*Cephalanthera ensifolia, Allium ursinum)* find their eastern limits in Tula. Another interesting feature is the extension down the valley of the Oka, not only of pine-forests, which are not found elsewhere within the province, but also of many herbaceous plants originally from the south or south-west. The steppe flora of Tula is being rapidly impoverished in consequence of the spread of agri­culture : many steppe plants are now found only in their last retreats on the dry uncultivated limestone crags.

The population of the government (750,000 in 1777) in 1883 was 1,360,000, of whom 115,770 were urban. They are all Great Russians, and either Orthodox Greeks or Raskolniks. Their chief occupation is agriculture, 70 per cent. of the area being arable. Nearly one-half of the soil belongs to landlords and merchants, and the other half to the peasant communities (53 per cent. of the area, and 58 per cent. of the land under culture). The crops for 1883-85 averaged 7,574,200 quarters of grain and 10,172,000 bushels of potatoes, largely used for distilleries. Beet-root culture is increasing (8520 acres in 1885, yielding 59,800 cwts. of sugar). The growth of tobacco is also spreading ( 10,000 cwts. in 1885). There were in 1883 380,620 horses, 203,500 cattle, and 786,000 sheep. Manu­factures are rapidly developing ; their aggregate production was valued at £1,649,720 in 1883 (distilleries £293,956, sugar-works £601,827, tanneries £148,356, iron works, brass works, &c., about £150,000). Petty trades, especially the manufacture of tea-urns, small brass ware, and harmoniums, and also weaving, are extensively carried on and support a lively export trade ; timber, raw metals, and various manufactured wares are imported. The government is traversed by the Moscow and Sebastopol and the Ryazhsk and Vyazemsk Railways, as well as by the Oka. The government is divided into twelve districts, the chief towns of which, with their population in 1882, are Tula (see below), Alexin (4960), Bogoroditsk (8030), Byeleff (9300), Epifañ (3820), Efremoff (7770), Kashira (4610), Krapivna (1560), Novosil (4660), Odoeff(5140), and Tcherñ (2675). Byeleff, Alexin, and Kashira are important loading places on the Oka. The villages Malevka (coal-mines) and Niki- tino have more than 5000 inhabitants each.

*History.—*Before the Slavonic immigration, the territory of Tula was inhabited by the Mordves on the north and the Mestchers in the south. The Slavs who occupied the Oka belonged to the branch of the Vyatichis, who were soon compelled to pay a tribute to the Khazars. Subsequently the territory on the Oka belonged to the principality of Tchernigoff, thus maintaining its connexion with south-west Russia. In the 14th century part of it fell under the rule of Ryazan and Moscow, while the remainder was under Lithu­anian dominion till the 15th century. Several of the towns of Tula were founded in the 12th century, but the colonization of this fertile region went on slowly on account of the raids of the Tatars.

TULA, capital of the above government, is situated on the Upa, 120 miles by rail to the south of Moscow. Other railway lines connect it with Ryazan and Orel. It is built in the broad but low, marshy, and unhealthy valley of the Upa and is divided into three parts,—the Posad on the left bank, the Zaryetskaya or Oruzheinaya on the right bank, and Tchulkova between the Upa and the Tulitsa. It is an old town of Old Russia, but its growth began only towards the end of the 18th century after the manufacture of arms had commenced, and now (1887) its population has reached 65,100 (63,500 in 1882). They are employed chiefly either at the imperial gun factory or at numerous private factories (about 130, with 4350 men) and small workshops. The main branch of the industry is the making of rifles (from 20,000 to 30,000 annually). Next in im­portance comes the manufacture of *samovars* (tea-urns), in which more than 5000 persons are engaged. All sorts of cutlery and ironmongery are manufactured in the small workshops of Tula, which have a high repute in Russia. No fewer than 240,000 harmoniums are turned out annually; nearly 150,000 cwts. of steel, iron, and brass are imported every year for this industry alone.

The town of Tula is first mentioned in 1147 ; but its former site seems to have been higher up the Tulitsa. Its wooden fort was replaced in 1514-1521 by a stone “kreml,” which still exists. Boris Godunoff founded a gun factory at Tula in 1595, and in 1632 a Dutchman, Winius, established an iron foundry. Michael Alexis and Peter I., especially the last-named, took great interest in the gun factories, and large establishments were built in 1705 and 1714, which soon turned out 15,000 rifles in a year. Catherine II. and Paul I. further improved the manufactures, which during the wars with France supplied more than half a million rifles.

TULIP *(Tulipa),* a genus of bulbous herbs belonging to the *Liliaceæ.* The species are found wild along the northern shores of the Mediterranean, in the Levant, Armenia, Caucasus, Persia, Central Asia, and Afghanistan. The cup-shaped flowers have six regular segments in two rows, as many free stamens, and a three-celled ovary with a sessile stigma, which ripens into a leathery many-seeded capsule. The species are numerous, and are distinguished one from another by the scales of the bulb being woolly or smooth on the inner surface, by the character of the flower- stalks, by the filaments being hairy or otherwise, and by other characters. Owing to the great beauty of the flowers they have been favourites in European gardens for two or three centuries, and have been crossed and recrossed till it has become almost impossible to refer the plants to their original types. The early flowering “Van Thol” tulips, the segments of which are mostly scarlet with yellow edges, are derived from *T. suaveolens,* a native of the Caspian region. *T. Gesneriana,* a native of Armenia and central Russia, is the origin of some of the later flowering varieties. *T. pubescens,* thought by Mr Baker to be a hybrid between the two species just named, is the source of some of the early flowering kinds known as “ pottebakker,” &c. *T. oculus solis* and *T. Clusiana* are lovely species, natives of southern France, and *T. silvestris,* with elegant yellow pendulous flowers, is a doubtful native of England. During the last few years, owing to the exertions of Russian naturalists, a large number of new species have been discovered in Turkestan, and introduced into Europe. Some of these are very beautiful, and render it probable that by intercrossing with the older species still further difficulties will be presented in the way of identification. These difficulties are further enhanced by the fact that, quite apart from any cross-breeding, the plants, when subjected to cultivation, vary so greatly in the course of two or three years from the original species from which they are directly descended that their parentage is scarcely recognizable. This innate power of variation has enabled the florist to obtain, and ultimately to “ fix,” so many re­markable varieties. At the present day tulips are less fashionable than they once were, and consequently the enormous prices given for new or improved varieties no longer obtain, though, even now, two and three guineas are asked for special bulbs. It must, however, be remembered that the “ tulipomania ” of the 17th century was really a form of gambling, in which admiration of the flower and interest in its culture were very secondary matters. Tulips were introduced into the Low Countries in the 16th century from Constantinople and the Levant by way of Vienna and Venice. There is a legend that an Antwerp merchant, to whom bulbs were sent, cooked them for onions ; and to this day the natives of some parts of Persia and Afghanistan use the bulbs of *Tulipa chrysantha* for food. The mode of growth of a tulip bulb is worthy of attention. In spring, at the flowering period, each bulb is a composite structure. It consists, first, of the bulb of the year, which produces the flowers and the leaves. From the axil of one (or more) of the scales of the flowering bulb emerges a secondary bulb, destined to form leaves and flowers for the next season’s growth. In like manner from the side of the second generation are produced tertiary bulbs, which flower in the third year after their formation. Each bulb, there­fore, has an existence of three years, flowering in the third year, and dying afterwards, so that the bulb planted in the autumn is not the same one that flowered in the spring, but a second generation. For the cultivation of tulips, see Horticulture, vol. xii. p. 259.

TULLE, a town of France, chef-lieu of the department of Corrèze and a bishop’s see, is 61 miles east-north-east of Périgueux by the railway from Bordeaux to Clermond- Ferrand. The town rises picturesquely on both banks of the Corrèze, a sub-tributary of the Dordogne. The Corrèze,