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Europe in the early sixteenth century

The face of Europe in the early years of the sixteenth century was still in most respects medieval. The horizon of the human mind had expanded; a new world had been brought into existence beyond the Atlantic; authority had been questioned as never before; the printing-press was disseminating knowledge more widely, but the material things of life had changed little since the fourteenth century. The population was still rural and agricultural to the extent of at least 80 per cent, and almost every village settlement existing at this date had been known two centuries earlier. Nor had there been any significant change in the pattern of cities and towns. A few had declined in importance; others had grown in size, but the great majority were still as they had been in the fourteenth century, small and cut off from their fields by defensive walls, but nonetheless closely bound up with the life of the countryside.

Despite the genius of Leonardo da Vinci and the speculations of Copernicus, this was not an age of invention. Ships were increasing in size, and navigational aids were more widely used, but none of these involved any new discovery. Mechanical devices in use at this time had been known for centuries. No advances were made in the use of power beyond the further development and diffusion of the windmill. No new crops were to be introduced until late in the century, and, though the practice of fallowing had been abandoned in a few small areas, as, for example, in the Low Countries, the three-course system of agriculture prevailed almost everywhere, except where a two-field system was still in use. There may have been some small increase in agricultural productivity, but the practice of agriculture remained basically medieval. Perhaps the invention and spread of the blast-furnace in the closing decades of the fifteenth and early years of the sixteenth century constituted the most important technical advance of the age.

If there had been little change during the previous century in the structures of the rural and urban scene – field systems, crop-rotations, settlements – their organisation had undergone profound alteration. Demesne farming in western Europe had long been declining in importance. Land was being leased increasingly to prosperous peasants, while their lords lived more and more on rents in cash and in kind. In

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eastern Europe, on the other hand, the reverse was happening, as market conditions made demesne farming and the sale of grain increasingly profitable. Here the status of the peasant was being depressed as the lords laid acre to acre and exacted increasingly heavy labour dues on their estates.

The sixteenth century was nevertheless an age of lavish and ostentatious expenditure on the construction of palaces and chateaux and on extravagant ceremonies. These, however, were for the few; the mass of the people lived in poverty as abject as that of the thirteenth or fourteenth century. Indeed, their plight might even have been worse, for their labours had now to support a vaster superstructure. Government was more wasteful, armies were larger¹ and warfare more costly, and it was the peasant who bore most of their cost. The sixteenth century was marked by violent movements of social protest, prompted by religious abuses, by excessive taxation and tithe and by low living standards and the prospect of imminent starvation.² Most savage of all these risings was the German Peasants' War (1524–5). Their objectives, expressed in the Memmingen Articles, included the prevention of arbitrary taxation and tithing and the exaction of excessive labour dues. They demanded the right to take wood, fish and game, but, above all, they complained of 'the labour services which are daily increased and daily grow'.³

The scale of economic activity was increasing. Larger ships were being built; mining enterprises were more ambitious and were organised on a capitalist basis. The volume of trade was increasing, as most of Europe was very slowly drawn into a single economic system, in which estate farming in Poland was adjusted to the demand for bread crops in western cities, and bullion, imported through Spanish ports, was used by merchants on Europe's steppe frontier. The economic crises of the fifteenth century had been spasmodic and local, influencing one branch of production and one region and not another. The price rise of the sixteenth century, on the other hand, was general. It spread from west and south across the continent; no part was spared. To this extent an economic unity had been achieved within the limits of traditional Europe.

There was change also in the pattern of trade. The great discoveries brought Atlantic ports and sea routes to the fore. The internal routes of Europe, however, were very far from being neglected; indeed, the volume of goods transported over them increased, but with changing emphasis on commodities and places of trade. Lyons became the leading commercial centre in the west. Italian manufacturing and commercial centres had lost some of their earlier importance, and the Flanders cities paled before Antwerp, as Antwerp was to do within the century with the rise of Amsterdam. New commodity fairs sprang up, like the wool fair of

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Medina del Campo, in Old Castile. New ports like Livorno (Leghorn) and Le Havre responded to new commercial needs. Some amongst the older ports decayed, while others – Riga, Danzig, Saint-Malo, Lisbon and Cadiz – reached a new peak of prosperity. In eastern Europe new towns sprang up, and a few grew rich on the profits of trade in grain, metals and forest products. Even today, some retain the faded evidence of their Renaissance splendour.

The physical scene

Superficially regarded, the Europe of the early sixteenth century differed little from that of the nineteenth or twentieth. There was the same pattern of mountains, hills and plains as we see now. The same rivers flowed seawards, subject to the same rhythm of flood and low water. A closer inspection, however, reveals thousands of ways in which Renaissance Europe differed from that of today. Valleys were wetter and rivers flooded more readily. The water table generally stood higher in the rocks, and some areas which are today under the plough were then undrained fenland. The forest cover was more extensive, and its fauna more varied, and in certain minor respects man's experience even of the weather was different.

The physical regions of Europe

Over most of Scandinavia there stretched a worn-down plateau, made up of old, hard rocks, metamorphosed by geological processes and intruded by metalliferous veins. Its higher surfaces had been scraped bare of soil by the movement of ice during the Ice Age, and over the lower ground the detritus carried from the uplands formed an uneven cover of clay, sand and gravel. Quite apart from the harshness of its climate, this was an uninviting land with a thin, poor and unrewarding soil.

The second region was the great plain which extended from the Pyrenees northwards and eastwards until it merged into the vastness of Russia. It was built of younger and softer rocks than the highlands of Scandinavia. East of the river Rhine this plain was partially covered with clay and sand transported by the ice and deposited when it had reached its maximum extent. Around the outer margin of the area of glaciation outblowing winds had distributed a fine, dust-like deposit, known as *loess* or *limon*. In some areas this was only a thin veneer, since removed by erosion or incorporated into the soil by ploughing. In others it accumulated to a depth of several metres. Its importance lay in the ease with which it could be cleared and cultivated and in the abundant crops which it yielded. The great European plain was in consequence a region

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of greatly varying fertility, ranging from the fertile *limon* of the Beauce, the 'granary of Paris', to the sterile heaths of Brandenburg which Frederick the Great attempted with so little success to tame and cultivate.

To the south of the plain lay a belt of hills, from Spain to Poland and the Balkan peninsula. It consisted of a number of separate plateaux or massifs, cut off from one another by wide valleys and extensions of the northern plain. This region was built of hard rocks, older than those which composed the plain, younger than Scandinavia. Like the latter they had been intruded locally by mineral-bearing lodes. These hills rarely rise to more than 500 to 1000 metres. Their climate is a degree or two cooler than in the nearby lowlands; the rainfall is many millimetres greater, and snow commonly lies for much of the winter. This region was never covered by the Quaternary ice-sheets, but its soil, leached by percolating water, is nonetheless poor and infertile.

These massifs are part of the basement or foundation on which Europe is built. They were thrust up like islands through the younger rocks of the plain, or were caught up in the earth-movements which folded the Alpine system. Much of this region has always been forested, and its population relatively sparse. Agricultural land was largely under grass, and such crop-farming as was carried on emphasised the hardy cereals like oats and rye, and fodder crops.

The Alpine system makes up the last of the major landform regions of Europe. It extends from the extremity of the Spanish peninsula to the Black Sea coast and the southern headlands of Greece, from which it is continued through the Greek islands to Asia Minor and beyond. A branch from the French Alps runs the length of Italy as the Apennines, and is continued in Sicily and in the Atlas mountains of North Africa. Crossing points were relatively few, especially in the Pyrenees and the Alps of France, Switzerland and Austria, and the Alpine system has always provided the most significant barrier in Europe to transport and communication.

The Alpine system brings together a great range of physical conditions, not only of terrain but also of climate and soil. The sequence of the seasons is even more significant here than elsewhere, because some parts of the region – the grassy slopes of the higher mountains, for example – can be used economically for only part of the year. The practice of transhumance (the seasonal movement of part of a community together with its animals between two or even three differing environments in order to make use of marginal resources) is met with throughout the region. A consequence of the marginal character of much of the Alpine region has been the predominance of pastoralism. Crop-farming was restricted to the valleys and lower slopes, where alone

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the growing season is long enough. Even so, crops were in most parts of the region restricted to quick-growing and hardy cereals and fodder crops.

The Alpine system has always been characterised by the relative isolation and independence of its constituent parts. The valleys, cut off by mountains and often approached only by a difficult mountain road, had always supported a self-sufficing and inbred community. Life was hard in this environment; 'plein de difficultés', as Montaigne wrote, 'les meurs des hommes étranges, chemins inaccessibles, logis sauvages, l'air insupportable'.⁴ Famine crises were intensified by the isolation. There were, however, exceptions. Traffic was funnelled through a few passes and along a small number of routes where, as Bishop Burnet pointed out in the seventeenth century, 'the inhabitants seem to live at their ease', though they did so only at the expense of the travelling public.⁵

The last of the distinctive regions of Europe is the smallest, the coastlands of the Mediterranean Sea. The European shore of the inland sea is bordered by the mountains of the Alpine system, but sedimentation by the Alpine rivers has created a succession of alluvial lowlands and coastal plains. These occur from southern Spain to the Aegean. They range from a few square kilometres to lowlands as extensive as the plain of Lombardy or of Andalusia, and in quality from coarse sand and gravel to the richest alluvium. They supported the classical civilisations of the Mediterranean and have continued, despite problems of water management, to feed an appreciable part of the population of the region.

The Alpine system forms a climatic divide. The contrast between the cloudy skies to the north and the brilliance of the Mediterranean has become a commonplace of travel literature from the Renaissance travellers to Goethe, who described with wonder the transformation in crops and climate as he progressed from the Tyrol down the Adige valley to Verona.⁶ 'North of the Alps', wrote D. H. Lawrence, 'the everlasting winter is interrupted by summers that struggle and soon yield; south of the Alps, the everlasting summer is interrupted by spasmodic and spiteful winters that never get a real hold . . . North of the Alps, you may have a pure winter's day in June. South of the Alps, you may have a midsummer day in December or January or even February.'⁷ Climates north of the Alps have mild or warm summers, cool or cold winters, and rainfall at all seasons of the year. There are nonetheless important variations between west and east as well as between south and north. In western Europe, where the oceanic influence is most strongly felt, mild winters are associated with cool summers and rainfall comes most heavily in the winter months. As one progresses eastwards winters become cooler and summers warmer,

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while a maximum rainfall in summer gradually replaces that of winter. There is no arbitrary division between the 'continental' climate of central and eastern Europe and the 'maritime' climate of western. The one merges into the other, with occasional periods of continental severity in the oceanic west and, on the other hand, the penetration of maritime conditions into eastern Europe. Rainfall, in addition to moving from a winter to a summer maximum, becomes smaller in amount towards the east, though the volume of precipitation also varies with altitude.

These physical conditions are of profound human importance. They influence every facet of life from styles of clothing and of architecture to the practice of agriculture. In the wetter lands of the west and the cooler lands of the mountains and of the north the climate favours grass and fodder crops rather than cereals. The latter become relatively more important away from the western margins of the continent, though everywhere the quality of the soil is no less important a determinant than the characteristics of the climate.

Northern Europe, comprising broadly Scandinavia and the Baltic region, has a climate of cool summers and cold winters which become progressively more extreme as one moves northwards and eastwards. Over a large part of the region, summers are too cool and too short for cultivated crops. The agricultural frontier extends across Norway, Sweden and Finland and into Russia. It is a zone within which the probability of crop failure increases. The farmer advances into it, driven by population pressure or tempted by a succession of good harvest years, but always he is repelled by the ultimate failure of his crops.

Climate is merely a statement of probabilities. The weather which is experienced from day to day and influences the growth of the crops and the success of the harvest often departs widely from the pattern of climate. In the sixteenth century such departures were probably no greater than in other ages, but man was ill equipped to face them. The later Middle Ages appear to have been characterised by increased storminess. Sailings between Scandinavia and Iceland diminished in number, and after about 1410 the route to Greenland was abandoned and its small colony perished in the worsening climate.⁸ There were storm-surges at many points on the European coast, and large areas were inundated. It is difficult to write in general terms of the climatic fluctuations of the early sixteenth century. Northern Europe became colder, and the pack-ice spread more widely and lasted longer in the year. Within Europe there was a sequence of severe winters. 'There were years of distress in all northern countries; farms or farmland had to be abandoned to the ice in Iceland, Norway and the Alps. Growing of cereals completely ended in Iceland.'⁹ The twenties and thirties of the

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sixteenth century, however, were marked by a temporary improvement. The vast body of climatic evidence assembled by Weikinn¹⁰ shows that these were, in general, years of mild but very wet winters, with severe floods on all the rivers from France to Poland. The winter of 1513–14 was an exception; it was very cold and led to great suffering and misery. The journal of a Paris burgess described an acute frost in the closing weeks of 1522, so severe, indeed, that newly sown grain was killed and ‘il convient de nouveau ressemer les dictz bledz’.¹¹ Problems during these years, however, lay rather in the flooded fields, bridges swept away, roads made impassable and houses in Paris collapsing as their foundations were sapped by the rising waters of the Seine.¹²

During the middle years of the sixteenth century winters became more severe, frost more frequent and snow more abundant. Contemporaries more often recorded hard frosts and frozen rivers than disastrous floods, and many climatic historians have since taken these years to mark the beginning of what they term the ‘little Ice Age’. In Provence wine yields were reduced by the cooler and more cloudy summers.¹³ In northern Europe cultivation contracted on the hillsides, and the tree-line sank lower in the mountains. The glaciers of the Alps crept farther down their valleys; the snow cover on the passes became deeper and travel more difficult and hazardous. Vineyards and olive groves were killed by the frost, and ports on the shores of the Baltic were closed by ice for a longer period in winter. Everywhere the intensity of insolation was lowered by perhaps several per cent.¹⁴

The slight change in climate was reflected in the rivers. The snow melt was less vigorous in summer, and the Rhine – and doubtless other rivers – carried less water so that some of their channels in the Low Countries became too shallow for navigation. This in turn facilitated the drainage and reclamation projects undertaken at this time.¹⁵ Rivers silted more readily. The Zwin, the river of Bruges, ceased to be navigable above Sluys for sea-going ships. The coastline advanced along the Scheldt estuary, and near the mouths of other rivers in western Europe natural silting went hand in hand with endyking and reclamation.

Forest

The area under forest was beginning to contract and was indeed to continue to do so until the present century. In the sixteenth century most of Europe’s forests, except in Scandinavia, were of broad-leaved trees. Beech and oak were most widespread, but alder, willow and ash were common on damp and low-lying ground. Conifers, now so widespread in all parts of Europe, were found in few places outside Scandinavia and the Baltic region. Even the Black Forest was clothed

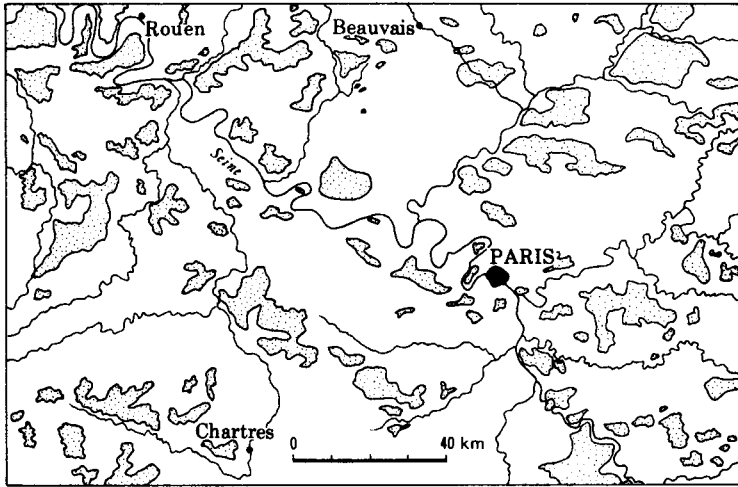


Fig. 1.1 Distribution of forest in the Paris region in the sixteenth century

with deciduous woodland, and over the German and Polish plains broad-leaved trees predominated. In Germany conifers were abundant only in Pomerania and Prussia, but east of the Baltic and over much of Scandinavia they predominated and from their vast resources were to supply the navies of western Europe with masts and spars.¹⁶

Everything points to a change in the character of Europe's forests, beginning in the fifteenth and sixteenth centuries. Conifers were spreading at the expense of deciduous trees. They had been introduced into the hilly areas of central Germany by 1500, and were established on the plain of the Rhine, where the lower water table dried out the sandy soils and made them less suitable for broad-leaved trees.

The earlier Middle Ages had seen severe inroads into the forests of Europe. They recovered somewhat in the fourteenth and fifteenth centuries; demand for timber was reduced and depopulation in the course of war allowed the woods to recover. In France, it was said, the forests came back with the English. In the sixteenth and following centuries there were renewed attacks on the woodlands, until, over much of Europe, the timber shortage reached crisis proportions in the eighteenth. The reasons did not lie altogether in the growth of population and the expansion of the area under cultivation. Technological developments made increasing demands on the supply of wood. Domestic building, much of it in wood, became more elaborate, and where brick and tile were used, these had to be baked in wood-fired kilns. Ships were increasing in size, and Venice, having exhausted the sources

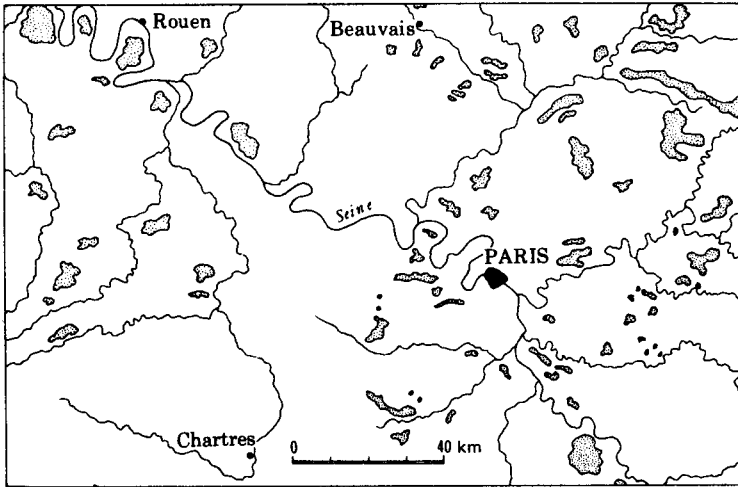


Fig. 1.2 Distribution of forest in the Paris region in the eighteenth century

of ships' timber which formerly grew along the Adriatic coast, was obliged to turn to the Alpine foothills in search of suitable trees.¹⁷ At the same time the demand for timber for industrial purposes had increased sharply. Wood fuel had long been used to evaporate brine at the salt-springs and to refine iron on the hearth. To these were added the manufacture of glass, the burning of bricks and the production of wood-ash for soap-making. But the most extravagant consumer of wood was the iron industry. The newly introduced blast-furnace used immense quantities of charcoal (see p. 51), and the subsequent refining yet more.

In central and eastern Europe there was, however, no scarcity. Forests were more extensive and local demands on them were smaller. Mager has estimated that in Prussia at least 40 per cent of the land was still under forest as late as the eighteenth century.¹⁸ Nonetheless, the destructive exploitation of the eastern forests had already begun, and those close to navigable waterways were being cleared to provide timber and potash for western Europe. From the fourteenth century there had been a growing shortage of good-quality timber for shipbuilding, and in the sixteenth, the merchants of Danzig, Elbląg and other ports were pressing their search for merchantable timber deep into Lithuania.¹⁹ Everywhere the extent of the Baltic forests was contracting, not so much before the peasant's plough as from the insatiable demand for timber for naval and industrial use.

The forests of Mediterranean Europe had never been as extensive as

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those north of the Alps, and their destruction had begun in classical times, if not earlier. Except in the mountains, they provided little good timber, and for this the naval powers of the Mediterranean competed fiercely. By the sixteenth century only a few areas of high forest remained along the European shores of the Mediterranean, amongst them Albania and parts of the Dalmatian coast and, on the opposite shore of the Adriatic Sea, Monte Gargano and Calabria. By the sixteenth century even these were becoming depleted, and with the disappearance of the southern forests went the decline of Mediterranean fleets. In this respect the Turks had an advantage denied to their rivals, the oak forests of the Pontic region of Asia Minor. The Venetians and Spaniards were obliged to turn to northern Europe for their naval supplies, and even for fully built ships.²⁰

Timber was as necessary as food to a pre-industrial society. It was needed *à chauffer et à bastir*. Much food was inedible until it had been cooked and in winter some form of domestic heating was necessary even to preserve life. Vauban's elaborate calculations showed that 700 arpents of woodland (about 425 hectares), allowing twenty years' growth – which was probably the minimum necessary – could be made to yield annually 350 cordes of *gros bois*, 49,000 bundles of firewood and 12,250 faggots.²¹ This, he estimated, would have supplied about 110 households with wood for heating, cooking and constructional needs, especially if it could have been supplemented with the trimmings from hedges, fruit trees and vines.

If Vauban was correct – and he was in general a careful witness – the wood supply of most communities in western Europe fell desperately short of what was deemed necessary for domestic use. It was very scarce in Mediterranean Europe, and adequate only in central and eastern. At the fairs of Medina del Campo, it was said, food cost less than the fuel needed to cook it, and the Swiss traveller Felix Platter said of Montpellier that it was fortunate that winter was short, since the fuel supply would not last longer.²² The forests also supplied pannage for pigs which over the northern half of Europe supplied much of the peasants' small intake of meat.

The area under forest was growing smaller in most parts of France and had almost disappeared from much of the Low Countries. Extensive woodlands were preserved by the king and nobility for hunting, but peasant clearings were nonetheless authorised, and large areas were sometimes conceded to charcoal burners and iron-masters. The vast forests of the Saulx-Tavanes in Burgundy were thus leased for fuel.²³ Elsewhere the competition between the iron-master and the peasant for timber led to violence as early as the sixteenth century²⁴ as well as to a gradual destruction of this essential resource.²⁵ Devèze's generalised