this indeed appears but a feeble tribute of respect to the services
which he has rendered to the science of mineralogy.

Since the crystallization of certain mineral substances, in which
nothing but earths has been discovered, has appeared problematical
to many persons, and has led to the supposition of the existence of
unknown acids in their composition, Mr. Smithson endeavours to
explain this difficulty, by suggesting that quartz itself may be con-
sidered as an acid, to which class of bodies it has analogous quali-
ties: we shall then have a numerous class of silicates, both simple
and compound; and zeolite will belong to the latter, and may be
regarded as a hydrated silicate of alumina.

*Experiments and Observations on the different Modes in which Death
  is produced by certain vegetable Poisons.* By B. C. Brodie, Esq.
F.R.S. Communicated by the Society for promoting the Knowledge
of Animal Chemistry. Read February 21, 1811. [Phil. Trans.
1811, p. 178.]

The substances selected for these experiments are vegetable poisons
only; and they were chosen of the most active kind, that the exact
nature of their effects might be more readily discerned. The prin-
cipal object of the experiments is to determine on which of the vital
organs the influence of each poison is exerted, and through what
medium the organ becomes affected. The first series of experiments
relates to the effects of internal application to the tongue and ali-
mentary canal, and the second to the consequences of application to
external wounds.

When proof spirit was given to a rabbit in sufficient quantity to kill
it, the heart was observed to continue in action after apparent death.

The same observation was made respecting the heart of a cat, killed
by injecting the root of aconite into the rectum.

When the oil distilled from bitter almonds was employed, although
no more than a single drop had been given to a cat, she died in five
minutes. Two drops of the same oil injected into the rectum of an-
other cat, killed it also in five minutes. And the heart, in each in-
stance, continued acting after apparent death.

Distilled oil of tobacco exerted nearly the same energy as the
distilled oil of bitter almonds, and apparently in the same way, as
the heart was observed to contract after apparent death.

From this circumstance, Mr. Brodie inferred that these poisons
exert their primary influence on the brain, and that death ensues in
consequence of the suspension of respiration, which is dependent on
the brain.

When an infusion of tobacco was made use of instead of the em-
pyreumatic oil, and injected into the rectum, the effects were different
from any of the preceding, as the heart continued to contract, and
was uniformly found in a state of extreme distension. Mr. Brodie
is, however, of opinion, that the heart was not directly affected, but
through the medium of the nervous system. For when the same
infusion was injected into the rectum of a dog whose head had been cut off, and whose respiration was kept up by artificial means, the heart continued to act in the same manner as in the experiments which Mr. Brodie lately communicated to the Society, without being sensibly affected by the infusion.

The author's trials of the external application of poisons were confined to the essential oil of bitter almonds, the juice of aconite, and the South American poison called Woorara. They all produced the same effects as the two former had done when applied internally, for the heart was observed to contract, as before, long after other symptoms of life had ceased; so that the circulation could be kept up by means of artificial respiration.

With respect to the medium through which poisons affect the brain when they are applied to external wounds, the author's experiments were confined to the woorara. And he endeavoured to determine whether the influence was conveyed by the nerves, or whether the poison itself entered the circulation, either by the absorbents, or through the divided veins. By dividing the nerves of a part, the efficacy of the woorara did not appear diminished, neither did tying up the thoracic duct in any degree interfere with its action. But when a ligature was applied round the leg of a rabbit, so as not to include the sciatic nerve, the rabbit was not in the least affected by the woorara.

The author consequently infers that the woorara acts upon the brain by passing into its substance through the divided vessels of the part to which it is applied.

Since the circulation of an animal could be kept up by an artificial respiration, after the brain had been even completely removed, Mr. Brodie conceived it possible that the functions of the brain might be found to recover from temporary suspension if the circulation were continued for a time by artificial respiration, and that thus the life of the animal might be preserved.

After two experiments, which were not attended with complete success, a third was made upon a rabbit, by applying distilled oil of almonds to a wound in the side. In five minutes it ceased to breathe, and was apparently dead; but by means of artificial respiration continued for sixteen minutes, it was completely restored to life; and on the following day appeared not to have suffered from the experiment.

On the Causes which influence the Direction of the Growth of Roots.

By Thomas Andrew Knight, Esq. F.R.S. In a Letter to the Right Hon. Sir Joseph Banks, Bart. K.B. P.R.S. Read March 7, 1811. [Phil. Trans. 1811, p. 209.]

In a former paper Mr. Knight showed the influence of gravitation on the plumule and radicle of germinating seeds; in the present he considers the fibrous roots, which, with little comparative regard to gravity, extend themselves in whatever direction the greatest nutriment or moisture is to be found, with an appearance of predilection,