

The philosophy of natural history / by William Smellie ; with an introduction and various additions and alterations intended to adapt it to the present state of knowledge by John Ware.

Contributors

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the proper meaning of the words they utter. Speech is performed by a very various and complicated machinery. In speaking, the tongue, the lips, the jaws, the whole palate, the nose, the throat, together with the muscles, bones, &c. of which these organs are composed, are all employed. This combination of organs we are taught to use when so young, that we are hardly conscious of the laborious task, and far less of the manner by which we pronounce different letters and words. The mode of pronouncing letters and words, however, may be learned by attentively observing the different organs employed by the speaker. By this means we are enabled to correct the various defects of speech, and even to teach the dumb to speak; for dumbness is seldom the effect of imperfection in the organs of speech, but generally arises from a want of hearing; and it is impossible for deaf men to imitate sounds which they never heard, except they be taught to use their organs by vision and by touching.

When about to laugh, we make a very full inspiration, which is succeeded by frequent, interrupted, and sonorous expirations. When the titillation is great, whether it arises from the mind or body, these convulsive expirations sometimes interrupt the breathing to such a degree as to endanger suffocation. Moderate laughing, on the contrary, produces health; by agitating the whole body, it quickens the circulation of the blood, gives an inexpressible cheerfulness to the countenance, and banishes every kind of anxiety from the mind.

In weeping, we employ nearly the same organs as in laughing. It commences with a deep inspiration, which is succeeded by short, broken, sonorous, and disagreeable expirations. The countenance has a dismal aspect, and tears are poured out. Weeping originates from grief, or other painful sensations either of body or mind. When full vent is given to tears, grief is greatly alleviated. Both laughing and weeping have been reckoned peculiar to man. But this notion seems not to be well founded. Though the other animals express not their pleasures or pains in the same manner as we do, yet all of them exhibit their pleasant or painful feelings by symptoms or cries, which are perfectly understood by the individuals of each species, and, in many instances, by man. A dog, when hurt, complains in the bitterest terms; and, when he is afraid or perhaps melancholy, he expresses the situation of his mind by the most deplorable howlings. A bird, when sick, ceases to sing, droops the wing, abstains from food, assumes a lurid aspect, utters melancholy, weak cries, and exhibits every mark of depressed spirits. By this



the lungs alone. It has been found that birds consume, in proportion to their size, more air than quadrupeds; and this arises from its extensive influence upon the blood. Thus, two sparrows were found by Lavoisier to require as much for their existence as a Guineapig, an animal many times as large. Another use ascribed to this arrangement by Mr Hunter, is that of acting in some degree, as a reservoir of air, to prevent the necessity of frequent respiration, which may be supposed inconvenient to birds while moving rapidly on the wing.

‘The voice of birds is more remarkable and beautiful than that of any other animal except man; and on account of the large quantity of air which they have at command, it is very much more powerful. But the sounds uttered by man and quadrupeds are produced by an organ situated at the top of the windpipe, called the *larynx*, with the assistance of the mouth, at the top of the windpipe; whilst in birds the organ of voice or larynx is situated at the spot where it divides into two parts to go to the lungs on each side, that is to say, at the bottom of the throat. The variations of note are produced by a little membrane in the tube of the windpipe, which is made to vibrate by the air; and by means of a number of little muscles which either tighten or relax it, it is made to give the various notes. Hence, in singing, birds seldom close or make any motions with their beaks. That the voice is produced at this place, has been proved by cutting off the neck of some birds, which still retained the power of uttering their notes. The other parts of the windpipe are not, however, without their use. Some changes of tone are produced by shortening or lengthening it, and others by contracting or enlarging its upper opening into the mouth. The instrument of voice, in fact, resembles in many respects a musical instrument, and the excellence and beauty of the notes of birds, depend very much upon imitation and education. The nightingale, if secluded in a cage when young, never sings so perfectly as in the wild state; unless exposed in a place, where it can hear the song of those which are at liberty. Many birds are capable of imitating a great variety of sounds, and some have been taught to sing very accurately tunes of human composition, merely by playing them upon some instrument in their hearing.

‘The lungs of Reptiles do not consist, like those of the Mammalia and Birds, of a solid organ penetrated in every direction by the air tubes, but of a number of bags of a membranous texture, into which the air is conveyed. In some, this is effected by



































































































































































































































































them. But, by making animals feed upon each other, the system of animation and of happiness is extended to the greatest possible degree. In this view, nature, instead of being cruel and oppressive, is highly generous and beneficent.

To diminish the number of noxious animals, and to augment that of useful vegetables, has been the uniform scope of human industry. A few species of animals only are of immediate utility to man. These he either cultivates with care, or hunts for his prey. The ox, the sheep, the goat, and other animals which are under his peculiar protection, he daily uses for food. This is not cruelty. He has a right to eat them; for, like nature, though he occasionally destroys domestic animals, a timid and docile race of beings, by his culture and protection he gives life and happiness to millions, which, without his aid, could have no existence. The number of individuals, among animals of this description, if they were not cherished and defended by man, would be extremely limited; for, by the mildness of their dispositions, the comparative weakness of their arms, and the universal and strong appetite for them by rapacious quadrupeds and birds of prey, though the species might, perhaps, be continued, the number of individuals would, of necessity, be very small.

There is a wonderful balance in the system of animal destruction. If the general profusion of the animated productions of nature had no other check than the various periods to which their lives, when not extinguished by hostilities of one kind or another, are limited, the whole would soon be annihilated by an universal famine, and the earth, instead of every where teeming with animals, would, unless repeopled by a new creation, exhibit nothing but a mute, a lifeless, and an inactive scene. If even a single species were permitted to multiply without disturbance, the food of other species would be exhausted, and of course, a period would be put to their existence. The herbivorous and frugivorous races, if not restrained by the carnivorous, would soon increase to a hurtful degree. Carnivorous animals are the barriers fixed by nature to noxious inundations of other kinds. The carnivorous tribes may be compared to the hoe and the pruning hook, which, by diminishing the number of plants when too close, or lopping off their luxuriances, make the others grow to greater perfection. To those swarms of insects which cover the surface of the earth, are opposed an army of birds, an active, a vigilant, and a voracious race. Hares, rabbits, mice, rats, are exposed to the depredations of carnivorous quadrupeds and birds. The larger cattle, as the ox, the deer, the sheep, &c. are

















































































































































































































