Industrial Production in Western Europe and the United States 1901 to 1955

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The present study is based on statistical data systematically compiled in order to facilitate international comparisons; its aim is to calculate the levels of industrial production in Western Europe as a whole, in the major countries of that area and in the United States, to compare those levels, to analyse the trends and to examine the structure of industry in the different countries.

The study covers the period 1901-1955. If 1901 has been chosen as point of departure, it is not only because a recent O.E.E.C. publication « Industrial Statistics 1901-1955 » provided a great number of series so established as to facilitate international comparisons. It is also because world industrial expansion, after slowing down somewhat at the end of the 19th century, picked up again more keenly and more generally at the beginning of the 20th, and on lines sufficiently different from the earlier period to suggest that with the 20th century a second industrial revolution began.

In this study care has been taken not to seek out the causes which have influenced or determined the facts or to judge the various economic policies with which they are associated.

CHAPTER I

DEFINITIONS AND METHODS OF CALCULATION

Definitions.

In the present study, the phrase « *Western Europe* » covers all the European territories of the countries which in 1955 were Members of the Organisation for European Economic Cooperation, i.e., Austria, Belgium, Denmark, France, the Saar, the Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Luxemburg, Norway, the Netherlands, Portugal, Sweden, Switzerland, Turkey and the United Kingdom.

This definition of Western Europe does not coincide with « geographical » Western Europe. It excludes Spain, Finland, and Yugoslavia. Nevertheless, although the alterations which could be made in the definition of Western Europe by including these three countries would change certain data (area, population, etc.) they would not affect the characteristics and development of industrial production that are the object of the present study.

« *Industrial production* » is defined as production resulting from the following three activities: mining and quarrying, manufacturing, production of electricity and gas. This definition excludes construction (1).

Western Europe and Industry. The eighteen countries comprising Western Europe so defined cover an area of 3.5 million square kilometres, with a total population of 284 million at the end of 1955.

These various countries are far from having the same degree of development: side by side with countries among the most highly industrialised in the world are others which, in certain respects, might be grouped with the underdeveloped areas. Western Europe today takes second place in the world for total volume of industrial production, after the United States, but in front of the U.S.S.R.

Taking the eighteen countries as a whole, industrial production in 1955 accounted for 42% of the formation of gross national product, while construction contributed 7%, agriculture 13% and the other activities (« Tertiary ») 38%.

(1) The activities mentioned are themselves defined in the International Standard Industrial Classification (I.S.I.C.). (Cf. Annex 1).

Calculation of the index of industrial production.

In order to determine the volume of industrial production in Western Europe and to study its development during the first half of the 20th century it is necessary to calculate an index of industrial production covering the whole of the region studied.

The direct method would be to note the quantities of each article produced in Western Europe since 1900 and to establish an index for each. The index of industrial production in Western Europe would then be obtained by weighting each of these elementary indices according to the relative importance of each product in total industrial production during the year chosen as a base. Actually, sufficiently long series on industrial production are available for only a very limited number of products, and there are no elements on which to base a weighting. Such a method is therefore impracticable.

Consequently the index of industrial production in Western Europe has had to be calculated by another method. We have combined the national indices of industrial production of the various countries, each national index being given a « weight » corresponding to the importance of the country concerned in the industrial production of Western Europe during the selected reference year.

To calculate the European index of industrial production using the method just described, two groups of data are needed:

1. A series of indices giving, for each country, the development of the volume of industrial production during the period considered, i.e. 1901-1955.

2. An evaluation of the relative importance of each country's industrial production at a specific time, in order to determine the weighting of the European index.

(A) THEORETICAL DIFFICULTIES.

To calculate the index of industrial production in Europe thus requires comparisons over time (inside each country) and over space (between countries) of volumes of production. Such comparisons present fundamental difficulties which must be stressed. It is important fully to realise that there are several solutions to the problem of measuring the relative magnitude of industrial production in two countries, or in a single country at two different times. This lack of uniformity results essentially from the differences in price structure (2) peculiar to each country or each period.

Industrial production consists of a multitude of very diverse products which it would be meaningless to add together quantitatively. To total these products, their monetary value must be brought in. If the structure of prices were uniform and unvarying — if, in other words, price relationships between products were the same everywhere and always — there would be no problem in using monetary values. The value of industrial production would then be homogeneous at different times or in different countries, and comparisons would lead to clearly defined results. But in fact, price structures vary considerably according to the countries and periods considered; each value of total industrial production can be expressed according to various price systems, the relationships between the values allotted to each country and each period then depending on the price system chosen.

Furthermore, an index covering a very long period cannot be devised in a field such as overall industrial production without questioning its very concept, since the pattern of industrial production has undergone a profound change in the course of time: the quality of products has changed, some have disappeared, others have been created, and price relationships between products have been completely changed.

The establishment of a historical series of indices of industrial production is thus to some extent arbitrary. The indices can be expected to give some indication of the relative magnitude of development, but no absolute value can be attached to the data.

(B) METHOD OF COMPUTATION.

Country indices. The series of country indices of industrial production used in this study are based on official or private indices available in the various countries (3).

Each of these series was prepared in such a way that:

(a) The coverage corresponds as closely as possible to the definition of industrial production adopted;

(b) The data refer, for all years, to production on the 1955 territory of the country concerned;

(c) The internal weighting of the indices for all countries refers to the same period — that chosen as international weighting base period — all national indices of industrial production have therefore been recomputed using weights giving each sector of industry the relative importance it had in 1938 in the country under review.

This method of establishing the data ensures the greatest possible comparability through time and space of the country indices.

(2) In the computation of industrial production indices, « price » means « value added per unit ».

(3) The list of all sources used is given in the volume « Industrial Statistics 1901-1955 », p. 153 and ff. (O.E.E.C., Paris 1956).

European Index. The index of industrial production in Western Europe was obtained by combining the country indices using weights corresponding to each country's share in European industrial production in 1938. These shares were computed by comparing the value added in United States dollars of each country's industrial production with the total value of industrial production in Western Europe.

The values added in industrial production were computed twice, first for 1938, then for 1950, using independent data. The results obtained, when applied to the same year, are practically equivalent (4).

The results obtained were compared with those which appear from a study of quantitative factors linked to industrial production in each country: energy consumption, steel consumption and manpower employed in industry. These comparisons confirmed the validity of the figures obtained.

TABLE 1

SHARE OF EACH COUNTRY IN THE INDUSTRIAL PRODUCTION OF WESTERN EUROPE

	1955
Western Europe	100
United Kingdom	30
Germany	23.5
France	14.0
Italy	9.0
Belgium-Luxemburg	4.5
Sweden	3.9
Netherlands	3.6
Switzerland	2.8
Austria	2.2
Denmark	1.4
Norway	1.3
Turkey	1.0
Portugal	1.0
Greece	0.8
Ireland	0.6
Saar	0.4

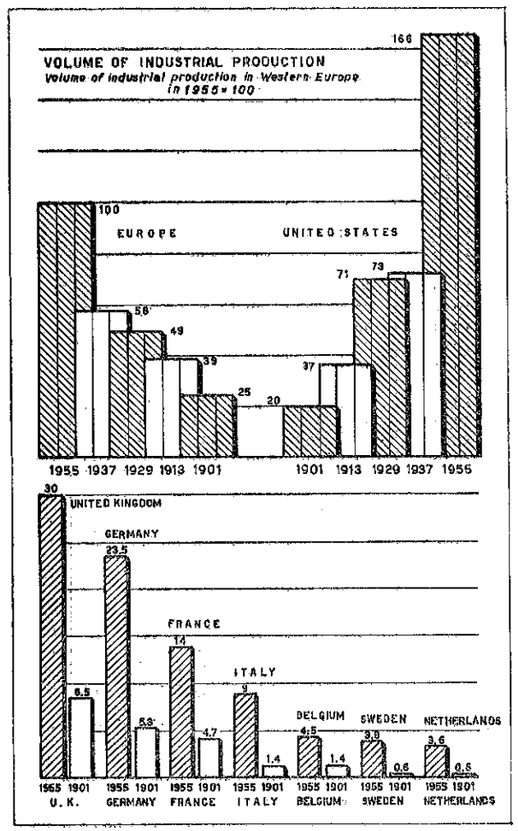
(4) A detailed account of the methods used is given in Annex 1.

Share of each country in the industrial production of Europe. On the basis of the above-mentioned computations, the share of each country in European industrial production was in 1955 as shown in table 1.

Using the same methods, it was calculated that the volume of industrial production in the United States was two-thirds higher than in Western Europe in 1955.

Western Europe . . . 100
United States 166

Indices 1901-1955. Table 2 gives the indices of industrial production of Western Europe, the European countries and the United States for the period 1901-1955.



Graph 1

GENERAL INDICES OF INDUSTRIAL PRODUCTION
(1938=100)

TABLE 2

	Member Countries combined	O. E. E. C. Member Countries															United States
		Austria	B. L. E. U.		Denmark	France & Saar		Germany	Greece	Ireland	Italy	Netherlands	Norway	Sweden	Turkey	United Kingdom	
			Belgium	Luxemburg		France	Saar										
Weight in combined index	100.0	1.92	3.79	0.19	1.55[1]	15.12	0.54	26.11	0.84	0.62	8.58	3.19	1.05	3.69	0.72	32.09	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
																	(a)
1901	44		52	41		54		38			31		34			50	35
1902	46		56	46		56		40			32		34			51	39
1903	46		54	51		57		40			35		35			51	41
1904	48		58	54		59		43			35		34			50	39
1905	50		60	58		60		45			38		35			54	47
1906	53		63	64		64		49			43		37			55	50
1907	55		64	65		68		52			49		39			56	51
1908	54		63	58		68		50			52		41			52	43
1909	56		66	63		71		52			50		42			56	51
1910	58		69	69		76		54			50		46			57	56
1911	62		72	71		80		60			53		48			60	54
1912	66		76	83		86		64			57		54			63	61
1913	69		77	96	39	89		66			57		57	44		68	66
1920	55		60	48	54	61		39			52		62	42		68	84
1921	49	56	55	51	41	58		48			50		49	31		46	68
1922	59	69	66	78	46	74		52			58		57	37		60	81
1923	59	69	73	73	58	80		35			63		61	41		68	99
1924	68	74	82	98	63	96		51			70		65	47		70	92
1925	71	86	82	109	66	97		60	62		77		70	48		69	101
1926	70	85	87	120	64	107		58	57	68	81	65	63	52		59	109
1927	79	92	96	133	62	102		72	64	69	78	71	65	55		75	106
1928	83	99	104	139	67	114		76	66	70	87	77	72	57		74	111
1929	86	99	107	150	72	121		76	67	72	88	82	77	65		79	124
1930	81	90	100	131	78	120		65	67	72	82	89	79	66		74	103
1931	72	77	89	113	73	104		55	68	73	74	83	63	63		68	85
1932	66	65	78	102	68	90		45	61	75	68	77	71	58		70	68
1933	72	67	82	102	77	101		52	68	81	73	74	72	61		75	78
1934	78	74	84	108	85	96		63	76	87	75	76	75	72		83	85
1935	85	81	94	107	91	94		73	89	92	87	78	83	81		90	98
1936	93	89	102	113	95	101	88	83	84	100	87	82	91	89		99	116
1937	102	100	111	143	99	108	96	93	94	102	101	91	100	99		107	127
1938	100	(100)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1946	..	..	..	..	104	..	..	..	54	108	..	..	104	136	146	110	192
1947	..	..	112	103	117	92	..	..	68	116	..	..	120	139	155	118	214
1948	101	92	121	137	130	108	68	52	75	127	102	114	133	150	161	127	219
1949	114	123	124	130	139	118	84	75	89	144	109	128	146	156	178	135	201
1950	127	145	128	137	154	121	92	94	112	163	126	145	164	163	179	145	234
1951	139	166	147	168	157	134	113	112	128	170	144	151	175	170	195	152	252
1952	141	167	143	168	152	138	118	120	128	168	150	154	176	168	211	148	259
1953	149	170	143	154	156	135	115	130	146	181	165	169	185	170	233	157	281
1954	162	194	154	157	168	147	124	146	178	188	181	188	197	178	253	169	262
1955	177	220	168	178	170	160	136	170	189	199	196	202	205	187	288	179	291

The weights shown correspond to those quoted in Table 1 for 1955 but:

1) they refer here to 1938;

2) they apply to « Member Countries combined » excluding the three countries (Portugal, Switzerland, Iceland) for which there are no indices of industrial production.

Notes: (a) Electricity, gas and water are not included.

CHAPTER II

THE VOLUME OF INDUSTRIAL PRODUCTION IN THE COUNTRIES OF EUROPE, IN WESTERN EUROPE AS A WHOLE AND IN THE UNITED STATES, BETWEEN 1901 AND 1955

Table 1 above showed the volume of industrial production in each European country and in the United States in 1955 as a percentage of total industrial production in Western Europe.

On the basis of these data and of the indices of industrial production given in Table 2, which show the fluctuations in production over a period of time, it is possible to work out the comparative volumes of industrial production for each year from 1901 to 1955.

In Table 3 the volume of each country's industrial production for each year is expressed as a percentage of the total volume of industrial production in Western Europe in 1955, taken as an international unit. The figures refer to 1901, 1913, 1929, 1937 and 1955. Each of these years, as we shall see in the following paragraphs, represents one of a series of successive « peaks » in the expansion of industrial production in the western world. Countries have been arranged in the order of their importance in 1955.

The first two lines of Table 3 compare the volume of production in the United States and in Western Europe during the first half of the 20th century. Before the First World War, European industrial production exceeded that of the United States: by more than 25% in 1901 and by 5% in 1913. During the First World War the positions were reversed, United States industrial production overtaking that of Europe: in 1920, two years after the end of the War, the lead amounted to 50% and in 1929 to about 44%. Between 1929 and 1937 Western Europe regained some of the ground lost to the United States, harder hit by the Depression (5), and in 1937 United States industrial production exceeded that of Western Europe by only one-quarter. The United States again considerably increased its lead during the Second World War, the volume of industrial production in that country being more than twice (220%) that in Western Europe in 1948. Between 1948 and 1955 the great industrial drive in Europe enabled the latter to make up some of the leeway: in 1955 the volume of American industrial production was two-thirds higher than that of Western Europe.

TRENDS IN THE VOLUME OF INDUSTRIAL PRODUCTION
(Western Europe 1955=100)

TABLE 3

	1955	1937	1929	1913	1901
United States	166	73.5	71	37.5	20
Western Europe	100	58	49	39	25
United Kingdom	30	18	13.5	11.5	8.5
Germany	23.5	13	10.5	9.2	5.3
France	14.0	9.3	10.5	7.7	4.7
Italy	9.0	4.6	4.0	2.6	1.4
Belgium-Luxemburg	4.5	3.1	2.9	2.1	1.4
Sweden	3.9	2.1	1.4	0.9	0.6
Netherlands	3.6	1.6	1.4	1.0	0.6
Austria	2.2	1.0	1.0	0.8	0.5
Denmark	1.4	0.8	0.6	0.3	0.2
Norway	1.3	0.6	0.5	0.4	0.2
Others	6.6	3.9	2.7	2.4	1.6

If the volume of industrial production in the United States is compared with that in the major European countries, it will be seen that as far back as 1901 the United States was

(5) In 1932, at the depth of the Depression, European production again equalled American production, as it also did in 1938.

the world's greatest industrial power. Its production at that date was more than double that of Great Britain and four times that of Germany or France. Since then the gap has widened considerably: in 1955 industrial production in the United States was 5.5 times greater than in the United Kingdom, 7 times greater than in Germany, 12 times greater than in France and 18 times greater than in Italy.

The share of each European country in the industrial production of Western Europe will be seen more clearly if the volume of its production in each year under review is expressed as a percentage of the volume of industrial production in Western Europe as a whole.

TABLE 4

SHARE OF EACH COUNTRY IN THE VOLUME OF INDUSTRIAL PRODUCTION IN WESTERN EUROPE

	1955	1937	1929	1913	1901
Western Europe	100	100	100	100	100
United Kingdom	30.0	31.5	27.5	29.5	34.0
Germany	23.5	22.5	21.5	23.5	22.0
France	14.0	16.0	21.5	20.0	19.0
Italy	9.0	8.0	8.2	6.7	5.6
Belgium-Luxemburg	4.5	5.4	5.9	5.4	5.4
Sweden	3.9	3.6	2.8	2.3	2.3
Netherlands	3.6	2.7	2.9	2.6	2.4
Austria	2.2	1.7	2.0	2.1	2.0
Denmark	1.4	1.4	1.2	0.8	0.8
Norway	1.3	1.1	1.0	0.9	0.8
Others	6.6	6.1	5.5	6.0	5.5

Although its relative importance declined slightly during the period under review, the *United Kingdom* has never ceased to be the leading industrial power in Europe. In 1901 it accounted for one-third of European production. Its share gradually declined until 1929, when it represented little more than one-quarter. After 1929 the United Kingdom regained some of the ground lost: in 1937 and in 1955 its share was 30%.

The volume of industrial production in *Germany* (6) is second only to that in the United Kingdom. Germany's share in European production has not greatly varied during the years under review; it accounts for about one-quarter of total production. In the years immediately following the two world wars its relative importance declined considerably: in 1920 it accounted for not more that 17% of the industrial production of Western Europe as a whole, and in 1948 only 13%.

France's share in European industrial production increased between 1901 and 1929 (by almost 15%): in 1929, it represented more than one-fourth. But after 1929, France's share decreased: in 1937, 16% of European industrial production and, in 1955, only 14%. In 1901 French industrial production amounted to 55% of that of the United Kingdom, almost equalled that of Germany, and was 3.5 times as much as that of Italy. In 1929 France equalled Germany and produced four-fifths as much as the United Kingdom. In 1955 her contribution was less than half that of the United Kingdom, three-fifths that of Germany, and only one-and-a-half times that of Italy.

The Belgium-Luxemburg Economic Union kept its share in European industrial production almost constant (at about 5.5%) between 1901 and 1937. In 1955, its share was only 4.5%, production having increased less in Belgium than in the other European countries since 1937.

Italy, the *Netherlands* and the *Scandinavian countries*, which in 1901 were much less industrialised than the countries previously mentioned, are those which most increased their share in Western European industrial production. Together they contributed 12% in 1901, i.e. a little more than one-third of United Kingdom production, one-half of German and two-thirds of French production. In 1955 their production accounted for one-fifth of European industrial output, i.e. two-thirds of British and four-fifths of German production, which puts them well ahead of France.

(6) For all the period « Germany » means the 1955 territory of the Federal Republic.

In conclusion, the changes in the contribution of each country to European industrial production, provided that these figures are regarded as purely relative, suggest the following remarks:

(a) the countries showing the greatest increase in their share in industrial production are those which in 1901 were least industrialised and contributed least to European industrial production;

(b) between 1901 and 1929 the share taken by the individual countries in European industrial production underwent a change, as though all the relative progress made by those countries had been at the expense of the United Kingdom's share. On the other hand, between 1929 and 1955, the breakdown further changed, in such a way that all the relative progress made — including the British recovery — seemed to have been at the expense of France. Over the whole period 1901-1955 only one great power, France, suffered a considerable decline in its share in European industrial production.

CHAPTER III

DEVELOPMENT OF INDUSTRIAL PRODUCTION BETWEEN 1901 AND 1955

1. Development of Industrial Production in Western Europe.

Between 1901 and 1955, the volume of European industrial production increased fourfold; it doubled first between 1901 and 1929, and again between 1929 and 1955.

TABLE 5

INDICES OF INDUSTRIAL PRODUCTION IN WESTERN EUROPE (7)
(1938 = 100)

1901	44	1932	66
1907	55	1937	102
1908	54	1938	100
1913	69	1948	101
1920	55	1951	139
1921	49	1952	141
1929	86	1955	177

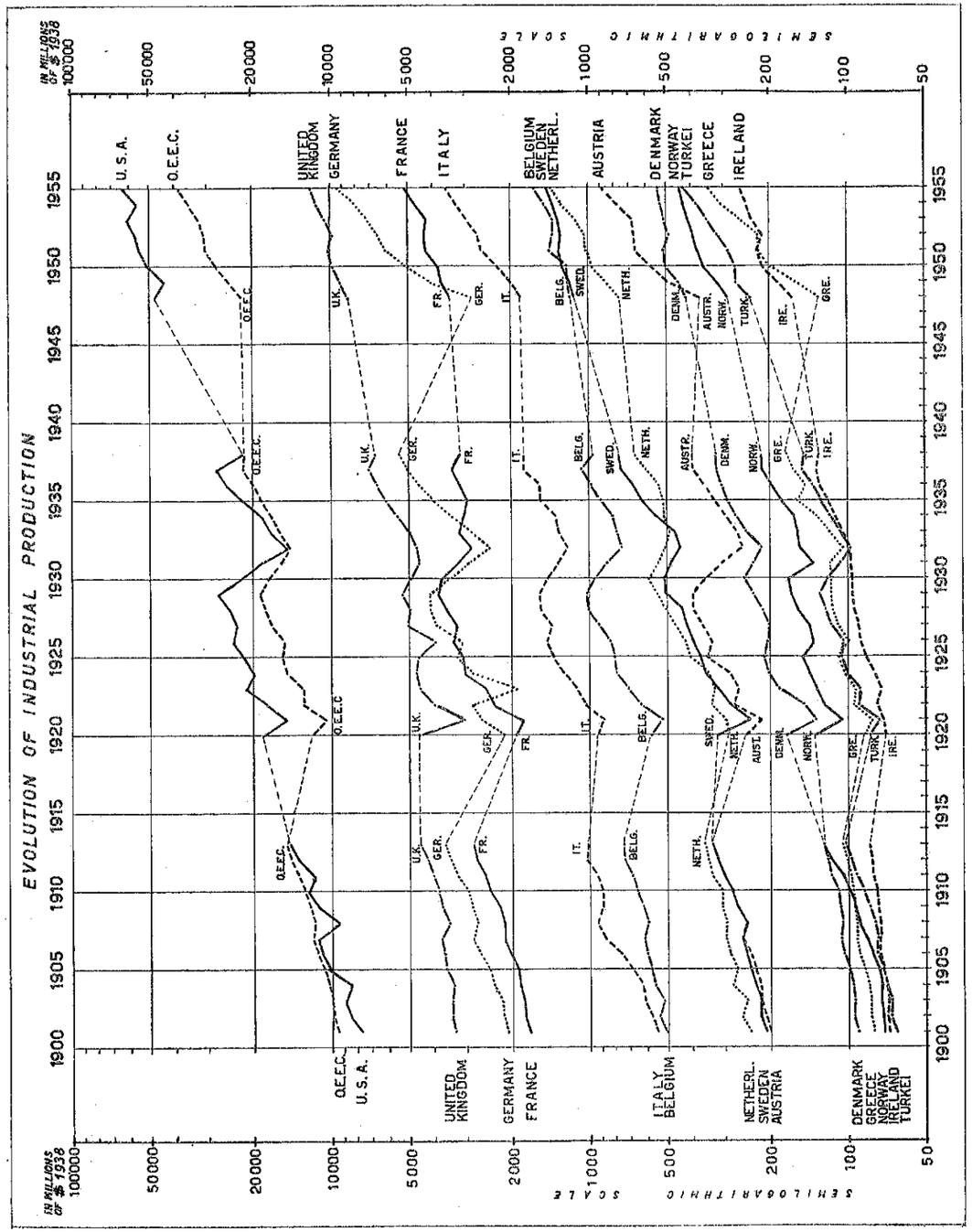
In this development several phases can be distinguished:

1. 1901-1913: Between 1901 and 1913, the increase in industrial production was general — i.e. common to all countries — and more or less regular from year to year, except for a slight recession at the end of 1907. In 1913 the 1901 level was exceeded by more than a half.

2. 1914-1921: The War, with Europe turned into a battlefield, dealt a tremendous blow to industrial production. In 1920, two years after the Armistice, industrial production was 19% below the 1913 level; in 1921, a violent but shortlived slump brought it down to a level scarcely above that of 1901 and 30% below the 1913 level.

3. 1921-1929: During these nine years, progress was very rapid (+80% between 1921 and 1929, +47% if the reference year chosen is 1920 or 1922, rather than 1921, a slump year). This progress was much more regular than the indices would suggest at first sight. The stagnation of the European index in 1923 and 1926 is in fact due solely to a collapse of production limited in each case to a single country and due to special factors: in 1923 in Germany (occupation of the Ruhr and collapse of the Mark) and in 1926 in the United Kingdom (coal strike lasting several months). For the period as a whole, the expansion is particularly marked in Belgium and France, weaker in the United

(7) The complete indices for all years are given in Table 2.



Graph II

Kingdom. In 1929, European industrial production was twice that of 1901 and 26% above the 1913 level which had been overtaken in 1924.

4. 1930-1932: At the end of 1929 the United States set off a world-wide slump that was to be exceptionally farreaching and exceptionally long-lived. It affected all the countries of Europe. Industrial production collapsed. In 1932, at the depth of the depression, it stood at a level appreciably the same as in 1913, i.e. three-quarters that of 1929.

5. 1933-1938: The recovery was general, though weaker in France and Belgium than in the other countries. Europe regained the 1929 level in 1935 and exceeded it by 18% in 1937, when European industrial production reached its pre-war maximum. A new recession hit most countries in 1938, causing the European index to fall by 2%.

6. 1939-1947: For the second time in twenty-five years, war swept over Europe, and in 1944 industrial production was very limited in almost all countries.

7. 1948-1955: European industrial production overtook the 1937 level in 1948 and ever since — except for a period of stagnation in 1952 — has been increasing at a rapid and regular pace. The expansion is general. In 1955 the volume of industrial production was four times that of 1901, twice that of 1929 and three-quarters above the 1937 level.

2. Comparative Development of Industrial Production in the Individual Countries of Europe.

The development of industrial production in Western Europe is the sum of developments in each of the European countries. National developments do not show any fundamental divergencies: it is rare to find countries which, during a given period, « go against the current » of the general movement. Nevertheless, though the developments all follow the same direction, their proportions differ considerably.

United Kingdom

Table 6

INDICES OF INDUSTRIAL PRODUCTION IN THE UNITED KINGDOM AND THE REST OF WESTERN EUROPE
(1938 = 100)

	United Kingdom	Rest of Western Europe	Total Western Europe
1901	50	42	44
1913	68	70	69
1920	68	50	55
1921	46	50	48
1925	69	73	71
1926	59	76	70
1929	79	91	86
1931	68	75	72
1932	70	65	66
1937	107	100	102
1946	110	n.a.	n.a.
1948	127	90	101
1955	179	176	177

Between 1901 and 1913 the United Kingdom made less progress than the rest of Europe, industrial production increasing by only 36% while that of the rest of Western Europe increased by 66%.

After the First World War, industrial production in the United Kingdom in 1920 equalled that for 1913, while the rest of Europe showed a drop of 29%. But in 1921 the United Kingdom was the only country in Europe to be seriously affected by the slump, industrial production falling by one-third between 1920 and 1921. Industrial production made but slow progress in the years which followed: in 1925 it hardly exceeded the 1913 level; in 1926 the coal strike paralysed many industries for several months and production dropped by 15%; in 1929, industrial production in the United Kingdom exceeded the 1913 level by only 17% while the rest of Europe was 30% above (8).

(8) The drop in production following the world slump was less marked in the United Kingdom (−14%) than in the rest of Europe (−28%), the explanation being that the United Kingdom had been in a continual state of depression since 1921. The deflationary policy pursued since the Armistice to restore sterling to its pre-war value (achieved in 1925) hampered the expansion of industrial production.

After the devaluation in 1931, the situation changed: while European production continued to fall during 1932 (— 12%), United Kingdom production increased by 2%. From 1932 to 1937, the United Kingdom's industrial production progressed by 53%, as much as the rest of Europe. In 1937 industrial production in the United Kingdom exceeded the 1929 level by 34%, the increase for the rest of Europe being only 10%. The 1937 level represented an advance of 58% over 1913, against 44% for the rest of Europe.

At the end of the Second World War, the level of industrial production in the United Kingdom was relatively high compared with that in the other countries. In 1946 it was 2% higher than in 1937, and in 1948 surpassed this level by one-fifth, the rest of Europe being still 10% below it. There was some levelling-out in the years which followed, the other countries making up lost ground: while industrial production in the United Kingdom increased by 41% from 1948 to 1955, in the rest of Europe it doubled. Compared with 1937, the level reached by the United Kingdom in 1955 (+65%) was lower than that attained by the rest of Western Europe (+77%), but higher compared with 1929 (+122% against +94%).

GERMANY TABLE 7

INDICES OF INDUSTRIAL PRODUCTION IN GERMANY AND THE REST OF WESTERN EUROPE

(1938 = 100)

	Germany	Rest of Western Europe	Total Western Europe
1901	38	47	44
1913	66	70	69
1920	39	61	55
1921	48	49	49
1923	35	68	59
1927	72	82	79
1929	76	91	86
1932	45	75	66
1937	93	105	102
1938	100	100	100
1948	52	119	101
1955	169	179	177

Germany went through a remarkable period of expansion at the beginning of the century. Between 1901 and 1913 industrial production increased considerably more quickly than in the rest of Europe (+73% compared with +64%). In 1913 the volume of German industrial production was near to that of the United Kingdom.

After the war, in 1920, industrial production was at the same level as in 1901, and right up to 1927 political and economic difficulties kept it well below the 1913 level; in 1923, with the occupation of the Ruhr, production even fell below the 1901 level. Despite a recovery after 1927, industrial production in 1929 was still only 14% higher than in 1913. In 1932, at the depth of the depression, industrial production was hardly higher than in the early years of the century and one-third below 1913, while for the rest of Europe industrial production never fell below the 1913 level.

In 1933, the recovery began in Germany as in the other countries. Starting much lower, German industrial production increased very rapidly; in 1937, it was 23% above the 1929 level, while the increase for the rest of Europe was only 15%. Moreover, in Germany alone of the major European countries, 1938 was a year of expansion; industrial production increased by 7%, while for the rest of Europe it fell by 5%.

After the end of the Second World War, the period of recovery began much later in Germany than in the other countries: in 1948, when all the other countries had regained or surpassed their pre-war industrial levels and, taken as a whole, had an industrial production 13% above 1937, industrial production in Germany was scarcely half what it had been in 1938.

From then on, progress was rapid, and by 1955 Germany had almost made good the 1948 leeway and caught up with the rest of Europe. Compared with 1929, German industrial production had multiplied by 2.2, as much as in the United Kingdom and rather more than in the rest of Europe.

FRANCE TABLE 8

INDICES OF INDUSTRIAL PRODUCTION IN FRANCE AND THE REST OF WESTERN EUROPE

(1938 = 100)

	France	Rest of Western Europe	Total Western Europe
1901	54	43	44
1913	89	65	69
1920	61	55	55
1921	58	47	49
1929	121	81	86
1932	90	63	66
1937	108	101	102
1948	108	100	101
1955	162	179	177

France enjoyed at the beginning of the century a more rapid rate of expansion than the United Kingdom and the rest of Western Europe. Industrial production in France increased by 65% between 1901 and 1913, the increase for the rest of Europe being only 54%. The War struck a hard blow at French industry; in 1920 production was no more than 69% of what it had been in 1913, while for the rest of Europe, excluding Germany, the proportion was 95%. The 1921 slump hit industrial production in France less than in the United Kingdom, the drop between 1920 and 1921 being only 6%, and the recovery which followed was very considerable. Between 1920 and 1929 French industrial production doubled, while that of the rest of Europe increased by only a half.

Industrial production in France increased by 125% between 1901 and 1929; this was more than in the rest of Europe, where the increase was only 90% (9).

(9) During the whole of this period, industrial development in France was favoured by a number of factors. Up to 1913, colonial expansion and foreign investment gained big orders for French industry; after 1919, the requirements of reconstruction and a very low exchange rate for the franc, which gave French industrial products a commercial advantage on foreign markets, also meant large orders, particularly for heavy industry. The immigration of nearly 2 million foreigners enabled the labour demand to be met. Up to 1929 these factors stimulated industrial production and offset the negative element of an inadequate development of the home market, which had expanded hardly at all, France's population having remained stationary since the end of the 19th century.

The slump hit France in 1931, later than the other countries. Industrial production fell by 26%, a similar drop to that in the other countries of Europe; but, unlike the latter, France « got bogged down » in the depression. After 1932, and right up to 1938, industrial production stagnated at a level below — some 10 to 20% below — that of 1929, which the rest of Europe regained as early as 1935. In 1937, while production in the rest of Europe was 25% above the 1929 level and in the United States had again reached that level, industrial production in France was still 11% below it.

Between 1948 and 1955 the increase in industrial production was 50% for France and 79% for the rest of Europe (10). French industrial production in 1955 was 50% higher than in 1937, while the increase for the rest of Europe was 77%; it was one-third higher than in 1929, that of the rest of Europe being more than double (2.2 times), and three times as much as in 1901, while for the rest of Europe the increase was more than fourfold.

BELGIUM TABLE 9

INDICES OF INDUSTRIAL PRODUCTION IN BELGIUM AND WESTERN EUROPE

(1938 = 100)

	Belgium	Western Europe
1901	52	44
1913	77	69
1929	107	86
1932	78	66
1937	111	102
1948	121	101
1955	168	177

Industrial production in Belgium a little more than trebled between 1901 and 1955,

(10) Only since 1953 is industrial production in France increasing at the same rate as in the rest of Europe.

while it quadrupled in the rest of Europe. Between 1901 and 1929 Belgium made similar progress to that of the other countries and its industrial production doubled. Very hard hit by the slump which continued there right up to 1934, Belgium did not regain the 1929 level until 1937. After the War, Belgian industrial production increased less than that of Europe as a whole. The 1955 level is only 51% above that of 1937 and 57% above that of 1929.

NETHERLANDS TABLE 10

INDICES OF INDUSTRIAL PRODUCTION IN THE NETHERLANDS AND WESTERN EUROPE
(1938=100)

	Netherlands	Western Europe
1925	62	71
1929	82	85
1930	89	81
1937	91	102
1938	100	100
1948	114	101
1955	202	177

It is not possible from the data available to follow the progress of industrial production in the Netherlands from the beginning of the century (the first indices calculated start at 1925). 1955 industrial production in the Netherlands was 3.3 times the 1925 figure, for Western Europe as a whole only 2.5 times. It seems probable that industrial production increased about sixfold between 1901 and 1955.

The 1929 slump reached the Netherlands later than the other countries (production there increased by 8% between 1929 and 1930, while for Western Europe it dropped by 7%), but it continued until 1933. The 1929 level was not overtaken until 1938. After the War the increase in industrial production was rapid and of roughly the same order as for Western Europe. In 1955 Netherlands production had more than doubled compared with 1930, the peak year before the slump, and doubled since 1938, the peack year before the Second World War.

ITALY TABLE 11

INDICES OF INDUSTRIAL PRODUCTION IN ITALY AND WESTERN EUROPE
(1938=100)

	Italy	Western Europe
1901	31	44
1913	57	69
1920	52	55
1929	88	86
1937	101	102
1948	102	101
1955	196	177

Italy is one of the countries of Europe in which industrial production increased most rapidly: between 1901 and 1955, Italian industry increased the volume of its production sixfold.

Progress was rapid between 1901 and 1913, the total increase being 84%, while for the whole of Europe it was only 56%. The War speeded up the development of industrialisation in the whole of the peninsula, and in 1920-21 the level of industrial production, though below that of 1913, was less depressed than in Western Europe as a whole. Between 1920 and 1929 the increase in Italian industrial production was 69%, i.e. more than that achieved by Western Europe; between 1929 and 1937 industrial production increased by 15%, rather less than most other European countries in the process of industrialisation.

Since 1948, when the 1937 level was regained, Italian industrial production has increased at such a pace that Italy is counted among the countries of Europe which have made the most appreciable progress compared with prewar. In 1955 the volume of industrial production was almost twice that of 1937, while for the rest of Europe the increase was only 75%. Comparing 1955 with 1929, industrial production has increased as much in Italy as in the United Kingdom and Germany, and slightly less than in the United States.

SWEDEN, NORWAY AND DENMARK TABLE 12

INDICES OF INDUSTRIAL PRODUCTION IN SWEDEN, NORWAY AND DENMARK, AND IN WESTERN EUROPE
(1938=100)

	Sweden	Norway	Denmark	Western Europe
1901	n.a.	34	n.a.	44
1913	44	57	39	69
1920	42	62	54	55
1929	65	77	72	86
1937	99	100	99	102
1948	150	133	130	101
1955	187	205	170	177

The Scandinavian countries — Sweden, Norway and Denmark — are, together with Italy, the European countries whose industrial production expanded most between 1901 and 1955 (11): Less hard hit than other countries by the 1929 slump, they were able as members of the Sterling area to benefit as early as 1932 by the recovery which followed the devaluation of the £, and in 1937 the Scandinavian countries were among those whose industrial production had expanded most since 1929. Progress has continued at a very rapid pace since the end of the War. Compared with 1929, the volume of industrial production in the Scandinavian countries has multiplied by 2.5, which is a greater increase than that recorded not only in the rest of Europe but even in the United States. Compared with 1901, industrial production in Sweden seems to have increased about sevenfold, that in Norway and Denmark about sixfold.

(11) The low degree of industrialisation at the beginning of the period and the fact that production was stimulated by the First World War — and in the case of Sweden by the Second — could explain this development.

AUSTRIA TABLE 13

INDICES OF INDUSTRIAL PRODUCTION IN AUSTRIA AND IN WESTERN EUROPE

	Austria	Western Europe
1901	(50)	44
1913	(83)	69
1929	99	86
1937	100	102
1955	220	177

Industrial production in Austria increased by 65% between 1901 and 1913, i.e. appreciably more than the European average. But after the First World War, when Austria was no longer the industrial centre of an Empire and political and economic difficulties there were particularly severe, progress was slight: in 1929, the 1913 level was exceeded by only 19%, and the volume of industrial production in 1937 was still near that of 1929. After the Second World War, on the contrary, the increase in industrial production in Austria was greater than the European average. Over the whole period 1901-1955, industrial production in Austria increased fourfold, i.e. the same increase as in Western Europe.

3. Development in the United States.

At the beginning of the century, the volume of industrial production in the United States was already the highest of any country in the world, though still below the total for Western Europe. From 1901 to 1955 the volume of industrial production in the United States increased eightfold. It almost quadrupled between 1901 and 1929, and rather more than doubled between 1929 and 1955.

The development of production in the United States can also be sub-divided into several phases, which coincide with those observed for Europe and have the same characteristics.

TABLE 14

INDICES OF INDUSTRIAL PRODUCTION
IN THE UNITED STATES
(1938=100)

Year	Index	Year	Index
1901	35	1937	127
1907	51	1938	100
1908	43	1943	270
1913	66	1948	219
1918	88	1949	201
1920	84	1953	281
1921	68	1954	262
1929	124	1955	291
1932	68		

1. 1901-1913: Between 1901 and 1913 the increase was more rapid than in Europe and continuous — apart from the recession in late 1907 and 1908 which caused production to drop by 15% between the two years. Production was again rising rapidly at the end of 1908, and in 1913 exceeded the 1901 level by about 88%.

2. 1914-1921: The First World War provided a stimulus to the expansion of United States industrial production.

In 1918, it was one-third higher than in 1913; in 1920, despite the contraction following the end of hostilities, the increase over pre-war was still about 30%. 1921 saw a crisis which marked the end of the war boom for the United States; industrial production fell by 20%, but even at this level was still equal to that of 1913, whereas in Western Europe industrial production in 1921 hardly exceeded the 1901 figure.

3. 1921-1929: During this period the increase in production in the United States was of the same order as in Western Europe (+83% between 1921 and 1929, +47% between 1920 and 1929). In 1929, the level of industrial production in the United States was 3.5 times the 1901 figure, a much greater advance than in Europe, the difference being mainly due to the progress made in the United States between 1913 and 1920.

4. 1930-1932: A slump of exceptional gravity and duration set in in the United States at the end of 1929. Industrial production crashed: in 1932, at the depth of the depression, it represented only about half (54%) of the 1929 volume, i.e. appreciably the same level as in 1921 and 1913.

5. 1933-1938: In 1933 the recovery began; it was slower and less pronounced than in Europe: the 1929 level was regained in 1937, but production fell again in 1938 to 21% below the 1937 level.

6. 1939-1948: The Second World War — like the First — gave a new stimulus to American industrial production. In 1944 it had doubled compared with 1937 or 1929: at the end of hostilities, the changeover from a war economy to a peace economy was made without a hitch; in 1948, the volume of industrial production in the United States was three-fourths higher than in 1937 and 1929.

7. 1949-1955: The 1949 recession led to only a slight decline (less than 9%) in industrial production, and recovery was already on the way at the beginning of 1950, before the Korean War. From then on, production increased until 1954, when there was a recession similar in gravity to that of 1949, but a brisk recovery was already apparent in 1955. In that year, production reached a level 130% higher than in 1937 and 1929, and almost eight times higher than at the beginning of the century.

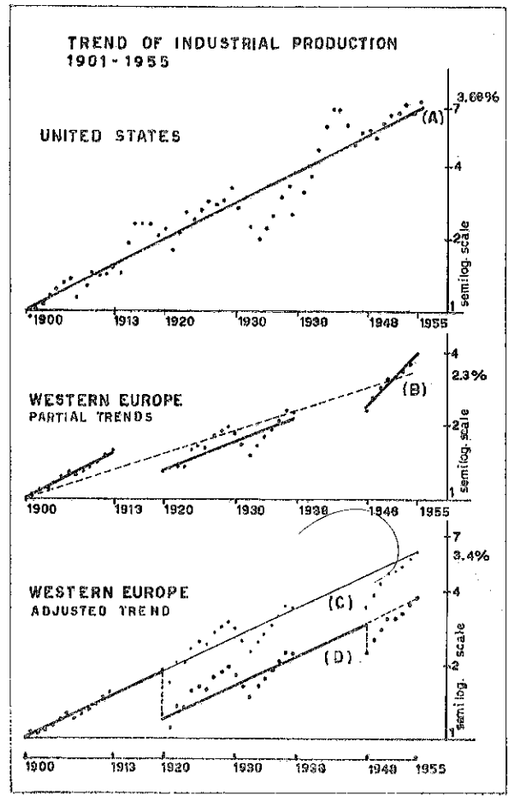
4. Long-Term Trends and the Impact of the Wars on the Development of Industrial Production in Western Europe and the United States.

A comparison between the United States on the one hand and the whole of Western Europe on the other has the advantage of weighing in the balance two economic entities whose dimensions are of the same order, while a comparison between the United States and individual European countries contrasts entities which are out of all proportion.

As the preceding paragraphs have shown, except during the war periods, there is no fundamental difference between the development of industrial production in the United States and that in Europe: the movements are in the same direction and the differences of degree that may be noted do not at first sight seem disproportionate for any of the periods considered, particularly when it is recalled that the population of the United States has increased more quickly than that of Western Europe (cf. p. 216). It may be interesting to consider whether it is possible to discern any long-term trends, for the United States as for Europe, and if it is, to compare these trends.

Graph III shows the development of industrial production in the United States since the beginning of the 20th Century. The calculation of the mean annual rate of increase corresponding to the development observed for the whole period, gives a figure of 3.6%. This rate of increase is represented on the graph by the straight line (A). This straight line, superimposed on the curve for the values actually observed, seems to express more than a mathematical interpolation. In fact, after the greatest upheavals (1914-1918 War, slump and Second World War), the points corresponding to actual industrial production are noticeably in line with the straight line A, which suggests the existence of a long-term tendency.

It is much more difficult to plot and to interpret a similar graph for the development of industrial production in Europe. The lack of figures for the war and immediate postwar periods means that the development observed is not continuous. If, despite the « gaps », a calculation is made of the mean annual rate of increase corresponding to the total increase observed, a figure of 2.3% is obtained. If this mean rate of increase is plotted on the graph, the resulting straight line (B) is less steep than each of the straight lines for the three trends observed: for each of the three periods for which data are actually available, the rate of increase is in fact appreciably



Graph III

greater than the 2.3% per year calculated for the whole period 1901-1955, (see Graph III).

However, the straight lines representing the mean annual rate of increase during each of the three periods 1901-1913, 1920-1938 and 1948-1955 are almost in line, as though each of the Wars had thrown out of alignment portions of an appreciably regular curve. This leads one to wonder whether, by means of a calculation eliminating the influence of the Wars, it might not be possible to discern for Europe — as we did for the United States — a rate of increase corresponding to the development observed during the peace-time years and pointing to a trend.

Eliminating the influence of the two World Wars amounts to making an assessment of what the development of European

industrial production would have been if these Wars had not taken place. The simplest hypothesis is to assume that, during the years corresponding to the war and immediate post-war periods, production would have continued to develop at the mean rate for the whole of the period preceding the War: in other words, to assume that from 1914 to 1920 industrial production would have developed at the mean rate for the years 1901-1913, and that from 1939 to 1951 (12) it would have developed at the mean rate for the years 1901-1938 (13). These hypotheses are obviously arbitrary. They may, however, be retained in view of the relative parallelism of the straight lines representing the development in the three periods observed and by analogy with what actually happened in the United States where, after the Wars, the levels of industrial production came back into line with the « trend ».

The calculations made then lead, after eliminating the influence of the war periods, to a mean rate of increase in European industrial production of 3.4% per year. The straight line (C) which represents this rate seems indeed to reflect a long-term trend disturbed by the two World Wars.

The rate of increase of industrial production in Western Europe (3.4%) after eliminating the influence of wars, does not differ greatly from that found for the United States (3.7%). It is true that the cumulative increase leads in the long run to differences which are by no means negligible: in 55 years the American rate corresponds to a multiplication by 7 of the initial volume of production, while the European rate means a multiplication by only 6. But this divergence would disappear if the increases in population were taken into account, i.e., if the increase in industrial production *per head* were considered (cf. p. 221).

Europe's falling-behind then seems mainly to reflect the impact on European industry of the two Wars, much more than a fundamental difference of trend in the expansion of industrial production over the periods considered.

It should be noted that the disparity between developments in Europe and in the United States reflects rather the *falling-behind* of Europe during the Wars than an intrinsic *advance* by the United States. It is true that industrial production in the United States during the 1915-1918 and 1941-1945 periods was well above the level calculated from the 3.6% mean annual rate of increase, but after each of the Wars production came back into line with the « trends ».

(12) In addition to the War and immediate post-War years (1939-1947), the years 1948-1951 have been eliminated. During this period the industrial production of Western Europe increased very rapidly, 38% in four years, but this expansion may be very largely attributed to an exceptional factor: Marshall Aid. Marshall Aid enabled the countries of Europe directly or indirectly to devote to reconstruction and productive investment a part of their resources which otherwise would have had to pay for imports of goods for immediate consumption (wheat, coal, textile fibres etc.).

(13) Obviously after allowing for the influence of the 1914-1918 War.

5. The Impact of the Wars on European Industrial Production.

In both 1920 and 1948, industrial production in Europe was rather more than one-third below the level it would have reached if it had followed the trend. In other words, the percentage drop attributable to the war period was much the same for both World Wars.

There was, however, a fundamental difference in the development of industrial production after each of the two Wars. After the First World War, European industrial production did not make good the hypothetical back-log: production levels in 1929 and 1937 (the two peaks of the inter-war period) are 68% and 69% respectively of the value which would result if the « trend » were extrapolated from 1913: the disparity in 1929 and 1937 thus remains hardly less than that observed in 1920.

After the Second World War, on the other hand, a very rapid increase in industrial production enabled Europe to make up

the hypothetical back-log due to the War: industrial production in 1955 reached 98% of what it would have been if the « trend » had actually continued from the levels of 1937 and 1938 [see Graph III, line (D)].

TABLE 15

INDICES OF INDUSTRIAL PRODUCTION IN WESTERN EUROPE

	Actual Indices		Estimated Indices (a)		Ratio of actual to estimated Indices	
1901	100		100		100	
1913	155		153		101	
1920	125		196		64	
1929	196		288		68	
1937	231	100	334	100	69	100
1949	230	100	482	146	48	68
1955	400	174	591	177	68	98

(a) Indices estimated on the basis of the trend after allowing for the effect of the Wars.

The above conclusions are, of course, highly conjectural. Since there is no way of assessing the precise effect of the World Wars, the percentages shown are merely rough approximations which nevertheless seemed worthwhile.

* * *

The following Table summarises the remarks made above concerning the individual countries of Europe and shows the comparative development of their industrial production. The countries are arranged in order according to increase in industrial production between 1901 and 1955.

Over the period 1901-1955 industrial production increased more in the United States than in any other country we have examined: during those 55 years the volume of industrial production increased eight-fold in the United States and four-fold in Western Europe. If the two periods 1901-1929 and 1929-1955 are studied separately, it will be seen that the expansion in United States industry outstripped that in Western Europe during the first

TABLE 16

INCREASES IN INDUSTRIAL PRODUCTION

	1929 if 1901 = 1	1955 if 1929 = 1	1955 if 1901 = 1
United States	3.5	2.3	8.3
Sweden	(2.4)	2.9	(7.0)
Italy	2.9	2.2	6.5
Netherlands	(2.4)	2,5	(6.0)
Norway	2.3	2.7	6.1
Denmark	(2.5)	2.3	(5.8)
Germany (F.R.)	2.0	2.2	4.4
Austria	2.0	2.2	4.4
Western Europe	2.0	2.0	4.0
United Kingdom	1.6	2.2	3.5
Belgium	2.1	1.6	3.3
France	2.2	1.3	3.0

period only; industrial production in the United States then increased to the extent of being multiplied by 3.5 as against 2 in Western Europe. Between 1929 and 1955 the increase was higher in the United States than in Western Europe because of the slight progress made by France: excluding France, the average for Western Europe would be the same as that recorded in the United States. In fact, several European countries (Sweden, the Netherlands and Norway) made greater progress between 1929 and 1955 than the United States.

Inside Western Europe there are marked differences in the increases in industrial production achieved between 1901 and 1955 by the various countries. Sweden — one of the few European countries not directly engaged in either of the two World Wars — takes the lead with a total increase not very much below that of the United States. Italy, the Netherlands, Denmark and Norway show increases much above (40% to 60% above); the European average. Germany, Austria the United Kingdom and Belgium increased by about that average, and France by considerably less (— 25%).

Between 1901 and 1929, as between 1929 and 1955, almost every country at least doubled its industrial production. The exception

are the United Kingdom during 1901-1929 and France and Belgium during the period 1929-1955. These three countries are the only ones which, for the whole of the period 1901-1955, show an increase below the average for Western Europe.

Chapter IV

STRUCTURE OF PRODUCTION IN THE MANUFACTURING INDUSTRIES

Industrial production has been defined as production resulting from the following three activities: mining and quarrying, production of electricity and gas, and manufacturing.

Production in the first two activities depends to a large extent on the natural resources of territories. It is true that the concept of « natural resources » is constantly changing, but present « natural resources » still seem very unequally distributed and are not everywhere uniformly easy to work.

If mining output in the United States greatly exceeds that in Europe, this is largely because the former's resources are more extensive and easier to work. During the whole of the period covered by this study, the expansion of mining production in Western Europe was only 70%, while in the United States there was a fivefold increase. The rigidity of European mining production robs any comparison with the United States of much of its significance; comparisons between the countries of Europe would have even less point.

It is hardly possible either to make comparisons covering combined production of electricity and gas. In 1955 electricity production in the United States was more than 70% higher than the overall figure for Western Europe; as for production of manufactured gas, a comparison between Europe and the United States would mean very little in view of the importance for the United States of the exploitation of its natural gas resources (14).

(14) Detailed comparative data, not only for the United States but also for Western Europe and the individual countries of Europe, are given in « Industrial Statistics 1901-1955 » published by the O.E.E.C. and in Annex 2 to this study.

For the manufacturing industries, on the other hand, whose location was strongly influenced in the 19th century by the presence of certain raw materials (particularly coal and iron), this is no longer such a decisive factor. The location of natural resources, though still an appreciable factor in the metal industries, has little effect nowadays on the development of the processing industries which account for the major part of the volume of manufacturing output. The development of the processing industries reflects above all the economic vitality of the various countries now that the extension of transport and the volume of trade enable industry — previously mainly confined to processing national resources — to obtain supplies from the whole world. Europe, poor in raw materials, uses the resources both of its Overseas Territories and of other countries to meet the requirements of its manufacturing industries; even the United States, despite its natural wealth, tends increasingly to rely on imported raw materials for its manufacturing needs.

It is thus by analysing the volume and development of the manufacturing industries — which represent between 85% and 90%, according to the country (15), of total industrial production — that we can best bring to light the real differences in economic expansion between the various countries, and the relative contribution they have made to world economic development.

(15) For Western Europe as a whole, manufacturing accounts for 87% total industrial production; the percentage in the United States is about 90%.

The expression « manufacturing » is attributed to a wide range of industries which have followed very different developments. For the requirements of this study, manufacturing has been sub-divided into six sectors (16):

1. Food, beverage and tobacco manufactures;
2. Manufacture of textiles;
3. Basic metal industries;
4. Manufacture of metal products;
5. Manufacture of chemicals and chemical products and products of coal and petroleum;
6. Other manufacturing industries.

(16) These six sectors are defined by reference to the International Standard Industrial Classification (I.S.I.C.) (cf. Annex 1, p. 223).

1. Structure of Manufacturing Production in Western Europe and the United States.

Tables 17 and 18 compare the structure of manufacturing production in Western Europe and the United States, as well as the changes in structure which have occurred over a period of time. In both of these Tables the figures refer to 1901, 1913, 1929, 1937 and

VOLUME OF PRODUCTION IN THE VARIOUS SECTORS OF MANUFACTURING — Table 17

(European manufacturing production in 1955 = 100)

	Western Europe					United States				
	1955	1937	1929	1913	1901	1955	1937	1929	1914	1899
Manufacturing	100	58	50	40	25	166	69	68	35.5	19
Food	13	9	8	7.5	7	18	10.5	9.5	7	4.5
Textiles	8	7	7	7	5	13	8.5	7.5	6.5	4
Basic metal	9	5.5	5	4	2	14.5	6.5	7	3.5	1.8
Metal products	34	16	13	9	4	68.5	21	22.5	4.5	1.7
Chemicals	14	6	5	2.5	1.5	22	6.5	5.5	2	1
Others	22	14.5	12	10	5.5	30	16	16	11	6

SHARE OF EACH SECTOR IN TOTAL MANUFACTURING PRODUCTION — Table 18

(Percentages)

	Western Europe					United States				
	1955	1937	1929	1913	1901	1955	1937	1929	1914	1899
Manufacturing	100	100	100	100	100	100	100	100	100	100
Food	13	15	16	19	27	11	15	14	20	24
Textiles	8	12	14	18	20	8	12	11	19	20
Basic metal	9	10	10	10	7	9	9	10	10	9
Metal products	34	28	27	24	16	41	31	33	13	10
Chemicals	14	10	10	6	5	13	10	8	6	5
Others	22	25	23	24	25	18	23	24	32	32

1955 which marked the successive « peaks » of production in both Western Europe and the United States.

Table 17 compares volumes of production. For each year, the volume of production in manufacturing industries as a whole and in each sector is expressed, for both Western Europe and the United States, as a percentage of the total volume of production in all manufacturing industries in Western Europe in 1955, which has been taken as an international unit.

Table 18 shows, for Europe and the United States, the share of each sector in total manufacturing production in each of the years considered.

A comparison of the volume of production, both in manufacturing industries as a whole and in the individual sectors, shows that the volume of production in the United States in 1955 was distinctly higher in every case than that in Europe. On the other hand, the share of each sector in total manufacturing production in 1955 was more or less the same on both sides of the Atlantic, with the exception however of the metal products sector whose share was appreciably greater in the United States than in Europe.

The breakdown of production between the various manufacturing sectors (see Table 18) showed much the same development in the United States and in Western Europe during the period under review. In both cases, the relative importance of the food and textiles industries declined considerably between 1901 and 1955: these two sectors accounted in 1901 for 47% of manufacturing production in Europe and 44% in the United States; in 1955 the proportion had fallen to 21 and 19% respectively. The share of the basic metal industries remained fairly constant in both the United States and Europe. The share of the metal products and chemicals industries rose: in 1901 it represented 21% of total manufacturing production in Europe and 15% in the United States; in 1955, 48% and 54% respectively.

* * *

A study of the volume of production, of its breakdown between the various sectors and of the development thereof suggests the following remarks:

Food, beverage and tobacco manufactures. The volume of production in this sector in the United States exceeded that in Western Europe by more than one-third.

Between 1901 and 1905 the volume of production in this sector doubled in Western Europe and quadrupled in the United States. The increases were less than those for manufacturing as a whole, so that the share of this sector in manufacturing production declined both in the United States and in Europe, and to much the same extent: from very nearly a quarter in 1901 it had fallen by 1955 to no more than one-eighth.

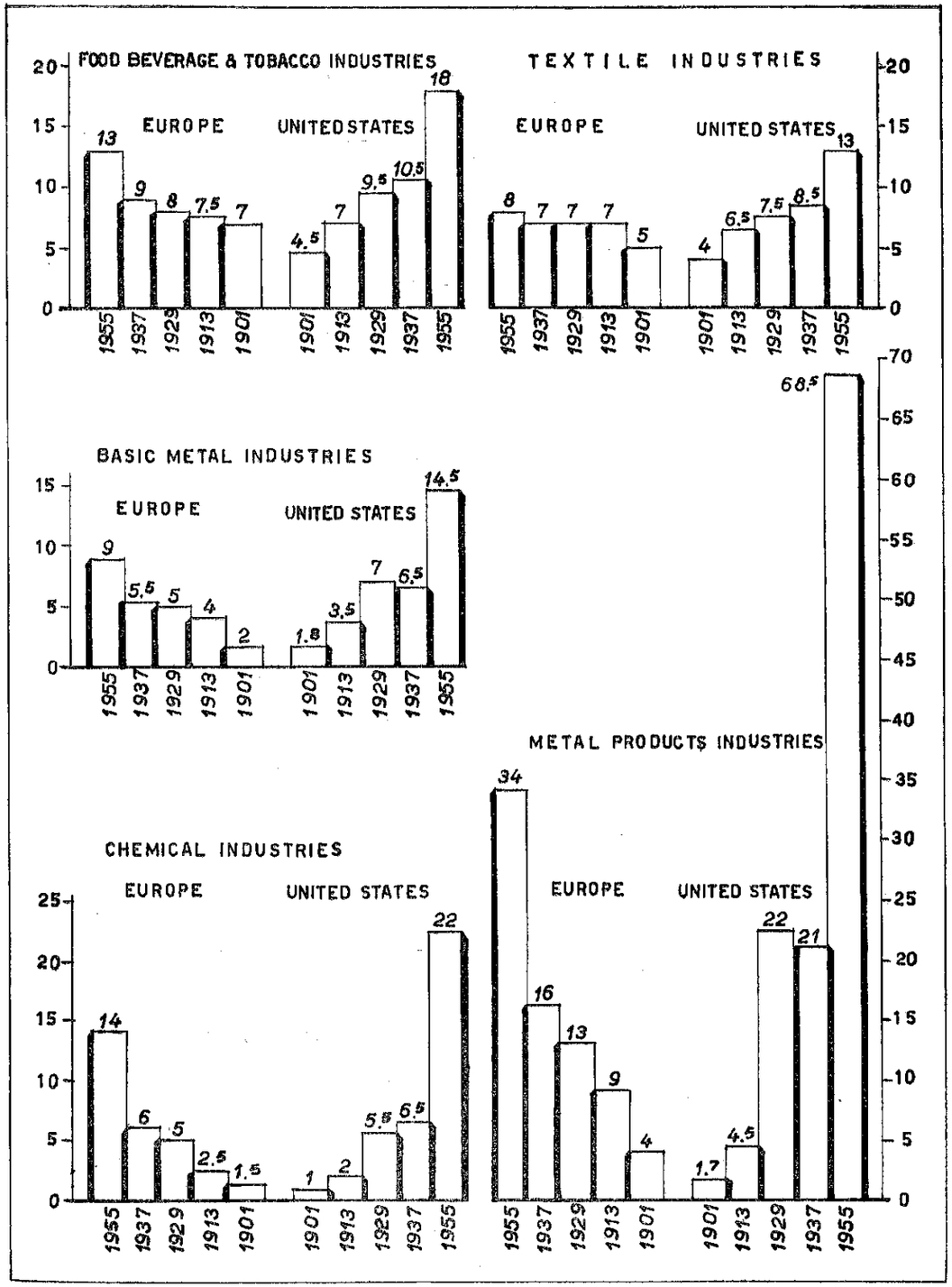
Manufacture of Textiles. In 1955 the volume of textiles production in the United States was three-fifths more than in Europe. The situation differs widely according to the textiles branch considered: Western Europe has a bigger woollen industry than the United States, while the reverse is true of cotton. In the case of artificial textiles, Europe is ahead of the United States for staple fibre but is behind for rayon; for the new non-cellulose synthetic textile fibres, on the other hand, the United States has a big advance over Europe.

The volume of textiles production has increased by more than a half (+60%) in Europe since 1901, while in the United States it has increased more than threefold.

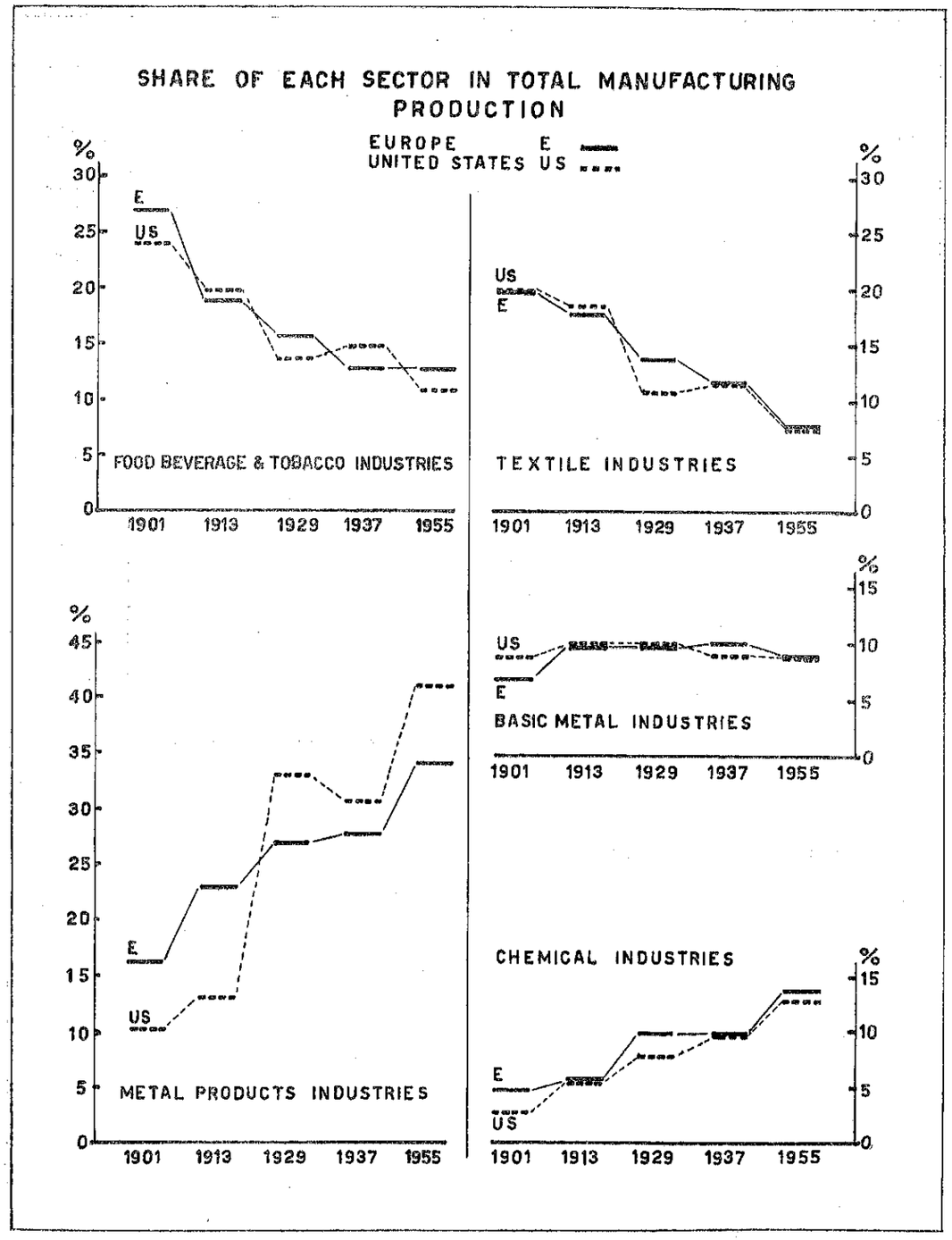
The share of textiles in total manufacturing production, however, was the same in 1955 in both Western Europe and the United States; in each case, the share of textiles in total manufacturing fell sharply between 1901 and 1955. Textiles underwent the sharpest relative decline during the period considered: from 20% at the beginning of the century, they had fallen by 1955 to only 8% of the total.

VOLUME OF PRODUCTION IN THE VARIOUS SECTORS OF MANUFACTURING

(European manufacturing production in 1955 = 100)



Graph IV



Graph V

Basic metal industries. The volume of United States production in this sector surpassed that of Western Europe by more than 60% in 1955. Between 1901 and 1955 the volume of basic metal production increased fivefold in Western Europe and ninefold in the United States.

The relative share of the basic metal industries in manufacturing production remained fairly constant for all the years considered: 9 to 10% in both Western Europe and the United States. This relative stability is all the more noteworthy as it applies to the sector that reacts most quickly and most sharply to variations in the general economic situation: during periods of depression the sharpest drop in production is to be found in the basic metal industries. In 1932 for instance, at the depth of the depression, when total manufacturing production had fallen by 25% since 1929 in Europe and by almost 50% in the United States, the drop in the basic metals sector reached 45% and 75% respectively. Similarly, between 1951 and 1952 manufacturing production increased by 1% in Europe, while metal production fell by 4%; between 1953 and 1954 manufacturing production in the United States fell by 7% and that of the basic metal industries by 18%.

Manufacture of chemicals and chemical products. The volume of United States production in this sector was higher by more than a half (+55%) in 1955 than that of Europe.

Between 1901 and 1955 chemicals production multiplied 10 times in Europe and 23 times in the United States. To this progress corresponds a considerable increase in the share of the chemicals industry in total manufacturing production: in both Europe and the United States, chemicals, which in 1901 accounted for only 1/20th of the total, have trebled their importance.

Manufacture of metal products. In the metal products sector, the volume of production in the United States was double the corresponding figure for Europe in 1955. This is therefore of all the manufacturing sectors the one in which there is the greatest difference between the total volume of production in Western Europe and that in the United States.

This is the sector in which, between 1901 and 1955, the greatest progress was made in the United States: its production increased by about 40 times. Over the same period the production of metal products industries in Europe increased eightfold, a rate of increase lower than that of the chemicals industry.

The share of metal products in total manufacturing production in 1955 was 41% in the United States, compared with only 34% in Europe. Thus, while the share in total manufacturing production of each of the sectors previously considered was more or less the same on both sides of the Atlantic, there is a considerable difference for the engineering industries; their share in total manufacturing production is 1/5th greater in the United States than in Europe (17).

There seems in fact to be a close relationship between the relative positions of the metal products industries in the United States and in Europe and the relative positions of total manufacturing production in the two countries. If, for the various years, the differences observed in these two fields between the United States and Western Europe are considered, it will be seen that progress in the metal products industries is largely responsible for the fact that United States manufacturing production first caught up with, and then overtook, that of Western Europe.

The above table shows that, while manufacturing production in the United States was 66% greater in 1955 than it was in Europe, half of the difference is accounted for by the United States' greater volume of production

(17) This difference is largely offset by the « other manufacturing industries » which are less important in the United States.

in the metal products industries. Similarly, the increase in production of United States engineering industries between 1901 and 1955 largely explains how United States industrial production, which was below that of Europe in 1901, now exceeds it.

TABLE 19

VOLUME OF PRODUCTION IN UNITED STATES AND WESTERN EUROPE

(Manufacturing production in Western Europe in 1955 = 100)

	Manufacturing Production			Production of Metal Products		
	United States	Europe	Difference	United States	Europe	Difference
1955	166	100	+ 66	68	34	+ 34
1937	69	58	+ 11	21	16	+ 5
1929	68	50	+ 18	22	13	+ 9
1913	35	40	— 5	4.5	9	— 5
1901	19	25	— 6	1.7	4	— 2

Developments in manufacturing being practically identical with developments in total industrial production, it can be seen that the United States' superiority is chiefly accounted for by the dynamic nature of production in the metal products sector which is largely made up of equipment industries.

2. Structure of manufacturing Production in the Major European Countries.

The manufacturing production of Western Europe, like total industrial production of which it represents about 87%, is very unevenly distributed among the various countries. The structure of manufacturing production too, i.e. the breakdown of production between the various industrial sectors, differs appreciably according to the country considered.

Table 20 compares the absolute volume of manufacturing production — overall and by sectors — in the major countries in 1955, expressed as a proportion of the total volume of manufacturing production in Western Europe in 1955, taken as an international unit. Table 21 shows for each country the breakdown of manufacturing production between the various sectors.

TABLE 20

VOLUME OF MANUFACTURING PRODUCTION, OVERALL AND BY SECTORS, IN THE MAJOR EUROPEAN COUNTRIES IN 1955

(Total manufacturing production in Western Europe in 1955 = 1,000)

	West. Europe	United Kingdom	Germany	France	Italy	Belgium	Netherlands	Sweden	Norway	Denmark	Austria	Others
Manufacturing	1,000	300	233	144	86	42	39	41	13	14	23	65
Food	131	42	27	11	11	6	8	5	2	4	2	13
Textiles	82	18	16	13	10	5	4	2	1	1	3	9
Basic metals	90	23	21	14	10	7	2	2	1	0	4	6
Engineering	337	114	84	52	17	13	16	16	3	4	7	11
Chemicals	143	37	34	20	25	6	5	2	2	1	2	9
Others	217	66	51	34	13	5	4	14	4	4	5	17

TABLE 21

STRUCTURE OF MANUFACTURING PRODUCTION IN WESTERN EUROPE AND IN THE MAJOR EUROPEAN COUNTRIES IN 1955

(Manufacturing production in each country = 100)

	West. Europe	United Kingdom	Germany	France	Italy	Belgium	Netherlands	Sweden	Norway	Denmark	Austria	Others
Manufacturing	100	100	100	100	100	100	100	100	100	100	100	100
Food	13	14	11.5	7.5	12	13	20	13	17.5	31	10.5	20
Textiles	8	6	7	9	11.5	12	10	4	5	7.5	11.5	14
Basic metals	9	7.5	9	9.5	11.5	16	5	5.5	5	0	19	9
Engineering	34	38	36	36	20	34	41	39.5	25.5	30	29	17
Chemicals	14	12.5	14.5	13.5	29	15	12	6	15.5	6.5	9	14
Others	22	22	22	24.5	16	10	12	32	31.5	25	21	26

Table 22 shows each country's share in European production in the various manufacturing sectors in 1955. The figures in this Table give an idea of the concentration or dispersion of production in the various sectors within Western Europe.

Developments over time in the structure of manufacturing production in each country are reviewed in the following paragraphs which deal with the situation in each manufacturing sector. Tables 23 to 28 show, for 1901, 1913, 1929, 1937 and 1955, the share of the sector considered in total manufacturing production in each country.

TABLE 22

EACH COUNTRY'S SHARE IN EUROPEAN PRODUCTION IN THE VARIOUS MANUFACTURING SECTORS IN 1955

(Volume of European production in each sector in 1955 = 1,000)

	Total manufacturing	Food	Textiles	Basic metal industries	Metal products	Chemicals	Other manufacturing
Western Europe	1,000	1,000	1,000	1,000	1,000	1,000	1,000
United Kingdom	300	321	220	256	338	259	304
Germany	233	206	195	233	249	238	235
France	144	84	159	156	154	140	157
Italy	86	84	122	111	50	175	60
Belgium	42	46	61	78	39	42	23
Netherlands	39	61	49	22	47	35	18
Sweden	41	38	20	22	47	14	65
Norway	13	15	12	11	9	14	18
Denmark	14	31	12	0	12	7	18
Austria	23	15	37	44	21	14	23
Others	65	99	113	67	34	62	79

(a) *Food, beverage and tobacco manufacturing.*

TABLE 23

SHARE OF THE FOOD, BEVERAGE AND TOBACCO INDUSTRIES IN TOTAL MANUFACTURING
(percentage of each country's manufacturing production for each year)

	1955	1937	1929	1913	1901
Western Europe	13	15	16	19	27
United Kingdom	14	16	18	20	27
Germany	11	14	16	19	29
France	8	10	9	11	17
Italy	12	14	15	16	20
Belgium	13	18	18	23	35
Netherlands	20	34	32	40	51
Sweden	13	14	17	16	23
Austria	11	16	15	17	25
Norway	18	22	27	27	30
Denmark	31	30	31	44	53

In six of the countries considered, the share of this sector is not very different from the European average, i.e. 13%. However, Denmark, the Netherlands and Norway on the one hand and France on the other are very far from this average (above in the first case and below in the second), but these special situations can easily be explained. Denmark, the Netherlands and Norway specialise in producing manufactured foodstuffs, particularly for export, and have therefore developed their food industries more than the other countries; the share of these industries in total manufacturing production thus reaches 31% in Denmark, 20% in the Netherlands and 12% in Norway (18). France, on the other hand, is distinctly below the European average, the share of food manufacturing in total manufacturing being only 8%, despite natural conditions highly favourable for agricultural production.

In all the countries, the relative importance of the food, beverage and tobacco industries fell by almost a half between 1901 and 1955. This is the result not of any decline in the volume of production in these industries, which in fact doubled in Western Europe between 1901 and 1955, but of the much greater progress made in the other manufacturing sectors.

(18) In 1954, food products accounted for 70% of Danish, 30% of Netherlands and 20% of Norwegian exports.

(b) *Manufacture of textiles.*

TABLE 24

SHARE OF TEXTILES IN TOTAL MANUFACTURING
(percentage of each country's manufacturing production for each year)

	1955	1937	1929	1913	1901
Western Europe	8	12	14	18	20
United Kingdom	6	11	12	19	16
Germany	7	8	10	13	17
France	9	14	14	19	27
Italy	12	22	29	38	40
Belgium	12	16	19	19	18
Netherlands	10	15	15	19	21
Sweden	4	6	6	7	9
Austria	12	22	22	22	26
Norway	5	6	5	7	9
Denmark	8	8	7	12	13

The share of textiles in total manufacturing production in 1955 differs considerably from country to country. These differences seem to result chiefly from the following factors:

(a) the degree of industrialisation: the relative importance of textiles industries declines in proportion as industrialisation progresses;

(b) the place of textiles in external trade: textiles industries are more highly developed in countries where textiles play a more important part in the export trade (19).

The sharp decline between 1901 and 1955 in the share of textiles in total manufacturing production is also attributable to the influence of the above-mentioned factors. On the one hand, all the European countries were much more highly industrialised in 1955 than in 1901, and on the other hand, the increasing industrialisation of the non-European countries has robbed European textiles of a very large part of their 1901 foreign markets (20). The expansion of Europe's internal market between 1901 and 1955, due to both the increase in population and higher consumption of textiles per head, offset the decline in exports, so that the European textiles industries in 1955 had a volume of production higher by one-half than in 1901. This development was of course accompanied by marked changes in the internal structure of the textile industry.

(19) In 1954 the percentage (in value) of manufactured textiles (yarns and fabrics) in total exports of the countries given in Table 24 was as follows: Western Europe 9.1%, United Kingdom 12.2%, Germany 5.1%, France 11.9%, Italy 16.1%, Belgium 12.7%, Netherlands 8.1%, Sweden 0.8%, Norway 0.4% and Denmark 1.1%.

(c) *Basic metal industries.*

TABLE 25

SHARE OF THE BASIC METAL INDUSTRIES IN TOTAL MANUFACTURING
(percentage of each country's manufacturing production for each year)

	1955	1937	1929	1913	1901
Western Europe	9	10	10	10	7
United Kingdom	8	8	7	7	7
Germany	9	12	12	13	9
France	10	10	11	11	7
Italy	11	10	10	7	5
Belgium	16	19	19	18	11
Luxemburg	64	64	68	62	44
Netherlands	5	3	2	—	—
Sweden	6	6	5	8	6
Austria	19	11	12	13	10
Norway	5	4	4	1	0

In 1955 the share of the basic metals sector in total manufacturing production in the major industrial countries of Western Europe (United Kingdom, Germany and France), was very nearly the same and corresponded with the European average, i.e. 9%.

The particular importance of this sector in Belgium (twice the European average) and Luxemburg (where the basic metals sector alone represents two-thirds of manufacturing production) is explained by the existence in both countries of an iron and steel industry — and in Belgium of a non-ferrous metals industry too — chiefly directed towards the export trade (21).

In Austria, owing to the recent development of steel and non-ferrous metal (mainly aluminium) producing industries, the share of basic metal industries in industrial production is also greater than the European average.

In the United Kingdom the relative importance of the basic metals industry has remained practically constant since 1901; for Western Europe as a whole, as for France, Belgium, Luxemburg and Sweden, the share of this industry in manufacturing production, after a sharp increase between 1901 and 1913, has not appreciably varied since. Thus we find inside Europe the same relative stability of the basic metals industry already noted in the comparison between Western Europe and the United States.

Countries in the process of industrialisation — such as Italy, where the share of basic metal industries increased till 1929, or the Netherlands, where this share is still increasing — are exceptions to this rule.

(20) It is precisely with the textiles industries that the non-European countries have begun their industrialisation, as they require only relatively little investment and a not very skilled labour force. At the same time they meet essential requirements of the population.

(d) *Manufacture of metal products.*

The metal products industries were the largest manufacturing sector in 1955. For Europe as a whole and for each individual country of Europe, this sector acounted for about one-third of manufacturing production; the only exception was Italy, less industria-

(21) In 1954, the Belgium-Luxemburg Economic Union exported nearly two-thirds of its crude steel production in the form of steel products. In the same year Belgium exported 80% of the copper, 70% of the lead, and 60% of the zinc refined by its metal industry.

TABLE 26

SHARE OF THE METAL PRODUCTS INDUSTRIES IN TOTAL MANUFACTURING

(percentage of each country's manufacturing production for each year)

	1955	1937	1929	1913	1901
Western Europe	34	28	27	24	16
United Kingdom	38	29	25	19	16
Germany	36	30	26	26	17
France	36	32	35	31	19
Italy	20	19	17	12	7
Belgium	34	27	27	24	21
Netherlands	41	23	31	28	15
Sweden	39	34	31	29	21
Austria	29	21	22	19	14
Norway	26	24	22	20	17
Denmark	30	25	28	12	7

lised than the other countries mentioned in Table 26, and whose metal products industry provided only 20% of manufacturing production. This sector also showed itself between 1901 and 1955 to be one of the most dynamic: in every case its relative importance was at least doubled. In the countries of Europe, as in the United States, the progress of the metal products sector is the main factor in the progress made in manufacturing industries as a whole.

The trend of the metal products industries and of their share in manufacturing can, in view of the sector's key importance, easily be compared with the trend of industrial production as a whole. In France the share of the metal products industries in manufacturing showed no increase between 1929 and 1955, and it is precisely in that country that the least progress was made over the same period in total industrial production. Conversely, an appreciable increase in the share of the metal products industries is always accompanied by a big increase in total industrial production, as is well illustrated by the examples of the United Kingdom between 1929 and 1955, Italy between 1901 and 1955, France between 1901 and 1929.

(e) *Manufacture of chemicals and of products of coal and petroleum.*

TABLE 27

SHARE OF CHEMICAL INDUSTRIES IN TOTAL MANUFACTURING

(percentage of each country's manufacturing production for each year)

	1955	1937	1929	1913	1901
Western Europe	14	10	10	6	5
United Kingdom	12	7	8	6	6
Germany	15	12	12	6	5
France	14	11	10	6	6
Italy	29	18	13	7	4
Belgium	15	11	9	7	6
Netherlands	12	8	7	4	3
Sweden	6	4	4	3	2
Austria	9	7	8	7	7
Norway	15	10	9	7	2
Denmark	7	8	7	5	4

The chemical industries' share in manufacturing production in 1955 did not differ greatly from the European average (14%) in the majority of countries. Italy on the one hand, and Sweden and Denmark on the other, are the exceptions to this rule, the former being well above the average and the latter well below. Italy, with her great oil refineries, her exploitation of natural gas and her powerful artificial textiles industry, has a chemical industry well in advance of the general level of industrialisation in the country; hence the large contribution — about 30% — of this sector to total manufacturing production (22). On the other hand, in Sweden and Denmark, where industries based on coal and petroleum derivatives are very small, the chemical industry's share is only one-half of the European average.

Though smaller than the metal products industries, the chemical industries are the most dynamic sector in Western Europe; their

(22) The increase in the chemical industry's share in Italian manufacturing production practically corresponds, between 1913 and 1937, with the development of artificial textiles and, between 1937 and 1955, with the development of oil refining, natural gas and their derivatives.

volume of production increased tenfold between 1901 and 1955. Inside the chemical industries, developments have been appreciably different in the various branches: « conventional » chemistry, built around sulphuric acid, has become relatively less important in view of the rise of artificial textiles and the chemistry of coal products and also, in recent years, as a result of the expansion of oil refineries and petroleum chemistry.

* * *

Although throughout this Chapter we have pointed to the differences in the situation of the various countries, it is nonetheless apparent that the trends everywhere have followed — and continue to follow — the same lines, and mostly in the same proportions.

Manufacturing production has everywhere increased; the sectors which have increased or diminished in importance are everywhere the same. The broad outline of the trend in manufacturing industries in Europe and the United States is roughly as follows: increase in total production, chiefly reflecting increased production in the metal products and chemicals sectors. Corresponding increase in the share of these two sectors, at the expense of the textiles and food industries; relative stability of the basic metal industries. The characteristics of this trend are so general that the degree to which each country is industrially developed can be roughly measured by the breakdown of its manufacturing production between the various sectors: if the contribution from food and textiles industries is high, the country is not very highly industrialised; conversely, the greater the share of the metal products and chemical industries, the more industrially advanced is the country considered.

The most striking instance of this is provided by a comparison between Western Europe and the United States. In 1901, when Europe's manufacturing production was greater than that of the United States, the metal products and chemical industries accounted for a larger part of manufacturing production in Europe than in the United States, while the food and textiles industries had much the same relative importance on both sides of the Atlantic. In 1955, when United States manufacturing production greatly surpassed that of Europe, it was in the United States that the share of the metal products and chemical industries was the greater, while the share of the food and textiles industries was smaller than in Europe.

CHAPTER V

VOLUME AND TREND OF INDUSTRIAL PRODUCT PER HEAD

Each country's importance depends on the volume of its industrial production; considered in relation to a country's population, its volume of production may reveal its degree of industrialisation.

The volume of industrial production per head of population, which we will call « industrial product per head », may be calculated on the basis of the absolute volume of production shown in Table 3 and the population figures shown in Table 28. Before the result of these computations is studied, a number of facts regarding population trends in the various countries during the first half of the 20th century must be considered.

1. Population Trends.

The population figures in Table 28 have been adjusted to ensure that the population

in all years relates to the 1955 territory of each country. In addition to absolute population figures in 1901, 1913, 1929, 1937 and 1955, the table shows the density of population in 1955, and the overall increase in population between 1901 and 1929 and between 1901 and 1955.

A glance at this table reveals the following facts:

(a) Between 1901 and 1955 the population of Western Europe increased by 88 million and that of the United States by 85 million. These increases, though similar in absolute terms, differ widely in terms of relative value, the population of Europe having increased by 46% and that of the United States by 113%. The population of Europe, which in 1901 was about 2½ times the population of the United States, was only 72% greater in 1955. However, the density of the European population is still four times that of the United States.

(b) In all European countries except Ireland, there was an increase between 1901 and 1955.

The increases recorded differ considerably from one country to another. Certain countries, such as Turkey and the Netherlands, doubled their population between 1901 and 1955. At the other extreme, the population of France increased by 16% and that of Austria by only 6% (23).

POPULATION OF THE UNITED STATES AND WESTERN EUROPE — TABLE 28

	Population (in millions)					Increase		Density per sq. Km, in 1955
	1955	1937	1929	1913	1901	1955 if 1901 = 1	1955 if 1929 = 1	
United States	165.2	129.0	121.8	97.2	77.6	2.13	1.36	21
Western Europe	284.1	245.7	234.0	216.6	195.0	1.46	1.21	81
United Kingdom	51.2	47.3	45.7	42.5	38.2	1.34	1.12	210
Germany	50.0	38.5	36.5	34.0	27.6	1.81	1.37	204
France	43.2	41,2	41.2	41.7	40.7	1.06	1.03	78
Italy	48.0	42.6	39.9	36.2	33.4	1.44	1.20	159
Belgium-Luxemburg	9.2	8.6	8.3	7.9	7.0	1.31	1.10	277
Netherlands	10.7	8.6	7.8	6.2	5.2	2.06	1.38	332
Sweden	7.3	6.3	6.1	5.6	5.1	1.41	1.19	16
Denmark	4.4	3.7	3.5	3.0	2.6	1.72	1.26	104
Norway	3.4	2.9	2.8	2.4	2.3	1,52	1.23	11
Switzerland	5.0	4.2	4.0	3.9	3.3	1.49	1.24	121
Austria	7.0	6.8	6.7	6.8	6.0	1.16	1.05	83
Greece	8.4	7.0	6.4	6.1	5.8	1.43	1.31	63
Turkey	23.4	16.7	14.4	10.5	8.5	2.75	1.63	31
Portugal	8,8	7.4	6.7	6.0	5.4	1,62	1.30	95
Ireland	2.9	2.9	2.9	3.1	3.2	0.91	0.99	42
Saar	1.0	0.8	0.8	0,7	0.5	1.94	1.27	382
Iceland	0.16	0.12	0.11	0.09	0.08	2.00	1.49	6.5

The population of Germany (24) increased between 1937 and 1955 by 30%, i.e. 2.5 times more than the other countries as a whole. This exceptional increase is a result of the influx of refugees, i.e. 11 million people.

(c) The considerable differences in population growth between one European country and another between 1901 and 1955 are reflected by substantial changes in their relative positions. A comparison of these figures, which it will be recalled relate to each country's territorial position in 1955, shows that in 1901 France was the most highly populated country in Europe. In 1913 and 1929, the United Kingdom was the only country which exceeded France. In 1955, France took only fourth place, being largely outstripped by the United Kingdom, Germany and Italy. Moreover, despite natural conditions that are particularly favourable to population growth, France has a much lower population density (78 inhabitants per square kilometre) than her neighbours: Netherlands (332), Belgium (277), United Kingdom (210), Germany (204), Italy (159) and Switzerland (121).

(23) The increase in the Austrian population was concentrated between 1901 and 1913. Between 1913 and 1955, there was an increase of only 3%.

(24) In this Chapter, as throughout the survey, « Germany » means the 1955 territory of the Germany Federal Republic.

2. Industrial Product per Head in 1955.

Table 29 compares the industrial product per head in each country with that in Western Europe in 1955. These figures should be considered as approximate: a difference of a few points between two countries cannot be considered as significant.

The figures in Table 29 show that:

(a) Industrial product per head in the United States is almost three (2.8) times greater than the figure for Western Europe (25). It is about three quarters higher than the level achieved by the most industrialised countries of Europe, but about 20 times greater than that of Turkey.

(b) In Europe itself, there are considerable differences between one country and another: industrial product per head in countries like the United Kingdom, Sweden or Switzerland is three times higher than in Italy and eleven times higher than in Turkey.

(25) A comparison between United States and Western European industrial product per head in each industrial sector in 1955, taking Western Europe's product per head in each sector as 100, gives the following figures for the United States: food 235; textiles, basic metals and chemicals 275; metal products 350.

TABLE 29

INDUSTRIAL PRODUCT PER HEAD IN 1955

Unit: industrial product per head in Western Europe = 100

United States	285
United Kingdom	166
Switzerland	159
Sweden	152
Belgium-Luxemburg	139
Germany	134
Norway	109
Western Europe	100
Netherlands	96
France	92
Denmark	90
Austria	90
Italy	55
Ireland	55
Portugal	35
Greece	30
Turkey	15

On the basis of industrial product per head, it is possible to divide the countries of Europe into four categories:

1. *Countries whose industrial product per head is 35 to 65% above the European average.* These countries — United Kingdom, Switzerland, Sweden, Germany and the Belgium-Luxemburg Economic Union — comprise 44% of the population of Europe and account for 65% of Europe's industrial production. The industrial product per head of all these countries together is half as high again as the average figure for Western Europe and one-half of that for the United States.

2. *Countries whose industrial product per head is equivalent to the European average.* This group comprises the Netherlands, Norway, France, Denmark and Austria. These countries together account for 23% of European industrial production and for the same percentage of European population.

3. *Countries with an industrial product per head representing about one-half of the European average*: Italy and Ireland — 18%

of Europe's population — thus account for only 10% of Europe's industrial production.

4. *Countries with little industry*: Greece, Turkey and Portugal, with 14% of the total population of Europe, have a combined industrial production representing less than 3% of the European total.

3. Development of Industrial Product per Head Between 1901 and 1955.

Table 30 shows industrial product per head in the various years as a percentage of the European average in 1955, taken as an international unit.

The most industrialised European countries in 1901 (United Kingdom, Belgium and Germany) were still among the most industrialised in 1955, but had been caught up and even overtaken by Switzerland and Sweden. Great Britain, in the first rank in 1901, 1937 and 1955, was caught up in 1913 and 1929 by Belgium and Germany and in 1955 by Switzerland and Sweden. Belgium and Germany lost ground between 1929 and 1955 and by 1955 had fallen well behind Great Britain, Switzerland and Sweden. However, the relative position of Germany in 1955 was still affected by the exceptional increase in population during recent years.

In 1901 French industrial product per head was roughly equivalent to the average for Europe. In 1929 it was about one-fourth above the average, and France was then one of the highly industrialised countries, on a level only slightly below that of Great Britain and Germany. In 1937 and 1955 France returned to her relative position of 1901, i.e. the average for Western Europe; but whereas only four countries had a higher industrial product per head in 1901, France took only eighth place in 1955. France's relative position

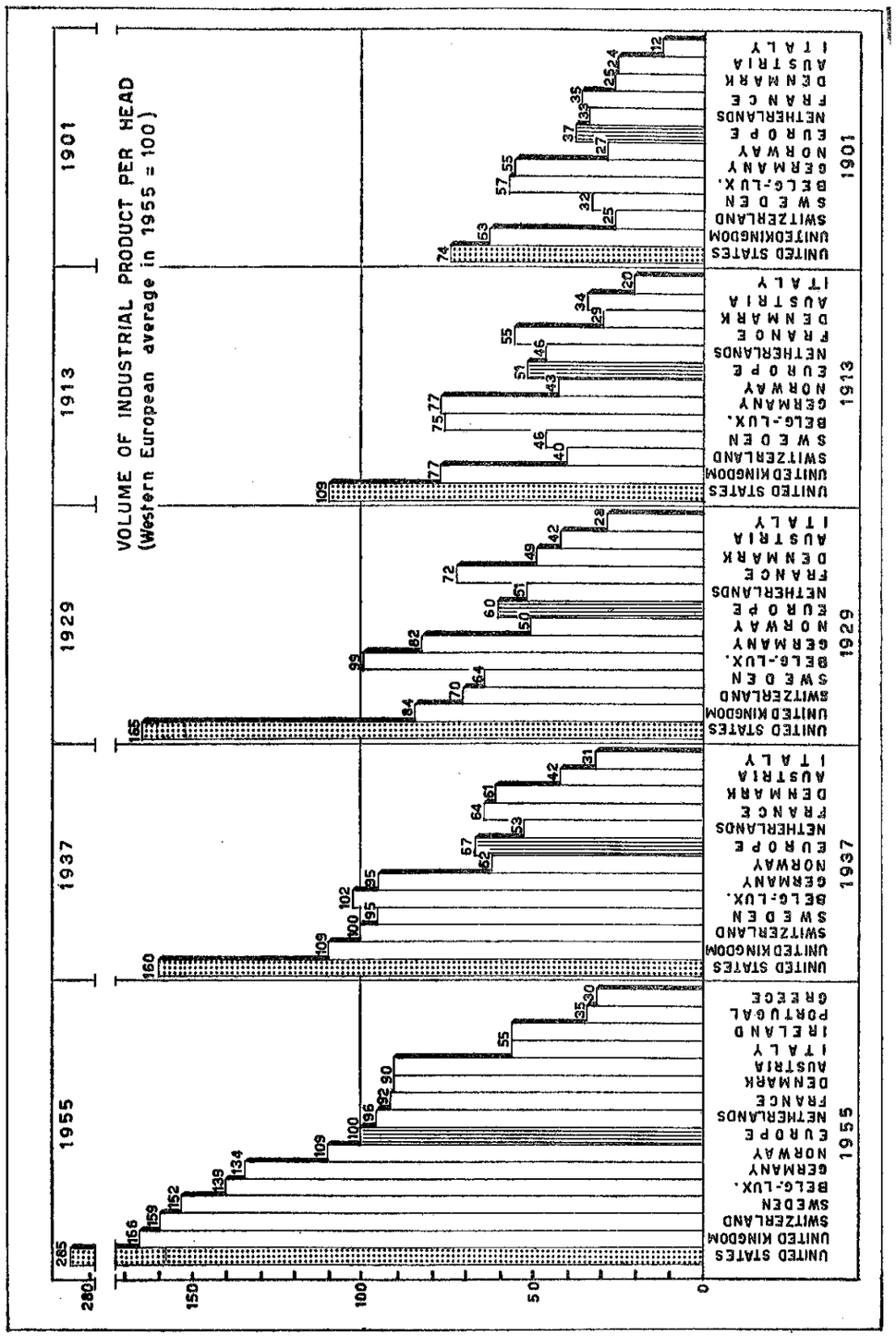
TREND IN INDUSTRIAL PRODUCTION PER HEAD — Table 30

	1955	1937	1929	1913	1901	Increases between 1929 and 1955 %	Increases between 1901 and 1955 %
	(average for Western Europe in 1955 = 100)						
United States	285	160	165	109	74	+ 73	+ 285
Western Europe	100	67	60	51	37	+ 67	+ 170
United Kingdom	166	109	84	77	63	+ 98	+ 163
Switzerland	159	100	(70)	..	..	+ 130	
Sweden	152	95	64	46	32	+ 138	+ 375
Belgium-Luxemburg	139	102	99	75	57	+ 40	+ 143
Germany	134	95	82	77	55	+ 63	+ 144
Norway	109	62	50	43	27	+ 118	+ 303
Netherlands	96	53	51	46	33	+ 88	+ 190
France	92	64	72	55	35	+ 28	+ 162
Denmark	90	61	49	29	25	+ 84	+ 260
Austria	90	42	42	34	24	+ 114	+ 260
Italy	55	31	28	20	12	+ 96	+ 358

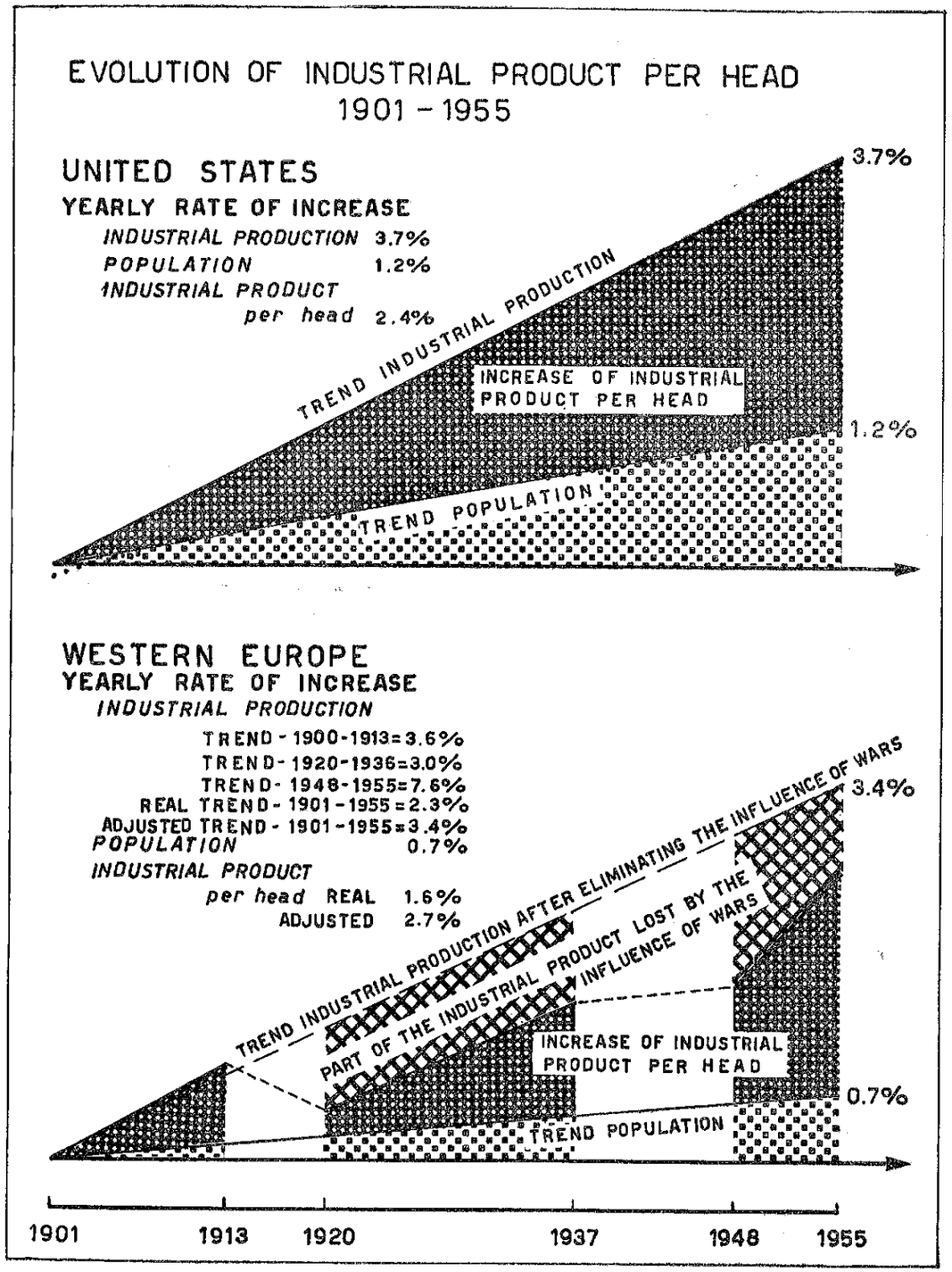
The progress made by each country is shown on Graph VI.

Owing to the growth in population, the rise in industrial product per head is much less less than the rise in total industrial production.

(a) *Development of industrial product per head in the major countries of Western Europe.* All the countries of Western Europe made progress in industrialisation in the first half of the 20th century.



Graph VI



Graph VII

with regard to industrial product per head confirms the adverse trend between 1929 and 1955 already apparent in the comparison of the trend in the total volume of industrial production (26).

Apart from France, the group of « countries with an average level of production » in 1955 consisted of countries (Norway, the Netherlands, Denmark and Austria) which in 1901 had a much lower industrial product per head than the European average. Italy and Ireland, whose industrial product in 1901 was hardly 1/3rd of the European average, had reached a little more than half of that average in 1955. Generally speaking, the levels of industrial product per head tended to recover between 1901 and 1955, as the countries which were most industrialised in 1901 made relatively less progress than the countries with a low level of industry at the same period. For example, between the United Kingdom and Italy the difference was 5:1 in 1901 and only 3:1 in 1955. The figures in Table 30 show that, in the main, the industrial product per head of the countries which in 1901 were most highly industrialised, trebled between 1901 and 1955, whereas over the same period industrial product per head in the countries which were less industrialised in 1901 quadrupled, and that of countries which had a low level of industrialisation in 1901 increased fivefold. Nevertheless, the raising of levels of industrialisation between 1901 and 1955 was such that, although the disparities between countries declined *in percentage*, they increased in *absolute terms*: the United Kingdom and Italy, taken as examples above, were 50 « points » apart in 1901 and 105 « points » apart in 1955.

(b) *Comparative trend in industrial product per head of Europe and the United States.* As far back as 1901, industrial product per head in the United States was already double that in Western Europe, but such a level was then only a little higher than that of the most highly industrialised countries of Europe: the United Kingdom, Belgium and Germany. In all the other periods considered, United States industrial product far outstripped that of any other country. In 1955, industrial product per head was almost three times (285%) higher in the United States than in Western Europe as a whole, and about three-quarters greater than in the most highly industrialised countries of Europe (United Kingdom, Switzerland and Sweden).

It has been shown that between 1901 and 1955 industrial production in the United States and in Europe increased by 8.3 and 4 times respectively; but industrial product per head only quadrupled (3.9) and trebled (2.7) respectively, the average annual rate of increase in industrial product per head being 2.4% for the United States and 1.6% for Europe. The figures are in both cases more favourable for the United States, but it will be noted that the difference in trend in Western Europe and the United States is much less in the case of industrial product per head than in the case of total industrial production.

It should also be pointed out that the United States only took the lead during 1901-1929. Between 1929 and 1955 industrial product per head increased to the same extent (+70%) in the United States and in Western Europe as a whole; during this same period, a large number of European countries (United Kingdom, Sweden, Norway, Denmark and Italy) made more headway than the United States.

The fact that the progress made in industrial product per head between 1901 and 1955 was less in Europe than in the United States may be compared with the conclusions to Chapter III, where the impact of the Wars on European industrial production was analysed. It was shown that, after each of the two Wars, European industrial production

(26) At first sight it might have been thought that the unfavourable situation of France in the comparison of trends in the total volume of industrial production was due to the lack of increase in population. In actual fact, the trend in industrial product per head, which takes into account the direct influence of a stationary population, confirms the relative decline in French industrial production.

was one-third below what it might have been if there had been no conflict, but that only the backlog resulting from the First World War had not been made up. The result was that the 1955 level of industrial production in Western Europe was one-third below what it would have been if two wars had not devastated Europe. If industrial production had reached this hypothetical level (i.e. one-half above the actual level) industrial product per head would have increased in Europe between 1901 and 1955 at a yearly rate of 2.8%.

Graph VII shows, for the United States and for Europe, the breakdown of the 1901-1955 increase into two parts: (a) the increase corresponding to the increase in industrial product per head, and (b) the increase due to the increase in population (on the assumption of constant industrial product per head). The Graph also shows the proportion of industrial product per head estimated to have been lost to Europe as a result of the Wars.

The difference existing in the evolution of industrial production through the period 1901-1955 between Western Europe and the United States does not result from a fundamental divergence of trends between the two areas. It is explained by the difference in the rate of population increase and the impact of the First World War.

But it is on a plane outside the scope of this study that a fundamental difference between industrial production of Western Europe and of the United States does exist: in 1955, with a volume of industrial production two-thirds higher than that in Western Europe, the United States employed an industrial labour force of less than half that employed in Europe (17.3 million compared with about 39 million). It follows from these figures that productivity per worker in industry was three-and-a-half times greater in the United States in 1955 than it was in Europe as a whole, and three times greater than in the most highly industrialised countries of Europe.

V. Paretti-G. Bloch

ANNEX 1

COMPUTATION OF THE INDICES AND COMPARISON OF VOLUMES OF INDUSTRIAL PRODUCTION

1. Computation of the Indices 1901-1955 for each Country.

For most countries, series of official or private indices are available covering, at least partly, the period from 1901-1955 (1), as well as series relating to the volume of production of the principal products during the same period.

From the varied documentation available for each country, indices of industrial production were prepared covering the whole of the period 1901-1955 and computed in such a manner as to permit comparisons over time as well as between countries.

The criteria used in compiling these indices are described below:

(a) Industrial production was defined as the product of the activity of the following divisions and major groups defined in the United Nations International Standard Industrial Classification (I.S.I.C.):

1. Mining and quarrying: Division 1.
2. Electricity, gas, etc.: Division 5.
3. Food, beverage and tobacco manufactures: Major groups 20, 21 and 22.
4. Manufacture of textiles: Major group 23.
5. Basic metal industries: Major group 34.
6. Manufacture of metal products: Major groups 35-38.
7. Chemical industries: Major groups 31 and 22.
8. Other manufacturing industries: Major groups 24-30, 33 and 39.

Major group 24: Manufacture of footwear, other wearing apparel and made-up textile goods.

Major group 25: Manufacture of wood and cork, except manufacture of furniture.

Major group 26: Manufacture of furniture and fixtures.

Major group 27: Manufacture of paper and paper products.

Major group 28: Printing, publishing and allied industries.

Major group 29: Manufacture of leather and leather products, except footwear.

Major group 30. Manufacture of rubber products.

Major group 33. Manufacture of non-metallic mineral products, except products of petroleum and coal.

Major group 39: Miscellaneous manufacturing industries.

(b) 1938 was chosen as base year for weighting because practically all European countries publish or have published an official index of industrial production based on the year 1938 or on a period very near that date.

(c) From the national data available, adjusted so that the coverage should correspond as closely as possible with the I.S.I.C. definitions, a series of indices was computed for each of the above-mentioned 8 sectors, covering the period 1901-1955. This series, base 1938 = 100, was computed by simply linking the series adopted, whatever their original weight base. The fact that for certain periods the internal weighting of the national series refers to years other than 1938 was disregarded. The sector indices thus determined may be expressed by the following formula:

$$i_{t38} = \frac{\Sigma\, p_0\, q_t}{\Sigma\, p_0\, q_m} \times \frac{\Sigma\, p_{38}\, q_m}{\Sigma\, p_{38}\, q_{38}}$$

where i is the sector index,

t the period considered,

o the weighting period for the national series covering period t,

m the link period, i.e. the period for which the index is available in both the base o and base 38 series

and 38 the international weighting period.

This formula resembles that of a Laspeyre's index if period t is covered by a national index based on 1938. In cases where period t is covered by a national index not based on 1938, the index computed with the above formula becomes a Laspeyre's index if it is admitted that a price index applied globally to the net value

$$p_{38/0} = \frac{\Sigma\, q_m\, p_{38}}{\Sigma\, q_m\, p_0}$$

of production in the sector during period t, allows for movements in the unit prices of the products covered by the index between period o and 1938.

(d) The index of total industrial production in each country was obtained by combining the sector indices, using weights proportionate to the value added of production in each sector in 1938. The index of total industrial production thus obtained can be expressed by the following formula:

$$I_{t/38} = \frac{V_A i_A + V_B i_B + V_N i_N}{V}$$

where i_A, $i_B \cdots i_N$ are the sector indices

V_A, $V_B \cdots V_N$ are the value added of the sectors A, B, ... N in 1938

and V is the value added of total industrial production in 1938.

The method used to compute the global index tends to reduce the distortion resulting from the fact that for certain periods the sector indices are weighted on a base other than 1938. The index of industrial production so computed has a value intermediate between an index $I_{t/0}$ calculated according to the weighting of year o and the index $I_{t/38}$ computed entirely on the weight base 1938.

2. Computation of the Indices of Industrial Production in Western Europe.

These indices were obtained by combining the indices for the various countries (computed as described in paragraph A), using weights proportionate to each country's contribution to the total value added of industrial production in Western Europe during the year chosen as basis of computation.

The computation of each country's share in the value added of Western European industrial production has been made according to two methods; the first leads directly to results for 1938; the second gives data for 1950. If one compares the breakdowns of European industrial production that would result for a common year — 1955 — from the results obtained by both methods, one finds that they are practically equivalent.

(1) Of the 18 countries that make up Western Europe, only three — Iceland, Portugal and Switzerland — have never compiled an index of industrial production and have consequently had to be excluded from the computation of the European index. Estimates of the value of industrial production in these countries are available, however, so that their share in Western European industrial production can be determined: in aggregate these three countries represented only about 4% of European industrial production in 1955. Omitting them has therefore only a negligible effect on the trend of the indices computed for Europe as a whole.

PURCHASING-POWER PARITY RATES OF EXCHANGE FOR INDUSTRIAL GOODS IN 1938 (a) TABLE 1

	Price index of manufactures (1929 = 100)	Ratio of European to United States prices (1929 = 100)	Exchange rate 1929 (annual average) United States cents	Exchange rate 1938 (a) United States cents	
				Parity rate	Actual rate (annual average)
	1	2	3	4	5
Austria (a)	93,2	107	14.1	13.2	18.6
Belgium	75	87	2,78	3.21	3.50
Denmark	110.5	128	26,7 (c)	18,1	21.7
France	118	136	3.92	2.87	2.86
Germany (a)	77	89	23.8	26,7	21.2 (b)
Italy	94.6	111	5.235	4.71	5.26
Netherlands	65,6	76	40.2	52.9	55.0
Norway	103	119	26.7 (c)	19.5	24.4
Sweden	90	104	26.8 (c)	22.4	25.1
Switzerland	76	88	19.25	21.9	22.9
United Kingdom (a)	83,5	96,5	485.7 (c)	437	490

(a) The exchange rates shown in columns (4) and (5) are appropriate for the conversion into United States dollars in 1938 prices of values expressed in national currencies in 1937 prices for Austria, in 1936 prices for Germany, in 1935 prices for the United Kingdom and 1938 prices for all other countries.

(b) Allowing for export premium, Registermark for Germany.

(c) The 1929 exchange rates of the pound and related currencies were held to have been over-valued by 15 per cent. To arrive at the parity rate shown in column (4), they were divided by 1.15 in each case before being divided in turn by the figures shown in column (2).

(a) *Estimation of the value of each European country's industrial production in 1938.*

The net value added of each country's industrial production in 1938 was given by the Economic Commission for Europe (2) which converted the values expressed in national currency into United States dollars, the exchange rates used being determined as follows: « The required exchange rates were calculated by assuming that, in 1929, the dollar exchange rates of European countries, with the exception of the United Kingdom and the countries of Northern Europe, correctly expressed the purchasing power of national currencies over industrial goods. The exception made for the United Kingdom was based on the well-known over-valuation of the pound sterling, which is estimated at about 15 per cent in contemporary writing. The currencies of the Scandinavian countries and Finland, on the other hand, were assumed to be in equilibrium with the pound and not the dollar. Allowance for movements in the prices of manufactures in European countries and in the United States then led to the purchasing-power parity rates shown in Table 1, where the details of the calculation and the actual 1938 exchange rates are also given ». (Economic Survey of Europe in 1948, p. 229).

Using the above-mentioned rates, the Economic Commission for Europe determined the net value of

(2) Economic Survey of Europe in 1948, p. 21.

TABLE 2

BREAKDOWN OF EUROPEAN INDUSTRIAL PRODUCTION IN 1938

	Net value added in industrial production in 1938 ($ million)	Percentage
Western Europe	21,514	100
United Kingdom	6,696	31.1
Germany	5,450 (3)	25.3
France	3,155	14.7
Italy	1,790	8.3
Belgium-Luxemburg	830	4.0
Sweden	771	3.6
Netherlands	665	3.1
Switzerland	536	2.5
Austria	400	1.8
Denmark	324	1.5
Norway	219	1.0
Greece	175	0.8
Turkey	150	0.7
Ireland	130	0.6
Portugal	110	0.5
Saar	113	0.5

(3) The figure of $ 5,450 million corresponds to the value of 1938 industrial production in the territory at present covered by the Federal Republic of Germany — the E.C.E.'s figure for the whole 1938 territory of Germany is $ 9,066 million.

the various countries' industrial production in 1938 in $ U.S. at 1938 purchasing power. According to these data, European industrial production in 1938 was as shown in Table 2:

(b) *Estimation of the value of industrial production in each country in 1950.*

The O.E.E.C. has at its disposal, for each country, evaluations of the gross national product expressed in national currencies and broken down into the chief economic sectors.

The values added in industrial production in each country in 1950 were as follows:

TABLE 3

VALUE ADDED IN INDUSTRIAL PRODUCTION OF EACH COUNTRY IN 1950

United Kingdom	£	5,029	million
Germany	DM	35,028	million
France	Frs.	2,800	billion
Italy	Lire	2,676	billion
Belgium	B.Frs.	132,000	million
Sweden	Sw.Kr.	10,455	million
Netherlands	Fl.	6,010	million
Switzerland	Sw.Frs.	9,200	million
Austria	Sch.	20,200	million
Denmark	D.Kr.	6,063	million
Norway	N.Kr.	4,731	million
Turkey	T.L.	1,165	million
Portugal	Esc.	16,243	million
Greece	New Drs.	5,696	million
Ireland	£	87	million
Luxemburg	B.Frs.	4,800	million

The conversion of all these values into a common monetary unit — the United States dollar — was based on rates corresponding, for each country, to the official exchange rate adjusted for the over- or under-valuation of the currency concerned *vis-à-vis* the U.S. dollar in the field of industrial products. This over- or undervaluation was determined on the basis of the results given in the second edition of Gilbert and Kravis « An International Comparison of National Products and the Purchasing Power of Currencies » (4) for the comparison of expenditures based on average European relative price weights (5).

(4) This second edition will be published by O.E.E.C. at the end of 1956.

(5) The European average prices, expressed in dollars, were computed for each industrial product:

(a) by converting into dollars, on the basis of the purchasing power parity computed for the gross national product, the price of the product in the country under review;

(b) by computing the weighted average of the prices, the weight being based on the relative size of each country's gross national product expressed in dollars on the basis of the purchasing power parity quoted above.

The adjusted exchange rates for industrial products could be computed only for the following European countries: United Kingdom, Germany, Italy, Belgium, the Netherlands, Denmark and Norway, which accounted in 1950 for 86% of European industrial production. For the other European countries (representing only 14% of European industrial production) it was assumed that the relation between the official exchange rate and the adjusted exchange rate for industrial products was the same as the average relation computed for the eight countries mentioned above, taken as a whole.

On the basis of these computations, the dollar value of each country's industrial production and its share in Western European industrial production in 1950 were as follows:

TABLE 4

BREAKDOWN OF EUROPEAN INDUSTRIAL PRODUCTION IN 1950

	Value added in industrial production in 1950 ($ U.S. million)	Percentage
Western Europe	62,064	100
United Kingdom	20,556	33.1
Germany	11,009	17.7
France	9,372	15.1
Italy	4,879	7.9
Belgium	3,419	5.5
Sweden	(2,903)	4.7
Netherlands	2,196	3.6
Switzerland	(1,980)	3.2
Austria	(1,254)	2.0
Denmark	1,135	1.8
Norway	957	1.5
Turkey	(541)	0.9
Portugal	(739)	1.2
Greece	(380)	0.6
Ireland	350	0.6
Luxemburg	130	0.2
Saar	(264)	0.4

(c) *Comparison of the results obtained by the two methods.*

From the results obtained by the above two methods, it is possible, using the indices of industrial

TABLE 5

EACH COUNTRY'S SHARE IN WESTERN EUROPEAN INDUSTRIAL PRODUCTION IN 1955

	According to the breakdown obtained	
	for 1938	for 1950
Western Europe	100.0	100.0
United Kingdom	30.9	29.0
Germany	24.0	23.1
France	13.3	14.6
Italy	9.1	8.9
Belgium-Luxemburg	4.0	5.2
Sweden	3.8	3.9
Netherlands	3.6	3.6
Switzerland	2.8	2.8
Austria	2.3	2.2
Denmark	1.4	1.5
Norway	1.2	1.4
Turkey	1.1	1.0
Portugal	0.9	1.0
Greece	0.6	0.8
Ireland	0.6	0.5
Saar	0.4	0.5

production for 1955, to compute each country's share in European industrial production on the basis, first, of 1938 results, and second, of 1950 results.

Both methods thus give practically the same results for the beakdown by country of European industrial production. For the needs of the present study, the breakdown adopted for 1955 is obtained by averaging the percentages found for each country in the two series above. This breakdown is shown in Table 1, page 189.

(d) *Estimations of each country's share in European industrial production, obtained by other methods.*

The results previously obtained may be compared with the indications on the breakdown of industrial production in Western Europe that emerge from a comparison of data for energy consumption in industry, steel consumption and industrial labour employed in each country.

Each country's share in Western European industrial production thus remains, on the whole, of appreciably the same order, whatever the approach chosen: direct (valuation in a common monetary unit of the industrial production of all countries) or indirect (energy or steel consumption, industrial manpower).

The differences that exist between the results obtained by the various methods correspond, allowing for the approximate nature of the figures, to real differences. For instance, the fact that Norway's share

TABLE 6

COMPARISON OF EACH COUNTRY'S SHARE IN 1955 IN WESTERN EUROPEAN INDUSTRIAL PRODUCTION AND ITS SHARE IN ENERGY CONSUMPTION, STEEL CONSUMPTION AND INDUSTRIAL LABOUR EMPLOYED

	Each country's share in Western European industrial production according to the results obtained		Each country's share in		
	for 1938	for 1950	Energy Consumption in industry	Steel Consumption	Wage earners in industry
Western Europe	100	100	100	100	100
United Kingdom	30.9	29.0	29.0	28.3	28.3
Germany	24.0	23.1	25.0	27.7	22.8
France	13.3	14.1	15.3	15.1	13.3
Italy	9.1	8.9	7.6	8.2	11.3
Belgium-Luxemburg	4.0	5.3	5.1	4.3	3.6
Sweden	3.8	3.9	3.8	4.0	2.6
Netherlands	3.6	3.6	3.1	3.3	3.4
Switzerland	2.8	2.8	1.6	1.4	2.4
Austria	2.3	2.2	2.0	2.8	2.4
Denmark	1.4	1.5	1.2	1.0	1.4
Norway	1.2	1.4	2.7	1.2	1.1
Turkey	1.1	1.0		1.0	
Portugal	0.9	1.0	2.0	0,3	6.8
Greece	0.6	0.7			
Ireland	0.6	0.5			
Saar	0.4	0.5	1.6	1.4	0,6

in energy consumption is greater than its share in the value of industrial production is due to the particular development in Norway of electrometallurgy and electrochemistry, which are heavy consumers of energy. Another example: Italy's share in industrial manpower is greater than its share in the value of production because, as is known, productivity is lower in Italy.

To determine the influence on the European index of variations in weighting, the index was computed using in turn each of the five weighting systems corresponding to the approaches mentioned in Table 6 — the indices so computed are practically identical.

3. Comparison of the Volume of Industrial Production in Western Europe and in the United States in 1955.

A comparison based on the year 1938 would be difficult and not significant, owing to the extremely low level of industrial production in the United States during that year. A comparison based on more recent

data — 1955 — has thus been tried, using the results of the above-mentioned study by Gilbert and Kravis. Two sets of estimates are obtained according to whether American or average relative European prices are used.

Using American prices,industrial production in the United States is, in 1955, 52% above the volume of Western European industrial production; when average relative European prices are used, the difference is pushed up to 85% (6).

It has been admitted that the geometric average of these two results measures approximately the real volume relationship of industrial production between the two areas. The industrial production of the United States in 1955 would then be 67% (two-thirds) greater than the volume of industrial production in Western Europe.

This result has been compared with the indications given by other data linked to industrial production.

	Western Europe	United States
Energy consumption	100	176 (7)
Steel consumption	100	150

Data on manpower cannot be used owing to the enormous difference in productivity. The comparisons made on energy and steel consumption seem to confirm the validity of the volume relationship quoted above between American and European industrial production.

(6) At American 1950 prices, the value of United States industrial production in 1955 would be $ 111.0 billion and that of Western European industrial production, $ 73.1 billion. It is not possible to give absolute values at average relative European prices, this set of prices furnishing only weighting coefficients for the computation of a relative volume index of industrial production.

(7) If motor gasoline used by passenger cars is excluded (in order to eliminate the influence of the disproportion in the number of cars of the two areas) the ratio falls to 161.

Adjustment factors to the official rates of exchange in 1950.

The purpose of these adjustment factors is to correct the over- or under-valuation that would result from the use of the official exchange rate of the country concerned vis-à-vis the US dollar in the field of industrial products.

These adjustment factors are determined on the basis of studies made on national expenditure per head in the various countries (cf. Gilbert and Kravis « An International Comparison of National Products and the Purchasing Power of Currencies » — 2nd edition).

Expenditures for the following groups of products have been considered as expenditures for industrial products: alcoholic beverages, tobacco manufactures, clothing, fuel, light and power, household goods, transport equipment, paper and printing, producers' durables.

For each country an attempt was made to determine the real relationship (i.e. the quantity ratios) between these expenditures and the corresponding ones in the United States. Two results are obtained according to whether American prices or average European relative prices are used as weights. These two results are then compared with the ratio of the values expressed in dollars using official exchange rates. This comparison allows the determination of two adjustment factors, corresponding respectively to the use of American prices and average European prices, indicating the direction and the importance (in percentage) of the adjustment that must be applied to the official exchange rate in order to obtain, from data expressed in value, real volume relationships.

OFFICIAL AND ADJUSTED RATES OF EXCHANGE 1950

(for the conversion into US dollars of the added value in industrial production)

	Currency	Official rate of exchange	Adjusted rates of exchange			
			At American price weights		At average relative European price weights	
			Factor of adjustment %	Corresponding rate of exchange	Factor of adjustment %	Corresponding rate of exchange
United States	$ US	1	100.0	1	100.0	1
United Kingdom	£	0.357	115.6	0.309	101.8	0.350
Germany	D.M.	4.20	94.3	4.43	82.8	5.06
France	Fr. F.	350.00	110.8	316.00	82.2	428.00
Italy	Lire	625.00	114.9	543.00	79.8	786.00
Denmark	D. Kr.	6.91	105.7	6.55	90.1	7.67
Norway	N. Kr.	7.14	148.8	6.47	101.5	7.04
Belgium	B. Fr.	50.20	104.5	48.00	90.9	55.20
Netherlands	Fl.	3.80	107.5	3.53	96.8	3.93

ANNEX 2

PRODUCTION IN 1955 OF SELECTED INDUSTRIAL PRODUCTS IN WESTERN EUROPE AND IN THE UNITED STATES

	U.S.A.	Europe	U.S.A. if Europe = 100	Europe if U.S.A. = 100
Primary sources of energy (Million metric tons of hard coal equivalent)	1,352	615		45
Hard coal (Million metric tons)	446	477	93	
Lignite (Million metric tons)	3	105	3	
Coke-oven coke (Million metric tons)	68	90	76	
Crude petroleum (Million metric tons)	367	9		3
Refined petroleum products (Million metric tons)	384	104		27
Electricity - Total (Billion kWh)	625	364		58
Hydro (Billion kWh)	116	141	82	
Thermal (Billion kWh)	509	223		43
Natural gas (Billion cubic metres)	290	5		2
Iron ore (Million metric tons fe content)	54	41		76
Pig iron (Million metric tons)	72	57		79
Crude steel (Million metric tons)	106	77		73
Copper ore (Thousand metric tons cu content)	901	57		6
Copper (refined metal) (Thousand metric tons)	1,331	756		57
Lead (refined metal) (Thousand metric tons)	496	507	98	
Zinc (refined metal) (Thousand metric tons)	935	741		78
Tin (primary) (Thousand metric tons)	23	68	34	
Nickel (refined metal) (Thousand metric tons)	1	51	2	
Bauxite (Thousand metric tons)	2,500	2,350		94
Aluminium (primary) (Thousand metric tons)	1,421	526		37
Passenger cars (Thousand units)	7,920	2,450		31
Commercial vehicles (Thousand units)	1,249	750		60
Agricultural Tractors (Thousand units)		400		
Ships launched (Thousand gross tons)	73	4,201	2	
Wool yarn (Thousand metric tons)	289	750	39	
Wool fabric (Thousand metric tons)	131	391	34	
Cotton yarn (Thousand metric tons)		1,514		
Cotton fabrics (Thousand metric tons)	1,500	1,170		74
Rayon filament yarn (Thousand metric tons)	392	360		92
Staple fibre (Thousand metric tons)	179	492	36	
Man-made synthetic fibres (Thousand metric tons)	172	58		34
Wood pulp (Million metric tons)	18,900	8,700		46
Newsprint (Million metric tons)	1,400	2,400	58	
Other paper (Million metric tons)	10,250	7,500		73
Paper board (Million metric tons)	12,450	3,200		26
Sulphur and pyrites (Thousand metric tons sulphur content)	6,900	2.125		31
Plastics (Thousand metric tons)	1,671	1,053		63
Nitrogenous fertilisers (Thousand metric tons N)	1,812	2,637	69	
Potassic fertilisers (Thousand metric tons K_2O)	1.652	2,795	59	
Phosphatic fertilisers (Thousand metric tons P_2O_5)	2,195	2,942	75	
Cement (Million metric tons)	51	71	72	

ANNEX 3

INDICES OF INDUSTRIAL PRODUCTION IN MANUFACTURING INDUSTRIES

(1938 = 100)

	O. E. E. C. Member Countries															United States
	Member Countries combined	Austria	B. L. E. U.		Denmark	France & Saar		Germany	Greece	Ireland	Italy	Nether-lands	Norway	Sweden	Turkey	United Kingdom	
			Belgium	Luxemburg		France	Saar										
Weight in combined index	100.0	2.07	3.34	0.19	1.73	15.97	0.41	26.35	0.88	0.66	8.72	2.85	1.03	4.07	0.65	31.08	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1901	44		50	31		54		39			33		36			49	36
1902	46		55	34		58		40			35		36			50	40
1903	46		51	38		57		40			38		37			50	41
1904	48		55	41		60		44			38		36			49	38
1905	50		59	45		60		45			42		37			53	46
1906	53		61	49		65		50			46		40			53	50
1907	56		63	50		69		52			53		41			54	50
1908	54		61	47		69		50			56		43			49	41
1909	56		65	53		72		53			54		44			53	50
1910	58		69	59		78		55			54		48			55	53
1911	62		73	62		82		61			57		51			58	52
1912	67		79	70		88		64			62		56			62	60
1913	70		80	86	40	91		67			62		60	44		66	65
1920	56		60	43	55	64		37			55		65	43		69	89
1921	48	56	53	48	43	59		47			53		49	31		44	68
1922	59	68	68	76	47	77		53			62		58	37		58	89
1923	59	68	74	71	59	82		35			67		63	41		65	98
1924	68	74	85	97	65	98		51			74		67	47		68	92
1925	72	87	85	108	67	99		60	66		81		71	48		67	102
1926	71	85	89	118	65	109		57	60	71	85	70	63	52		60	108
1927	79	93	98	134	63	103		73	67	72	80	75	65	54		74	107
1928	84	99	108	141	68	115		77	70	73	90	81	72	57		73	113
1929	87	99	111	153	73	123		76	69	74	91	85	80	64		78	127
1930	81	92	101	134	79	121		65	69	75	84	91	80	66		72	105
1931	72	77	89	118	73	105		54	70	75	75	83	63	63		66	86
1932	66	65	79	110	68	90		44	63	77	68	76	72	59		68	67
1933	72	67	82	108	77	102		51	70	82	73	71	73	61		74	78
1934	78	75	84	114	86	96		63	79	89	75	74	76	72		82	86
1935	85	82	96	112	92	94		73	92	94	87	76	85	81		91	100
1936	93	91	104	117	96	102	89	83	84	101	88	80	93	88		100	118
1937	102	100	114	145	100	109	97	93	94	103	101	89	101	99		108	130
1938	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1946	..	..	..	..	103		..	..	50	106	..	..	106	136	148	110	206
1947	..	..	118	114	115	90	..	..	64	114	..	..	125	140	155	118	226
1948	100	90	127	149	128	108	57	48	67	125	97	113	139	149	159	127	231
1949	113	121	130	139	137	117	75	72	80	141	108	128	150	155	174	136	213
1950	126	144	135	147	153	120	85	92	103	161	123	145	168	161	172	147	250
1951	139	164	157	178	154	133	111	111	117	166	140	151	181	168	185	153	268
1952	140	164	150	175	148	136	119	119	114	162	145	153	187	164	200	147	277
1953	147	166	149	157	152	133	115	130	129	175	159	169	190	166	214	157	302
1954	162	190	164	165	162	145	127	147	159	180	176	190	201	174	251	170	281
1955	178	223	180	186	163	159	141	172	169	189	190	212	209	184	276	180	302

(*) *Source*: « Industrial Statistics 1901-1955 », O.E.E.C., 1955.

MANUFACTURING INDUSTRIES

The above indices cover, in principle, divisions 2 and 3 of the I.S.I.C. They include the following major groups:

Groups 20-21-22 : Food, beverage and tobacco manufacturing industries
23 : Manufacture of textiles
24 : Manufacture of footwear, other wearing apparel and made-up textile goods
25-26 : Manufacture of wood, cork, furniture and fixtures
27 : Manufacture of paper and paper products
28 : Printing, publishing and allied industries
29 : Manufacture of leather and leather products, except footwear
Group 30 : Manufacture of rubber products
31 : Manufacture of chemicals and chemical products
32 : Manufacture of products of petroleum and coal
33 : Manufacture of non-metallic mineral products except products of petroleum and coal
34 : Basic metal industries
35-36-37-38 : Manufacture of metal products, machinery, electrical apparatus, appliances and supply; transport equipment
39 : Miscellaneous manufacturing industries

INDICES OF PRODUCTION IN FOOD, BEVERAGE AND TOBACCO MANUFACTURING INDUSTRIES
(1938 = 100)

	O. E. E. C. Member Countries																United States
	Member Countries combined	Austria	B. L. E. U.		Denmark	France & Saar		Germany	Greece	Ireland	Italy	Nether-lands	Norway	Sweden	Turkey	United Kingdom	
			Belgium	Luxemburg		France	Saar										
Weight in combined index	100.0	2.09	4.46	0.07	3.30	10.81	0.11	20.94	1.31	2.06	7.83	5.42	1.49	3.83	1.38	34.90	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1901	75		90					87			53		50			75	38 (a)
1902	76		93					89			47		52			76	. .
1903	75		86					83			57		53			76	. .
1904	76		89					88			55		50			76	47
1905	77		96					86			56		49			76	. .
1906	80		97					96			59		51			77	. .
1907	80		94					94			62		52			77	. .
1908	79		94					92			64		56			75	. .
1909	78		93					91			63		59			75	56
1910	77		97					89			60		63			74	. .
1911	81		98					99			65		68			74	. .
1912	79		100					89			64		69			76	. .
1913	83		96		58			101			73		71	48		74	66 (b)
1920	67		61		76			49			63		77	45		79	64
1921	73		72		71			63			75		69	48		77	63
1922	74		79		65			69			72		76	49		74	71
1923	67		90		74			47			82		78	49		69	76
1924	74		96		78			69			80		85	54		70	75
1925	78		96		79			77	86		83		80	55		71	79
1926	79		85		81			85	78	97	84		83	61		70	81
1927	82		87		73			93	88	97	79		84	60		73	83
1928	85		97		75	97		92	94	98	84		80	64		76	87
1929	88		103		75	102		93	96	99	89		93	71		79	94
1930	88		109		80	106		93	87	99	81		82	75		79	94
1931	87		103		78	111		88	88	99	77		77	77		80	86
1932	85		101		80	111		79	77	102	84		83	76		79	77
1933	87		100		85	106		81	80	104	84		80	74		84	81
1934	89		101		89	108		91	89	106	79		79	78		83	86
1935	94		102		94	110		93	115	108	89		88	82		89	89
1936	94		103		97	97	98	91	91	109	87		95	86		95	99
1937	99	100	104	100	100	96	98	101	98	107	99	100	99	93	100	99	103
1938	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1946	. .	. .	. .	. .	116	70	. .	. .	67	111	. .	84	119	125	159	115	154
1947	. .	. .	79	90	126	65	. .	. .	75	108	81	92	133	130	167	115	161
1948	102	84	90	82	139	78	91	73	74	118	95	97	138	134	181	120	162
1949	113	100	96	81	146	91	119	91	84	135	114	107	145	143	206	125	164
1950	122	118	102	83	158	108	136	103	106	153	138	117	148	142	202	129	169
1951	124	125	106	94	157	107	143	109	116	155	142	118	154	141	250	126	172
1952	127	131	109	91	154	96	155	117	115	164	149	121	154	144	243	130	174
1953	136	135	114	92	155	107	174	135	126	169	152	127	154	146	267	137	175
1954	140	132	118	94	159	107	181	141	151	157	157	132	155	148	292	139	174
1955	146	145	121	104	162	112	188	154	159	166	162	138	162	154	352	141	178

FOOD, BEVERAGE AND TOBACCO MANUFACTURING INDUSTRIES

The above indices cover, in principle, the following major groups of the I.S.I.C.:

Major group 20: Food manufacturing industries, except beverage industries
Manufacture of foods for human consumption and of related products.

21: Beverage industries
Production of distilled spirits, wines, malt liquors, soft drinks and carbonated beverages.

22; Tobacco manufactures.
Manufacture of tobacco products such as cigarettes, cigars, smoking and chewing tobacco and snuff.

Notes: (a) United States, 1899.
(b) United States, 1914.

INDICES OF PRODUCTION IN TEXTILE INDUSTRIES
(1938 = 100)

	O. E. E. C. Member Countries																United States
	Member Countries combined	Austria	B. L. E. U.		Denmark	France & Saar		Germany	Greece	Ireland	Italy	Nether-lands	Norway	Sweden	Turkey	United Kingdom	
			Belgium	Luxemburg		France	Saar										
Weight in combined index	100.0	3.79	4.52	---	1.15	19.12	0.10	19.03	1.73	0.34	15.57	2.98	0.48	2.07	3.08	26.04	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1901	77		60			105		75			64		61			78	48 (a)
1902	82		77			114		80			69		60			80	. .
1903	79		70			108		71			73		60			78	. .
1904	81		70			108		87			73		60			74	61
1905	84		70			104		89			78		64			86	. .
1906	89		74			110		88			86		70			88	. .
1907	97		80			114		97			103		73			96	. .
1908	91		85			113		91			97		74			84	. .
1909	97		90			119		98			90		75			99	77
1910	93		86			121		91			82		77			93	. .
1911	101		97			119		99			89		78			110	. .
1912	110		107			122		109			101		79			123	. .
1913	109		106		63	121		103			95		83	53		127	92 (b)
1920	74		86		60	80		55			75		61	48		88	79
1921	65		72		35	63		69			72		37	36		67	81
1922	88		104		52	102		76			81		55	49		100	93
1923	80	70	101		59	101		51			85		58	56		87	98
1924	91	70	109		61	107		76			94		60	57		98	85
1925	98	109	108		52	110		82	31		105		62	54		104	99
1926	96	93	123		51	118		73	38		104		54	60		97	99
1927	104	105	142		56	119		102	42		93		58	64		104	108
1928	103	113	153		59	120		91	48		103		60	71		99	102
1929	103	99	143		69	120		85	48	40	114		69	68		99	111
1930	90	75	117		69	113		82	53	39	94		75	72		80	87
1931	81	52	107		70	96		79	56	37	80		64	64		84	93
1932	82	56	92		77	88		72	58	35	85		83	72		90	84
1933	93	59	93		89	107		83	65	40	97		84	75		97	104
1934	92	77	69		97	94		91	74	60	90		92	94		101	89
1935	95	88	104		96	96		83	77	80	92		95	93		107	109
1936	99	96	116		107	103		90	87	99	79		101	101		114	122
1937	105	100	124		102	105		92	90	106	101		110	105		117	125
1938	100	(100)	100	100	100	100		100	100	100	100	100	100	100	100	100	100
1946	. .	. .	. .	. .	91	65		. .	77	125	. .	55	103	120	142	83	199
1947	. .	. .	127	106	108	86		. .	95	139	102	87	125	125	147	89	192
1948	92	51	109	90	134	97		46	93	148	101	105	146	138	145	104	200
1949	103	77	116	84	151	96		80	105	159	104	122	169	141	156	110	173
1950	116	94	138	99	184	104		106	142	189	109	132	197	147	156	118	204
1951	120	110	138	86	166	107		117	165	188	117	139	208	148	146	118	197
1952	109	95	119	74	152	98		112	156	160	107	139	175	122	171	97	190
1953	120	101	132	88	163	100		130	169	217	115	157	190	140	178	111	191
1954	126	112	142	80	157	107		135	198	232	117	168	193	139	210	113	175
1955	124	118	150	78	148	101		143	182	244	104	172	184	135	229	110	196

TEXTILE INDUSTRIES

The above indices cover, in principle, the following major groups of the I.S.I.C.:

Major group 23: Manufactures of textiles
Manufactures engaged in processing textile fibres to prepare them for spinning; manufacturing yarn, thread, woven fabrics, knitted fabrics, laces, carpets and rugs; manufacturing garment in knitting mills; dyeing and fabrics; manufacturing oilcloth, linoleum and artificial leather; coating and waterproofing fabrics, manufacturing cordage, rope and twine.
(Rayon filament yarn and staple fibre production are included in major group 31: Manufacture of chemicals and chemical products).

Notes: (a) United States, 1899.
(b) United States, 1914.

INDICES OF PRODUCTION IN BASIC METAL INDUSTRIES
(1938 = 100)

	O. E. E. C. Member Countries																United States
	Member Countries combined	Austria	B. L. E. U.		Denmark	France & Saar		Germany	Greece	Ireland	Italy	Nether-lands	Norway	Sweden	Turkey	United Kingdom	
			Belgium	Luxemburg		France	Saar										
Weight in combined index	100.0	2.58	5.72	1.38	—	15.35	2.08	36.42	0.06	—	9.81	0.75	0.57	2.39		22.89	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1901	35		38	24		46		28			15		1			52	41 (a)
1902	38		49	29		47		32			13		2			52	..
1903	42		56	35		54		35			15		2			54	..
1904	43		60	38		59		36			16		2			53	56
1905	47		63	43		62		39			19		2			58	..
1906	51		67	48		67		43			22		2			63	..
1907	53		70	49		74		45			22		2			63	..
1908	49		61	45		73		43			28		2			52	..
1909	54		73	53		80		46			34		3			57	86
1910	60		84	60		89		51			38		4			62	..
1911	64		91	63		99		56			38		6			62	..
1912	71		103	82		112		63			41		7			64	..
1913	76		102	97		118	70	68			42		9	64		72	94 (b)
1920	50		58	37		48	32	36			33	1	11	43		82	140
1921	40	53	44	47		48	38	44			27	3	9	25		33	66
1922	55	76	66	85		72	50	54			41	7	8	27		53	116
1923	55	81	86	77		80	40	29			49	9	21	28		77	149
1924	69	67	107	113		111	57	46			57	32	37	50		74	129
1925	74	82	94	127		119	61	58	89		71	34	43	45		67	152
1926	70	79	124	141		133	68	58	91		72	50	48	47		31	163
1927	89	94	135	163		132	74	74	94		70	58	47	45		82	153
1928	89	106	145	171		147	81	67	123		79	69	55	46		76	171
1929	96	101	153	187		151	87	73	93		87	68	64	56		86	190
1930	83	82	131	160		147	78	55	125		76	71	71	48		76	140
1931	64	57	118	140		120	61	39	115		64	61	65	41		53	93
1932	53	35	100	131		85	57	28	115		65	64	58	43		53	51
1933	64	39	102	126		98	66	36	131		69	67	61	59		74	78
1934	76	50	114	132		94	76	55	115		73	71	67	85		89	87
1935	86	60	123	125		95	82	72	101		87	74	69	90		95	115
1936	97	70	127	128		103	91	85	100		85	90	78	94		114	159
1937	109	100	152	166		125	92	90	101		96	93	89	105		126	174
1938	100	100	100	100		100	100	100	100		100	100	100	100		100	100
1946	..	..	..	..		..	11	..	24		..	72	61	105		128	215
1947	..	..	118	48		88	27	..	61		..	115	78	101		137	275
1948	92	120	142	168		112	48	33	70		86	186	99	107		152	291
1949	105	153	148	154		131	67	55	82		85	208	114	118		154	259
1950	115	175	146	167		130	72	70	95		104	233	131	121		163	331
1951	134	208	187	210		149	100	85	168		134	265	143	135		172	363
1952	142	232	181	207		157	108	94	204		150	258	152	153		177	334
1953	136	256	165	180		140	102	91	227		149	319	156	160		173	380
1954	152	305	182	189		152	106	106	233		173	373	159	159		187	311
1955	177	360	211	215		180	121	128	223		213	421	195	183		202	403

BASIC METAL INDUSTRIES

Major group 34: Basic metal industries
Smelting and refining; rolling, drawing, and alloying; and the manufacture of castings, forgings and other basic forms of ferrous and non-ferrous metals.

Notes: (a) United States, 1899.
(b) United States, 1914.

INDICES OF PRODUCTION IN METAL PRODUCTS INDUSTRIES
(1938 = 100)

	O. E. E. C. Member Countries																United States
	Member Countries combined	Austria	B. L. E. U.		Denmark	France & Saar		Germany	Greece	Ireland	Italy	Nether-lands	Norway	Sweden	Turkey	United Kingdom	
			Belgium	Luxemburg		France	Saar										
Weight in combined index	100.0	1.53	2.98	0.06	1.53	16.13	0.36	28.51	0.44	0.24	6.01	3.32	0.89	5.13	—	32.87	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1901	25		34			35		21					27			27	12 (a)
1902	25		34			37		21					28			28	..
1903	27		36			39		23					28			29	..
1904	28		37			44		25					29			28	12
1905	31		40			45		27					29			34	..
1906	34		43			52		33					31			33	..
1907	36		45			58		36					34			32	..
1908	34		41			57		34					35			27	..
1909	37		45			64		36					34			30	17
1910	42		49			71		40					37			34	..
1911	46		54			82		47					39			35	..
1912	52		59			95		54					46			37	..
1913	56		62		18	98		56					48	35		43	32 (b)
1920	45		52		37	62		27					63	36		57	97 (c)
1921	33		39		24	59		34					47	24		23	60
1922	44		52		35	77		37					47	26		38	
1923	49		59		50	88		25					51	30		56	121
1924	60		71		57	120		37					50	34		56	109
1925	61		73		72	113		42	15				55	37		54	121
1926	59		71		64	129		36	13			54	44	40		46	133
1927	66		80		60	112		50	16			63	42	42		63	122
1928	76		93		70	135		65	17		70	75	59	46		63	136
1929	81		99		80	150		63	16		78	80	72	55		66	168
1930	76		91		88	146		50	15		71	100	68	57		62	123
1931	61		52		72	120		36	15		62	80	45	54		52	82
1932	50		57		53	93		24	12		53	54	53	46		50	53
1933	56		69		60	107		33	12		54	39	55	47		55	63
1934	64		70		72	100		47	23		56	43	60	60		66	88
1935	76		80		83	98		63	71		76	42	73	73		81	110
1936	88		91		88	106	82	76	52	94	90	48	86	79		95	136
1937	100	100	100		97	119	100	89	103	105	99	63	99	96		105	159
1938	100	(100)	100	100	100	100	100	100	100	100	100	100	100	100		100	100
1946	..	..	..	..	92	..	..	..	10	90	..	69	108	143		122	303
1947	..	..	147	137	116	100	..	..	19	123	..	92	129	146		135	331
1948	108	98	160	147	131	122	68	40	27	164	105	120	148	158		145	334
1949	124	152	153	151	140	144	74	65	32	192	118	139	159	167		154	299
1950	136	188	147	137	157	133	84	89	42	217	130	157	175	176		167	361
1951	155	222	173	133	171	151	106	119	50	233	142	164	193	185		179	408
1952	164	235	168	134	162	179	119	133	51	193	154	168	199	189		179	455
1953	165	206	159	132	166	163	110	138	60	212	170	191	216	176		185	520
1954	184	243	170	127	192	178	126	162	83	265	176	228	217	188		201	467
1955	212	303	200	127	199	203	136	201	94	288	201	256	219	204		226	514

METAL PRODUCT INDUSTRIES

The above indices cover, in principle, the following major groupsof the I.S.I.C.:

Major groups 35-36-37-38: Manufacture of metal products; machinery, electrical apparatus, appliances and supply; transport equipment
Manufacture of basic metal forms into finished articles such as tin cans, hand tools, hollow ware, fabricated wire products, bolts, nuts, etc. Manufacture of machinery and prime movers.
Manufacture of apparatus and supplies for the generation, storage, transmission and transformation of electric energy. Electrical appliances including household appliances. Electrical equipment for motor vehicles; radios, phonographs, electronic tubes, etc.
Manufacture and repair of equipment for transportation of passengers and freight by land, air and water.

Notes: (a) United States, 1899.
(b) United States, 1914.
(c) United States, 1919.

INDICES OF PRODUCTION IN CHEMICAL, PETROLEUM AND COAL BY-PRODUCTS INDUSTRIES
(1938 = 100)

	O. E. E. C. Member Countries																United States
	Member Countries combined	Austria	B. L. E. U.		Denmark	France & Saar		Germany	Greece	Ireland	Italy	Netherlands	Norway	Sweden	Turkey	United Kingdom	
			Belgium	Luxemburg		France	Saar										
	100.0	1.44	3.93	0.11	1.33	18.49	0.17	31.28	1.66	0.22	15.12	1.72	1.11	1.72		21.70	
Weight in combined index	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1901	24										7	(a)	6			41	14 (b)
1902	26										8		6			44	. .
1903	25										9		7			42	. .
1904	27										10		7			45	17
1905	27										11		9			43	. .
1906	27										13		11			42	. .
1907	31										16		13			48	. .
1908	32										18		17			47	. .
1909	33										19		19			50	24
1910	35										20		20			51	. .
1911	36										20		24			53	. .
1912	38										22		32			56	. .
1913	40		47		26						23		39	32		59	32 (c)
1920	49		53		42			35			26		52	41		75	43 (d)
1921	45	88	49		29			45			28		35	31		50	38
1922	52	91	56		35			49			31		44	35		65	. .
1923	50	88	54		47			33			37		45	43		74	58
1924	58	104	62		56			49			42		51	48		73	59
1925	65	111	70		50			64	49		50		54	54		68	66
1926	63	115	67		55			63	42		56	68	56	59		57	74
1927	75	118	79		60			76	55		62	75	55	59		73	77
1928	81	104	85		64	96		84	56		65	78	64	62		79	83
1929	83	127	86		69	103		78	66		67	85	65	68		84	94
1930	74	112	78		73	98		57	60		66	91	85	69		80	90
1931	64	106	68		75	82		47	55		60	89	69	65		71	81
1932	64	106	69		73	83		44	47		56	91	69	60		78	70
1933	70	110	75		81	92		51	56		64	90	82	64		77	78
1934	78	109	76		89	91		58	61		77	95	70	70		97	85
1935	82	101	90		95	83		70	70		80	95	87	81		97	91
1936	91	104	103		97	96		82	75	88	89	92	86	85		99	101
1937	101	100	117		104	102		95	82	96	102	101	92	96		108	114
1938	100	(100)	100	100	100	100		100	100	100	100	100	100	100		100	100
1946	. .	. .	. .	. .	104	. .		. .	46	84	. .	. .	102	158		153	226
1947	. .	. .	125	. .	89	96		. .	59	98	86	. .	119	167		159	244
1948	110	145	145	142	101	114		58	63	98	101	123	129	189		174	252
1949	127	167	145	130	111	117		83	80	121	117	165	159	201		193	240
1950	152	206	142	124	129	127		111	94	131	140	233	213	226		225	283
1951	175	213	177	165	132	149		133	115	134	184	244	252	239		242	317
1952	171	195	187	159	119	141		135	102	130	185	257	246	236		228	319
1993	198	212	192	153	127	150		159	119	139	227	277	248	245		272	341
1954	228	249	231	166	138	168		185	167	150	284	314	302	264		298	341
1955	249	271	239	200	136	187		209	183	157	314	337	295	279		317	382

CHEMICAL, PETROLEUM AND COAL BY-PRODUCTS INDUSTRIES

The above indices cover, in principle, the following major groups of the I.S.I.C.:

Major group 31: Manufacture of chemicals and chemical products
Basic industrial chemicals, including fertilisers; vegetable and animal oils and fats; manufacture of miscellaneous chemical products, including synthetic resins, plastic materials, rayon and staple fibre.

32: Manufacture of products of petroleum and coal
Petroleum refineries, coke ovens and other manufactures of products from petroleum and coal.

Notes: (a) Netherlands - Excluding petroleum products.
(b) United States, 1899.
(c) United States, 1914.
(d) United States, 1919.