

abounding in natural waterways, the total length of them being estimated at 7000 miles. But it is only the Rhine, in its middle course, that has at all times sufficient volume of water to meet the requirements of a good navigable river.

Lakes.—The regions which abound in lakes have already been pointed out. The Bodensee or Lake of Constance (186 square miles) is on the frontier of the empire,—portions of the northern banks belonging severally to Bavaria, Würtemberg, and Baden. The largest lake entirely on German territory is the Chiemsee (75 square miles); the Ammersee and the Würmsee are, however, but little less. A good many smaller lakes are to be found in the Bavarian Alps. The North-German plain is dotted with upwards of 500 lakes, covering an area of about 2500 square miles. The largest of these are the three Haffs,—the Oderhaff covering 370 square miles, the Frische Haff 332, and the Kurische Haff 626. The lakes in the Prussian and Pomeranian provinces, in Mecklenburg, and in Holstein, and those of the Havel, have already been mentioned. In the west the only lakes of importance are the Steinhuder Meer, 14 miles north-west of Hanover, and the Dümmersee on the southern frontier of Oldenburg.

Climate.—The climate of Germany is to be regarded as intermediate between the oceanic and continental climates of western and eastern Europe respectively. It has nothing in common with the Mediterranean climate of southern Europe, Germany being separated from that region by the lofty barrier of the Alps. Although there are very considerable differences in the range of temperature and the amount of rainfall throughout Germany, these are not so great as they would be were it not that the elevated plateaus and mountain chains are in the south, while the north is occupied by low-lying plains. In the west no chain of hills intercepts the warmer and moister winds which blow from the Atlantic, and these accordingly influence at times even the eastern regions of Germany. The mean annual temperature of south-western Germany, or the Rhine and Danube basins, has in recent years been about 52° to 54°, that of central Germany 48° to 50°, and that of the northern plain 46° to 48°. In Pomerania and West Prussia it is only 44° to 45°, and in East Prussia 42° to 44°. The warmest districts of the German empire are the northern parts of the Rhine plain, from Carlsruhe downwards, especially the Rheintal; these are scarcely 300 feet above the sea-level, and are protected by mountainous tracts of land. The same holds true of the valleys of the Neckar, Main, and Moselle. Hence the vine is everywhere cultivated in these districts. The mean summer temperature there is 66° and upwards, while the average temperature of January does not descend to the freezing point (32°). The climate of north-western Germany (west of the Elbe) shows a predominating oceanic character, the summers not being too hot (mean summer temperature 60° to 62°), and snow in winter remaining but a short time on the ground. West of the Weser the average temperature of January exceeds 32°; to the east it sinks to 30°, and therefore the Elbe is generally covered with ice for some months of the year, as are also its tributaries. The further one proceeds to the east the greater are the contrasts of summer and winter. While the average summer warmth of Germany is 60° to 62°, the January temperature falls as low as 26° to 28° in West Prussia, Posen, and Silesia, and 22° to 26° in East Prussia and Upper Silesia. The navigation of the rivers is regularly interrupted by frost. Similarly the upper basin of the Danube, or the Bavarian plain, has a rather inclement climate in winter, the average for January being 25° to 26°.

As regards rainfall, Germany belongs to those regions where atmospheric precipitation takes place at all seasons, but chiefly in the form of summer rains. In respect to the quantity of rain the empire takes a middle position

between the humidity of north-western Europe and the aridity of the east. There are considerable differences between particular places. The rainfall is greatest in the Bavarian table-land and the hilly regions of western Germany. For the Eifel, Sauerland, Harz, Thüringer Wald, Rhön, Vogelsberg, Spessart, the Black Forest, the Vosges, &c., the annual average may be stated at 34 inches or more, while in the lower terraces of south-western Germany, as in the Erzgebirge and the Sudetic range, it is estimated at 30 to 32 inches only. The same average obtains also on the humid north-west coast of Germany as far as Bremen and Hamburg. In the remaining parts of western Germany, on the shores of Further Pomerania, and in East Prussia, it amounts to upwards of 24 inches. In western Germany there is a district famous for the scarcity of rain, and for producing the best kind of wine: in the valley of the Rhine below Strasburg, in the Palatinate, and also in the valley of the Main, no more than from 16 to 20 inches fall. Mecklenburg, Brandenburg, and Lusatia, Saxony and the plateau of Thuringia, West Prussia, Posen, and Lower Silesia are also to be classed among the more arid regions of Germany, the annual rainfall being 16 to 20 inches.

VEGETATION, ANIMALS, AND AGRICULTURE.

The flora of Germany comprises about 3000 species of phanerogamic and about 4000 cryptogamic plants. The country does not, however, form a single natural region, and cannot be characterized distinctively by any of the principal botanical types.

No uniform returns for the whole empire have been published, furnishing details regarding the distribution of the soil in respect of its cultivation, and thus statistics can only be collected from the official returns and estimates—or valuations for separate districts. The following tabular statements must therefore be regarded as only approximately accurate:—

Cultivable and Uncultivable Area.

States or Groups.	Cultivable.		Uncultivable.	
	Square Miles.	Percent. of Total.	Square Miles.	Percent. of Total.
Prussia, including the minor states of North Germany	134,400	91.7	12,130	8.3
Thuringia	4,450	93.7	300	6.3
Saxony	5,570	96.0	230	4.0
Bavaria	27,500	93.8	1,800	6.2
Württemberg	7,200	95.6	380	4.4
Baden	5,200	89.4	620	10.6
Alsace-Lorraine	5,200	90.9	520	9.1
Hesse	2,850	96.0	120	4.0
Total	192,370	92.3	16,050	7.7

Distribution of the Cultivable Area.

States.	Arable.		Meadows and Pasture Grounds.		Woodland.	
	Square Miles.	Percent. of Total.	Square Miles.	Percent. of Total.	Square Miles.	Percent. of Total.
Prussia, &c.	74,150	50.7	26,870	18.3	33,280	22.7
Thuringia	2,500	22.6	440	9.3	1,610	31.8
Saxony	3,200	55.2	770	13.2	1,600	27.6
Bavaria	12,350	42.1	5,120	17.5	10,030	34.2
Württemberg	3,600	47.8	1,300	17.3	2,300	30.5
Baden	2,200	37.9	1,050	17.7	1,970	33.8
Alsace-Lorraine	2,770	48.5	660	11.6	1,770	30.6
Hesse	1,530	51.6	380	12.8	940	31.6
Total	102,300	49.0	36,570	17.6	63,500	29.7

From these tables it will be seen that the extent of uncultivable ground in Germany is inconsiderable; and that the arable land, including garden ground and vineyards, amounts to about one-half of the area.

Forests.—The woodlands form about one-fourth of the entire soil, the proportion of forest being far greater than in any other state in the west or south of Europe; the percentage for France is but 17, for Italy 12; for Great Britain about 3. The state forests alone occupy 17,600 square miles; and the greatest attention is paid throughout the empire to forest culture. Speaking generally, northern is not nearly so well wooded as central and southern Germany, where indeed most of the smaller mountains are covered with timber, as is indicated by the frequent use of the termination *wald* affixed to the names of the mountain ranges (as Schwarzwald, Thüringer Wald, &c.). The "Seenplatten" are less wooded than the hill country, but the eastern portion of the northern lowlands is well provided with timber. A narrow strip along the shores of the Baltic is covered with oaks and beeches; further inland coniferous trees are the most prevalent, particularly the Scotch fir; birches are also abundant. The mountain forests consist chiefly of firs, pines, and larches, but contain also silver firs, beeches, and oaks. Chestnuts appear on the terraces of the Rhine valley, and in Swabia and Franconia. The whole north-west of Germany is destitute of wood, but to compensate for this the people have ample supplies of fuel in the extensive stretches of turf.

Agriculture.—The same kinds of cereal crops are cultivated in all parts of the empire, but in the south and west wheat is predominant, and in the north and east rye, oats, and barley. To these in some districts are added spelt, buckwheat, millet, rice-wheat (*Triticum dicoccum*), lesser spelt (*Triticum monoccocum*), and maize. In general the soil is remarkably well cultivated. The three years' rotation formerly in use, where autumn and spring-sown grain and fallow succeeded each other, has now been abandoned, except in some districts, where the system has been modified and improved. In South Germany the so-called *Fruchtwechsel* is practised, the fields being sown with grain crops every second year, and with pease or beans, grasses, potatoes, turnips, &c., in the intermediate years. In North Germany the mixed *Koppelwirtschaft* is extending, by which system, after several years of grain crops, the ground is for two or three seasons in pasture. No general statistics on the subject of crops have as yet been published, but, according to private estimates, a fair average season will yield 325 million quarters of rye,¹ oats 300, wheat and spelt 170, barley 100. In good seasons the production has been found sufficient to meet the native demand. Formerly the exports of the produce of the wheat and pulse crops exceeded the imports, but the importation of cereals has now for a number of years been constantly increasing. The potato is largely cultivated, not merely for food, but for distillation into spirits. This manufacture is prosecuted especially in eastern Germany. The Prussian provinces east of the Elbe, including Mecklenburg and Saxony, with a population of about 19 millions, produced 72 million gallons² of spirits in 1876, while the rest of Germany (population 24 millions) produced only 25 million gallons. The common

Years.	Manu- factories.	Beet-root col- lated.	Sugar produced
		Cwts.	Cwts.
1846-47	107	5,600,000	331,000
1856-57	233	27,500,000	1,800,000
1866-67	296	50,700,000	3,900,000
1874-75	333	55,100,000	5,100,000
1875-76	332	53,200,000	7,100,000
1876-77	328	71,000,000	5,800,000

beet (*Beta vulgaris*) is largely grown in some districts for the production of sugar, which has greatly increased during

¹ 1 quarter = 2.90781 hectolitres; 1 hectolitre = 0.34388 quarter.
² 1 gallon = 0.22 litre.

the last thirty years. There are two centres of the beet-root sugar production: 231 factories, or more than two-thirds of the whole, are in Prussian Saxony, Hanover, Brunswick, Anhalt, and Thuringia, and there are 71 in Silesia, Brandenburg, and Pomerania, the principal centre of the latter group being Frankfort-on-the-Oder. Flax and hemp are cultivated, though not so much as formerly, for manufacture into linen and canvas, and also for the production of oil. The home supply no longer suffices for the native demand. The cultivation of hops is in a very thriving condition in the southern states of Germany. The soil occupied by hops was estimated in 1873 at 93,680 acres,³ a larger area than in any other country of the globe (Great Britain having about 70,000 acres). The total production of hops is 477,000 cwts., and of this 402,000 cwts. are grown in Bavaria, Würtemberg, Baden, and Alsace-Lorraine. Hops thus form one of the standard articles of exportation from Germany, as well as beer. The following table shows the number of breweries in different parts of the country, and the amount of their production:—

States.	Breweries.	Total.	Per Head.
		Gallons.	Gallons.
Northern Germany	12,186	448,000,000	14
Bavaria, not including Palatinate	6,703	269,000,000	59
Palatinate (estimated)	...	13,000,000	20
Württemberg	7,777	85,300,000	46
Baden (estimated)	1,500	24,200,000	18
Alsace-Lorraine	241	17,600,000	11
Total, about	28,500	857,100,000	20

Tobacco forms the most productive and most profitable object of culture in many districts. The total extent under this crop in 1876 was 53,720 acres, no less than 32 per cent. of this being in Baden, 22 in Bavaria, 16 in Alsace-Lorraine, and only 30 per cent. in the rest of Germany. In the north the plant is cultivated principally in Pomerania, Brandenburg, and East and West Prussia. Of late years the production has on the whole diminished, the average amount having been 800,000 cwts. from 1872 to 1876.

The culture of the vine is almost confined to southern and western Germany, and especially to the Rhine district. The northern limits of its growth extend from Bonn in a north-easterly direction through Cassel to the southern foot of the Harz, crossing 52° N. lat. on the Elbe, running then east some miles to the north of that parallel, and finally turning sharply towards the south-west on the Warthe. In the valley of the Saale and Elbe (near Dresden), and in Lower Silesia (between Guben and Grünberg), the number of vineyards is small, and the wines of inferior quality; but along the Rhine from Basel to Coblenz, in Alsace, Baden, the Palatinate, and Hesse, and above all in the province of Nassau, the lower slopes of the hills are literally covered with vines. Here are produced the celebrated Rudesheimer, Hochheimer, and Johannisberger. The vines of the lower Main, particularly those of Würzburg, are the best kinds; those of the upper Main and the valley of the Neckar are rather inferior. The Moselle wines are lighter and more acid than those of the Rhine. The total amount produced in Germany is estimated at 1000 million gallons,—Alsace-Lorraine turning out 400 millions, Baden 175, Bavaria, Würtemberg, and Hesse together 300, while the remainder, which though small in quantity is in quality the best, is produced by Prussia.

Live Stock.—The cultivation of grazing lands in Germany has been greatly improved in recent times, and is in a highly prosperous condition. The provinces of Pomerania

³ 1 acre = 0.40467 hectare; 1 hectare = 2.4711442 acres.

and Hanover are particularly remarkable in this respect. The best meadow lands of Bavaria are in the outer range of the Alps, those of Saxony in the Erzgebirge. The following table shows the results of a live-stock census in 1873:—

Horses	3,352,231
Cattle	15,776,702
Sheep	24,999,406
Pigs	7,124,088
Goats	2,320,002
Total	53,572,429

The breeding of domestic animals is prosecuted most extensively in Bavaria, and in the maritime provinces. There we find 1000 to 1500 head of the larger kinds (horses, cattle, sheep, goats, swine) for every 1000 inhabitants; in the rest of eastern Germany 600 to 800; and in central and southern Germany only 400 to 600. In the number of horses Germany ranks with Great Britain (about 80 for every 1000 inhabitants); and, although the production cannot satisfy the home demand, the imports being nearly 30,000 in excess of the exports annually, the breeding of horses has attained great perfection. The main centre is in East and West Prussia, where there are more than half a million of horses,—about 30 per English square mile; then follow the marsh districts on the Elbe and Weser, some parts of Westphalia, Saxony, and Upper Silesia, Lower Bavaria, Lower Alsace, and Lorraine. Cattle abound in most South-German states, especially Bavaria and Württemberg, where there are 180 to 200 head for every square mile. In the northern and north-eastern districts, on the other hand, the numbers are small (in some districts only 30 to 50 head to the square mile), except Schleswig-Holstein and the marsh lands along the shores of the North Sea, whence there is a considerable exportation to England. The aggregate number of sheep in Germany is only exceeded in Europe by that in Great Britain and Russia. The principal sheep districts are Pomerania and Mecklenburg (300 per square mile). As a rule, sheep-farming is resorted to where the soil is of inferior quality and unsuitable for tillage and the breeding of cattle. Far more attention is accordingly given to the rearing of sheep in northern and north-eastern Germany than in Schleswig-Holstein, East Frisia, Westphalia, Rhineland, and South Germany. The exportation of sheep is considerable, amounting in 1871 to 1,460,000 head; in 1875, however, the number was only 1,000,000. At the same time the native demand for wool is not covered by the home production. The largest stock of swine is in central Germany and Saxony, in Westphalia, on the lower Rhine, in Lorraine, Hesse, &c. Central Germany (especially Gotha and Brunswick) exports sausages and hams largely, as well as Westphalia; but the excess of swine imported over the exports for the whole of Germany ranges from 600,000 to 800,000 annually.

Agricultural Population.—In the census returns of 1871 the number of persons entered as agriculturists (including persons engaged in rearing stock, in forestry, and the fisheries) was about 12,210,000, comprising 1,844,202 proprietors (1,690,931 males and 153,271 females), 2,101,005 agricultural labourers, &c., with 6,764,747 members of their families (2,338,174 males and 4,426,573 females), and about 1,500,000 (660,000 males and 840,000 females) engaged in household duties. Agriculture thus supports three-tenths of the population.

Wild Animals.—The number of wild animals in Germany is not very great. Foxes, martens, weasels, badgers, and otters are to be found everywhere; wolves are rare, but they find their way sometimes from French territory to the western provinces, or from Poland to Prussia and Posen. Among the rodents the hamster and the field-mouse are a scourge to agriculture. Of game there are the roe, stag,

boar, and hare; the fallow deer and the wild rabbit are less common. The elk is to be found in the forests of East Prussia. The feathered tribes are everywhere abundant in the fields, woods, and marshes. Wild geese and ducks, grouse, partridges, snipes, woodcocks, quails, widgeons, and teal are plentiful all over the country. Geese and ducks are found mostly in the flat districts, where the great abundance of standing water affords ample scope for their increase. Tame geese are bred in large flocks, particularly in Pomerania. The length of time that birds of passage remain in Germany differs considerably with the different species. The stork is seen for about 170 days, the house-swallow 160, the snow-goose 260, the snipe 220. In northern Germany these birds arrive from twenty to thirty days later than in the south.

The waters of Germany abound with fish; but the genera and species are few. Carp and salmon tribes are the most abundant; after them rank the pike, the eel, the shad, the roach, the perch, and the lamprey. In addition to frogs, Germany has few varieties of Amphibia. Of serpents there are only two kinds, one of them being poisonous.

The rearing of bees is particularly attended to in the healthy districts of Hanover. The number of bee-hives may be estimated at 2 millions, and the produce of wax and honey at 100,000 cwts. The cultivation of silk-worms has been attempted, but has either entirely failed or had very indifferent success. In 1852–62 an attempt was made to extend the cultivation of the mulberry in the province of Brandenburg; but disease among the silk-worms, which it was found impossible to repress, rendered it unsuccessful.

MINES AND MINERALS.

Germany abounds in useful minerals, and in consequence takes a high place among industrial states. The production falls short, indeed, of that of England, but bears comparison with that of France and of the United States. The last annual report of the imperial statistical office (for the year 1876) classified the mineral produce of Germany under the following heads:—

Mineral Production in 1876.

Minerals.	Quantities.	Value.	Miners.
Coal, including lignite ...	Metric Tons. 49,588,050	£ 15,131,000	208,429
Iron ore ...	3,515,020	1,047,850	24,373
Zinc ore ...	503,360	650,340	11,680
Lead ore ...	12,060	1,019,300	16,929
Copper ore ...	30,450	356,250	7,077
Silver and gold ore ...	2,311	219,150	7,475
Tin ore ...	185	6,380	306
Cobalt ore ...	313	10,000	...
Nickel ore ...	1,222	5,780	100
Antimony ore ...	43	580	66
Arsenic ore ...	1,670	2,510	20
Manganese ore ...	11,651	28,240	79
Bismuth ore ...	28	13,650	824
Uranium ore ...	9	2,210	...
Tungsten ore ...	3	20	...
Iron pyrites ...	113,703	107,290	...
Alum ores ...	35,320	4,400	829
Salt ...	170,150	60,700	196
Potash, &c. ...	580,900	234,500	2,053
Total, about	55,000,000	18,900,000	280,401

The general value of the production has increased considerably during the ten years ending 1876, as will be seen by the following table:—

¹ 1 centner or 50 kilogrammes = 110·23 pounds = 0·9851 cwt. In round numbers the centner is taken as equivalent to the cwt., and the metric ton to the English ton; the exact value of the latter, however, is 19·702 cwts., or 0·9851 tons. £1 sterling = 20·4294 marks. In round numbers £1 is taken as 20 marks: the value given are therefore too large by 2·15 per cent.

Year	Not including Lorraine.	£	Year	£
1867	10,720,700	1872	20,783,000	
1868	11,248,000	1873	26,782,600	
1869	12,021,000	1874	25,283,000	
1870	12,412,000	1875	20,844,000	
1871	15,708,000	1876	18,900,000	

The metals extracted from ores in 1876 were thus classified:—

Metal Production in 1876.

Metals.	Quantities.		Value.
	Cwts.	£	
Iron ...	from home ores ...	30,410,000	4,920,550
	foreign ores	1,884,000	306,890
Zinc ...	home ores ..	1,582,300	1,655,980
	foreign ores	82,270	84,630
Lead ...	home ores ..	1,372,800	1,417,070
	foreign ores	139,100	148,220
Copper ..	home ores ..	165,100	628,170
	foreign ores	3,300	13,520
Silver ..	home ores ..	4,347,200	967,820
	foreign ores	587,150	130,650
Gold ..	home ores ...	10,445	26,040
	foreign ores	3,338	13,200
Nickel }	home ores ...	4,050	57,730
	foreign ores	3,380	79,030
Cobalt ..	7,150	58,400	
Cadmium ..	36	1,450	
Tin ..	3,671	9,540	
Bismuth ..	430	12,520	
Arsenic products ..	17,150	16,540	
Sulphur ..	6,800	3,300	
Oil of vitriol, &c.	2,201,400	438,950	
Total	Cwts. 37,882,000	10,995,100	
	Oz. 4,938,100		

Coal.—Coal-mining appears to have been first practised in the 14th century, at Zwickau (Saxony), and on the Ruhr. The production, which certainly did not exceed 500,000 tons in 1800, has vastly increased during the last thirty years, as may be seen from the following table (which does not include lignite):—

Coal Production, 1848 1877.

Year	Lorraine included.	Quantities.	
		Metric Tons.	£
1848		4,384,000	1,284,000
1853	Lorraine	8,329,000	2,566,000
1857	not	11,279,000	4,137,000
1862	included.	15,576,000	4,155,000
1867		23,808,000	6,371,000
1871		29,398,000	10,917,000
1872		33,306,000	14,833,000
1873		36,392,000	20,183,000
1874		35,919,000	19,359,000
1875		37,436,000	14,874,000
1876		38,454,000	13,184,000
1877		37,576,000	10,854,000

There are six large coal-fields, occupying an area of about 3600 square miles, of which the most important occupies the basin of the Ruhr, its extent being estimated at 2800 square miles. Here there are more than 60 beds, of a total thickness of 150 to 200 feet of coal; and the amount in the pits has been estimated at 45,000 millions of tons, so that the basin, at the present rate of 17,500,000 tons raised per annum, would not be exhausted in 2000 years. Smaller fields are found near Osnabrück, Ibbenbüren, and Minden, and a larger one near Aix-la-Chapelle. The Saar coal-field, within the area enclosed by the rivers Saar, Nahe, and Blies (460 square miles), is one of great importance. The thickness of 80 beds amounts to 250 feet, and Von Dechen estimates the total mass of coal at 45,400 million tons. The

greater part of the basin belongs to Prussia, the rest to Lorraine. A still larger field exists in the Upper Silesian basin, on the border-land between Austria and Poland, containing about 50,000 million tons. Beuthen is the chief centre. The Silesian coal-fields have a second centre in Waldenburg, east of the Riesengebirge. The Saxon coal-fields stretch eastwards for some miles from Zwickau. Deposits of less consequence are found in Upper Bavaria, Upper Franconia, Baden, in the Harz, &c.

Number and Production of Collieries in 1876.

Coal-Fields (Not including Lignite).	Number of Collieries	Coal produced in 1876.
		Tons.
Ruhr (gov. districts, Arnsberg and Düsseldorf) ...	207	17,430,000
Upper Silesia ..	107	8,463,000
Saar ..	33	5,080,000
Zwickau ..	71	3,038,000
Lower Silesia ..	44	2,150,000
Aix-la-Chapelle ..	17	994,000
Osnabrück, Ibbenbüren, &c.	22	822,000
Minor fields ..	47	472,000
Total	548	38,454,000

The above tables do not include lignite, of which numerous beds are scattered over Germany. Extensive strata follow the course of the Oder, and a second group is spread over Lusatia, but the largest and most important deposit is in the Saale districts from Altenburg to the Harz. Smaller fields are situated round Cassel, northward of Frankfurt, near Cologne and Aix-la-Chapelle, in the west of Hanover, and in the Upper Palatinate. The total production is stated in the official returns at 11,100,000 tons, representing a value of £1,922,000. Of this 8,780,000 tons are supplied by the fields in the Saale districts (province of Saxony, Anhalt, Brunswick, Saxe-Altenburg, and kingdom of Saxony). In North Germany turf also is of importance as a fuel; the area of the turf moors in Prussia is estimated at 8000 square miles, of which more than 2000 are in the north of Hanover. The coal produced supplies the home demand, although a considerable trade is carried on across the frontier. Through the ports of the North Sea and the Baltic more than 2 million tons of coals are imported annually from England, and nearly 2½ million tons of lignite come from Bohemia. On the other hand, the Ruhr and the Saar basins export nearly 3 million tons of coal to the Netherlands, France, and Switzerland, and the Upper Silesian basin 1½ millions to Austria and Russia. The following table gives a comparative view of the quantity supplied by the more important coal-producing countries in 1876:—

Country	Tons.	Country	Tons.
Great Britain	135,612,000	France	16,889,000
United States	50,000,000	Belgium	14,329,000
Germany	48,296,000	Austria-Hungary ..	13,362,000

Graphite is produced only in Lower Bavaria; the total amount in 1876 was 20,104 cwts., value £2090. **Asphalt** occurs near Hanover, in Brunswick, and in Alsace; total production in 1876, 720,000 cwts., value £15,300. **Petroleum** is found in limited quantity near Lüneburg, and in Alsace.

Iron Ore.—Germany abounds in iron ores, some of which are of superior quality. The production increased rapidly for a time, but in recent years there has been a very great decline.

About 35 per cent. is brown iron ore, 25 per cent. spathic iron, 18 per cent. black band, and 10 per cent. red iron ore. The rest consists of clay-ironstone, bog-iron ore (in the northern lowlands), and magnetic ores. Unfortunately, but few mines are found in proximity to coal-pits, and important ore-deposits of great extent are far from coal, as, for

instance, the iron districts of Nassau, of the Sieg valley, and of Hesse, Thuringia, Lorraine, Bavaria, and Württemberg,

Iron Ore Production, 1848-1876.

	Quantities.	Value.
1848 } Lorraine	694,000	191,000
1853 } not	903,000	250,000
1857 } included.	1,962,000	583,000
1867	3,264,000	918,000
1872	5,896,000	2,118,000
1873	6,177,000	2,117,000
1874	5,137,000	1,430,000
1875	4,730,000	1,387,000
1876	4,712,000	1,181,000

Ores free of phosphorus, suitable for the manufacture of Bessemer pig-iron, are also very scarce.

The following table shows the number and production of furnaces in blast in 1876:—

Government Districts.	Furnaces in Blast.	Pig-Iron made.
		Tons.
Arnsberg.....	37	337,640
Düsseldorf.....	21	278,110
Oppeln.....	32	223,750
Coblenz.....	27	212,470
Lorraine.....	18	193,450
Treves.....	10	103,080
Hildesheim.....	4	55,750
Osnabrück.....	4	45,200
Upper Palatinate.....	10	31,060
Wiesbaden.....	14	26,550
Cologne.....	3	25,130
Hesse (grand-duchy).....	5	18,150
Württemberg.....	5	10,810
Saxe-Meiningen.....	1	13,840
Other districts.....	34	37,690
Total.....	225	1,614,680

The iron manufacture has not been in a thriving condition since 1873; the total number of furnaces in Germany in 1876 was 435,—225 in blast as above, and 210 blown out. The following table shows the progress of pig-iron production, including castings:—

	Quantities.	Value.
	Tons.	£
1848 } about	200,000	1,230,000
1862 } about	640,000	2,630,000
1867	990,000	3,600,000
1871	1,421,000	5,946,000
1873	1,983,000	11,238,900
1874	1,660,000	7,243,000
1875	1,759,000	6,632,900
1876	1,615,000	5,232,000

Since the incorporation of Lorraine with the German empire the pig-iron production of Germany exceeds that of France. The following table shows the comparative increase in those countries, as well as in Great Britain and the United States:—

	Year.	Quantities of Pig-Iron.	
		Tons.	Value.
Great Britain.....	1866	4,596,000	18,660,000
United States.....	"	1,225,000	2,351,000
Germany.....	"	1,000,000	1,615,000
France.....	"	1,260,000	1,453,000

Iron Industry.—While the produce of pig-iron has thus been advancing, similar progress appears in the iron industry, in some branches of which Germany has already emancipated herself from dependence on England. During the last few years, it is true, this trade has suffered

severely from the overproduction of 1872 and 1873, as may be seen from the following table, showing the quantities and values of worked pig-iron in 1872 and 1876:—

Articles.	1872.		1876.	
	Quantities.	Value.	Quantities.	Value.
	Cwts.	£	Cwts.	£
Wrought iron & rolled iron	19,194,000	12,255,000	15,515,000	5,013,000
Iron plate.....	2,348,000	2,007,000	2,190,000	1,095,000
Iron wire.....	2,053,000	1,695,000	2,650,000	1,392,000
Raw steel.....	2,703,000	2,333,000	2,680,000	1,104,000
Cast steel.....	3,542,000	2,840,000	4,877,000	2,488,000

The greatest advance has been made in the production of steel. In 1863 the quantity was only 1,400,000 cwts., but in 1872 it was about 6,500,000. The greater part of this is produced at the celebrated works of Krupp in Essen and the cast-steel works in Bochum. Many European states have for a considerable time been supplied by Krupp with cast-steel guns. The production of rails not only covers the home demand, but has allowed an annual exportation of 3,000,000 cwts. since 1877. Hardware also, the production of which is centred in Solingen, Heilbronn, Esslingen, &c., is largely exported. Germany stands second to Great Britain in the manufacture of machines and engines. There are in many large cities of North Germany extensive establishments for this purpose, but the industry is not limited to the large cities. It must be admitted that in agricultural machinery Germany cannot as yet compete with England. The locomotives and waggons for the German railways, however, are almost exclusively built in Germany; and Russia, as well as Austria, receives large supplies of railway plant from German works. In shipbuilding likewise Germany is becoming independent of England; and dockyards have been erected on the coast for the construction of large ironclads.

Silver and Gold.—Germany produces more silver than any other European state, and the quantity is annually increasing. Silver and gold are extracted from the ores in the mines of Freiberg (Saxony) and near the Harz; but silver is also refined from lead and copper ores in Upper Silesia, Merseburg, Aix-la-Chapelle, Wiesbaden, and Arnsberg. The gold-mining is of far less importance. The value of silver produced was, in 1867, £791,370; 1873, £1,539,590; 1876, £1,098,470; and that of gold, 1867, £11,750; 1876, £39,234.

Lead.—The quantity of the lead produced allows Germany to export from 300,000 to 400,000 cwts. annually. Nearly half the produce is obtained near Aix-la-Chapelle (651,273 cwts. in 1876); next come Upper Silesia (265,000 cwts.), Harz (176,550 cwts.), Nassau (143,770 cwts.), Saxony, Arnsberg, &c. The value in 1867 was only £898,140; but in 1876, £1,565,280; the quantity was 87,090 cwts. in 1867, and 1,512,000 cwts. in 1876.

Copper.—Although Germany yields more copper than any other European state, the native supply does not meet the demand. In recent years more than 200,000 cwts. have been imported. The Harz mountains and their environs (Mansfeld) alone produce five-sixths of the whole amount, which has been doubled during the ten years ending 1876:—1867, 77,440 cwts., value £312,750; 1876, 168,430 cwts., value £641,750.

Zinc.—About 90 per cent. of the zinc produced in Europe is yielded by Belgium and Germany. The exportation from the latter amounts to more than half a million of cwts. per annum. The production doubled during the period from 1850 (620,000 cwts.) to 1860, but has made only slow progress since that time. In 1867 it was only 1,277,000

cwts., value about £600,000; in 1876, 1,664,500, value £1,740,600. 70 per cent. is produced in Upper Silesia in the neighbourhood of Beuthen, the rest in Westphalia and the Rhineland.

Salt.—Germany possesses abundant salt deposits. The actual production not only covers the home consumption, but also allows a yearly increasing exportation, especially to Russia, Austria, and Scandinavia. In 1877-78 there were 77 salt works in operation, 8 of which were mining works for rock-salt. The provinces of Saxony and Hanover, with Thuringia and Anhalt, have 28 works, and produce half the whole amount. A large work is found at Strzalkowo (Posen), and smaller ones near Dortmund, Lippstadt, and Minden (Westphalia). In South Germany salt abounds most in Württemberg (Hall, Heilbronn, Rottweil); the principal Bavarian works are at the foot of the Alps near Freilassing and Rosenheim. Hesse and Baden have 6 salt works; Lorraine and the Upper Palatinate, 6. The total yield now amounts to 8,318,000 cwts. boiled salt, 3,221,000 cwts. rock-salt, and 256,000 cwts. of other kinds. The production has made great advance during the last thirty years, having in 1850 been only 5 million cwts., while in 1877 it was upwards of 11 million cwts.

Chloride of Potash.—A considerable amount of this substance is turned out by 15 works in Anhalt, where only the potash ores are found. The production there in 1876 was 846,000 cwts., value about £250,000.

POPULATION.

Till very recent times no estimate of the population of Germany was precise enough to be of any value. At the beginning of the present century the country was divided into some hundred states, but there was no central agency for instituting an exact census on a uniform plan. Even the formation of the German Confederation in 1815 effected but little change in this respect, and it was left to the different states to arrange in what manner the census should be taken. On the formation, however, of the German Customs Union or Zollverein between certain German states, the necessity for accurate statistics became apparent, since the amounts accruing from the common import duties were to be distributed according to the number of inhabitants in the several states. The Zollverein had its origin in a customs convention between Prussia and the grand-duchy of Hesse in 1828; and other states, as they gradually became convinced of the advantages afforded by a general customs frontier, joined it from time to time during the succeeding forty years. The following table shows the progressive territorial limits of the Zollverein—which may be regarded as the precursor of the present German empire:—

Population of the Zollverein.

Years.	States entering during the various Periods.	Area, Sq. Miles.	Population of the Union States.
1828	Prussia, Hesse (grand-duchy)	112,000	13,295,254
1831	Hesse-Cassel.....	115,300	15,090,075 ('34)
1834	Bavaria, Württemberg, Saxony, Thuringia, &c.....	163,900	23,478,120
1844	Brunswick, Luxembourg, &c.	171,900	28,498,136 ('43)
1851	Hanover, Oldenburg.....	191,800	32,559,055 ('52)
1868	Schleswig-Holstein, Lauenburg, Mecklenburg.....	205,500	38,277,939 ('67)
1871	Alsace-Lorraine.....	209,281	40,677,950

The returns made at different times by the separate states cannot be combined into an aggregate, showing precisely the former population of Germany. An enumeration was made every third year of the number of people that could be held as belonging to the different states

comprised in the Zollverein; and it was only from 1867 that the returns gave the actual resident population. The following table gives the area and population of the twenty-six states of Germany as returned at the two last censuses (1871 and 1875):—

Population of the German Empire, 1871 and 1875.

States of the Empire.	Area, English Sq. Miles.	Population.	
		Dec. 3, 1871.	Dec. 1, 1875.
<i>Kingdoms.</i>			
1. Prussia.....	134,178	24,691,433	25,742,404
2. Bavaria.....	29,292	4,863,450	5,022,390
3. Saxony.....	5,789	2,556,244	2,760,586
4. Württemberg.....	7,531	1,818,539	1,881,505
<i>Grand-Duchies.</i>			
5. Baden.....	5,824	1,461,562	1,507,179
6. Hesse.....	2,965	852,894	884,218
7. Mecklenburg-Schwerin	5,137	557,897	553,785
8. Saxe-Weimar.....	1,404	286,183	292,933
9. Mecklenburg-Strelitz	1,131	96,982	95,673
10. Oldenburg.....	2,471	314,459	319,314
<i>Duchies.</i>			
11. Brunswick.....	1,425	311,764	327,493
12. Saxe-Meiningen.....	953	187,957	194,494
13. Saxe-Altenburg.....	510	142,122	145,844
14. Saxe-Coburg-Gotha...	760	174,339	182,599
15. Anhalt.....	906	203,437	213,565
<i>Principalities.</i>			
16. Schwarzburg-Rudolstadt.....	364	75,523	76,676
17. Schwarzburg-Sondershausen.....	333	67,191	67,480
18. Waldeck.....	433	56,224	54,743
19. Reuss-Greiz.....	122	45,094	46,985
20. Reuss-Gera.....	320	89,032	92,375
21. Schaumburg-Lippe.....	171	32,059	33,133
22. Lippe.....	438	111,135	112,452
<i>Free Towns.</i>			
23. Lübeck.....	109	52,158	56,912
24. Bremen.....	97	122,402	142,200
25. Hamburg.....	158	338,974	388,618
<i>Imperial Territory.</i>			
26. Alsace-Lorraine.....	5,603	1,549,738	1,531,804
Total.....	208,425	41,058,792	42,727,360

The following table shows the rate of recent increase, the population of Alsace-Lorraine returned at the French census of 1866 being included in the statement for 1867:—

Years.	Population.	Total Increase.	Percentage for the period.	Percentage per annum.
Dec. 3, 1867	40,108,029			
Dec. 3, 1871	41,058,792	950,763	2.4	0.6
Dec. 1, 1875	42,727,360	1,688,568	4.1	1.0

Comparing the census returns of 1871 and 1875, it is found that only Alsace-Lorraine (17,934), the two Mecklenburgs (together 5231), and Waldeck (1481) are decreasing; all other states are increasing, though at very different rates. A comparison cannot here be made, however, between the smaller and the larger states. Hamburg and Bremen, for example, have considerably increased, but these must be regarded as consisting of single large towns, and a similar increase is found in all the great cities of Germany. In southern Germany (Alsace-Lorraine not included), and also in Hanover, the growth of population has been insignificant, whereas the population in the eight old provinces of Prussia and in Saxony shows a marked increase.

It appears from the following table that the inhabitants of Prussia and Saxony have increased 60 to 70 per cent. in 40 to 44 years, and those of the other states only 18 to 23 per cent. And it is to be observed that this increase is not confined to the industrial districts, but that those provinces also which have few large cities and the population of which live for the most part by agriculture, such as

Pomerania, Prussia, Posen, have increased by 50 to 60 per cent. This is to be explained by the fact that there has been a very extensive immigration into Prussia since 1815, whereas emigration has been mostly from South Germany. But the surplus of births over deaths also has at all times been greater in the North.

Increase of Population in States.

Provinces or States.	Population.		Total Increase per cent.
	Census 1831-34	Census 1875.	
Saxony (kingdom)	(34) 1,596,000	2,760,000	73
The eight ancient Prus. provinces	(31) 13,040,000	21,116,000	62
Brandenburg (incl. Berlin)	" 1,612,000	3,126,000	84
Rhineland	" 2,250,000	3,804,000	70
Pomerania	" 910,000	1,462,000	63
Prussia	" 2,015,000	3,199,000	59
Silesia	" 2,460,000	3,844,000	56
Westphalia	" 1,270,000	1,905,000	52
Saxony	" 1,450,000	2,169,000	50
Posen	" 1,070,000	1,606,000	50
Baden	(34) 1,228,000	1,507,000	23
Hanover	(33) 1,663,000	2,017,000	21
Württemberg	(34) 1,573,000	1,882,000	20
Bavaria	" 4,245,000	5,022,000	18
Hesse	" 750,000	884,000	18

Vital Statistics.—It is very recently that general registers of births, deaths, and marriages began to be kept for all the German states, but these prove the increase of the excess of births over deaths in recent years to have been considerable. The following table of returns for the whole of Germany during the period 1872-76 brings out a natural addition by births of upwards of half a million yearly:—

	Marriages	Births (incl. Still born.)	Deaths (incl. Still born.)	Still-born.	Surplus of Births.
1872	423,900	1,692,227	1,260,922	66,190	431,305
1873	416,049	1,715,287	1,241,459	67,166	474,012
1874	400,282	1,752,976	1,191,132	69,536	560,579
1875	386,746	1,798,591	1,246,572	74,179	552,019
1876	366,912	1,831,218	1,207,144	73,517	624,074
Mean...	398,778	1,758,059	1,229,606	70,117	528,378

The numbers of births, deaths, and marriages for every 1000 of the population of Germany during the period 1872-5 were as follows:—

	To 1000 Persons living.			To 1000 Marriageable Persons.*
	Births.	Deaths.	Marriages.	
1872	41.1	30.5	10.3	39.9
1873	41.3	29.9	10.0	37.8
1874	41.8	28.4	9.5	36.0
1875	42.3	29.3	9.1	34.3
Mean...	41.6	29.5	9.7	36.7

In comparing this with similar tables for England, a great difference is obvious. While the average annual rate of births (41.6) has been much higher than in England (34.0) during recent years, the annual death-rate does not compare favourably with that of England (22.3) or of other states. Only Russia, Finland, Austria-Hungary, Italy, and Servia exhibit greater higher rates.

Sexes.—The numbers of the different sexes in 1871 and 1875 were as follows:—

	Males.	Females.	Excess of Females.	Females for 1000 Males
1871	20,154,109	20,906,737	752,628	1037
1875	20,986,701	21,740,659	753,958	1036

As in most European states, the surplus of females arises from their lower death-rate, for in Germany as elsewhere more boys are born than girls. The following table shows the numbers of births, including still-born:—

	Boys.	Girls.	Excess of Boys.	Boys for 1000 Girls.
1872	871,438	820,786	50,652	1062
1873	883,017	832,265	50,752	1061
1874	903,148	849,821	53,327	1063
1875	928,397	870,194	58,203	1067
1876	943,433	887,781	55,652	1063
Average	905,837	852,170	53,717	1063

Illegitimacy.—The number of illegitimate births is greater than in any other European state, except Sweden, Denmark, Austria, and Portugal. The rate of illegitimacy is about 9 per cent. of the births, the annual average for 1872-75 being 8.86. In Rhineland the proportion was 2.8 per cent., North-Western Germany, Oppeln, and Posen 5 to 6, South-Western Germany 7 to 9, province of Saxony, Brandenburg (exclusive of Berlin), Pomerania, Schleswig-Holstein 9 to 10, Saxony, Thuringia, and Lower Silesia 12, Berlin 13.5, and Bavaria 14.6 per cent. On the whole, illegitimacy has decreased of late, particularly in Bavaria.

Emigration.—The increase of population would have been still greater if emigration had not for years drained the country of considerable numbers of its inhabitants. The number of emigrants from Germany since 1820 may be estimated at 3,500,000, but this includes many Austrians, and it cannot be stated how many of the emigrants were natives of the German empire, as no authentic statistics of emigration were issued before 1873. The greater part of the emigrants take their passage *via* Bremen and Hamburg. The following statement, therefore, of the numbers of emigrants from these ports may afford a sufficient indication of the total emigration:—

	Emigrants.	Emigrants.
Average	14,653	79,337
1836-44	36,706	102,740
1845-49	77,165	154,834
1850-54	54,433	132,417
1855-59	41,665	74,076
1860-64	107,672	56,313
1865-69	108,675	50,396
1870-74	49,786	41,749
1875-77		

The following table, on the other hand, gives the number of emigrants from the German empire according to the official returns. The numbers are considerably lower than those of the last table. It will be seen that emigration has decreased greatly during recent years.

	German Emigrants.
1873.....	103,638
1874.....	45,112
1875.....	30,773
1876.....	28,368
1877.....	21,964
Total.....	229,855

The greater part of the recent emigration has been from the maritime provinces. Out of 230,000 emigrants in the years 1873-77, 132,350 were from Prussia, Pomerania, Mecklenburg, Schleswig-Holstein, Hanover, Oldenburg, Bremen, and Hamburg. These states, with a total population (1875) of 9,245,000, accordingly lost 1 1/2 per cent., the rest of the country (33,482,000 inhabitants) only 97,500, or 0.3 per cent. It must be added, however, that the emigration from South Germany was formerly much more considerable. Alsace-Lorraine lost only 1193 inhabitants in 1873-77 by emigration to America. The great mass of

German emigrants go to the United States,—90.5 per cent. of the whole (207,974) having embarked for that country in 1873-76. According to the official returns of the board of statistics at Washington, more than 2,900,000 immigrants arrived from Germany at American ports during 1820-1877. The rest of the emigrants find their way to Australasia, Brazil, the Cape, &c.

Immigrants and Foreigners.—In comparison with the emigrants, the number of immigrants is inconsiderable. The bulk come from Belgium, Holland, and Russia. The following table shows the number of natives of the empire who after being abroad have re-established themselves at home, and also the number of naturalized foreigners:—

	Re-established.	Naturalized.
1872	897	2296
1873	1284	2381
1874	1514	6532
1875	3735	9604
1876	2007	3643
1877	651	5810
Total...	10,088	30,266

The number of foreign residents has considerably increased during 1871-75. In 1871 there were in the empire 40,852,037 natives and 206,755 foreigners; in 1875, 42,436,561 natives and 290,799 foreigners. The following table gives the native countries of the foreigners in 1871,—the latest date for which these statistics have been published:—

Austria-Hungary.....	75,702	Belgium.....	5,097
Switzerland.....	24,518	Luxembourg.....	4,828
Holland.....	22,042	France.....	4,671
Denmark.....	15,163	Italy.....	4,019
Russia.....	14,535	Turkey.....	504
Sweden and Norway.....	12,345	Spain.....	310
United States.....	10,698	Greece.....	192
Great Britain.....	10,104	Other countries.....	2,026

Density of Population.—The population is very unequally distributed, and the differences are far greater now than they were formerly. The mean density of the population had increased from about 120 inhabitants per square mile in 1820 to 150 in 1840, and to 205 in 1875. We have already pointed out the great increase of population during the present century in many agricultural provinces of Prussia. In South Germany, however, the density of population was considerable even at the beginning of the century. But Germany during this period has become an important industrial state, and, as in England, distinct industrial districts have been formed, where the inhabitants cluster in populous centres. Besides, the population of the cities has gone on increasing at the expense of the agricultural districts, so that the natural increase of the inhabitants

Classes of Towns.	Number of Towns.	Population.	Percent. of Total.
Large towns of more than 100,000 inhabitants... { 1871	8	1,968,537	4.8
..... { 1875	12	2,665,914	6.2
Middle-sized towns, from 20,000 to 100,000..... { 1871	75	8,147,272	7.7
..... { 1875	88	8,487,857	8.2
Small towns, from 5000 to 20,000..... { 1871	529	4,588,364	11.1
..... { 1875	592	5,132,971	12.0
Rural towns, from 2000 to 5000..... { 1871	1716	5,086,625	12.4
..... { 1875	1636	4,922,781	11.5
Town population { 1871	2328	14,790,798	36.1
..... { 1875	2328	16,209,523	37.9
Rural population { 1871	...	26,219,352	63.9
..... { 1875	...	25,517,837	62.1

in these districts by the surplus of births is neutralized by the steady migration of the people into the cities. In

the accompanying official statistics all the inhabitants of communes with more than 2000 souls are designated "town population," and the term "rural population" is applied to those of the smaller places. But it must, be remarked that in several provinces, such as Westphalia, Rhineland, and Oldenburg, there are many communes consisting of numerous small villages and hamlets which have not the character of a town, and the inhabitants of which are almost exclusively agriculturists. These rank as town population, which accordingly appears in the returns to be a little larger than it really is. The figures exhibit the extremely unequal increase of the different groups from 1871 to 1875.

Increase per cent. of Population, 1871-75.

Large towns.....	14.83
Middle-sized towns.....	12.41
Small towns.....	10.74
Rural towns.....	5.75
Town population.....	9.59
Rural population.....	0.79
Total for the empire.....	4.19

The following is a list of the 35 towns which had upwards of 50,000 inhabitants at the census of 1875. The first column exhibits the population within the boundaries of the municipal boroughs (Stadtgemeinde). The numbers in the second are not official, but include all suburbs of a really urban character. The latter therefore afford a better indication of the actual size of the several towns.

Population of the Principal Towns in 1875.

Towns.	Within the Municipal Boundaries.	Within the Topograph. Boundaries.
1. Berlin.....	966,858	1,062,000
2. Hamburg.....	264,675	348,447
3. Breslau (Silesia).....	239,050	239,050
4. Munich (Bavaria).....	198,829	212,376
5. Dresden (Saxony).....	197,295	197,295
6. { Elberfeld (Rhine).....	80,589	167,091
{ Barmen.....	86,502	
7. Leipsic (Saxony).....	127,387	160,686
8. Cologne (Rhine).....	135,371	154,564
9. Frankfurt-on-Main (Hesse-Nassau).....	103,136	134,776
10. Hanover.....	106,677	127,576
11. Magdeburg (Saxony).....	87,925	122,789
12. Königsberg (East Prussia).....	122,636	122,636
13. Bremen.....	102,532	111,039
14. Stuttgart (Württemberg).....	107,273	105,062
15. Danzig (West Prussia).....	97,931	ab. 99,000
16. Nuremberg (Bavaria).....	91,108	94,878
17. Strasburg (Alsace).....	94,306	92,379
18. Chemnitz (Saxony).....	78,209	85,334
19. Altona (Holstein).....	84,097	84,097
20. Stettin (Pomerania).....	80,972	80,972
21. Düsseldorf (Rhine).....	80,695	80,695
22. Aix-la-Chapelle (Rhine).....	79,606	79,606
23. Essen (Rhine).....	54,790	76,450
24. Posen (Posen).....	60,998	66,505
25. Brunswick.....	65,938	65,938
26. Mülhausen (Alsace).....	58,463	65,361
27. Crefeld (Rhine).....	62,905	62,905
28. Halle (Prov. Saxony).....	60,503	60,503
29. Dortmund (Westphalia).....	57,742	57,742
30. Augsburg (Bavaria).....	57,213	57,213
31. Cassel (Hesse-Nassau).....	53,043	56,745
32. Mainz (Hesse).....	56,421	56,421
33. Potsdam (Brandenburg).....	45,003	54,186
34. Metz (Lorraine).....	45,856	53,151
35. Erfurt (Prov. Saxony).....	48,030	50,477
Total.....	4,340,564	4,745,945

The inhabitants of these 35 towns amount to 10.1 or 11 per cent. of the entire population of the empire, according as we reckon by the municipal or the topographical boundaries. A similar proportion appears in France and