

and the *Canis corsac*, whose large packs make incursions from Tartary as far west as the Volga. The civet is found in France and Spain. Of the five or six species which represent the cat tribe, or genus *Felis*, even the most widely diffused, the *Felis lynx* or common lynx, is growing scarce in all except the more mountainous regions; and the *Felis borealis* or northern lynx is familiar only in Norway and Sweden. In spite of the keen pursuit to which they are subjected the seals may still be seen, though in much diminished numbers, on the shores of all European seas, including the Baltic and the Caspian. The Caspian species belongs to the same genus (*Callocephalus* of Dr Gray) with those of the Arctic Ocean, which probably indicates that the connexion between these two habitats was more recent than the connexion between the Caspian and the Mediterranean. It is doubtful whether we should include the walrus in the list of European fauna, though it is common about Spitzbergen, and occasionally appears pretty far south. The next animal which presents itself in the ordinary system of classification is one of the most interesting, on account of its rapid disappearance before the march of civilization. The natural limits of the beaver were between 33° and 67° N. lat., and within that area it was formerly present in great numbers. On the coasts of the Black Sea, where it was abundant in the beginning of the Christian era, it is no longer to be found, and it is about 500 years since it disappeared from England. Its present habitats are mainly in Poland, Russia, Sweden, Finland, and Lapland; though it still built its dams in the Moldau, the Neubach, the Landsee, the Danube, and the Salzach in Austria, at least as late as 1866.¹ It has left its mark on our geographical nomenclature in such names as Biberach, Bibersburg, and Beverley. The genus *Arvicola*, or water-vole, is represented by about ten or eleven species, some of which are very widely distributed, while others are limited to very small areas—the *Arvicola nivalis* to the Alpine region, the *Arvicola destructor* to Italy. No small notoriety belongs to the members of the genus *Lemmus* on account of their strange migrations and the destructive effects of their visits. There are three or four species, the best known of which is the *Lemmus norvegicus*, or Norwegian lemming. Equally notorious for their destructive capabilities, and much more general in their distribution, are the rats and mice, which constitute the next natural order. The most prevalent species, the *Mus decumanus*, or common brown rat, was first observed in Europe in 1727, but since then has taken possession of country after country and expelled several weaker congeners. Nine species are described, including the well-known house mouse, or *Mus musculus*, and a special Iceland variety. The common hamsters, distinguished by their provident preparation for the winter, are found in Poland, Silesia, Belgium, and Alsace; and two cognate species occur in southern Russia. The same region presents three species of *Dipus*, or jerboas. The next genus is almost peculiar to the "European" sub-region: *Spalax typhlus*, perhaps the only species, being confined to southern Russia, Hungary, Moldavia, Greece, and western Asia. The bobak (*Arctomys bobak*) inhabits Bukovina and the southern parts of Poland and Russia; the marmot, *Arctomys marmotta*, is restricted to the snowy regions of the Alps; and the *Arctomys citillus* is found in Austria, Bohemia, Poland, and South Russia. One species of squirrel, the *Sciurus vulgaris*, is familiar in all the wooded districts of Europe; and another, *Sciurus alpinus*, belongs to the Alps and the Pyrenees. The flying squirrel, *Pteromys sibiricus*, is found in the forests of Lithuania, Lapland, and Finland. A considerable range is assigned to the dormouse, or *Myoxus*, in

¹See "Die Verbreitung des Bibers in Europa," in Petermann's *Mittheilungen*, 1866.

its three species—*Myoxus glis*, *Myoxus niela*, and *Myoxus avellanarius*, of which the last is the most common. On the other hand, the porcupine, or *Hystrix*, is limited to Greece, Italy, and Spain. Hares and rabbits, which form the genus *Lepus*, have a very wide range, and present but little variety. The distribution of species, however, is peculiar,—the common rabbit, for example, being abundant in England, France, and Spain, but absent from Silesia, Galicia, and Russia, and a large part of Italy. The Ruminantia have suffered even more than the larger Carnivora from the encroachments of man; the aurochs, (*Bos urus*) which at one time had a wide range, is now confined to Lithuania; the *Bos scoticus* exists in a half-tame condition in a few parks in England and Scotland; the ibex or steinbock is growing scarce in the Alps and Carpathians; and the musmon or wild sheep is only to be met with in Sardinia and Corsica, part of Spain, and some of the Greek islands. The chamois, however, is still fairly common in the Alps of Switzerland, France, and Germany, in the Apennines and the Carpathians, and also in Greece. The only proper antelope, *Antilope saiga*, occurs but rarely in the country to the north of the Black Sea. Fallow deer are found wild in Spain and Sardinia, but elsewhere are protected by man. The elk is still to be met with in Lithuania, Russia, and Scandinavia; the red deer in Scotland, Scandinavia, Germany, and Spain; and the roebuck (*Cervus capreolus*) in the Scottish Highlands, the Apennines, the Carpathians, and the Sierra de Segura. Of the great Pachydermatous order, which has left such abundant remains of its hippopotami, elephants, and woolly rhinoceroses in our Pleistocene formations, the only representative in a feral condition is the wild boar, or *Sus scrofa*, which is found in various regions from Spain to the Caucasus, but does not venture north of the Baltic. The larger Cetacea are growing scarce in the European seas; but the common whale, *Balena mysticetus*, still comes as far south as the Mediterranean; and the spermaceti and the porpoise are captured in the northern regions. The dolphins, grampuses, and porpoises are pretty commonly represented throughout the various seas, now by one species now by another.

How rich the avifauna of the European continent really is may be judged by consulting such noble monographs as those of Gould, Sharpe and Dresser, or Bree; but it must be borne in mind that it is a variable quantity, and that no monographs can long represent the exact state of the case. The extinction or introduction of mammalian species is easily observed; but the continual movements of the feathered tribes are less easily ascertained. This has been clearly shown by C. A. Westerland in his account of the geographical distribution of the birds in Sweden and Norway. He gives a great many data which prove that southern species not unfrequently move northwards, and that there is a regular tendency of Asiatic and European birds to migrate to the west; while on the other hand it is well known that western winds bring American strangers to our shores. The *Muscicapa albicollis* has been denized in Gothland for no more than thirty years; and the *Alauda cristata*, first observed in 1833, now regularly breeds in Scania. *Emberiza rustica*, indigenous to Asia and north-eastern Europe, appeared at Haparanda in 1821; and now spends its summers in Lapland. Similar facts might be quoted for country after country and district after district. The jackdaw began to build in Murcia in Spain about 1850, and it is now one of the commonest species; in Thuringia the magpie, once abundant, is growing rapidly scarce. Altogether, according to Degland and Gerbe's classification, there are 247 genera and 531 species more or less belonging to the continent; but of these hardly one or two are peculiarly its own. As characteristic of

his northern sub-region, Mr Wallace names the thrushes, warblers, ruddings, tits, pipits, wagtails, buntings, house-sparrows, linnets; and of the Mediterranean sub-region, the *Luscinola*, the *Pyrophthalma* (*Curruca melanocephala* of Degland), and the *Bradypterus* or bouscarle (*Cettia* of Degland) among the Sylviidae; *Telephonus* among the shrikes; *Halcyon* and *Ceryle* among the king-fishers; the quail-like *Turnix* among the Gallinae; and *Gyps*, *Vultur*, and *Neophron* among the vultures. The bearded vulture, or *lammer-geier* (*Gypaetos barbatus*), is the largest of European birds; it is found in gradually diminishing numbers in the French and Swiss Alps, the Ligurian mountains, the Caucasus, and perhaps the Pyrenees. *Vultur monachus* or *arrianus* is common in Sardinia, the Pyrenees, and Bessarabia; *Neophron percnopterus* in France, Switzerland, Spain, Greece, and southern Russia. The golden eagle (*Aquila chrysaetus*), which is the largest in Europe, builds equally among the rocks of the Alps, the Pyrenees, and the Grampians, and on the treeless steppes of Russia. Next in size comes the imperial eagle, which belongs to the south of the continent; and then follows a list of lesser eagles, hawks, buzzards, kites, &c., to the number of forty species more or less, the genus *Falco* alone being represented by eleven. The owl family, Strigidae, counts ten species, noblest of which is *Bubo maximus*, the eagle-owl, or grand duc of the French, almost rivaling the golden eagle in size; it is found not only in the French mountains, but in Switzerland, Italy, Sicily, Bessarabia, and the Crimea. The passerine order is represented by a great variety of genera and species, many of which have a wide range, and are known by the most familiar names in all the countries of the continent. In direct economic importance the first place is held by the gallinaceous order, the Gallatores, and the Palmipedes, which furnish all the species that are distinguished as game, and a great many others that are largely used as food. A few of the smaller birds are thus appropriated in special districts: the lark, for example, is caught in great numbers in the neighbourhood of Halle and Leipsic, and the blackbird shares a similar fate in Corsica.¹

From its mountain-lakes to the surrounding ocean the waters of Europe are for the most part well stocked with fish. No complete summation has been made of the number of genera and species represented; but it is suggestive of no small variety to learn that thirty-five species have been found in the lakes of Tyrol alone, lying between 2000 and 8000 feet above the level of the sea. A considerable proportion of the genera are cosmopolitan, and a still greater number range over wide areas outside of Europe. As peculiar to his "European" sub-region, Mr Wallace mentions two genera of the perch family—the *Aspro*, and the *Percarina* of the Dniester. Among characteristic forms are the stickleback (*Gasterosteus*), found as far south as Italy; the pike (*Esox*), which ranges from Lapland to Turkey; the *Silurus* of the Swiss lakes and German rivers; and several members of the carp family or Cyprinidae, including the carp proper (*Cyprinus*), the roach, tench, bream, bleak, &c. Of much more practical importance are the Salmonidae, among which the salmon holds the first place. This noble fish is found in all the rivers of the Atlantic versant as far south as the Loire, and especially in Scotland, Norway, and Iceland it proves an abundant source of wealth. In southern Russia, where the river-fisheries attain a development unknown in any other part of Europe, its place is supplied by the sturgeon, the sterlet, and the sevruka, and economically at least by several species belonging to the perch family, which hold an important position in virtue of their abundance. The greatest

¹See also Fritsch, *Naturgeschichte der Vögel Europas*.

sea fisheries of Europe are those of the German Ocean, from which England, Scotland, Norway, Holland, and France have long reaped magnificent harvests, and in which Germany has more recently begun to share. The value of the sea fish exported from Britain, Norway, and Holland is about £4,000,000 per annum. It is needless to mention the names of the principal species—herring, cod, &c.; and the conger-eels of the Channel islands, the pilchards of the Cornish coast, and the sardines of France are almost as familiarly known. In the Baltic there is great abundance of various smaller kinds of fish—more particularly the sprat, the sardine, and several members of the perch family; and some of the Salmonidae are of considerable economic importance. No less than 300,000 tons of sardines have been caught in a single year at the mouth of the Dwina, and the Estonians may almost be said to subsist on a fish which they name the "kilka." In the Mediterranean the tunny, the sardine, and the anchovy, give existence to the most extensive fisheries,—the first passing in enormous shoals from the straits of Gibraltar eastward to the Black Sea, and skirting in its passage the coasts of Sardinia, Naples, and Sicily. The people of Comacchio on the Adriatic, to the number of 5000, are supported by the capture of the mullet, the eel, and the "acquadella," which enter their lagoons from the sea by a canal, and are prevented from returning by an ingenious system of sluices and water-gates. Among the minor animals of the European seas there are none except the oyster that have the commercial importance of the trepan of the Eastern archipelago; but several species of shell-fish, urchins, and crustaceans are extensively consumed. Oyster beds are found on most of the Atlantic coasts, and the artificial culture of the species has recently received a great development, especially in France and England: the produce of Cancale and Granville in the bay of St Michel, of Essex and Kent, of Ostend in Belgium, and Bohuslän in Sweden are in high repute. The sponge and the coral fisheries of the Mediterranean are both vigorously pursued, the former with most success in the Aegean, and the latter on the coasts of Sardinia, Corsica, and Andalusia.²

Though the reptiles as a class are represented by about forty genera, the species are for the most part inconspicuous, and in no instance formidable. The three land tortoises are all confined to the south, and one of them has its only European habitat on the Caspian. There are as many fresh-water tortoises, but only one, *Emys lutaria*, reaches as far north as Prussia. The turtle is principally caught in the Mediterranean; the chameleon is peculiar to Spain; the gecko and the *Hemidactylus verruculatus* are confined to the southern regions; and the *Phyllodactylus europaeus* has only been discovered in Sardinia. *Stellio vulgaris*, very common in Greece, is the only member of the large family of the Iguanidae that exists in Europe. On the other hand, there is a great variety of lizards (Lacertidae and Chalcidae), and several are of wide distribution. The *Gongylus ocellatus*, or spotted skink, is found on the shores of the Mediterranean. *Anguis fragilis*, or the slow-worm is familiar in all except the colder regions of the continent. No fewer than eighteen species of the genus *Coluber* are described,—the largest being the *Coluber elaphis*, which not unfrequently exceeds 5 feet in length, and the most widely distributed the *Coluber natrix*, or ringed snake, which does not exceed 4 feet. The *Coluber asculapii* gives its name to the German watering-place of Schlangenbad, or Snakes' Bath. The Viperidae are much less prolific of species; but the *Pelias berus*, or common adder, is well-known in the most part of central Europe. Of the frogs and toads there are eight genera: the genus *Rana* is repre-

²See Von Siebold, *Die Süßwasserfische von Mitteleuropa*, 1863.

sented by the common and the esculent frog, the latter of which is absent only from the British Islands; the genus *Alytes* by *A. obstetricans*, which sets the example of the curious human custom of the *couvade*; and the genus *Hyla* by *H. viridis*, or the common tree-frog, whose stentorian croak may be heard in every country of the continent. The salamanders and newts are represented by five genera: the genus *Triton* contains seven species, of which *Triton cristatus* is most commonly distributed. They would bring the list of European reptiles to a close if it were not for the presence in the caves of Carinthia and Carniola of the famous *Proteus anguinus*, or *olm* of the Germans, whose history is one of the most curious of those elucidated by modern naturalists.¹

Insects do not play so conspicuous and ostentatious a part in Europe as in some of the warmer regions of the globe; it is only in special localities or exceptional seasons that their destructive or irritating influence becomes formidable to man. There are not many towns like Fasano, where the inhabitants have in summer to leave their usual residences to the occupancy of flies; and if the European horticulturist has a hard battle to fight with caterpillars, earwigs, and wasps, he generally succeeds in gaining a fair crop after all. The mosquito and the tarantula are the most venomous of those which attack the human species. The locust, which spreads such alarm in Africa and Asia, appears in western Europe only at intervals and in demoralized detachments; though in the south of France it is found while to offer a reward for the collection of the insects and their eggs. In Turkey, the Danubian principalities, and southern Russia it sometimes commits tremendous ravages; and all efforts of the agricultural population are futile to check the advance of the countless swarms. The year 1860 was unhappily distinguished by the severity of the attack. But if insects play an inconspicuous, they by no means play a small part in the European regions. In the northern sub-region, among the characteristic Lepidoptera, are *Parnassius*, *Aporia*, *Leucophasia*, *Colias*, *Argynnis*, *Vanessa*; and of the Coleoptera, *Carabidae*, *Staphylinidae*, and *Curculionidae* are especially abundant. The Mediterranean sub-region has two peculiar genera of butterflies—*Thais* and *Doritis*, and *Anthocharis* and *Zegis* are characteristic; of the Coleoptera, *Carabidae*, *Copridae*, *Duprestidae*, *Cantharidae*, and *Curculionidae* are abundant. The three insects of greatest economic importance are the silk-moth, the bee, and the cantharis. The silk-worm, since its introduction in the 6th century, has become an important object of cultivation in Italy, Turkey, Greece, France, Spain, and Portugal, and has even proved remunerative in Prussia, Bavaria, and central Russia; and recently a new species from Japan, which feeds on the oak and not on the mulberry, has been successfully reared in the Baltic provinces. Bee-keeping is an extensive industry in Italy, France, Switzerland, Russia, and Sweden; and in Greece the tax on bees furnishes £1600 to the revenue. The cantharis is a native, not only of Spain, as its popular name of Spanish fly imports, but also of France, Germany, Italy, Hungary, and South Russia, and even occurs in the south of England. After the declaration of Mexican independence in 1820 the cultivation of the cochineal insect was introduced into the Spanish province of Granada with such success that no less than 801,915 lb of raw cochineal was exported to England in 1850. The present generation has seen two very unwelcome additions to the number of European insects—the *Phylloxera vastatrix* and *Doryphorus decemlineata* or Colorado beetle, of which the former has com-

¹ See Blasius, *Naturgeschichte der Säugthiere Deutschlands und der angrenzenden Länder*: Lori Clermont, *Guide to the Quadrupeds and Reptiles of Europe*, 1859; Schrieber, *Herpetologia Europaea*; and Dr Selater, in *Nature*, Sept. 1875.

pletely ruined a large proportion of the French vineyards and the latter has threatened to play similar havoc with the potato crop.

The horse holds the first place among the domestic animals of Europe, and in no other region has it developed a greater variety of type. Whether the present species is of European origin has not been quite decided; but remains of a similar form occur in the Pliocene and Pleistocene strata, and it is evident that the prehistoric peoples set the example of that hippophagy which scarcity of animal food has again introduced into Europe. Now at least there are no wild horses on the continent, though they are mentioned as late as the 8th century in a letter of Pope Gregory to Boniface.² Horse-breeding is a highly important industry in almost all countries, and in several, as Russia, France, Hungary, and Spain, the state gives it exceptional support. Those which have the greatest export trade are Russia, Denmark, Austria-Hungary, Germany, the Netherlands, and Belgium. The Hungarians are a specially horse-loving people, counting in 1871 no fewer than 141 horses to the thousand inhabitants, instead of 67 as in Austria. Almost every district of the continent has a breed of its own: Russia reckons those of the Bashkirs, the Calmucks, the Don-Cossacks, the Esthonians, and the Finlanders as among its best; France sets store by those of Flanders, Picardy, Normandy, Limousin, and Auvergne; Germany by those of Hanover, Oldenburg, and Mecklenburg, which indeed rank among the most powerful in the world; and Great Britain by those of Suffolk and Clydesdale. The English racers are famous throughout the world, and Iceland and the Shetland Islands are well known for their hardy breed of diminutive ponies. The ass and the mule are most abundant in the southern parts of the continent, more especially in Spain and Italy. In the one country they number about 2,320,000, and in the other about 1,000,000. The camel is not popularly considered a European animal; but it is reared in Russia in the provinces of Orenburg, Astrakhan, and Taurid, in Turkey on the Lower Danube, and in Spain at Madrid and Cadiz; and it has even been introduced into Tuscany. One of the strangest sights of southern Russia to a traveller from the west is the huge ungainly creature yoked to what is practically a toy cart. A much more important beast of burden in eastern and southern Europe is the ox: the long lines of slow-moving wains in Roumania, for example, are not unlike what one would expect in Cape Colony. In western Europe it is mainly used for the plough or fattened for its flesh. The Netherlands, Denmark, Serbia, Roumania, Turkey, Russia, Italy, Sweden, Spain, and Germany are all exporters of cattle; and all the other countries are more or less engaged in cattle-breeding for their own demands. It is estimated that there are about 100 distinct local varieties or breeds in Europe, and within the last hundred years an enormous advance has been made in the development and specialization of the finer types. The cows of Switzerland and of Guernsey may be taken as the two extremes in point of size, and the "Durhams" and "Devonshires" of England as examples of the results of human supervision and control. The Dutch breed ranks very high in the production of milk. The buffalo is frequent in the south of Europe, more especially in Transylvania and Italy; in the former country the number is about 58,000, and in the latter about 40,000. Great attention is given to dairy-farming in Great Britain, France, Germany, Switzerland, Denmark, Austria, and part of Italy. Switzerland, the Netherlands, Austria, Denmark, Ireland, and Finland are exporters of cheese or

² Hehn, *Culturpflanzen und Hausthiere*, 1877.

butter, or both; Italy, though famous for the so-called Parmesan cheese, requires a large import, and the abundance of olive oil discourages the manufacture of butter. Sheep are of immense economic value to most European countries, and form an important article of export for the Netherlands, Germany, Austria, Hungary, Russia, Italy, Portugal, Denmark, Serbia, Roumania, and Sweden. The local varieties are even more numerous than in the case of the horned cattle, and the development of remarkable breeds quite as wonderful. In all the more mountainous countries the goat is abundant, especially in Spain, Italy, and Germany. The swine is distributed throughout the whole continent, but in no district does it take so high a place as in Serbia, where there are no fewer than 1062 to

1000 inhabitants, a proportion which more than doubles the next highest, which is afforded by Luxembourg. Spain ranks third in the list, and has a large export of hams and sausages. In the rearing and management of poultry France is the first country in Europe, and has consequently a large surplus of both fowls and eggs. The latter produce is also exported by Austria and Spain. In Pomerania, Brandenburg, West Prussia, Mecklenburg, and Württemberg, the breeding of geese has become a great source of wealth, and the town of Strasburg is famous all the world over for its *pâtes des foies gras*.

The following tables show the distribution of the more important domestic animals in the principal countries of Europe:—

	Year.	Horses.	To one sq. kilometre.	To one sq. mile.	To 1000 inhabitants.	Cattle.	To one sq. kilometre.	To one sq. mile.	To 1000 inhabitants.
Italy	1868	1,196,128	4.0	10.3	44.6	3,489,125	11.8	30.5	130.2
Great Britain	1874	2,226,739	9.6	24.8	84.9	6,125,491	26.6	68.8	283.6
Ireland	1874	525,770	6.2	16.0	97.2	4,118,113	48.9	126.6	761.0
Russia	1870	16,160,000	3.0	7.7	227.0	22,770,000	4.2	10.8	319.9
Sweden	1874	446,809	1.0	2.5	105.0	2,103,819	4.7	12.1	494.8
Norway	1865	150,000	1.0	2.5	85.1	950,000	3.0	7.7	538.8
Denmark	1871	316,570	8.3	21.4	177.4	1,238,898	32.2	83.3	338.9
German Empire	1873	3,352,231	6.2	16.0	81.6	15,776,702	29.2	75.5	334.2
Netherlands	1872	247,888	7.6	19.6	67.5	1,377,002	41.9	108.4	374.8
Belgium	1866	283,163	9.6	24.8	55.6	1,242,445	42.2	109.2	244.2
France	1872	2,882,851	5.4	13.9	79.8	11,284,414	21.3	55.1	312.6
Portugal	1870	78,716	1.0	2.5	18.2	520,474	5.6	14.4	119.2
Spain	1865	680,373	4.5	11.6	...	2,904,598	5.7	14.7	172.5
Austria	1871	1,367,023	6.7	17.3	67.0	7,425,212	24.7	63.9	364.1
Hungary	1871	2,179,811	2.4	6.2	140.5	5,279,193	16.3	42.2	340.4
Switzerland	1866	100,324	2.0	5.1	37.6	993,291	24.0	62.1	372.3
Greece	1867	98,938	1.0	2.5	67.8	109,904	2.2	5.6	75.4

	Year.	Sheep and Goats.	To one sq. kilometre.	To one sq. mile.	To 1000 inhabitants.	Swine.	To one sq. kilometre.	To one sq. mile.	To 1000 inhabitants.
Italy	1868	8,674,527	29.3	75.8	323.7	1,574,582	5.8	15.0	58.7
Great Britain	1874	30,318,914	181.4	340.1	1156.3	2,422,832	10.5	27.1	92.4
Ireland	1874	4,437,613	52.7	136.4	820.0	1,096,494	13.0	33.6	202.6
Russia	1870	48,132,000	9.0	23.3	676.3	9,800,000	1.8	4.6	187.7
Sweden	1874	1,659,644	3.7	9.5	394.4	401,202	1.0	2.5	94.4
Norway	1865	1,700,000	5.4	13.9	969.9	100,000	1.0	2.5	56.6
Denmark	1871	1,842,481	48.2	124.7	1032.3	442,421	1.0	2.5	247.8
German Empire	1873	24,999,406	46.2	119.6	608.8	7,124,088	11.6	30.0	173.5
Netherlands	1872	855,265	26.0	67.3	232.8	320,129	13.2	34.1	87.1
Belgium	1866	586,097	19.0	49.1	115.2	632,301	9.7	25.1	124.3
France	1872	24,589,647	19.9	51.5	681.1	5,377,231	21.5	55.6	148.9
Portugal	1870	2,706,777	46.5	120.3	619.7	776,868	10.2	26.4	177.8
Spain	1865	22,054,967	29.2	75.5	1310.0	4,264,817	8.4	21.7	253.3
Austria	1871	5,026,398	45.5	117.7	246.4	2,551,473	8.5	22.0	125.0
Hungary	1871	15,076,997	16.7	43.2	972.1	572,951	1.7	4.4	37.6
Switzerland	1866	447,001	46.5	120.3	167.4	304,428	7.4	19.1	114.1
Greece	1867	2,539,538	10.8	27.9	1742.0	55,776	1.1	2.8	38.3

Ethnology is still in its infancy, painfully learning its first principles, and gradually discovering true methods of verifying its data and generalizing their teachings. There is such a thing as race; but we cannot be said to have attained to any single test or any combination of tests which does not leave our classifications more or less uncertain. We can ascertain whether the majority of a given people have dark hair or light, whether they are dolichocephalic, mesocephalic, or brachycephalic, or exhibit several varieties of skull; but it has still to be proved how far such characteristics are permanent, and as permanent available for our purpose. Europe in every square mile of its surface gives the lie to the supposition that consanguinity is implied by community of speech: Celts are equally eloquent in English and French; Slavonians equally enthusiastic for the dignity of Deutschland or the glory of Greece.¹ There are, perhaps, only two peoples in Europe of whom we can be said to have anything like ethnological statistics, the Jews and the Gipsies; and in both cases it is due to

the fact that they have so long been treated as social or religious pariahs. It is easy to ascertain how many men in Europe use French as their mother-tongue; but we have no means, apart from historic evidence, which applies only to individual instances, of knowing whether three generations back any man's progenitor was a Corsican, a German, or a Breton. And if there is one fact to which every new investigation gives additional emphasis it is this, that there is no nationality, and no individual component of a nationality, which can establish the purity of its blood. What to the superficial observer are the most homogeneous peoples turn out on closer examination to be only conglomerates in which the elements are better assimilated. In Württemberg, for example, as is shown by H. v. Hölder, the so-called German population is composed of Romans, Vindelicians, Rhetians, Avars, Hungarians, Slaves, Swiss, Swedes and others introduced during the Thirty Years' War, Waldensians, Tyrolese, and Jews.² Still it is true (to

¹ Compare ETHNOGRAPHY, p. 621 of the present volume.

² H. v. Hölder, *Zusammenstellung der in Württemberg vorkommenden Schädelformen*, 1876.

borrow another analogy from geology), that if all are more or less obviously conglomerates, the materials have probably been derived for the most part from strata of the same formation. If the Frenchman is partly German, partly Celtic, German and Celt do not differ from each other more than limestone, marble, and chalk.

From recent researches it is now familiarly known that Europe had its human inhabitants in the Pleistocene period. They are distinguished by the name of the Palæolithic or Old Stone people, in contrast to a later population still in the same stage of civilization. Their remains have been discovered in England, Belgium, France, Germany, and Switzerland; and some investigators are disposed to recognize two varieties, distinguished as the men of the caves and the men of the river-beds. Having possibly entered Europe before the first glacial period, they were certainly there at the final transition to the present conditions of climate. They lived by hunting and fishing, and in general characteristics appear to have been similar to the Eskimo, with whom some are disposed to identify them. If this identification be a mistake (and at best it is very problematical), they have left no distinct representatives behind them. What progress they had made in the arts, necessitated by their mode of life, may be in some measure estimated by the remarkable relics of their implements and weapons still recognizable; but there are no sufficient data to decide whether they were in a state of advance or decline; the difference of finish in different specimens of the same handiwork may be due to different degrees of care or skill possessed by contemporaneous workmen. As far as can be judged, the continent of Europe again ceased for a time to be a human habitation; and when light breaks in once more it is found in possession apparently of two races both in the Stone stage of civilization, and known by the common name of the Neolithic or New Stone peoples. In the meantime the fauna of Europe had changed and become in the main what it still is. The chief point of interest attaching to these Neolithians is how far the brachycephalic, and presumably the older, variety is still traceable in our modern population.

There are several peoples, most of them of small numerical importance, which are undoubtedly aliens from the commonwealth of the Aryan race now dominant throughout the greater part of the continent,—the Turks, the Magyars, the Finns, Esthonians, and Lapps, the Votiaks, and the Basques; and we know that in the Roman period of the historic epoch the Iberians, the Ligurians, and possibly the Etruscans and the Rhetians, occupied a similar position. The Turks and the Magyars are at once put out of the question by the fact that there is documentary evidence of their arrival in Europe long after the Christian era; and the dubiety which attaches to the affinity of the Etruscans and the Rhetians renders their classification impracticable. The Votiaks may be left out of account, from their almost Asiatic localization; so that there only remain four actual and two historical peoples to be considered. Three of the four—the Finns, Esthonians, and the Lapps—may be bracketed together as Ugrians or Uralians, or under any other convenient name (though the Lapps may possibly be more distinct than this would make them), so that practically we have two actual and two historical. Arranged geographically, the Ugrians constitute a north-eastern or Baltic group; and the Basques, the Iberians, and the Ligurians a southern or Mediterranean group. Of the Ligurians little further is certainly known than that in historic times they occupied the north-western slopes of the Apennines, or the modern Piedmont, and extended west

¹ See, among other works, Dawkin's *Cave Hunting* and Troyon's *L'homme fossile*.

to the mouth of the Rhone; but probable traces of their presence have been collected as far south as the mouth of the Tiber and as far north as the Loire or Liger. Of their language we are absolutely ignorant, and their classification is almost purely hypothetical. They evidently lost ground at a very early period from the encroachments of various peoples, and among others from the inroads of the Iberians, whom we have now to consider. This people is specially connected with the Spanish peninsula, which derived from them the popular name of Iberia; but they appear also to have occupied Sardinia, Corsica, and Sicily, may possibly, as some maintain, have been one of the primitive elements of the population of Italy, and, according to a hint of Tacitus, probably extended as far north as Brittany. At the time of the Roman conquest of Spain they were already largely mingled with Celtic blood, a fact which was indicated by the name of Celtiberians. There is no reason to suppose that they have died out or been exterminated, and consequently it is presumably possible to discover them more or less distinctly among the mingled population of modern Spain. Here the Basques at once present themselves, a peculiar people speaking a peculiar language, and occupying the very part of the country where from analogy we might expect to find the remains of an ancient race. In what respect do the Basques agree with our knowledge about the Iberians? The Iberians, as has just been stated, were no longer homogeneous at the time of the Roman conquest; and the Basques, according to cranial data, exhibit an interfusion of blood: "they possess a moderate brachycephalism and a strongly marked dolichocephalism." The Iberians, however, were clearly distinguishable from the Celts; and the same is true of the Basques. The Iberians are described as of short stature, slight build, and dark complexion; and a similar account may be given of the Basques. The identification of the two peoples is consequently accepted by a large number of anthropologists; but the unanimity is hardly so great in regard to their further identification with the Ugrians of the north-east. In favour of the generalization, there is a certain similarity of physical type, and the probability, as it appears to a large school of investigators, that the Finns and Esthonians are, like the Basques, the remains of a population which formerly extended to the south and west over a much wider area; against the generalization is the fact that no closer connexion lies between the Basque language and the Finnish than that they both belong to the agglutinative family, and it is quite as probable that the Ugrians have come in from the north and east at a comparatively modern period. If we adopt the bolder hypothesis in its full extent, and it is adopted by many investigators, the continent of Europe was originally inhabited by a small, swarthy, brachycephalic race, who were formerly represented in historic times by Iberians, Ligurians, and other less-known peoples, and in modern times are still partially represented by the Basques, the Esthonians, and the Finns, who have retained their non-Aryan speech, and by smaller groups in England, Brittany, Prussia, and Spain, who have adopted the alien languages spoken in their vicinity. By some a still further identification is ventured with the Berbers of North Africa; and a few, as Hyde Clarke and Homalrus d'Halloy, maintain that the so-called Aryan immigration was only in a comparatively small degree an introduction of a new race, and ought rather to be viewed as the diffusion of a civilization. Whatever dispute, however, such ethnological innovators may raise, there can be no question as to the almost universal predominance of the Aryan influences in the historic times; and though anything like chronology is for the most part out of the question, the general features of the great movement to which these influences are due can be stated with

considerable certainty. Four great Aryan detachments are easily distinguished, and may for convenience be designated by the very imperfect and somewhat misleading names of the Græco-Latin or Southern, the Celtic or Central, the Teutonic or Northern, and the Slavonic or North-Eastern. Whether the Southern or the Celtic was the first of the two to enter Europe is altogether unknown: one offshoot from a common stock may easily maintain a nomadic or semi-nomadic state for a longer time than another and a later offshoot. The southern detachment was probably a succession of detachments,—the first represented, it may be, by the old progenitors of the Albanians and the so-called Pelasgic tribes, the second by the various tribes who settled in Italy, and the third by the Hellenic or Greek tribes. The Greeks at least appear to have entered Europe by way of Asia Minor and the Archipelago, and the Italian tribes may have followed a similar route. A more northern line of march, or nomadic progress, was chosen by the Celts, of whose passage up the valley of the Danube we have a trace in the Boii, the Celtic people who have given their name to the now Germanized kingdom of Bavaria. If the opinion of Virchow, based on the presumed incorporation of ancient historical materials in the *Ora Maritima* of Avienus, be correct, they reached southern Gaul and Spain about the 6th century B.C. The Teutons or Germans began to be known to the Romans shortly before the Christian era, and in the 4th century A.D. pushed westward within the boundaries of the empire. The Slavonians have never advanced much beyond the Elbe in the north, but towards the south they extended in the course of the 9th and 10th centuries into Austria on the one hand and Greece on the other. Of the Semitic peoples, the Jews, which are now the most important, have entered in successive detachments, more in the fashion of ordinary immigrants; the Arabs, who contributed largely to the progress of European civilization, but have left little trace of their blood except in southern Spain, crossed into that country in 710. The settlement of the Hungarians dates from the 10th century, and that of the Ottoman Turks, the last great addition to the ethnological conglomerate of Europe, dates no further back than the 14th.

The following table, founded (as all such estimates are) mainly on linguistic and political data, is given by Dr Brachelli as an approximate survey of the numerical importance of the various peoples of Europe. A strictly ethnographical classification will probably be always impossible, and certainly cannot be attained in the present state of scientific statistics. In many cases the possible error in the summation is very considerable: the Jews, for example, here given at 3,000,000, are reckoned at 5,226,858 in an interesting article in the *Journal of the Society of Biblical Archaeology*, 1876,—2,647,036 of them being assigned to Russia.

Table with 2 columns: People and Population. Includes German peoples (94,980,000), Greco-Latin peoples (96,410,000), Slavonic peoples (82,170,000), and Carry forward (273,560,000).

¹ See Virchow, "Les peuples primitifs de l'Europe," in *La Revue Scient. de la France*, 1874.

Table with 2 columns: People and Population. Includes Celts (273,560,000), Semitic peoples (4,100,000), Lithuanians (2,800,000), Albanians (1,300,000), Basques (700,000), Gipsies (600,000), Circassians (400,000), Armenians (260,000), Total of Aryanized populations (286,920,000), Magyars (5,920,000), Finnish peoples (4,710,000), Total of Uralian population (10,630,000), Tatar peoples (2,500,000), Osman Turks (1,200,000), Kalmucks (100,000), Total of Mongolians (3,800,000).

Although language is no test of race, it is the best evidence for present or past community of social or political life; and nothing is better fitted to give a true impression of the position and relative importance of the peoples of Europe than a survey of their linguistic differences and affinities. The following table contains the names of the various languages which are still spoken on the Continent, as well as of those which, though now extinct, can be clearly traced in other forms. Two asterisks are employed to mark those which are emphatically dead languages, while one indicates those which have a kind of artificial life in ecclesiastical or literary usage.

Table with 2 columns: Branch and Languages. Includes I. ARYAN (Indo-Germanic, Indo-European, Celto-Germanic), 1. INDIC branch, 2. IRANIC branch, 3. HELLENIC branch, 4. ITALIC branch, Neo-Latin, 5. CELTIC branch, 6. TEUTONIC branch, Scandinavian, Low German, High German, 7. SLAVONIC branch, South-Eastern, and Western.

² See on the whole subject Hovelacque's *Science of Language*, Latham's *Nationalities of Europe*, and the same author's *Philology*.