Submitted to the influence of a powerful heat, this bichloride splits into free chlorine and several other chlorides of carbon, amongst which the chloride of carbon *par excellence*, the solid sesquichloride discovered by Mr. Faraday under very different circumstances, claims our special attention.

3 C Cl₂	=	C_2 Cl_3	+	C Cl	+	Cl_2
Bichloride of carbon		Sesquichloride of carbon		Protochloride of carbon.		Chlorine.

If you expose these crystals covered with water, in which they are insoluble, to the direct action of sunlight, you will find that they gradually disappear, leaving an exceedingly sour liquid, which contains two acids, namely, hydrochloric acid and a substance very closely resembling acetic acid, but containing chlorine in the place of hydrogen: two atoms of the solid chloride of carbon and four atoms of water contain the elements of three atoms of hydrochloric acid and one atom of chloracetic acid.

2 C_2 Cl_3	+	4 HO	=	3 H Cl	+	C_4 Cl_3 O_3, HO
Sesquichloride of carbon.		Water.		Hydrochloric acid.		Chloracetic acid.

A simple substitution of hydrogen for chlorine completes this series of chemical re-actions resulting in the artificial construction of acetic acid. This substitution is effected by potassium (to moderate the action, an amalgam of this metal is generally employed,) which, seizing as it were the chlorine, and simultaneously decomposing water, removes the former, whose place is forthwith taken by the liberated hydrogen, thus forming pure acetic acid.

C_4 Cl_3 O_3, HO	+	6 K	+	3 HO	=	C_4 H_3 O_3, HO	+ 3 K Cl +	3 KO
Chloracetic acid.		Potassium.		Water.		Acetic acid.	Chloride of potassium.	Potassa

And thus, remarkably enough, we meet, after nearly half a century, with a new result, emanating from Davy's grand discovery, a fact which is particularly interesting, standing as we do on the very ground on which this discovery was made.

Acetic acid by no means concludes this remarkable series of constructive metamorphoses. When this acid is combined with alkaline bases, and submitted in the form of a salt to the action of heat, we obtain a new body in the form of a transparent, very inflammable liquid, called acetone, of a more complicated composition than acetic acid itself, while an alkaline carbonate remains behind.

2 (BaO, C_4 H_3 O_3)	=	C_6 H_6 O_2	+	2 (BaO, CO_2)
Acetate of baryta.		Acetone		Carbonate of baryta.

Submitted to the action of sulphuric acid, acetone loses the elements of water, while a new complication takes place, not less than three atoms of this dehydrated acetone coalescing as it were in the new product of the re-action, which is known by the name of mesitilol, and which contains not less than eighteen equivalents of carbon.

3 C_6 H_6 O_2	=	C_{18} H_{12}	+	6 HO.
Acetone.		Mesitilol.		Water.

By treating this compound with fuming nitric acid, you succeed in introducing the elements of hypontric acid into the place of hydrogen, and obtain dinitromesitilol—

C_{18} H_{12}	+	2 NO_5	=	C_{18} H_{10} N_2 O_8	+	2 HO
Mesitilol.		Nitric acid.		Dinitromesitilol.		Water.

which, lastly, when submitted to the action of sulphuretted hydrogen, by virtue of a most curious process, with the details of which you will become acquainted by and by, is converted into nitromesidine, an organic body forming beautiful salts with the acids, and exhibiting, in its general character, the greatest analogy with those wonderful substances manufactured by the organism of plants, the vegetable alkaloids.