

and they are accompanied by several other organs which vertebrates have not; while these on the other hand have several which are wanting in cephalopods."

We shall see afterwards the general principles which Cuvier himself considered as the best guides in these reasonings. But I will first add a few words on the disposition of the school now under consideration, to reject all assumption of an end.

2. That the parts of the bodies of animals are made in order to discharge their respective offices, is a conviction which we cannot believe to be otherwise than an irremovable principle of the philosophy of organization, when we see the manner in which it has constantly forced itself upon the minds of zoologists and anatomists in all ages; not only as an inference, but as a guide whose indications they could not help following. I have already noticed expressions of this conviction in some of the principal persons who occur in the history of physiology, as Galen and Harvey. I might add many more, but I will content myself with adducing a contemporary of Geoffroy's whose testimony is the more remarkable, because he obviously shares with his countryman in the common prejudice against the use of final causes. "I consider," he says, in speaking of the provisions for the reproduction of animals,<sup>15</sup> "with the great Bacon, the philosophy of final causes as sterile; but I have elsewhere acknowledged that it was very difficult for the most cautious man never to have recourse to them in his explanations." After the survey which we have had to take of the history of physiology, we cannot but see that the assumption of final causes in this branch of science is so far from being sterile, that it has had a large share in every discovery which is included in the existing mass of real knowledge. The use of every organ has been discovered by starting from the assumption that it must have *some* use. The doctrine of the circulation of the blood was, as we have seen, clearly and professedly due to the persuasion of a purpose in the circulatory apparatus. The study of comparative anatomy is the study of the adaption of animal structures to their purposes. And we shall soon have to show that this conception of final causes has, in our own times, been so far from barren, that it has, in the hands of Cuvier and others, enabled us to become intimately acquainted with vast departments of zoology to which we have no other mode of access. It has placed before us in a complete state,

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<sup>15</sup> Cabanis, *Rapports du Physique et du Morale de l'Homme*, i. 229.