heart, therefore, it is loaded with carbon, a principle, which, when in excess, becomes noxious, and requires to be removed from the blood, by combining it with a fresh quantity of oxygen obtained from the atmosphere. It is not yet satisfactorily determined whether the whole of the oxygen, which disappears during respiration, is employed in the formation of carbonic acid gas: it appears, probable, however, from the concurring testimony of many experimentalists, that a small quantity is permanently absorbed by the blood, and enters into it as one of its constituents.

A similar question arises with respect to nitrogen, of which as I have already mentioned, it is probable that a small quantity disappears from the air when it is respired; although the accounts of experimentalists are not uniform on this point. The absorption of nitrogen during respiration was one of the results which Dr. Priestley had deduced from his experiments: and this fact, though often doubted, appears, on the whole, to be tolerably well ascertained by the inquiries of Davy, Pfaff, and Henderson. With regard to the respiration of cold-blooded animals, it has been satisfactorily established by the researches of Spallanzani, and more especially by those of Humboldt and Provençal, on fishes, that nitrogen is actually absorbed. A confirmation of this result has recently been obtained by Messrs. Macaire and Marcet, who have found that the blood contains a larger proportion of nitrogen than the chyle, from which it is formed. We can discover no other source from which chyle could acquire this additional quantity of nitrogen, during its conversion into blood, than the air of the atmosphere, to which it is exposed in its passage through the pulmonary vessels.*

According to these views of the chemical objects of respiration, the process itself is analogous to those artificial operations which effect the combustion of charcoal. The food supplies the fuel, which is prepared for use by the di-

* See the note at page 238.