

something that cannot be divided. When we treat of carbon, as an element, what is understood is the substance carbon, without reference to the quantity, whether a minute particle or large volume. So likewise of the other elements, it is the homogenous quality which is implied.

The number of elements, comprised in the food of plants and animals is fourteen. They are divided into two classes; principal elements, and elements of the ashes.

Principal elements, are so called, because they make up most part of the bulk of organic substances. They are distinguished besides, from the other elements, by the property of separating in a volatile state, when a substance is calcined; or decomposes, by the natural process of decay and putrefaction.

The elements of the ashes, on the other hand, after the process of calcination or decomposition has been completed, are the residue or what remain in a pulverized or solid state; and from this circumstance they derive their name.

The large proportion of the principal elements, compared with those of the ashes, is much the same in all organic substances. The following substances, dried respectively at 212° and 230° Fahrenheit, yield, by calcination or decomposition, the proportions per cent., of volatilized and residual elements here stated:

	VOLATILIZED BY CALCINATION.	RESIDUAL, AFTER CALCINATION.	AUTHORITY.
Wheat, 230°.....	97.6	2.4	Boussingault.
Rye, do.	97.7	2.3	"
Peas, do.	96.9	3.1	"
Beans, do.	96.9	3.1	"
Lentils, do.	96.9	3.1	"
Oats, do.	96.	4.	"
Potato, do.	96.	4.	"
Flesh (beef) 212°...	95.77	4.23	Playfair & Boeckmann.
Ox blood, do. ...	95.58	4.42	"
Oats straw, do. ...	95.58	4.42	Liebig.
Turnips, 230°...	92.4	7.6	Boussingault.
Barley straw 212°...	91.46	8.54	Schrader.
Hay, do. ...	91.	9.	Liebig.
Wheat straw, do. ...	84.5	15.5	H. Davy.

It will be seen by this, that the great difference in the quantity, of the two classes of elements, justifies our applying the term *principal elements*, to carbon, hydrogen, nitrogen and oxygen. And, on