to 400 tons	I	9	3,444	383	29	11,281	389	38	14,725	388	From 251 to 400 h.p.	—	—	—
From 401 to 650 tons	II	4	1,801	450	14	6,738	481	18	8,539	474	From 401 to 1,000 h.p.	7	5,240	749
From 651 to 1,000 tons	III	—	—	—	1	982	982	1	982	982	Over 1,000 h.p.	—	—	—
From 1,001 to 1,500 tons	IV	—	—	—	4	4,528	1,132	4	4,528	1,132				
Over 1,500 tons	V	—	—	—	28	45,852	1,638	28	45,852	1,638				
Total		16	5,808	363	80	69,769	872	96	75,577	787	Total	7	5,240	749
ITALY														
Up to 250 tons	O	26	3,102	119	102	1,343	13	128	4,445	35	Up to 250 h.p.	2	259	130
From 251 to 400 tons	I	—	—	—	—	—	—	—	—	—	From 251 to 400 h.p.	—	—	—
From 401 to 650 tons	II	1	468	468	—	—	—	1	468	468	From 401 to 1,000 h.p.	—	—	—
From 651 to 1,000 tons	III	—	—	—	—	—	—	—	—	—	Over 1,000 h.p.			
From 1,001 to 1,500 tons	IV	—	—	—	—	—	—	—	—	—				
Over 1,500 tons	V	—	—	—	—	—	—	—	—	—				
Total		27	3,570	132	102	1,343	13	129	4,913	38	Total	2	259	130
NETHERLANDS														
Up to 250 tons	O	52	6,515	125	68	9,470	139	120	15,985	133	Up to 250 h.p.	22	3,044	138
From 251 to 400 tons	I	136	47,588	350	14	4,615	330	150	52,203	348	From 251 to 400 h.p.	6	1,900	317
From 401 to 650 tons	II	113	58,449	517	25	13,580	543	138	72,029	522	From 401 to 1,000 h.p.	5	3,280	656
From 651 to 1,000 tons	III	69	57,145	828	22	18,780	854	91	75,925	834	Over 1,000 h.p.	3	4,800	1,600
From 1,001 to 1,500 tons	IV	22	26,184	1,190	10	13,463	1,346	32	39,647	1,239				
Over 1,500 tons	V	3	6,581	2,194	25	42,023	1,681	28	48,604	1,736				
Total		395	202,462	513	164	101,931	622	559	304,393	545	Total	36	13,024	362
SWITZERLAND														
Up to 250 tons	O	—	—	—	—	—	—	—	—	—	Up to 250 h.p.	—	—	—
From 251 to 400 tons	I	—	—	—	—	—	—	—	—	—	From 251 to 400 h.p.	—	—	—
From 401 to 650 tons	II	1	643	643	—	—	—	1	643	643	From 401 to 1,000 h.p.	—	—	—
From 651 to 1,000 tons	III	3	2,971	990	—	—	—	3	2,971	990	Over 1,000 h.p.	—	—	—
From 1,001 to 1,500 tons	IV	2	2,557	1,279	12	15,094	1,258	14	17,651	1,261				
Over 1,500 tons	V	—	—	—	6	9,959	1,660	6	9,959	1,660				
Total		6	6,171	1,028	18	25,023	1,392	24	31,224	1,301	Total	—	—	—
YUGOSLAVIA														
Up to 250 tons	O	2	149	75	1	72	72	3	221	74	Up to 250 h.p.	8	777	97
From 251 to 400 tons	I										From 251 to 400 h.p.	—	—	—
From 401 to 650 tons	II	—	—	—	4	2,470	618	4	2,470	618	From 401 to 1,000 h.p.	—	—	—
From 651 to 1,000 tons	III	—	—	—	1	757	757	1	757	757	Over 1,000 h.p.	1	2,120	2,120
From 1,001 to 1,500 tons	IV	—	—	—	14	17,008	1,215	14	17,008	1,215				
Over 1,500 tons	V	—	—	—	—	—	—	—	—	—				
Total		2	149	75	20	20,307	1,015	22	20,456	930	Total	9	2,897	3,222

1. During 1961.
2. Including pushed barges.
In Luxembourg, no new boats were brought into service during 1962.

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REPORT BY THE COMMITTEE OF DEPUTIES
on investment and traffic developments in 1962

REPORT OF THE COMMITTEE OF DEPUTIES ON PROVISIONAL FORECASTS OF THE NUMBERS OF PRIVATE CARS UNTIL 1970

[*CM(63)17*]

I. INTRODUCTION

At its May 1962 session the Council of Ministers adopted a provisional report on the forecasting of goods traffic demand in 1970. During the discussion of this report, it was repeatedly stressed that goods traffic and passenger traffic were complementary, since investment programmes could only be drawn up in relation to the development of both transport categories. This was the reason the Council of Ministers had requested that a general study of passenger traffic in 1970 be made.

The Committee for the Co-ordination of Investment instructed to undertake the necessary studies decided to concentrate first on a forecast of passenger traffic by road, since this type of traffic, which is more difficult to ascertain, appeared to require lengthier investigation. The first step in this direction consisted in assessing private car traffic. A number of Member countries were unable to proceed with the fundamental studies within the required time; and an even larger number had neither statistics nor acceptable estimates for either car kilometres or passenger kilometres.

Under these conditions, the Committee for the Co-ordination of Investment thought it advisable to postpone even an estimate of private passenger traffic and for the time being to confine its attention to a provisional forecast of numbers of private cars, which is only a first stage but does give some indication of the congestion of the road network.

It was gratifying to find that a large number of Member countries took part in the forecasting work. Out of a total of eighteen countries, sixteen supplied their basic statistics to the E.C.M.T., and fifteen countries prepared national studies on this subject, i.e. all the Member countries except Austria, Greece and Yugoslavia.

As the basic data are to some extent homogeneous, the results obtained may be considered to be reasonably comparable as between one country and another.

II. STUDY OF FORECASTING METHODS

1. Preliminary considerations

a) The trend of the number of private cars depends on factors such as income, number of inhabitants, geographical distribution of the population and its social and economic structure. Yet these factors do not suffice to explain the trend which has occurred, and other factors intervene which are difficult to isolate and hence even more difficult to measure. The consequence is that the demand for private cars is to some extent an independent feature of economic activity.

b) Private cars are a class of goods which are not consumed at once but used over a period of time. Hence, for a given number of inhabitants, the number of cars cannot increase indefinitely but will tend towards a certain limit. It is difficult to fix this limit ahead of time, and at best certain assumptions can only be advanced. It is even more difficult to determine exactly when such a limit will be reached.

The above points clearly indicate the nature of the problems and the difficulties entailed in any projection of numbers of private cars.

The most important factors which influence such a demand are :

— General demographic data, social structure, general economic conditions and the degree of industrialisation in particular, size and distribution of national income;

— Economic conditions specifically applying to motorisation, such as credit policy, governmental measures concerning the purchase and use of private cars, car prices, taxes, duties and maintenance

costs for vehicles, and even road congestion;
— The structure of individual needs which characterises the psychological behaviour of the individual, and in particular his desire to own a car.

2. Classification of forecasting methods

The reports which have reached the E.C.M.T. enable a general distinction to be made between the possible forecasting methods which are briefly outlined below:

a) *Extrapolation of the tendency*

This method is generally suitable for forecasts covering only a few years or for checking the results obtained by other methods. If used for long-term forecasts, considerable changes of structure, such as in the proximity of the saturation point, may well happen to be disregarded, since little or no indication of them would have been observed in the past.

In point of fact, it is the choice of reference period which largely determines whether this method can be used or not. It should be noted that the extrapolation of tendencies when used by itself would give improbable results in the long run.

b) *Global method*

Under this method the aim is to establish relations between the number of vehicles and one or more macro-economic values which are assumed to exert a major influence on the trend in numbers of vehicles. These may include real gross national production (overall or per capita), real national income (overall or per capita), available family income and private consumption. One or more of these variables may be chosen as representative of the economic development and the number of vehicles is considered as a linear or other function of these factors.

The method is relatively easy to apply by a large number of countries because its statistical requirements are few. The E.C.M.T. therefore recommended its use to Member countries. Yet it is too sketchy to enable the complexity of the phenomena under study to be taken fully into account. As some of the factors mentioned in Section[1] are still not included, it is recommended that the results be regarded with some reserve and checked as far as possible by other methods. This is particularly necessary if there are reasons for assuming that the elasticity of the dependent variables changes systematically with time in relation to reference values. The nearer the number of cars approaches to saturation point the more this need will be felt.

Although past trends in numbers of cars can thus be satisfactorily explained, forecasts prepared by the global method have produced results which do not accord with those obtained by other methods, as shown by experience in several countries.

c) *Comparison with more highly motorised countries*

This method consists in forecasting the number of cars in a given country by comparison with one or more countries which have a higher level of economic development. As the number and density of the population differ from one country to another, the comparison of course cannot be made in absolute figures but presupposes the choice of a common basis, such as the degree of motorisation, whether expressed as the number of cars per thousand inhabitants or conversely as the number of inhabitants per car.

Starting from the bases referred to above, comparisons have already been made between several countries and other more highly motorised countries, such as the United States.

A word of caution is needed, however: this method can be applied only to countries with similar geographical, political, economic and social structures. This condition is rarely fulfilled—hence the dangers of the procedure. Yet the method does lend itself to the comparison of results obtained in other ways.

d) *Estimate of the net growth of the number of vehicles*

This method is so much more complicated than the previous one that only its fundamental features can here be described. The number of vehicles in a given year is used as a base. This number is made up of vehicles belonging to different age groups and which will sooner or later be scrapped and taken off the road. Newly purchased cars will also come into use, partly replacing those which have been scrapped and partly increasing the total number. The numbers for any future year are therefore derived from the numbers in the previous year, less the number of cars to be scrapped, plus new registrations.

The number of vehicles scrapped is considered as a function of the age structure of existing vehicles, and purchases of new vehicles as a

function of available family incomes. If the calculation is made in stages for several years, a longterm forecast is obtained.

The method requires fairly detailed basic data to start with; it is also dependent on several hypotheses, such as the future trend of available family incomes, the propensity of families to acquire motor cars, and numbers of cars taken off the road each year.

e) *Model showing "diffusion effect"*

This method is based on a study by H. Faure[1]. It combines into an econometric model the chief factors which determine the trend in numbers of private cars.

The model is designed according to the distribution of cars by income categories of owners, using the household rather than the individual as a starting point. From the point of view of rate of growth of family motorisation, the model considers two factors : one set reflecting the growth and distribution of income, and another due to the "diffusion effect" among the public. This effect takes into consideration changes in individual attitudes towards motor cars. It largely determines the independent increase in numbers of cars.

The method is fairly complicated and requires a large number of basic statistics.

3. COMMENTS

The foregoing brief outline shows that the methods used range from simple processes to complicated econometric studies; each method has its advantages and disadvantages, though at the present stage it is impossible to make any avaluation of them. Each country can only choose the method which it considers most suitable, in the light of its national situation as regards private car transport and according to the statistics available. In any event, it seems clear that if possible countries should make their forecasts by two distinct methods for checking purposes.

Another seemingly desirable step is that thorough methodological studies be made in Member countries and that opportunities for improving and co-ordinating national statistics be considered.

1. Hubert Faure : « Un modèle prospectif du marché de l'automobile », (Prospective model of the motor-car market), Consommation (Annales du C.R.E.D.O.C.), October-December 1959.

III. RESULTS

A. DESCRIPTION OF PRELIMINARY CONDITIONS

Whatever precautions are taken, agreement of the results of an economic forecast with actual developments can never be more than probable.

A knowledge of certain details is essential for a correct interpretation of results :

1. *Assumptions*

Any forecast of numbers of private cars is built up from a number of assumptions, most of which relate to the setting in which those numbers develop. Such general assumptions are not explicitly stated in the studies. They postulate, for example, some measure of political, economic and social stability, and it is taken for granted that no sudden change will occur in the technical conditions of motorisation or in human attitudes towards motor cars. It is important here to stress that fundamental assumptions do not include any future restrictive government policy affecting the purchase or use of motor vehicles, whether such measures are direct or are applied indirectly as through taxation.

The capacity of the road network undoubtedly has an indirect effect on the development of motorisation. The figures given in the forecast of the number of vehicles are valid only insofar as the capacity of the road network will be sufficient in 1970. This is one of the fundamental assumptions of the present forecasts.

In addition to this set of assumptions, which are common to all national forecasts, a second set may be distinguished, consisting of assumptions specific to the various forecasting methods. A few of these are to some extent directly determined by the structure of an econometric model, such as the choice of independent variables and the general form of the function which expresses the relation between those variables and the numbers of vehicles.

Specific assumptions also include those which relate to the future trend of the independent variables and others which constitute an essential feature of all more detailed methods : assumptions as to saturation point and the probable time when it will be reached, the future trend of the life of motor vehicles or of the motorisation rate by income groups, etc.

2. *Field of study*

The range of study covered depends in principle on the definition of private cars.

According to E.C.M.T. recommendations, the term "private car" should be understood to mean any road motor vehicle other than a motorcycle intended for passengers and seating less than ten people including that of the driver. The term "private car" thus covers taxis and private hire cars, provided they contain less than ten seats.

By and large, the field covered by the various national studies conforms to this definition. There are, however, some structural differences between Member countries in regard to statistics or in the taxation of small goods vehicles. This means, in particular, that multi-purpose vehicles and delivery vans count as private cars in some cases but not in others.

Where such differences have been pointed out in the national studies, they are mentioned in Table I.

3. *Basic data*

Basic data concerning actual numbers of private cars in recent years are generally adequate. Frequently, however, the statistics available do not enable numbers to be broken down by owners' income groups, as would be particularly desirable for the use of certain detailed methods.

In this connection, attention must be paid to the fact that statistical information on numbers of vehicles reflects the position on a given day. In certain countries this day falls in the middle and in others at the end of the year concerned. This remark also applies to basic data concerning population.

B. Numbers of private cars in 1970

In order to make the tables of figures easier to read, an attempt has been made to sum up in Table I the essential features of the national studies. This general table makes it easier to interpret the data in Tables II to V, which have been prepared from different points of view.

Four tables and five graphs given a general picture of the statistical results; at the same time these tables reproduce the basic data describing trends during the 1950's.

Subject to the reservations already mentioned, an analysis of the study enables the following comments to be made:

1. *Trends in numbers of private cars*

The first part of Table II sets out trends in numbers since 1950, in absolute figures, and the estimate of the numbers in 1970 which countries have adopted as being the most probable.

The data in Tables II and III and graphs 1 and 2 show that motorisation developed very rapidly after 1950: in each country this trend has had the effect of increasing numbers several times over since that date. For most countries, the rate of increase in the past amounts to be more than 300 per cent and even 800 per cent in extreme cases. Table III shows the average annual percentage of growth in numbers for the basic and forecast periods. It will be noted that the anticipated development is generally less rapid than in the previous period.

As regards the estimated trend until 1970, each country must apparently expect at least a twofold increase between 1960 and 1970.

2. *Trends in the degree of motorisation*

So as to take into consideration the differences in population among the countries, the second part of Table II and Graphs 3 and 4 give numbers of cars per thousand inhabitants.

Whereas in 1955 no country reached a level of motorisation as high as 100 vehicles per 1,000 inhabitants, by 1961 nearly half the countries shown in this table had already reached or even exceeded that level. In these countries from 1 to 2 people out of every 10 thus owned a car.

The outstanding differences in motorisation between countries which have reached a relatively high level of industrialisation also seem to indicate that a forecasting method based on a comparison with the trend ascertained in other countries cannot generally give satisfactory results.

3. *Comparison between estimates of numbers of private cars obtained by different methods*

In Table IV the reader will find a comparison of the results obtained by the "global" method on the one hand and by a detailed method on the other.

Some of the differences to be found lead to the conclusion that great caution is needed in drawing up forecasts concerning private cars, especially as saturation point approaches.

4. *Comparison between trends in car numbers, population and economic activity*

a) *Indices*

Table V compares growth trends in the various Member countries in numbers of private

cars and those of two particularly representative factors of economic and social development: G.N.P. or national income and population. This comparison, expressed in the form of indices (1960 = 100), is also given in Graph 5.

Two conclusions may be derived from the indices in Table V:

i) The relative increase in numbers is high in all countries; with the exception of Belgium and Luxembourg, the indices for 1970 show no increase of less than 100 per cent compared with 1960 in any country;

ii) There are considerable differences between countries; thus Italy and Spain expect an extraordinarily heavy growth in numbers of private cars between 1960 and 1970, the indices for these countries standing at 375 and 351 respectively. Another group of countries, notably Norway and the Netherlands, expects an index of more than 300 for 1970.

The figures thus give the impression that motorisation in general is remarkably dynamic, but that its trend differs rather widely from one country to another according to the phase entered by the countries in the years concerned.

b) *Elasticities*

The comparison between numbers of vehicles and economic activity is worthy of special attention from another point of view. Table V (Columns 7 to 10) therefore gives, by countries and by periods, the coefficients of average elasticity of the number of private cars in ratio to the value representing economic activity (G.N.P. or national income).

It should be noted that coefficients of elasticity cannot be compared as between countries which base their calculation on G.N.P. and those which base it on national income.

It will be seen that these elasticities are subject to wide fluctuations during the different periods, and that with very exceptions they are appreciably above unity.

The figures in Table V show a distinct decrease in the coefficients of elasticity between the periods 1950-1960 and 1960-1970, except for the Netherlands where there is a very slight increase. The general decline of coefficients of elasticity until 1970, varying in extent from one country to another, seems to indicate a less rapid rate of development than in the past. This is a sign that saturation is approaching. Yet none of the countries taking part in the study appear to expect that saturation point will actually be reached by 1970; thus the average elasticities for the future period are without exception considerably above unity.

C. Conclusions

The present study gives statistics dealing solely with numbers of vehicles in the various countries, without affording any possibility of deducing information on the use of private cars (nature, frequency and length of journeys). But as it happens the leading problems of the road—determination of the capacity of roads and of parking areas and the control of traffic in town and country—require data which in addition to numbers of vehicles show their multiple uses in modern transport.

The considerations set out in this report have indicated the difficulties of the study now undertaken, which represents only a first part of the general survey. The preparation of forecasts of passenger traffic is a very long job which will have to be carried out in stages until a general synthesis becomes possible.

The next stage would be to study the use of private cars from the point of view of journeys and numbers of passengers.

TABLE I. TABULATED COMPARISON OF METHODS USE

COUNTRY	SPECIAL FEATURES OF THE DEFINITION OF PRIVATE CARS	COMMENTS ON TI	
		INDEPENDENT VARIABLES	ASSUMPTIONS CONCERNING INDEPENDENT VARIABLES
	1	2	3
Germany	The figures include vans, ambulances and temporarily laid-up vehicles.	Real G.N.P. (at 1954 prices).	*Essential conditions :* 1. Full employment until 197 2. Real economic balance. An estimate has also been mac of the probable future dev lopment of the components real gross national product.
Belgium	The figures for 1950 to 1953 relate to the number of vehicles declared for road tax in any one year. They are not comparable with those published for subsequent years, which refer to the number of vehicles in use at the end of the year. From 1954 onwards, dual-purpose vehicles which may be used to carry persons and goods were also classified in the private car category	Real G.N.P. (at 1953 prices).	Forecast of an annual growth 3.9 per cent in G.N.P. unt 1965 (by the Economic Pr gramming Office). This increase is extended unt 1970.
Denmark	The figures include taxis and vehicles which, under Danish tax regulations, are registered as vans but used to carry passengers.	Real G.N.P. (at 1954 prices).	Annual increase of 3 per cent i G.N.P.
France	In conformity with E.C.M.T. recommendations.	G.N.P. (at 1956 prices).	Annual increase of 5.5-per cen in G.N.P. until 1965 (targe of IVth Plan) and 5 per cen thereafter.
Ireland	The figures include taxis and private-hire cars unless such vehicles seat more than six but less than ten. Not including motor cycles.	Nil	Nil
Italy	—	National income (at 1954 prices).	Increase of 6 per cent in nationa income in 1962, 5 per cent i 1963 to 1965 and 4.5 per cen un 1966 to 1970.

FOR FORECASTING NUMBERS OF PRIVATE CARS

GLOBAL METHOD USED		APPLICATION OF A MORE DETAILED METHOD	CONSIDERATION OF DEGREE OF SATURATION
FORECASTING METHOD	WHETHER RESULTS OBTAINED BY THIS METHOD ARE REGARDED AS VALID		
4	5	6	7
Forecasting by means of coefficients of elasticity.	Yes	The number of cars owned by wage-earners is forecast in relation to real private consumption. Forecasts of other cars by means of a regression function related to G.N.P.	It was assumed that the elasticity of the number of private cars in relation to G.N.P. would decrease in future.
Forecasts of numbers based on the correlation between the trend and forecasts of G.N.P. on the one hand and of the number of vehicles on the other.	Yes	No	No
Forecasting by means of a regression equation (linear function).	No	Comparison with countries in which the degree of motorisation is higher. An annual increase of 2 % p. a. in G.N.P. compared to an expected decrease in the marginale byers' income.	It is estimated that the saturation point will be reached at a car density of 300 cars per 1,000 inhabitants (corresponding to about 1 car per household).
1. Forecasting by means of regression equations (logarithmic functions). 2. Extrapolation of the current trend, corrected by the anticipated trend of economic activity, taking G.N.P. as an indicator.	Estimates obtained by method[1] are wholly improbable. The results of method[2] seem valid.	1. Forecast based on that of purchases for all intermediate years (up to 1970) and on an estimate of the life of vehicles. 2. Forecasting for model showing 'diffusion effet'.	Allowance was made for the degree of saturation by reducing the number of annual registrations given by the regression relationship.
Extrapolation of the trend. The results thus obtained represent an annual increase of 6 per cent in numbers until 1970. This growth rate was considered as a lower limit and the alternative of 7 per cent as an upper limit.	Yes	No	No
Extrapolation of the relation established between national income and number of private cars in use.	No	Forecasting by an indirect method (based on relation between number of passenger kilometres and national income).	In the last six years of the reference period a considerable decline in the elasticity of numbers compared with national income was noted. This decline was allowed for in preparing the forecast.

COUNTRY	SPECIAL FEATURES OF THE DEFINITION OF PRIVATE CARS	COMMENTS ON TH	
		INDEPENDENT VARIABLES	ASSUMPTIONS CONCERNING INDEPENDENT VARIABLES
	1	2	3
Luxembourg	Numbers of motor vehicles include all motor cars except lorries, vans, motor-buses, motor-coaches and motorcycles.	Nil	Nil
Norway	—	National income (at 1954 prices).	3.75 per cent growth in nationa income from 1962 to 1970.
Netherlands	In conformity with E.C.M.T. recommendation.	Per capita national income (at 1954 prices) and industrial production.	Increase of 50 per cent in nationa income between 1960 and 1970 with increase of 12 per cent i population and 66 per cent i industrial production.
Portugal	—	G.N.P. (at 1954 prices).	?
United Kingdom	In conformity with E.C.M.T. regulations.	—	—
Sweden	In conformity with E.C.M.T. recommendations.	—	—
Switzerland	In conformity with E.C.M.T. recommendations.	National income (at 1954 prices).	Three annual rates of increase in the national income till 1970 were adopted : 3.5, 4 and 4.5 per cent respectively.
Turkey	Not including vehicles with more than seven seats.	National income (at 1948 prices).	Annual increase of 7 per cent in national income until 1970 (target of Development Plan).

(continued)

GLOBAL METHOD USED		APPLICATION OF A MORE DETAILED METHOD	CONSIDERATION OF DEGREE OF SATURATION
FORESCASTING METHOD	WHETHER RESULTS OBTAINED BY THIS METHOD ARE REGARDED AS VALID		
4	5	6	7
Forecasting by means of experience gained in 1950-1962 and based on the average annual increase in the number of motor vehicles during that period, with allowance for progressive degree of saturation.	Yes	No	No; saturation point will not be reached by 1970; the number of motor vehicles will still increase after 1970 but probably much more slowly.
Extrapolation of growth rate of numbers of private cars, corrected for estimated trend of increase in national income.	No	Comparison with corresponding motorisation levels in Sweden.	No
Forecasting by means of regression equations (linear and logarithmic functions).	No	Forecasting according to model showing "diffusion effect" for cars owned by families; number of cars used by firms estimated on basis of trend of industrial production, allowing elasticity = 1.	For detailed forecasts, a saturation value of 1.2 cars per family was reckoned.
Forecasting by means of a regression equation (linear function).	Yes	No	No
—	—	The results of several studies made in the United Kingdom are used; the starting points are : 1. Cash value of all vehicles in use. 2. Extrapolation of trend with diminishing growth rate. 3. Analysis of the cash demand for private cars.	Yes
—	—	Comparison with growth og numbers in the United States in 1920-1930. The study was also based on forecasts of economic activity and population in Sweden.	—
Linear extrapolation of the relation ascertained between national income and numbers of vehicles.	Yes	No	No
Forecasting by means of regression equations.	Yes	No	No

TABLE II. TRENDS IN NUMBERS OF PRIVATE CARS AND OF DEGREE OF MOTORISATION
BASIC FIGURES SINCE 1950 AND FORECASTS UNTIL 1970

COUNTRY	THOUSANDS OF CARS (ROUND FIGURES)												
	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1970
1. Germany	570[1]	753[1]	904	1,130	1,397	1,667	2,033	2,456	2,940	3,506	4,341[2]	5,171	13,900
2. Austria	...	59	66	75	92	143	188	233	286	341	404	475	815
3. Belgium[3]	274	304	320	368	440	501	537	605	633	701	753	...	1,450
4. Denmark	127	132	145	172	212	241	271	306	339	389	450	517	1,080
5. Spain	97	98	102	108	116	128	152	172	194	240	291	359	1,020
6. France	...	1,700	1,800	2,020	2,677	3,016	3,477	3,972	4,512	5,019	5,546	6,158	12,500
7. Ireland	92	104	112	114	123	133	140	140	148	158	174	190	310 to 350
8. Italy	342	425	510	613	744	861	1,051	1,238	1,421	1,644	1,945	2,444	7,300
9. Luxembourg	9	11	13	16	19	21	24	28	31	33	37	42	70
10. Norway	65	69	79	91	108	122	134	153	173	193	225	276	715
11. Netherlands	139	157	173	188	219	268	328	376	421	450	512	602	1,576
12. Portugal	60	66	70	77	86	93	103	112	125	139	151	158	315
13. United Kingdom	2,368	2,492	2,615	2,862	3,202	3,634	4,002	4,302	4,669	5,096	5,665	6,128	12,000 to 13,000
14. Sweden	253	313	361	431	536	637	735	863	972	1,088	1,194	1,304	2,600
15. Switzerland	147	168	188	211	238	271	309	347	386	430	485	550	900 to 1,020
16. Turkey	10	13	16	24	26	26	27	30	32	31	34	41	90 to 98

COUNTRY	NUMBER OF CARS PER 1,000 INHABITANTS											
	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
1. Germany	12	16	19	23	28	33	40	48	57	67	82[2]	96
2. Austria	...	9	9	11	13	21	27	33	41	48	...	67
3. Belgium[3]	32	35	37	42	50	56	60	67	70	77	82	...
4. Denmark	29	30	33	39	47	54	60	68	75	85	98	111
5. Spain	3	3	4	4	4	4	5	6	7	8	10	12
6. France	...	44	46	50	63	70	80	91	102	112	122	135
7. Ireland	30	35	38	39	42	45	48	49	52	56	61	67
8. Italy	7	9	11	13	15	18	22	25	29	33	39	48
9. Luxembourg	32	37	43	51	61	69	79	89	100	103	118	129
10. Norway	20	21	24	27	32	36	39	44	49	54	63	76
11. Netherlands	14	15	17	18	21	25	30	34	38	40	45	52
12. Portugal	8	8	9	10	11	11	13	14	15	17	18	18
13. United Kingdom	47	50	52	57	63	71	78	84	90	98	108	116
14. Sweden	36	44	50	60	74	87	100	117	131	146	159	173
15. Switzerland	31	35	39	43	48	54	61	68	74	82	90	100
16. Turkey	0.5	0.6	0.7	1.0	1.1	1.1	1.1	1.2	1.2	1.1	1.2	1.4

1. Estimated.
2. Including the Saar since 1960.
3. The figures for 1950 to 1953 indicate the number of vehicles declared for road tax in any one years. They are not comparable with those published for subsequent years, which refer to the number of vehicles in use at the end of the year (situation at 15th December). The figures for 1956, 1958 and 1960, however, show the situation at 1st August.

... not known.

TABLE III. INCREASE IN NUMBERS OF PRIVATE CARS FROM 1950 TO 1957

COUNTRY	AVERAGE PERCENTAGES OF ANNUAL GROTWH IN THE PERIODS	
	1950-1960	1960-1970
1. Germany	22.5	12.3
2. Austria	23.8[1]	7.3
3. Belgium	10.6	6.8
4. Denmark	13.5	9.2
5. Spain	11.6	13.4
6. France	14.1[1]	8.5
7. Ireland	6.6	5.9 to 7.2
8. Italy	19.0	14.1
9. Luxembourg	15.2	5.0
10. Norway	13.2	12.3
11. Netherlands	13.9	11.9
12. Portugal	9.6	7.6
13. United Kingdom	9.1	7.8 to 8.7
14. Sweden	16.8	8.1
15. Switzerland	12.7	6.4 to 7.7
16. Turkey	13.0	10.2 to 11.2

1. Figure relating to the period 1951-1960, instead of 1950-1960.

TABLE IV. COMPARISON OF ESTIMATES OF NUMBERS OF PRIVATE CARS OBTAINED BY DIFFERENT METHODS

'000 cars.

COUNTRY	ESTIMATES FOR 1970 OBTAINED BY	
	GLOBAL METHOD	MORE DETAILED METHOD
1. Germany	14,900	13,900
2. Austria	815	—
3. Belgium	1,450	1,228 to 1,548
4. Denmark	897	1,080
5. Spain	1,020	—
6. France	25,000 to 26,500	12,500
7. Ireland	310 to 350	—
8. Italy	9,600	7,300
9. Luxembourg	60	—
10. Norway	936	715
11. Netherlands	1,073 to 1,758	1,576
12. Portugal	315	—
13. United Kingdom	—	12 000 to 13,000
14. Sweden	—	2,600
15. Switzerland	900 to 1,020	—
16. Turkey	90 to 98	—

— nil.

TABLE V. INDEX OF NUMBERS OF PRIVATE CARS COMPARED WITH ECONOMIC ACTIVITY AND POPULATION

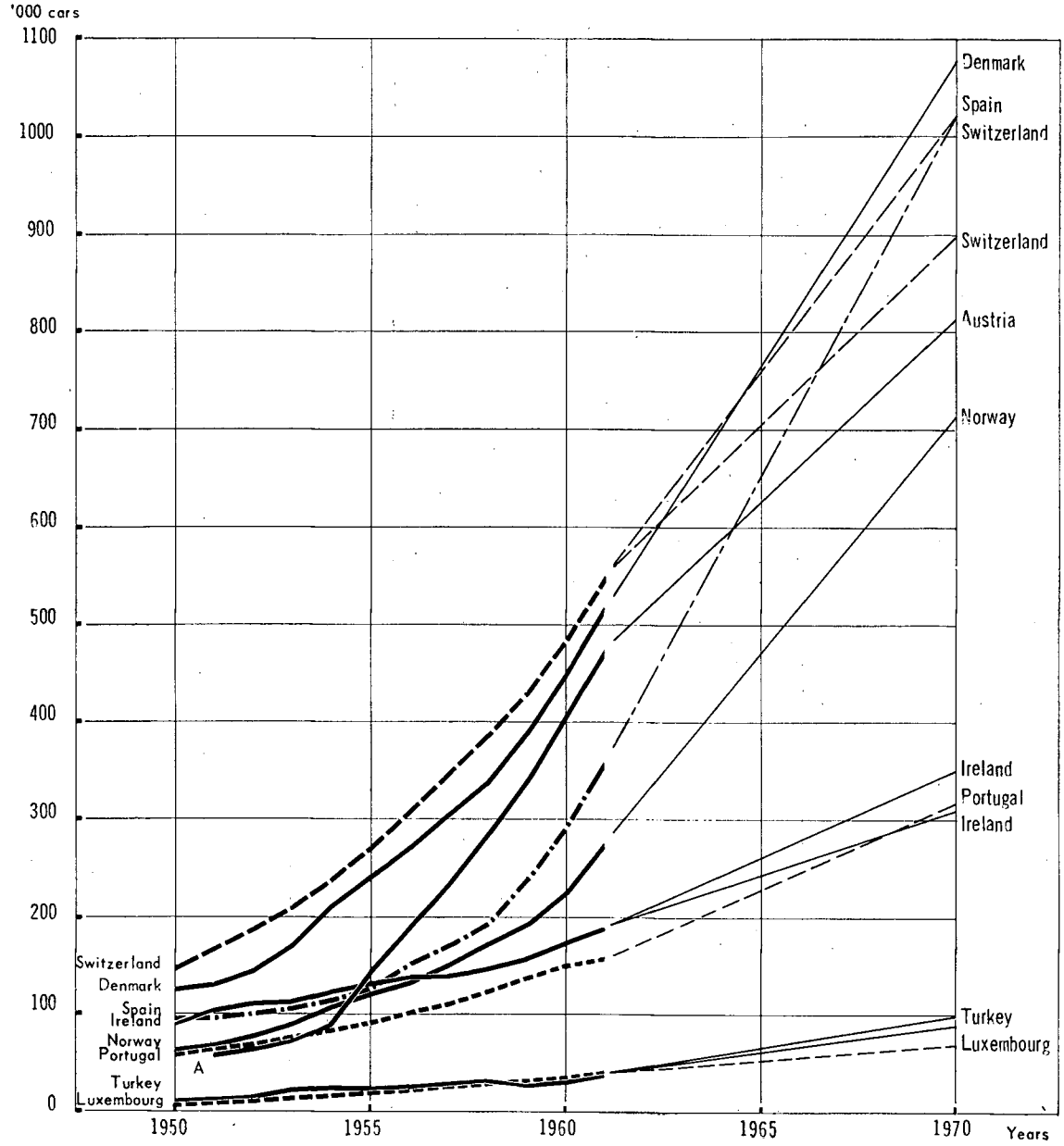
1960 = 100.

COUNTRY	VALUE	YEARS				AVERAGE ELASTICITY[1] OF NUMBER OF PRIVATE CARS COMPARED WITH G.N.P. OR NATIONAL INCOME DURING THE PERIOD			
		1950	1955	1960	1970	1950-1955	1955-1960	1950-1960	1960-1970
1	2	3	4	5	6	7	8	9	10
Germany	Numbers	13	38	100[1]	320				
	G.N.P.	47	73	100[1]	151	2.7	3.2	2.9	2.9
	Population	88	92	100[1]	...				
Austria	Numbers	(15)[2]	35	100	202				
	National Income	(64)[2]	77	100	149	(4.6)[4]	4.0	(4.3)[4]	1.8
	Population	(98)[2]	99	100	...				
Belgium	Numbers	36	67	100	193				
	C.N.P.	74	87	100	146	3.8	2.9	3.4	1.8
	Population	94	97	100	...				
Denmark	Numbers	28	54	100	240				
	G.N.P.	72	80	100	135	6.2	2.8	3.9	2.9
	Population	93	97	100	...				
Spain	Numbers	33	44	100	351				
	National Income	62	84	100	182	0.9	4.7	2.3	2.1
	Population	92	96	100	...				
France	Numbers	(31)[3]	54	100	225				
	G.N.P.	(69)[3]	81	100	154	(3.5)[4]	2.9	(3.2)[5]	1.9
	Population	(92)[3]	95	100	...				
Ireland	Numbers	53	76	100	178 to 201				
	G.N.P.	85	94	100	150	3.6	4.4	3.9	1.4 to 1.7
	Population	105	103	100	...				
Italy	Numbers	18	44	100	375				
	National Income	57	75	100	165	3.3	2.9	3.1	2.6
	Population	94	97	100	...				
Luxembourg	Numbers	26	57	100	189				
	National Income	51	78	100	...	1.8	2.3	2.0	...
	Population	94	97	100	...				
Norway	Numbers	29	54	100	317				
	National Income	73	87	100	144	3.5	4.4	3.9	3.2
	Population	91	96	100	110				
Netherlands	Numbers	27	52	100	308				
	National Income	62	82	100	150	2.3	3.3	2.7	2.8
	Population	88	94	100	112				
Portugal	Numbers	40	62	100	209				
	National Income	65	79	100	166	2.2	2.0	2.1	1.5
	Population	92	96	100	...				
United Kingdom	Numbers	42	64	100	212 to 229				
	National Income	81	91	100	134 to 140	3.6	4.7	4.1	...
	Population	97	97	100	105				
Sweden	Numbers	21	53	100	218				
	National Income	73	85	100	...	6.1	2.9	5.0	...
	Population	94	97	100	104				
Switzerland	Numbers	30	56	100	185 to 210				
	National Income	62	79	100	148 to 161	2.6	2.5	2.5	1.6
	Population	88	93	100	...				
Turkey	Numbers	30	78	100	267 to 292				
	National Income	55	74	100	182	3.2	0.8	2.0	1.6 to 1.8
	Population	75	87	100	...				

1. Calculated in accordance with the formula : $e = \frac{\log V_2 - \log V_1}{\log E_2 - \log E_1}$, where V = number of vehicles and E = the value representing economic activity.
2. Including the Saar since 1960.
3. Figure for 1951.
4. Figure relating only to the period 1951-1955.
5. Figure relating only to the period 1951-1960.

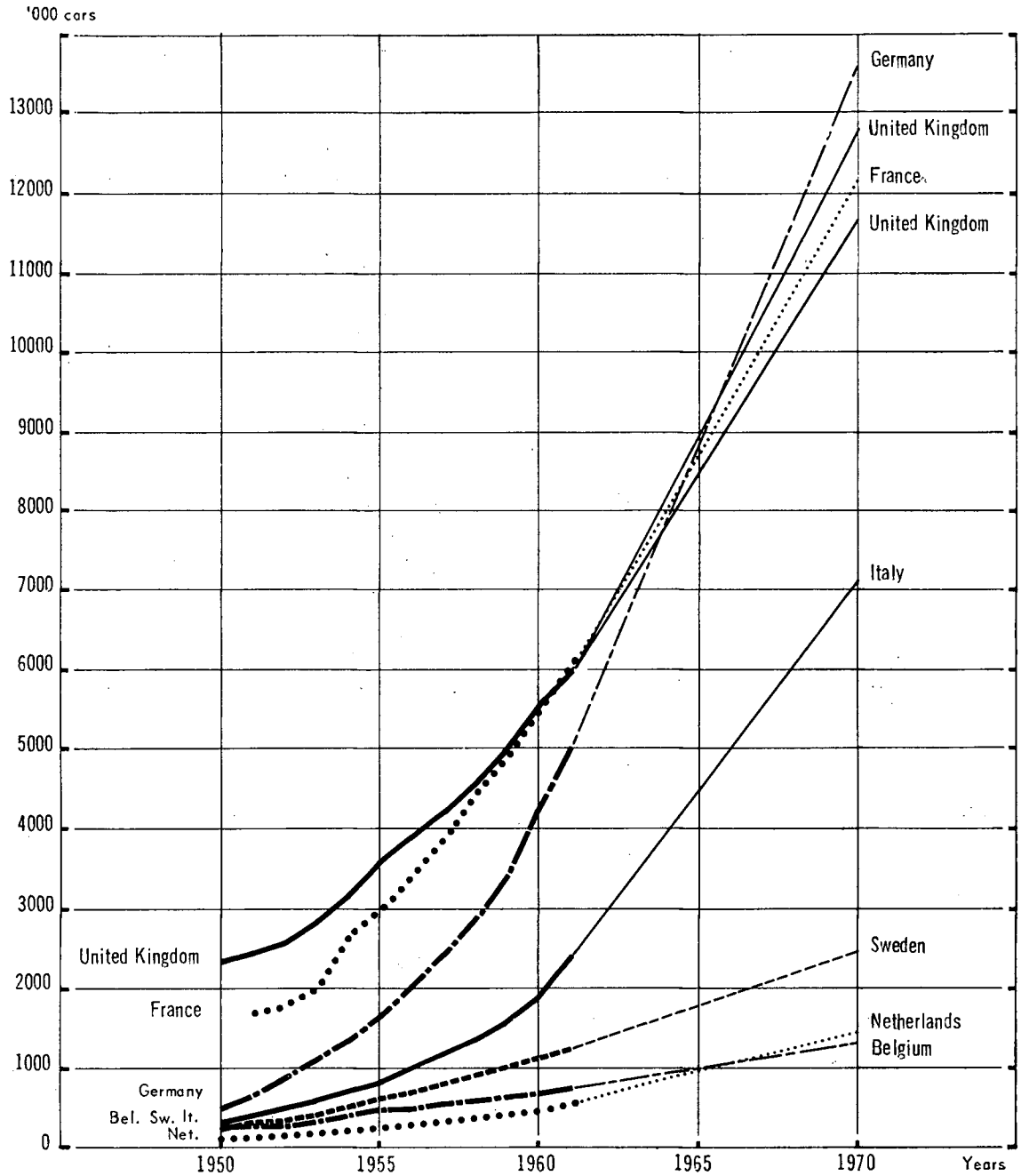
Graph 1. TREND IN NUMBERS OF PRIVATE CARS

AUSTRIA, DENMARK, IRELAND, LUXEMBOURG, NORWAY, PORTUGAL, SPAIN, SWITZERLAND, TURKEY

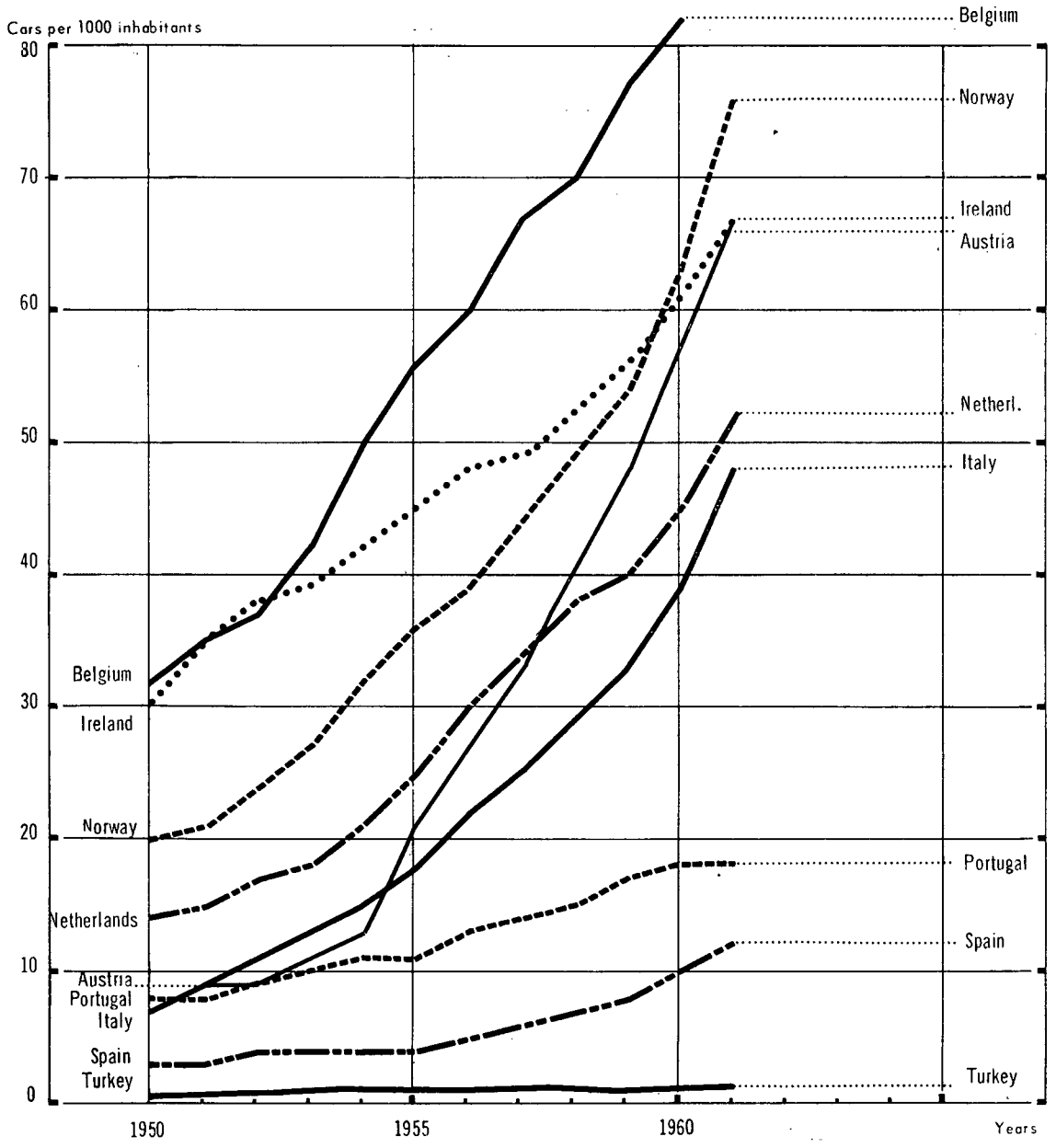


Graph 2. TREND IN NUMBERS OF PRIVATE CARS

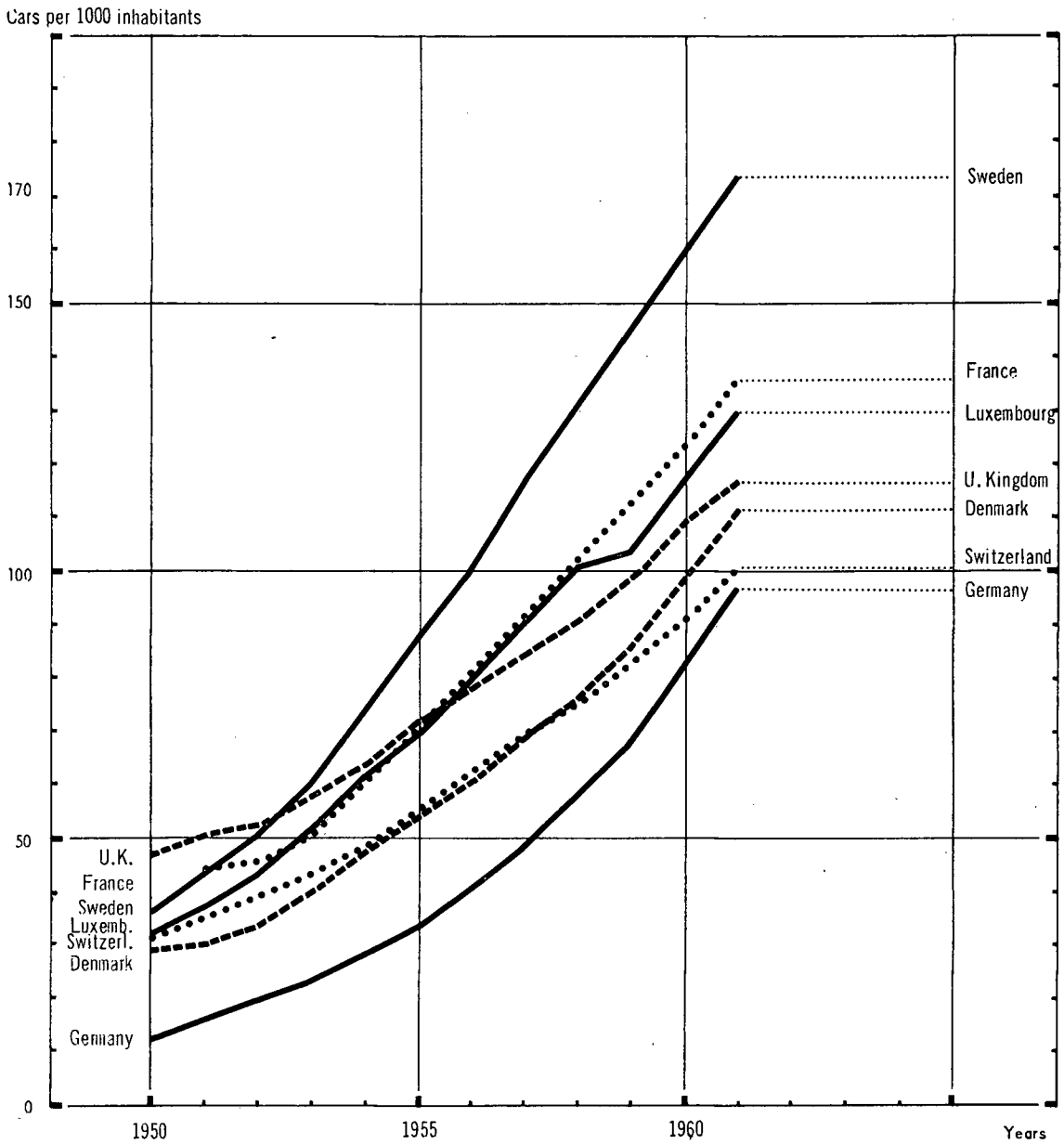
GERMANY, BELGIUM, FRANCE, ITALY, NETHERLANDS, UNITED KINGDOM, SWEDEN



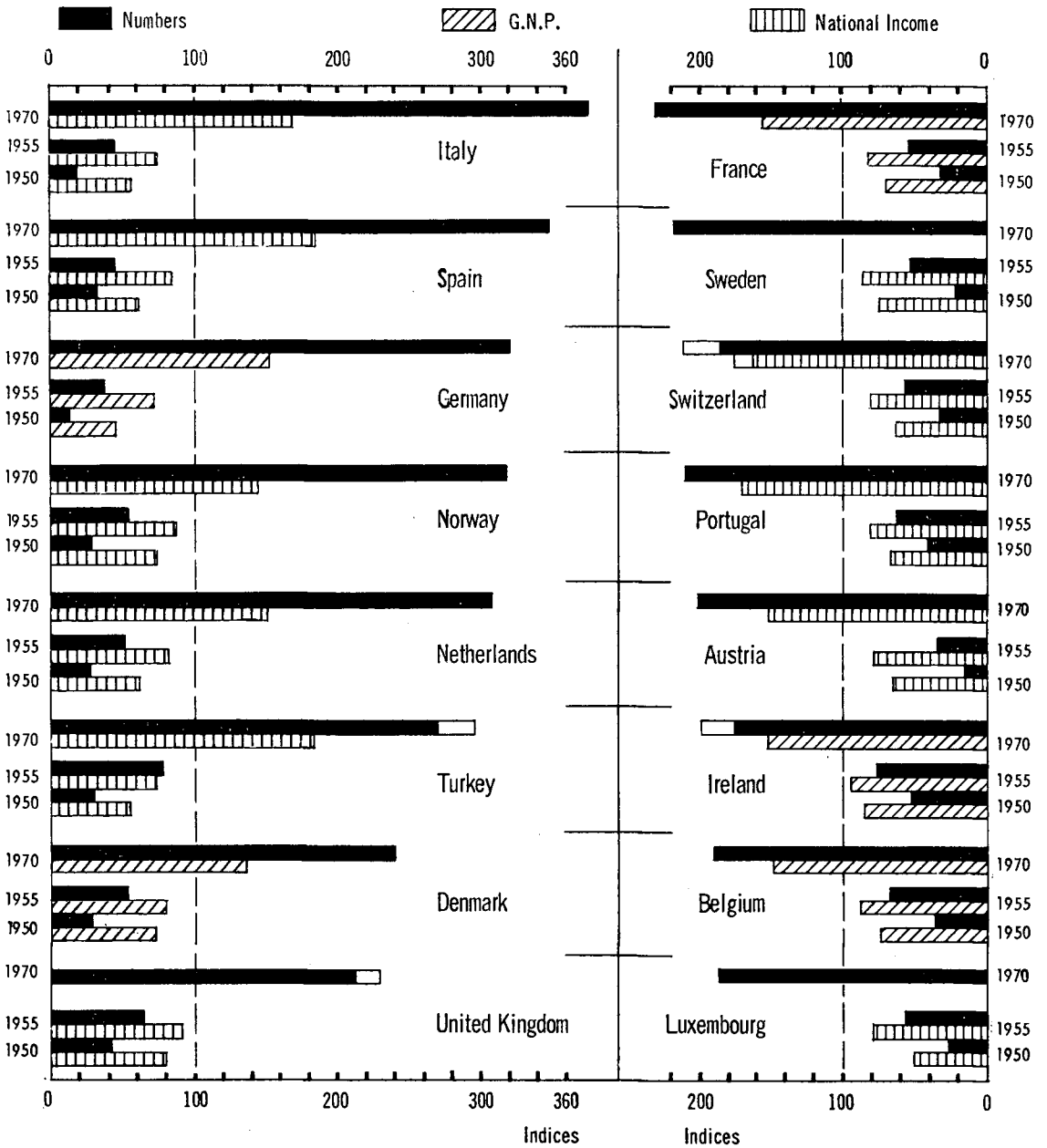
Graph 3. TREND OF DEGREE OF MOTORISATION FROM 1950 TO 1961
AUSTRIA, BELGIUM, SPAIN, IRELAND, ITALY, NORWAY, NETHERLANDS, PORTUGAL, TURKEY



Graph 4. TREND OF DEGREE OF MOTORISATION FROM 1950 TO 1961
GERMANY, DENMARK, FRANCE, LUXEMBOURG, UNITED KINGDOM, SWEDEN, SWITZERLAND



Graph 5. INDICES OF NUMBERS OF PRIVATE CARS COMPARED WITH ECONOMIC ACTIVITY



COUNCIL OF MINISTERS
REPORT OF THE COMMITTEE OF DEPUTIES
ON THE FINANCING OF ROAD DEVELOPMENT WORKS

[CM(63)26]

At a time when the Member countries of the Conference are faced with the important problem of adequate development of road infrastructures to keep pace with the growing numbers of motor vehicles, the Committee of Deputies thought it would be worthwhile to organise an exchange of information on the var, ous methods of financing road development works in use in those countries.

The survey which it undertook has aroused a certain amount of interest, since 13 replies to a standard questionnaire have been received.[1]

It is not surprising to note from the information received that positions somewhat vary, owing in part to differences of political and administrative structures which themselves derive from historical trends.

Yet although local or regional traffic demand may formerly have been the preponderant factor, it is clear from this latest study that financial responsibility is shifting into the hands of the central authority, partly in order to create major axes of communication under rational schemes to develop the territory, taking account of all relevant interest including those of the developing areas, and partly to relieve the growing burden of road building and maintenance which would otherwise have weighed too heavily on local or regional budgets.

Although the role of governments has generally tended towards a situation where major responsibility for the equipment and maintenance of leading road communications is taken over by them, differences are found in the various countries as to methods of financing.

It is only possible in this report to list these methods, with the sole aim of making them known and thus comparing experiences.

The Federal Republic of Germany has no road fund in the true sense. Federal roads and motorways are owned by the "Bund" under Article 90 of the basic law. The "Länder" administer the federal roads on its behalf. Under the Act of 28th March, 1960, to finance road buildings, the proceeds from the tax on mineral oils are allocated to the road activities of the "Bund", after deduction of a fixed sum of D.M. 600 million. Legislation amending the tax on mineral oils will entail the elimination of this reduction as from 1st January 1964. In future, a percentage of the proceeds of the tax on mineral oils will be earmarked for road building. The proceeds of this tax are planned to be bigger than before in order to offset the elimination of Customs duties on mineral oils. The percentage allocated to road building will thus be 46 per cent for the year 1964; this will be raised to 48 per cent in 1965 and then levelled off at 50 per cent from 1966 onwards. As from 1966, half the proceeds of the taxes on mineral oils (excluding the tax on oil for space-heating) will thus be spent on road building. Development works are based on three consecutive plans, covering 1959-1962, 1963-1966 and 1967-1970. Annual payments under these plans are included in the Federal budget under the item "road-building programme". In addition to these allocations, under a 1955 act on the financing of traffic the Federal Government has transferred an annual amount of D.M. 115 million to "Oeffa", a joint stock company undertaking public works, and has advanced further loans according to the progress of the work.

Each "Land" draws on the income from the motor-vehicle tax to cover work on the roads under its ownership as well as subsidies to municipal authorities. If necessary the latter may also have recourse to a more limited form of aid from the Federal State.

1. These replies were reproduced in full in the 9th Annual Report (paragraphs 153 to 168), which announced (paragraph 169) that they would afterwards be the subject of a Report to the Council of Ministers, which would be asked to draw conclusions.

In *Belgium*, the methods of financing road works currently used in Belgium can be divided roughly into four formulae :

— the Ordinary Budget;
— the Extraordinary Budget;
— the Road Fund;
— public works licences.

In principle, the Ordinary Budget, which is financed from taxation, covers all expenditure other than investment, such as administrative costs and maintenance.

The Extraordinary Budget, which derives its funds mainly from borrowings, generally covers all expenditure which is of the nature of an investment.

Most of the attempts to find financial formulae other than the State Budget have been based on a desire to avoid the disadvantages of an annually recurring budget.

Several times already in the history of Belgium, these attempts have resulted in the creation of Road Funds, which have met with varying success.

The latest of these, known as the "Fonds Autonome des Routes" (Independent Road Fund) was established in 1955. It has an available credit of B.Frs. 30,000 million, distributed over 15 years. Its responsibilities cover all State roads. It is concerned only with works which may be regarded as investments; it is therefore prohibited for the Road Fund to deal with maintenance work.

Its resources are derived from loans, which the Fund is authorised to issue for its own exclusive use, subject to the approval of the Minister of Finance. The Fund has therefore been given the status of an administrative entity, i.e. it has a legal personality distinct from that of the State. Charges on its loans are borne oy the Ordinary Budget. The Fund's assets are converted into non-interest-bearing Treasury certificates at six months, redeemable at any time as and when needed by the Fund.

Finally, the balance outstanding at 31st December may be carried forward under budget law. The only remaining trace of the principle of the annual budget is the obligation to carry the balance forward each year, which presents no difficulty in practice.

Although the Fund has so far rendered valuable services, its independence is only relative, for it is still subject to the general financial policy of the Government.

Furthermore, road requirements change so rapidly that, although the Fund's resources are considerable, they are not yet sufficient to ensure the immediate financing of all urgent work.

A new formula has therefore been tried out in recent years, by which it is hoped to tap sources of capital which are not generally accessible to State loans.

Generally speaking, this formula consists of the granting of a public works licence to an inter-municipal company or a semi-State company, which should provide the holding company with an opportunity for considerable profit on the expiry of the licence without necessitating the risk of an equivalent loss.

This formula is now being considered for financing the Belgian section of Highway *E 3* (Lille-Ghent-Antwerp-Eindhoven) with an inter-municipal company set up by the local authorities particularly interested in the early completion of this motorway.

However, instead of being charged directly to users, tolls would be borne by the State by means of an automatic traffic count at the motorway approach roads.

In *Denmark*, a road fund administered by the State has been established. 45 per cent of the petrol tax, 40 per cent of the purchase tax on motor vehicles and 98.5 per cent of the tax on motor vehicles according to weight are allocated to the road fund. In recent years, about 50 per cent of these resources has been used for road infrastructure expenditure. In addition, the fund also covers expenses such as central road administration, traffic censuses, road signs, etc. 85 per cent of the cost of infrastructure investment is covered by grants. Apart from State grants, local expenditure is financed out of local taxation.

In *Spain*, expenditure on road works is financed by national or foreign public credits or loans. The Road Building Licensing Act of 1960 also provides for financing through private credits or loans.

In *France*, a Special Road Investment Fund (F.S.I.R.) was created by a law of 30th December 1951. This Fund originally consisted of three sections : a national section, a departmental section and a local (vicinal) section; an urban section and a rural section were added in 1955, but the local and rural sections were combined into a "communal section" in 1960.

There is a Management Committee of the F.S.I.R. under the chairmanship of the Minister of Public Works and Transport, consisting of six officials, three Members of Parliament, and two representatives of road users.

It should be noted that only the national section of the F.S.I.R. is administered directly by

the Ministry of Public Works and Transport; the other sections are administered by the Ministry of Home Affairs, which is represented on the Management Committee. The total amounts paid to the Fund for 1963 were divided among the various sections in the following proportions :

National section	75 %
Departmental section	9.5 %
Urban section	5 %
Communal section	10.5 %

The Fund is derived mainly from a levy on the proceeds of excise duties on motor fuels, which was fixed in 1960 at a rate of 7.7 per cent of the proceeds. This levy may be supplemented by a budget allocation. Finally, a method of financing partly by loans and partly by tolls is also used to finance trunk motorways.

In this latter case, a licence for the building and operation, or operation only, of a motorway is granted to a semi-public company which is authorised to charge tolls. The public authorities have the majority holding in such companies.

The Estérel-Côte d'Azur Motorway Company, the Rhône Valley Motorway Company, the Paris-Lyon Motorway Company, the Northern Motorways Company and the Normandy Motorway Company were set up in this way. The loans to finance relevant works, in which 30 to 40 per cent of the cost is still covered by State subsidy, are issued by a National Motorways Fund which distributes the amount among the various companies.

In 1963, the total financing of motorways breaks down as follows :

F.S.I.R.	42 %
State budget	25 %
Loans	33 %

Some analogy is apparent between the system practised in *Italy* and that used in France. In Italy, the "Azienda Nazionale Autonoma delle Strade (A.N.A.S.)" is a State body having it own budget. Its ordinary funds of some 80,000 million lire are constituted by an annual Treasury contribution. In addition, its extraordinary funds of about 60,000 million lire are appropriated under special laws for specific purposes. Motorway building is financed by means of a licencing system through joint stock companies which have the right to charge tolls and are preferably public bodies. The duration of the licence is 30 years. Financing is based on a preconceived plan. This system has enabled a vast motorway programme to be carried out with all desirable speed. For motorways on which no tolls are charged, the full cost is born by the A.N.A.S.

In *Luxembourg*, road work is financed out of ordinary and extraordinary state budget revenue. For future a bill to establish a Road Fund has been prepared and will shortly be submitted to Parliament.

In *Norway*, there has been no inclination to accept the idea of establishing a Road Fund. It is admitted that considerable differences between receipts and expenditure may occur from year to year, and that there are arguments in favour of earmarking revenue from motor vehicles taxes for road development purposes. It is considered, however, that appropriations for road works constitute such a large factor in the State budget that real economic factors such as the total volume of investment and the balance to be struck between the various investment demands must be decisive. Road expenditure is covered by annual grants from the State budget and from regional and municipal budgets.

In the *Netherlands*, there has been no road fund since the second world war.

Funds for road works, whether for capital investments or for administration and maintenance, generally come out of the annual budget of the responsible public authority.

Apart from urban and other purely local roads, three categories are distinguished:

— main roads, carrying national through traffic, for which the State is directly responsible;
— secondary roads, carrying regional traffic, generally under the responsibility of the provinces;
— third-class roads, generally under the responsibility of municipal authorities.

In order to preserve the coherence of these three road networks, plans are subject to State approval, which when granted entitles such roads to a contribution taken form an amount distributed by the State among the provinces according to a certain formula. Although this amount has no connection in law with the proceeds of specific taxes on motor vehicles, which, like all major taxes, are collected by the State, it has so far been fixed at 45 per cent of the duty charged on motor vehicles according to weight. There is thus a relation between the growth in numbers of motor vehicles and amounts paid by the State to help with second and third-class roads.

Such additional funds as may be needed for these works must be provided by the pro-

vincial and municipal budgets; these are financed by the proportion of overall receipts paid over by the State, provincial and municipal charges, and loans.

Normally, there are no toll roads in the Netherlands. In two exceptional instances, State licences have been granted to limited companies for the building and temporary operation of a large bridge and of a tunnel under a major waterway. These are civil engineering works of immediate regional or local importance, although the motorway of which they are to form a part does not yet need to be built for the through traffic it is eventually meant to carry. As such they anticipate the actual building and opening of the road. The State retains supervisory rights, and will terminate the licence when the proposed main artery to which these works belong comes into service over its entire length.

A third large-scale engineering work (a bridge 6 kilometres long over the estuary of the Eastern Scheldt) is under construction, and the province of Zeeland has granted a licence to a limited company, with the right to charge tolls. As this may serve as an alternative route to the road along the dike enclosing this estuary, which is to be built in about fifteen years' time several kilometres to the west of the bridge, the licence will expire as soon as the road along the dike can be brought into service.

In *the United Kingdom*, there is no connection between expenditure on the roads and the proceeds of motor taxation, which are regarded by the Government as a source of revenue like any other.

The United Kingdom did have a Road Fund, which was set up in 1909 and was to be financed from the net proceeds of the duty on motor spirit and vehicle licences. In 1962, the Government repudiated the basis on which the Fund had been instituted. After a transition period of 10 years, the Government wound up the Fund and, after March 1937, proceeds from motor taxation were paid directly into the Exchequer. In 1956, the Fund was formally abolished.

The responsibility for roads lies with the public authorities.

The responsible authority (known as a "Highway Authority") for the most important roads (trunk roads) is a department of the central Government. The local authorities are responsible for classified roads, which are divided into three categories for through traffic, and the other "unclassified" roads. The Government pays the whole cost of work on trunk roads and makes a grant to local authorities (County Councils) amounting to 75 per cent of the cost for class I, 60 per cent for class II and 50 per cent for class III. Government expenditure on roads is authorised by Parliament each year.

The road programme is planned five years ahead and renewed annually. In the present programme, the Government expects to spend £590 million over the five years 1962-1963 to 1967-1968 in England and Wales, two-thirds of which will be spent on trunk roads and the rest on classified roads. Over the same period, the local authorities themselves will find about £70 million.

These figures do not include the cost of maintenance and minor improvements.

In *Sweden*, on the other hand, the proceeds of road traffic taxation are entirely devoted to road infrastructure and other relevant expenditure. The development of the road infrastructure is based on five-year plans drawn up by the central authorities in consultation with the county and municipal authorities.

In *Switzerland* finance is provided in the following manner :

- Contribution from the Confederation in the form of :
  - *a*) part of the import duty on motor fuels;
  - *b*) since 1962, the proceeds of a supplementary tax on motor fuels intended to finance national roads, which enables the Confederation to make grants to the Cantons averaging 85 per cent of the cost of building the roads.
- contribution from the Cantons, in the form of the income form traffic taxes and, in some cases, fiscal revenue.

In *Turkey*, national roads are the responsibility of the Ministry of Public Works, which supervises the condition and development of the road network through a specialised body. Finance is provided from a proportion of the tax on motor fuel, customs duties on motor fuel and grants from the budget. In addition to resources derived from provincial or village budgets, provincial and village roads are financed by Government grants.

Findings

It may first be noted that, although the licensing system is occasionally employed by

half the countries, it is nevertheless limited in practice to exceptional cases.

Secondly, many countries make use of public loans, but to a varying extent. Yet very few countries make a practice of financing State investment by this means, apart from Belgium, the Grand Duchy of Luxembourg and Spain.

The most important fact recorded, however, is that the system of allocating at least part of the specific taxes on motor traffic to road building is gaining ground, since the majority of countries now resort to this procedure.

COUNCIL OF MINISTERS
REPORT OF THE COMMITTEE OF DEPUTIES ON URBAN TRANSPORTS

[CM(63)20]

1. The Council of Ministers decided at their meeting in Brussels on 11th June, that the Conference should study questions relating to the growth of private motor car traffic in cities. This matter was raised by the United Kingdom Minister, who said that Western European cities as at present constructed would be unable to contain the greatly increased numbers of private motor cars whose owners would wish to use them. The problem would therefore be to establish principles for the conduct of city life and motor traffic which would enable communities to decide how far their desires for transport could be met within the framework of city life and the continued need for public urban transport systems.

2. The Portuguese and German Ministers supported the proposal that E.C.M.T. should begin to study this major transport problem.

3. The Committee of Deputies took up the matter at their meeting in Paris on 9th July, when they decided, on the proposal of the German Delegation, to establish a special Group under United Kingdom Chairmanship with the task of reviewing the problems involved. At this meeting, Deputies made it clear that they envisaged the Group primarily as a means of exchanging information and views about how national administrations were dealing with the problems of transport in urban areas, particularly those arising from the rapid growth in the use of the private car. It was thought that experience of urban transport planning in each E.C.M.T. country might well be of interest and value to the other countries in the Conference, since in all cases transport authorities were grappling with essentially similar problems. There was, of course, no question of trying to work out a common policy on urban transport; this was unnecessary and, in any case, every major city would probably require its own special solution, but it was agreed that consultation and a general exchange of views about different solutions to the problem would help Member States to improve their own practice.

ESTABLISHMENT OF URBAN TRANSPORT GROUP

4. The new Group held its first meeting on 1st October, 1963, in Paris, when representatives attended from Austria, Belgium, Denmark, France, Germany, Italy, Luxembourg, Norway, Netherlands, Portugal and the United Kingdom. The Group agreed on terms of reference which will require it:

> "to exchange information and views about the planning of transport in urban areas and, in particular, about the problems arising from the great increase in the use of individual transport."

Method of Working

The Group decided that it could make a valuable contribution in two ways:

a) *By providing machinery through which the results of work in one country were made available to others*

5. A great deal of work is being done on urban transport in all countries including overall studies of the problem, transport surveys of individual towns and cities and research projects on particular aspects of the problem. But it is not always easy for those concerned in one country to obtain comprehensive information on work undertaken elsewhere. Members of the Group have been invited to arrange for circulation, through the Secretariat, of reports bearing on the problem produced in their countries.

b) *By providing a forum for the exchange of views on the subject as a whole, and particular aspects of it.*

6. In most major cities in Western Europe, the problems of urban transport have become increasingly complicated and difficult to solve, yet some solution is urgently required if the cities are to remain pleasant places to live in. The difficulties flow from a number of inter-related causes, including the general growth in population, the concentration of work in city centres often accompanied by the movement of population away from the centre, an increasing demand for transport and the desire of people to use their private cars rather than public transport for journeys to town with the excessive demand for road space that this entails. The increase in goods transport by road also brings its problems in towns since the routeing of freight vehicles through cities and the delays casued by loading and unloading are substantial causes of traffic congestion. Urban transport cannot therefore be considered in isolation since it overlaps into the field of general planning, for which Ministers of Transport are not normally responsible. This does not mean that the Conference should refrain from studying the problem; it merely emphasizes the need to take an initiative in bringing together transport and city planning, and in ensuring that full account is taken of transport needs in all redevelopment schemes.

This general problem is alerady being studied in a number of Member countries. For example, Belgium has established special regional committees for her larger cities to study the means of adapting public transport to present and future needs. These have already done much useful work, particularly in Brussels. The work of these committees is co-ordinated by a national committee reporting to the Minister of Communications. In Germany, special legislation was passed in 1961 to enable the planning of transport developments in built-up areas to proceed on the soundest possible basis. This is being studied by a high level committee of experts which includes members from industry, commerce, the universities, transport, town planners and representatives from local government. The Committee is expected to report by mid-1964. In France and Italy, the existing machinery of government has been adapted to deal with the problem so as to ensure the co-ordination of transport and development plans: and in France special studies of the urban transport problems are being made in the Ministry of Public Works and Transport. In Portugal, special administrative machinery was established in 1961 in the Ministry of Communications and since then much progress has been made in the study of transport planning for the larger Portuguese cities, particularly Lisbon, where an underground railway and new arterial roads are being constructed as part of one plan. In the United Kingdom the two Government Departments with responsibilities for planning and for transport have set up a joint Urban Planning Group so as to ensure that planning in general and planning of transport go hand in hand. In addition, a major report into the transport and planning problems arising from the rapid increase of traffic in towns is shortly to be published in the United Kingdom and will serve as a background to the consideration of the problems of all major British cities.

PROGRAMME OF WORK

7. The Group recognised that it could not attempt to provide a general solution applicable to all European cities, since each one will need to be looked at individually. It decided therefore to concentrate on the more general problems and consider in the first place the following main questions:

a) *What is the rate of growth in urban areas of car ownership and use?*

Both ownership and use of private cars is now increasing very rapidly in all countries. It would be useful to compare the trends in different countries and, in particular, forecasts of the rate of increase in the future and views on the levels ultimately expected. Moreover, an attempt should be made to obtain statistics of ownership and use of cars in the larger urban centres since national growth rates may not be very relevant to the problems of some areas—for example, in New York saturation has already been reached owing to physical limitations.

b) *Is it necessary and/or desirable to try to limit the use of the private car in the larger towns and cities particularly by commuters?*

It is already accepted in many countries, even in the United States, that it would be physically impossible to meet all possible demands for travel by private car in the larger cities and conurbations, especially for travel to work.

By contrast, it may be possible in smaller towns to allow unrestricted use of private cars. But to provide for the private car may mean expensive investment in new roads, car parks, etc., and loss of amenity. What is the right balance between public and private transport?

c) *If use of private cars is to be discouraged, what is the most efficient way of achieving this?*

Use of the private car may be discouraged in many ways, including physical restrictions or imposing appropriate charges for the use of the roads or for parking. This is a wide field in which further economic and technical study is needed. It may require adjustment of present planning policies, for example, the requirement in many cities that special parking space should be provided for every new office block. In addition, people may be persuaded not to use their cars by ensuring the provision of attractive public transport. There is need for the adoption of a comprehensive policy by each urban authority so as to ensure that where restrictions are imposed on private transport there is, as an alternative, an efficient and adequate public transport system.

d) *How can public transport be made more attractive?*

All forms of public transport (railways, tramways, buses and underground) have tended to lose traffic in face of the inherent attractions of the private car. But it is now generally accepted that public transport must be retained, or revived, at least in the larger urban areas. If people are to be discouraged from using private cars, public transport must compete in terms of convenience, comfort, frequency of service and price. Public Authorities can influence this matter by such means as preferential traffic facilities for buses, restrictions on parking, taxation policy and by public campaigns for mass transport. Governments could also ensure that there us systematic study of the factors affecting investment in different forms of transport, e.g. bus, underground railway or tram, wherever a choice of alternative courses is available. In addition to action to attract the individual user to public transport, consideration should be given to the needs of industrialists to transport large numbers of workers to and from sites and how best these needs can be satisfied by public transport.

e) *How can the future demands for transport in a town or city be assessed? And how can projection of demand be translated into physical plans for the development of transport facilities?*

Transportation surveys are an essential pre-requisite to efficient transport planning. Techniques for carrying them out are developing rapidly and many urban transport surveys have now been, or are being, undertaken. Exchange of information on individual surveys and their results could do much to improve techniques. Techniques for interpreting the results of surveys so as to provide the bases for physical plans for road development and public transport facilities are less well developed. Further economic research seems necessary to provide a basis for decisions on investment in alternative facilities and as between different forms of transport. Information could also usefully be exchanged as regards the function of Central Government in securing the initiation of surveys by local authorities and the sharing of cost.

f) *What is the most efficient plan of roads for a town or city?*

The answer must, of course, vary from place to place. Individual surveys will provide a basis for developing networks of roads for particular towns or cities. But it may be possible to build up expertise in such a way that it becomes possible to formulate general guidance on the relative efficiency and capacity of alternative types of lay-out, which, with allowances for individual circumstances, will have some practical applicability to cities generally.

g) *Can the planning of urban activities, including employment, housing, shopping and entertainment, be so developed as to be consistent with efficient transport facilities?*

Traditionally, transport has been looked on as a service to be provided to meet the needs of the community. But it is no longer possible to treat general planning and transport planning separately: they must be developed as integral parts of the whole. For instance, transport facilities have been instrumental in shaping our towns and cities as we know them. As they may in future be a limiting factor in development it is essential that, in future, land-use planning and transport planning should be closely related.

h) *What administrative machinery is best suited to deal with the urban transport problem?*

Circumstances differ from country to country according to historical and legislative traditions. But in many countries, new organisations have been set up, or are being considered. Exchange of experience would again be valuable.

i) *How far is it necessary to regulate the operation of goods vehicles as part of urban transport planning?*

Although the major problem of city traffic arises from the growth of individual passenger transport, the increasing use of urban roads for freight also raises major problems, particularly where heavy vehicles are routed through cities and where loading and unloading of delivery vehicles causes obstruction to traffic flow. An assessment of the relative importance of the road freight problem in urban centres would be useful.

8. It has been possible so far for the Group to do no more than survey the field, but the preliminary exchange of views in the Group has brought out the following main points:

a) international collaboration should be of great assistance in helping Member States towards a better understanding and quicker solution of their urgan transport problems;

b) urban transport must be considered as the whole problem of how best to move people and goods in a congested area: it is no longer sufficient to treat it as a traffic problem to be dealt with by traffic engineering techniques, important though these are. Provision must be made for a systematic study in each case of the alternatives of public and private transport on the one hand and also between different forms of both road and rail transport;

c) transport planning and town planning should proceed in the closest possible collaboration since an efficient transport system is a basic requirement for city life.

9. It is proposed, subject to the agreement of Ministers, that the Group should continue its work on the lines proposed above and should report further to this next Session of the Council in the Spring of 1964.

ANNEXES

I. LIST OF OFFICERS OF THE E.C.M.T.

OFFICERS OF THE COUNCIL OF MINISTERS

In accordance with the provisions of Article 1 a) of the Rules of Procedure, the Council of Ministers, at its session of 25th November 1963, elected the following Officers :

Chairmanship (France) :

Mr. M. JACQUET, Minister of Public Works, Transport.

First Vice-Chairmanship (Portugal) :

Mr. da SILVA RIBEIRO, Minister of Communications.

Second Vice-Chairmanship (Switzerland) :

Mr. SPUHLER, Member of the federal Council, Head of the federal Department of Transport, Communications and Power.

OFFICERS OF THE COMMITTEE OF DEPUTIES

In application of Article 3 of the Rules of Procedure, the Officers of the Committee are the following :

Chairmanship (France) :

Mr. E. CORBIN, Engineer General, Ministry of Public Works, Transport.

First Vice-Chairmanship (Portugal) :

Mr. de GUIMARAES LOBATO, President of Directorate.

Second Vice-Chairmanship (Switzerland) :

Mr. TAPERNOUX, Deputy of the Director, Federal Office of Transport.

II. LIST OF DELEGATES AT THE BRUSSELS AND PARIS CONFERENCES

AUSTRIA

Mr. PROBST[2], Federal Minister of Transport,
Mr. FISCHER, Director-General (Deputy to the Ministry of Transport),
BAZANT, Ministerial Director,
HABEL[1], Director-General, Ministry of Commerce and Reconstruction (Deputy to the Minister of Commerce),
FENZ, Ministerial Director.

BELGIUM

Mr. BERTRAND, Minister of Communications,
Mr. MALDEREZ, Secretary-General (Deputy to the Minister),
VREBOS, Director-General, Transport Department,
Pr. WILLEMS[2], Secretary-General, Ministry of Public Works,
NEUVILLE, Administrative Director,
GUIDEE[1], Minister Plenipotentiary, Ministry of Foreign Affairs and Foreign Trade,
POPPE[1], Adviser.

DENMARK

Mr. LINDBERG, Minister of Communications,
Mr. CHRISTENSEN[2], Secretary-General (Deputy of the Minister),
FOLDBERG[1], Deputy Head of Section,
JENSEN[1], Deputy Head of Section,
KLOKKER, Secretary to the Minister.

FRANCE

Mr. JACQUET, Minister of Public Works and Transport,
Mr. CORBIN, Engineer in Charge, Highways Department (Deputy to the Minister),
AUDIAT, Deputy Head of the Minister's Private Office,
LATHIERE[1], Technical Adviser, Minister's Private Office,
GABARRA, Embassy Counsellor (Ministry of Foreign Affairs),
DALGA, Civil Administrative Officer, Ministry of Public Works and Transport.

GERMANY

Dr. SEEBOHM, Federal Minister of Transport,
Mr. TER-NEEDEN, Ministerial Director,
LINDER, Head of Section,
MITTMANN[1], President,
STOLTENHOFF, Ministerial Adviser,
MURSCH[1], Administrative Director,
WOELKER, Senior Administrative Adviser.

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1. Brussels session.
2. Paris session.

GREECE

Mr. CHRISTIDIS[1], Ambassador, Head of the Greek Delegation to the O.E.C.D., Representing the Minister,
SINIS[1], Director-General of the Transport Department, Ministry of Communications (Deputy to the Minister),
MILON, Technical Adviser, Greek Delegation to the O.E.C.D.

IRELAND

Mr. CHILDERS, Minister for Transport and Power,
Miss BEERE, Secretary-General (Deputy to the Minister),
Mr. SHEEHY, Principal Officer, Road Transport Section.

ITALY

Mr. SANTONI-RUGIU, Deputy General Manager of the Italian State Railways (Deputy to the Minister),
MORGANTI, Expert,
TURI[1], Expert,
ROSSINI[2], Chief Inspector.

LUXEMBOURG

Mr. P. GREGOIRE, Minister of Transport, Fuel and Power,
Mr. LOGELIN, Government Adviser (Deputy to the Minister).

NETHERLANDS

Mr. STIJKEL[1], Secretary of State for Transport and Waterstaat,
Mr. KEYZER[2], Secretary of State for Transport and Waterstaat,
VONK[1], General Adviser to the Minister of Transport and to the Secretary of State (Deputy to the Minister),
RABEN[2], Director, General Directorate of Transport,
ZWANENBURG[1], Transport Attache to the E.E.C.,
VAN DER NOORDT[1], Head of the General International Affairs Division,
DUINDAM, Economist, General Directorate of Transport.

NORWAY

Mr. BRATTELI, Minister of Transport,
Mr. FØIEN[1], Director (Deputy to the Minister),
LORENTZEN[2], Secretary-General (Deputy to the Minister).

PORTUGAL

Mr. DA SILVA RIBEIRO, Minister of Communications,
Mr. DE GUIMARAES LOBATO, Chairman of the Steering Board (Deputy to the Minister),
DA COSTA, Chief Engineer, General Directorate of Land Transport,
EIRO[1].

SPAIN

General VIGON-SUERODIAZ, Minister of Public Works,
Mr. LORENZO-OCHANDO[2], General Director of Railways, Tramway and Road Transport (Deputy to the Minister),
CARRAL-PEREZ, General Technical Secretary,
Alberto ANIBAL[1], Embassy Counsellor.

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1. Brussels session.
2. Paris session.

SWEDEN

Mr. HERMANSSON, Minister of State,
Mr. LINDAHL[1], Secretary, International Affairs Section, Ministry of Communications,
WIBERG[2], Chief of Section, Ministry of Communitions.

SWITZERLAND

Mr. SPUHLER[2], Member of the federal Council, Head of federal Department of Transport Communication and Power,
Mr. BURCKHARDT[1], Minister Plenipotentiary, Head of the International Organisations Division, Federal Political Department,
TAPERNOUX, Deputy to the Director, Federal Office of Transport (Deputy to the Minister),
FREY, Senior Deputy, Federal Political Department,
MESSERLI, Deputy, Federal Department of Justice and Police.

TURKEY

Mr. SECKIN[1], Minister of Publics Works,
Mr. DURA[2], Minister of Communications,
YENAL, Principal Adviser, Ministry of Communications (Deputy to the Minister),
MENGILIBORO[1], Director of the Road Safety Department, Ministry of Public Works,
TAHSIN ONALP[2], Director General of Road, Ministry of Public Works.

UNITED KINGDOM

The Rt. Hon. H. MARPLES[1], Minister of Transport,
Lord CHESHAM[2], Parliamentary Secretary, Ministry of Transport,
Mr. SERPELL[1], Under-Secretary, Ministry of Transport (Deputy to the Minister),
MILLS[2], Under-Secretary, Ministry of Transport (Deputy to the Minister),
SHARP, Head of the International, Transport Division,
TEBAY[1], Private Secretary to the Minister,
Miss WASHER[1], Private Secretary to the Minister,
SHERWIN[2].

YUGOSLAVIA

Mr. CETINIC[1], Federal Secretary for Transport,
Mr. BOGAVAC[2], Under State Secretary.
Mr. ILJADICA, Director, International Transport Division (Deputy to the Minister),
BULJEVAC[1], Director, Transport Council.

Secretary : Mr. MANGE

1. Brussels session.
2. Paris session.

III. LIST OF RESOLUTIONS ADOPTED BY THE BRUSSELS AND PARIS CONFERENCES

GENERAL PROBLEMS

Resolution No. 13: Forecasts of goods traffic demand until 1970.

Resolution No. 14: Measures to reduce town traffic noise.

ROAD TRANSPORT

Resolution No. 18: Standardization of the training of candidates for driving licences and of conditions for their issue.

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