Gilding Metal.

Copper 4 parts; brass 1: tin 1. Fuse together.

Another.

Copper 14 parts; zinc 6; tin 4.

To Separate Gold from Gilt Copper or Silver.

Take a solution of borax in water, apply to the gilt surface, and sprinkle over it some finely powdered sulphur; make the article red hot, and quench it in water: then scrape off the gold, and recover it by means of lead.

Gold in Grains.

Gold 3 parts; silver 1. Granulate by pouring it in a small stream, from a moderate height, into cold water; then dissolve the silver with nitric acid, and wash well in pure water; next heat the grains, to give them a proper lustre.

Common Gold.

Spanish copper 16 parts: silver 1: gold 2. Melt together.

Onian's Fusible Metal.

Tin 2 parts: lead 3: bismuth 5. Melt. This alloy melts at 197° Fah. The addition of a little mercury renders it still more fusible.

Pewter.

1. Tin 100 parts; antimony 17. Mix.

2. Zinc 1 part; copper 3; lead 8; tin 60. Melt the copper, then add the rest.

3. *Fine.* Tin 50 parts; antimony 4; bismuth 1; copper 1. Mix, as before.

4. *French.* Lead 9 parts; tin 41. Mix.

Keller's Medal Alloy.

Tin 9 parts; copper 89; zinc 2.

Gun Metal.

Brass 100 parts; spelter 13; tin 6. Mix.

Another.

Copper 9 parts; tin 1.

Tin Filings.

Take grain tin, and melt it in an iron vessel, and stir it, while cooling, until it becomes a powder; then sift.

ALLOYS.

One metal does not alloy indifferently with every other metal, but it is governed in this respect by peculiar affinities; thus, silver will hardly unite with iron, but it combines readily with gold, copper and lead. In comparing the alloys with their constituent elements, the following differences may be noted. In general, the ductility of the alloys is less than that of the separate metals, and sometimes in a very remarkable degree; on the contrary, the alloy is usually harder than the mean hardness of its constituents. The mercurial alloys or amalgams are, perhaps, exceptions to this rule.

The specific gravity is rarely the mean between that of each of its constituents, but is sometimes greater and sometimes less; indicating, in the former case, a closer cohesion; and, in the latter, a recedure of the particles from each other in the act of their union.

Density of Alloys.

Alloys having a Density greater than the Mean of their Constituents.	Alloys having a Density less than the Mean of their Constituents.
Gold and zinc.	Gold and silver.
Gold and tin.	Gold and iron.
Gold and bismuth.	Gold and lead.
Gold and antimony.	Gold and copper.
Gold and cobalt.	Gold and iridium.
Silver and zinc.	Gold and nickel.
Silver and lead.	Silver and copper.
Silver and tin.	Silver and iron.
Silver and bismuth.	Iron and bismuth.
Silver and antimony.	Iron and antimony.
Copper and zinc.	Iron and lead.
Copper and tin.	Tin and lead.
Copper and palladium.	Tin and palladium.
Copper and bismuth.	Tin and antimony.
Lead and antimony.	Nickel and arsenic.
Platinum & molybdenum	Zinc and antimony.
Palladium and bismuth.	

The melting point of an alloy cannot be inferred from that of each of its constituent metals. An alloy of 8 parts bismuth, 5 of lead and 3 of tin, melts at the heat of boiling water, 212° Fah., while the melting point deduced from the mean of its components should be 514 Fah., a little mercury added to this alloy renders it still more fusible.

The colours of alloys do not depend in any considerable degree upon those of the separate metals; thus, the colour of copper, instead of being rendered paler by a large addition of zinc, is thereby converted into a rich looking metal, brass. By means of alloys, we multiply, as it were, the number of useful metals, and sometimes give usefulness to such as are separately of little value.—*Ure.*

NEW METHOD FOR COMPUTING INTEREST.

J. H. Goldsmith, principal of the Detroit Business College, gives the following methods of computing interest at any rate per cent. for any length of time, as follows:—"Rule—reduce the years and months to months, to half the months annex one-sixth of the days, multiply that number by one-sixth the principal, that will give the interest at one per cent., which multiplied by any rate per cent. you wish, will give you the interest in mills. Example—interest on $12 at seven per cent for one year, eight months and twenty-four days, half the months with one-sixth the days annexed, 104, multiplied by one-sixth the principal (2) equals 208 multiplied by seven (rate per cent.) equals $1,456. Second method—$12 divided by three equals four, one-fourth the months with one-twelfth the days annexed is fifty-two, multiplied by one-third the principal (4) equals 208, multiplied by seven equals $1,456.

DENSITY OF STEAM AT VARIOUS TEMPERATURES.

The experiments of Messrs, Fairbairn and Tate on the density of steam, are described in a paper which was read to the Royal Society of London, as the Bakerian lecture, on the 10th of May, 1860,