bitumen; and metals, as gold, &c. Other more accurate writers reftrain the word mineral to what we otherwife call femimetals, as antimony, cobalt, &c.

The word mineral, in this fenfe, may be defined a compound foffil, in which fomething is difcovered, in all refpects like metal, only that it is not malleable; joined or compounded with fome other foffil, as falt, fulphur, ftone, or earth. Such are antimony, cinnabat, bifmuth, calaminaris, vitriol, pyrites, marcafites, cobalt, oker, the magnet, lapis hæmatites, and armenus.

Of the origin of minerals there are various opinions. Some philosophers attribute the formation of them to the action of the fun without 1 some to the influence of the central firewithin; and some think, that cold is the productive cause, by uniting, condensing, and congealing certain juices of the earth.

To the two first opinions Dr. Yalden alludes in the lines quoted above; and Thomson, in his beautiful Hymn to the Sun, extends the penetrating influence of that luminary, not to the formation of metals only, but to the production also of the precious stones:

Nor to the furface of enliven'd earth,

Graceful with hills and dales, and leafy woods,

Her liberal treffes, is thy force confin'd :

But to the bowel'd cavern darting deep,

The mineral kinds confess thy mighty power.

Effulgent, hence the veiny marble fhines; Hence Labour draws his tools; hence burnifh'd War

- Gleams on the day ; the nobler works of Peace
- Hence blefs mankind, and generous Commerce binds
- The round of nations in a golden chain. Th' unfruitful rock itfelf, impregn'd by thee,

In dark retirement forms the lucid flone. The lively diamond drinks thy pureft rays,

Collected light, compact; that, polish'd bright,

- And all his native luftre let abroad,
- Dares, as it fparkles on the fair-one's breaft,
- With vain ambition emulate her eyes.

At thee the ruby lights its deepening glow, And with a waving radiance inward

flames. From these the fapphire, folid ether, takes

Its hue cerulean ; and, of evening tinch, The purple freaming amethyft is think.

With thy own fmile the yellow topazburns;

Nor deeper verdure dyes the robe of Spring, When first she gives it to the southern gale.

Than the green emerald shows. But, all combinid,

Thick through the whitening opal play thy beams;

Or, flying feveral from its furface, form A trembling variance of revolving hues, As the fite varies in the gazer's hand,

Defoartes was of opinion that metals were formed from the beginning of the world, and were ranged, by the laws of gravity, about the centre. These he fuppofes to have been corroded, in procefs of time, by the acid falts, &c. and abundance of their parts carried up along with thefe falts by the fubterranean heat, and depofited in various parts of the earth.---M. Tournefort supposes feeds of minerals, as well as of animals and vegetables. According to this celebrated bocanift, every thing, ftones not excepted, comes from eggs; and the most prodigious rocks. he thinks, were originally no more than grains of fand. The alchemifts maintain. that metals proceed from a certain primin ens, or first feed of metals, which, they fay, is a kind of moift vapour, or gas, that changes the earth or juice it meets with in a vein into a mineral body or fubftance, and thence converts the minerals into ores or metals, by a continual fermentation or elaboration in the mines, caufed by the archeus, or heat that acts in the veins, as it proceeds from the centre of the earch. But this doctrine of mineral fermentation is politively denied by the great Boerhave, who in his Hiftory of Fermientation, afferts, that it belongs to the vegetable kingdom only. Others maintain, that all metals and minerals were originally created in the very fame fare and nature in which they are ever found, without undergoing any kind of alteration. The most common opinion, among the miners in Cornwall, is, that crude immature minerals nourifh and feed the ores with which they are intermixed in the mines; and that the minerals themfelves will, in process of time, be converted into ores, productive of those metals to which they have the nearest affinity, and with which they have the greateft intercourfe.

M. Geoffrey and others contend, that metals, &c. may be the refult of a mixture of certain matters, which had nothing meatailic in them. Thus in the afters of all vegetables we find a ferruginous matter; which the load flone attracts; and yet it can hardly be faid, that iron exifted in the plants. We fee no figns of iron in clay, in whatever manner it may be worked; and yet, let linfeed oil be added to it, and by fire iron may be procured. The fame, may