SILVER, one of the perfect metals, and the whiteſt and moſt brilliant among them all, is oſ the ſpecific gravity, according to Bergman, of 10.552 ; but accord­ing to Kirwan, of 11.095. Its ductility is not greatly inferior to that of gold, as a grain of ſilver leaf meaſures ſomewhat more than 51 ſquare inches ; and the ſilver wire uſed for aſtronomical purpoſes meaſures only the 750th part of an inch in diameter; which is no more than half the thickneſs of the hair of the human head.@@ It is harder and more elaſtic than lead, tin, or gold ; but leſs ſo than copper, platina, or iron : like other metals it grows hard by hammering, but is eaſily reduced to its former ſtate by annealing. It is more deſtructible than gold, and is particularly acted upon by ſulphureous va­pours ; hence its ſurface tarniſhes in the air, and aſtumes a dark brown colour.

“ It has been long thought (ſays Mr Fourcroy ) that ſil­ver is indeſtructible by the combined action of heat and air. It is certain, that this metal kept in fuſion, with­out contact of air, does not appear to be ſenſibly alter­ed ; yet Junker had affirmed, that by treating it a long time in the reverberatory furnace, in the manner of Isaac Holland us, ſilver was changed into a vitreous calx. This experiment has been confirmed by Macquer. That learned chemiſt expoſed ſilver 20 times ſucceſſively in a porcelain crucible to the fire of the furnace at Seves; and at the 20th fuſion he obtained a vitriform matter of an olive green, which appeared to be a true glaſs of ſilver. This metal, when heated in the focus of a burn­ing glaſs, has always exhibited a white pulverulent mat­ter on its ſurface, and a greeniſh vitreous covering on the ſupport it reſted upon. Theſe two tacts remove all doubt reſpecting the alteration of ſilver : though it is much more difficult to calcine than other metallic mat­ters, yet it is capable of being converted after a long time into a white calx, which, treated in a violent fire, affords an olive-coloured glaſs. It may be poſſible per­haps to obtain a calx of silver by heating this metal when reduced into very fine laminae, or into leaves, for a very long time in a matrass, as is done with mercury.”

Magellan informs us, that by melting in a due pro­portion with gold or steel, ſilver becomes greeniſh or bluiſh ; ſo that it is capable of producing the white, yellow, red, green, blue, and olive colours, more or leſs conſpicuouſly according to the various circumſtances of heat and proportions of the mixture. Though he makes mention of the vitrifications by Macquer alrea­dy taken notice of, he denies that it can be calcined by heat alone. “ Silver (says he) is ſo fixed by itſelf in the fire, that, after being kept a whole month in fu­ſion, it had only loſt one 60th part of its weight, which might be on account of ſome alloy. It is therefore in­capable of being calcined by mere heat ; and the calx of ſilver, which can only be made by means of its ſolution in acids, is reducible to its metallic form without the addition of any oxigenous ſubſtance. But when ſilver is expoſed to the violent heat of the ſolar rays collected by a powerful lens, a kind of ſmoke is ſeen ſurrounding it, which proves at laſt to be the minute particles of the metal raiſed and diſperſed by heat, as is evident if a thin plate of gold be expoſed to it ; for then the particles of ſilver are ſeen upon the gold in the ſame manner as thoſe of gold are ſeen upon ſilver in a similar experiment.”

By slow cooling after it has been melted, ſilver cryſtallizes into quadrangular pyramids. M. Baume ob­ſerves, that, in cooling, it assumes a ſymmetrical form, obſervable on the ſurface by ſmall fibres reſembling the feathers of a pen. M. Fourcroy obſerves, that the fine button obtained by cupellation, often preſents on its surface five or six ſides arranged amongſt each other like a pavement ; but the cryſtallization in tetrahedral pyra­mids has not been obſerved particularly excepting by Meſſrs Tillet and Mongez. It has been ſuppoſed that ſilver melts with a ſmaller degree of heat than copper ; but the late improved thermometer of Mr Wedgewood ſhows that this is a miſtake ; ſilver requiring 130⁰ of Fahrenheit more than copper to bring it into fuſion. It is found in the earth,

I. *Native,* generally of the fineneſs of 16 carats ; and of this there are ſeveral varieties. 1. Thin plated or leaved. 2. Capillary ſilver, of fine or coarſe fibres or arboreſcent, from Potoſi in America and Kunſberg in Norway. 3. A kind is alſo met with resembling coarſe linen in the ſurface, which in Saxony is call­ed *knit cobalt.* Abundance of this kind is to be met with in Potoſi, but more rarely in Saxony and Norway. 4. Sometimes native ſilver is met with in a cryſtalline or regularly figured ſtate with ſhining ſurfaces. This is found at Kunſberg, but is very ſcarce. There appears likewiſe a kind of cryſtallization on the thin plates of native silver, their ſurfaces being full of minute pyra­midal cryſtals. Moſt of the American ſilver is of the native kind ; ſo is that at Kunſberg in Norway. It is not, however, met with native ſo commonly in other European mines. A very ſmall quantity of it is found in the mines of Salberg in Weſtmanland, and oſ Lofaſen in Dalarne, and ſeveral other places in Sweden. It has been found in pretty large lumps in clay mixed with nickel, partly decayed or withered ; in which ſituation it formed the compound called the st*ercus anſerinum,* or gooſe dung ore. 5. A piece of native ſilver in coal is shown in the mineralogical academy at Freyberg; and Lahman, quoted by Le Camus, ſpeaks alſo of a ſimilar ſilver ore found in a mine of pit-coal @@\*.The capillary ſilver, according to the obſervarions of Henckel and Rome de Lisle, ſeems to have been pro­duced by a decompoſition of red ſilver ore ; and Wallerius affirms, that if ſulphur is mixed in a gentle heat with ſilver, the latter takes a capillary form. 6. Native ſilver is likewiſe ſometimes found in the form of ſpider’s webs, and for that reaſon called by the Spaniards *arane.* 7. It is met with in branches formed by octaedrons inſerted into one another. Some of theſe ſhow the mark of a leaf of fern or of a tree ; others are cubes or ſingle octaedrons, whoſe angles are truncated, tho' theſe laſt are but rare. 8. It is often found dispersed through sand and ochre, as well as in grey limeſtone in Lower Auſtria, and in a greeniſh clay near Schemnitz, or mixed with ochre, clay, and calciform nickel. It is generally alloyed with copper, ſometimes with gold, iron, or regulus of antimony ; and ſometimes it con­tains even five per cent of arſenic. That found near Kunſherg contains ſo much gold, that the colour of it is yellow.

Wallerius diſtinguiſhes ſeven ſpecies of native ſilver ; viz. 1. In irregular maſſes and lumps, at Kunſherg in Norway and other places, in a bed of clay. 2. In a granular and jagged form in America and Norway. 3. Arboreſcent, in the places already mentioned. 4. In

@@@\*[mu] Cronstedt's Mineralogy, vol. ii. p. 536.

@@@\*[m] Cronstedt's Mineralogy, p. 542.