mixed by fusion with one another, in different degrees and proportions. In order to discover the purity or quantity of baser metal in these various admixtures, when they are to be examined they are compared with these needles, which are mixed in a known proportion, and prepared for this use. The metals of the needles, both pure and mixed, are all made into laminæ or plates, one twelfth of an inch broad, and of a fourth part of their breadth in thickness, and an inch and a half long. These being thus prepared, a mark is to be engraved on each, indicating its purity, or the nature and quantity of the admixture. The black rough marbles, the basaltes, or the softer kinds of black pebbles, are the most proper for touchstones.

The method of using the needles and stone is this. The piece of metal to be tried ought first to be wiped well with a clean towel or piece of soft leather, that you may the bet­ter see its true colour ; for from this alone an experienced person will in some degree judge beforehand what the prin­cipal metal is, and how and with what debased. Then choose a convenient, not over large, part of the surface of the metal, and rub it several times very hardly and strongly against the touchstone, that in case a deceitful coat or crust should have been superinduced, it may be worn off by that friction. This however is more readily done by a grindstone or small file. Then wipe a flat and very clear part of the touchstone, and rub against it, over and over, the just-mentioned part of the surface of the piece of metal, till you have, on the flat surface of the stone, a thin me­tallic crust, an inch long, and about an eighth of an inch broad. This done, look out the needle that seems most like to the metal under trial ; wipe the lower part of this needle very clean, and then rub it against the touchstone, as you did the metal, by the side of the other line, and in a direction parallel to it. When this is done, if you find no difference between the colours of the two marks made by your needle and the metal under trial, you may with great probability pronounce that metal and your needle to be of the same alloy, which is immediately known by the mark engraved on your needle. But if you find a difference be­tween the colour of the mark given by the metal and that by the needle you have tried, choose out another needle, either of a darker or lighter colour than the former, as the difference of the tinge on the touchstone directs ; and by one or more trials of this kind you will be able to deter­mine which of your needles the metal answers, and thence what alloy it is of, by the mark of the needle ; or else you will find that the alloy is extraordinary, and not to be de­termined by the comparison of your needles.

TOUCHSTONE, a black, smooth, glossy stone, used to examine the purity of metals. The ancients called it *lapis Lydius,* the Lydian stone, from the name of the country whence it was originally brought. Any piece of pebble or black flint will answer the purposes of the best *lapis Ly­dius.* Even a piece of glass made rough with emery is used with success to distinguish true gold from such as is counterfeit, both by the metallic colour and the test of aqua­fortis. The true touchstone is of a black colour, and is not uncommon in many parts of the world.

TOUL, an arrondissement of the department of the Meurthe, in France, extending over 463 square miles. It is divided into five cantons, and these into 119 communes; and in 1836 it contained 64,041 inhabitants. The chief city, of the same name, stands on a plain at the foot of hills covered with vines, and watered by the river Moselle. It is the seat of a bishop, has a fine Gothic cathedral and other three churches, a hospital, an arsenal, and some well-built bar­racks. It contained in the same year 7333 inhabitants, whose chief trade is in wine and brandy. Long. 5. 48. 13. **E. Lat. 48. 40. 32. N.**

TOULON, an arrondissement of the department of the Vur, in France, extending over 504 square miles. It comprehends seven cantons, divided into 128 communes, having 99,012 inhabitants in 1836. The capital, of the same name, is one of the most complete naval arsenals belonging to France in the Mediterranean Sea. It has two good havens, one for the merchants and the other for the navy, with every convenience for the building and equip­ment of the largest ships. The entrance is good, and the port secure at all times. The entrance is protected by strong batteries, while several fortresses on the hills which surround the city completely command every part of it, as well as the arsenals and harbours. These were found so effectual, that when one of them, the fortress of Malgua, was taken by the French, the British, who were in possession of the harbours, the city, and the arsenals, were under the necessity of abandoning them with the utmost expedition. The place is divided into the old and the new town. It has a fine square, a beautiful town-hall, a Gothic cathedral with a magnificent portico, a theatre, and a palace for the intendant. The plain on which the city stands is fertile, and the hills that surround it are covered with vines, figs, capers, and olive trees, and yield abundance of fruits. The trade, which is not very great, arises from some manufac­tories of silk, woollen goods, and soap. Toulon has also some fisheries. In the year 1836 it contained 35,322 inha­bitants. Long. 5. 50. 21. E. Lat. 43. 7. 16. N.

TOULOUSE, an arrondissement of the department of Upper Garonne, in France. It extends over 619 square miles, and is subdivided into twelve cantons and 135 com­munes, with a population in 1836 amounting to 159,064.

Toulouse, a city of France, the ancient city of *To­losa,* latterly the capital of the old province of Lan­guedoc, and now the chief town both of the arrondisse­ment of the same name, and of the department of Upper Garonne. It is situated in a fertile district on the banks of the river Garonne, which divides it into two equal parts, connected by a magnificent bridge, after the plan of Mansard, of seven arches, 810 feet in length and seventy- two in breadth, on which is a triumphal arch. The city is surrounded by walls, which yield an agreeable promenade to the inhabitants, and, with the broad quays which extend along the banks of the river, give to it an imposing appear­ance. When under the sway of the Romans, and forming one of the principal settlements of the empire, this city was adorned by numerous monuments ; but in the course of ages these have been destroyed, and nothing now attests its former state but the remains of a small amphitheatre, and a single tomb in the cloister of the old church of the Augus­tines. In 1816 most of the buildings were more or less injur­ed by an explosion of a powder magazine. The streets are narrow and crooked ; brick buildings are too numerous ; and the squares, with the exception of St Cyprian, are de­ficient in regularity ; yet some of the edifices are to be ad­mired, more particularly that of the Hotel de Ville, called the *capitote,* whose modern front is considered one of the finest in France. the principal institutions in the city are a well-frequented university, a school of medicine and surgery, a botanic garden and observatory, a public library, a school of artillery, an academy of fine arts with a collec­tion of paintings, various charitable institutions and reli­gious edifices, which, with the exception of one Protestant place of worship, belong to the Catholics. This city is the head-quarters of a military division, the seat of the pre­fect, and of the courts of law for the department. There is less trade than the situation of the city and the popula­tion would lead a stranger to expect. It is chiefly con­fined to the agricultural produce of the neighbourhood, and the manufacture, upon a small scale, of powder, snuff, bran­dy, starch, leather, pottery ware, cotton, silk, and woollen goods. There is also a royal cannon foundery, and yards for building vessels. In the vicinity there are many country houses and gardens, belonging to the wealthier citizens; and