

Abridged from Macculloch's *Proofs and Illustrations of the Attributes of God.*

## ON THE LANGUAGE OF ANIMALS.

No. I.

THE language of animals has at all times been a favourite subject of speculation; but this has been limited to poetry and fiction. No rational inquiry has yet been made respecting the possibility of what appears incapable of proof. We have reason to expect it; and we have no right to decide against it, if it can be shown that our faculties and observations are incompetent to discover what the fact is. Thus far the balance is, at the very least, in suspense; and it should turn decidedly in favour of such a conclusion, if we can find, in animals, actions which could not be conducted without language; still more if we can trace variety of sounds, and those accompanied by peculiar actions, though we should be unable to analyze them, and give their definite applications.

On the subject of hearing, as being fundamental on this question, we are accustomed, not unnaturally, to give more credit to our own senses than they deserve. We decide on their perfection by an estimate drawn from themselves; which is as if he who is without ear for music should dispute the existence of refined harmonies. Even in the musical scale, which forms the most audible collection of discriminate sounds, there are tones at each extremity, which we cannot distinguish, as at length there are also notes that we do not hear. We know that they exist, from the visible vibrations and the measures of strings; but the ear has ceased to discern them. The snoring of a dormouse is so acute that the note cannot be assigned, as it is also on the very verge of inaudibility. In a string or an organ pipe, it is easy to produce indiscriminate, and even inaudible tones, at the opposite extremity of the scale.

If now we take sounds that are not in the diatonic or chromatic scale, the difficulty of distinguishing them augments rapidly as the ratios approach nearer to each other, till at length, to imperfect ears, dissimilar ones appear the same. This is the case, even if those sounds are single, or truly musical, belonging to fixed divisions of the scale; but if at all vacillating, as are the sounds of speech, there is no human ear that can follow and distinguish them, however widely sundered they may be. Our ears are not calculated for such distinctions: in many persons, they cannot distinguish even among neighbouring enharmonic tones, except in the case of a chord, where there is a fixed and known note of reference, or in that of a false unison. Hence it is probable, that however music may continue to improve under the increase of enharmonic chords, we shall never produce enharmonic melodies, because unintelligible to our organizations.

Yet such melody is intelligible to the birds which produce it; since it is produced, definitely and intentionally, under finer organizations of the musical instrument, and of the sense of hearing. Thence may it be inferred that those, and other animals also, may both hear and discriminate those unsteady sounds produced by themselves which should constitute their own language, although we cannot; while to assume that they do not, is plainly to measure their faculties by our own defective ones.

It is not less true that we have been accustomed to decide against the sensibility of these animals on false grounds, and under an ignorance of the very nature of music. We dispute it, because they do not produce and enjoy that which we term music; a succession and consonance of intervals in the diatonic and chromatic scale. But while this is the produce of an arbitrary law of nature, rendering that class of sounds pleasing, it is evident that instead of proving the high sensibility of our own ears, it is a proof of the exact reverse; since those pleasing sounds demand little effort of discrimination, from the distances of their ratios. Hence should the sensibility to sounds in the birds at least, far exceed our own; since their power, with their pleasure, consists in producing intervals more minute, and thence demanding finer senses, that they may delight in what was appointed for them, as our own less refined ones were for us. That they hear and understand what they produce is evident, since otherwise it could not be executed.

In the nightingale and thrush, we distinguish a great number of sounds and articulations, because they belong, or approach, to that musical scale for which our sense of hearing is adapted. But we cannot doubt, that in these, and still more in birds whose tones are less musical and definite, there are sounds which we do not truly distinguish, and which we therefore neglect in favour of those to which we are most sensible. And there is no difficulty in believing that the song of a nightingale is better understood by itself than by us, or that it contains much more than we hear. If I were to suggest that it contains a definite set of phrases, with meaning, to the animal itself and its kind, there would be nothing absurd in the proposition; since it possesses, even to our ears, a greater variety of articulation than we can find in any language with which we are unacquainted: while, in confirmation of this general view, all who have attended to such subjects must know, that where these birds abound, long debates are often carried on among them, in tones and articulations quite distinct from the ordinary songs. When we decide otherwise, we are deciding from a prejudice, or assuming that it is not a language,

because we do not understand it. We should be equally justified in thus deciding as to the Arabic.

But there is another circumstance relating to sound, which may concern this question. This is the quality, or timbre. We distinguish this readily, in the several musical instruments; and even in the different qualities of human voices, which depend on this mysterious property of sonorous bodies. It requires far nicer ears to perceive the minute differences in the qualities of two instruments of the same kind, which are still differences of timbre: and if the ordinary ears which distinguish among singing-birds do this chiefly through the melodies, a finer one is fully sensible of the difference of timbre among many of them. And thus we may grant a still finer perception of this kind to animals of nicer sensibilities: of which indeed we have a proof in the fact, that the wild birds and the domestic fowls recognise the voices of their own partners and offspring, and that even the sheep knows the bleat of its own lamb. Thus can we grant again, that animals may possess means of discrimination for the purpose of language, where we can distinguish nothing.

The human language, to those unacquainted with it, presents nothing but noises, or sounds, which we can scarcely perceive to be articulate ones. If not rigidly true of the European languages derived from a common root, of which we are familiar with one branch, it is notorious in that of a Greenlander or a Hottentot, or in that of the Celtic dialects of our own country. Not to speak ludicrously on a grave subject, the objurgations of an assembled multitude of Welsh do not exceed, in articulate and discriminate sounds, the noise of a rookery. We happen to know that there is language, but our ears do not give us that information.

When we have learned the meaning of those sounds, we can also discriminate them, but not tell them: not even, easily, except under that slow and distinct articulation which allows us to study each. Thus, if animals have been taught by the Creator such languages as are necessary for their wants, since more cannot be expected, it is plain that they may perfectly understand each other, or be expressing even numerous and definite ideas, where we perceive nothing but noise, and probably never shall.

There are valid reasons in the necessity of the case, and in the general conduct of the Creator, why animals ought to possess language. There is, or may be, language accompanying the means of language, for ought that we can decide to the contrary: so that the question remains suspended between a high probability and an ignorance which has nothing to oppose. In evidence of this probability, a very few positive facts out of many may be selected.

Communication is peculiarly necessary among the gregarious and social animals; and we accordingly see that many of those do act together under peculiar sounds. Let us not, however, be misled by the term language, since it is in terms that our difficulties often lie. The communications of animals are not the language of the fabulists. The range of their ideas is limited, and so must be the modes of their expression. And, as a natural language, or a gift to those which are incapable of educating each other, it is probably fixed, or incapable of extension: though there are reasons for believing, that where educated by us, they increase its range. But if this inquiry is limited to a language of sounds, it must not be forgotten that the social animals do understand each other, as some different kinds also probably do, by means of some physiognomic or phantasmic signs, equally taught by nature.

Familiar examples of various and vocal language exist in the duck tribe, followed by correspondent actions, in marshalling their flights, and in much more. The sounds and articulations of the domestic duck and goose in particular, are so numerous and marked, that they are not equalled by any human language; while it is not difficult to learn the definite, if the general, meaning of many of them. It is not easy to see how else the decoy duck can perform its treacherous office. It is the same notably with the hog; while if we see the effects in many of the proceedings of this animal in society, I need only note, that thus it will collect its companions to ravage a field, as the dog conducts its own to the chase, and as the rat and the mouse assemble and lead their tribes to a discovery of food. If we do not know that the beaver has similar means of communication, we cannot comprehend the possibility of its conduct in society without some language. In the endeavours of birds to persuade their progeny to fly and to dive, we can scarcely avoid believing that we hear a definite language; so unusual, and varied, and marked, are the articulations and the tones. The quarrels of sparrows are more articulate, and the noises more varied, than those of a human contest. The sounds of a domestic fowl under the approach of a hawk, the intention to sit, the calling its young to feed, and much more, equally familiar, are not less various and definite. However disagreeable the sounds of the cat may be to us, they abound in variety of expression: and in the rook, the comparison of actions and sounds renders it scarcely possible to avoid concluding that the latter constitute a language. The destruction of a rook's nest, occasionally proceeding to the slaughter of the animal, is preceded by a congregation of the society, and a great noise; as all know that the work is executed by the deputation of two or three individuals out of this convention.

Not only the necessity, but the certainty of communication in the gregarious insects has been shown: especially in bees and ants. Huber has thought that he could prove a language of signals, through the antennæ. Some insects can produce sounds, independently of the vibration of their wings, by friction. If these are audible to us, there may also be similar inaudible ones, sufficient possibly for many purposes: while it is not impossible that one or more of their tracheæ may be provided with the means of sound.

**EARTHENWARE.**—There is scarcely any manufacture which is so interesting to contemplate in its gradual improvement and extension, as that of earthenware, presenting as it does so beautiful a union of science and art, in furnishing us with the comforts and ornaments of polished life. Chemistry administers her part by investigating the several species of earths, and ascertaining as well their most appropriate combinations, as the respective degrees of heat which the several compositions require.

Art has studied the designs of antiquity, and produced from them vessels even more exquisite in form than the models by which they have been suggested. The ware has been provided in such gradations of quality as to suit every station, from the highest to the lowest. It is to be seen in every country, and almost in every house, through the whole extent of America, in many parts of Asia, and in most of the countries of Europe. At home it has superseded the less cleanly vessels of pewter and of wood, and by its cheapness has been brought within the means of our poorest housekeepers. Formed from substances originally of no value, the fabrication had produced labour of such various classes, and created skill of such various degrees, that nearly the whole value of the annual produce may be considered as an addition made to the mass of national wealth.

The abundance of the ware exhibited in every dwelling is sufficient evidence of the vast augmentation of the manufacture, which is also demonstrated by the rapid increase of the population in the districts where the potteries have been established.—*Quarterly Review.*

## THE PEARL.

HALIFAX, FRIDAY EVENING, SEPTEMBER 21, 1838.

**THE DRAMA.**—Theatricals have long been in a languid and declining state in Great Britain, arising, we believe, from the increased prevalence of simpler and purer tastes. The wider diffusion of true religion on the one hand, and the multiplied establishment of Mechanics' Institutes on the other, have been attended by a corresponding diminution in the numbers of those who consume their leisure hours in such pernicious excitement as that of the acted drama.

This change has not, of course, passed unperceived by the members of the dramatic profession, whether actors or authors. Certain recent movements of theirs, evince that they are quite sensible of it. Judging by those movements, however, they would seem to have understood the causes which have led to the desertion of their exhibitions. They appear to think, that by paying a somewhat more plausible regard to the external decorum in the administration of the theatre, and by substituting what they call the legitimate drama for the ridiculous strings of low and profane jests which are the basis and superstructure of the modern "farce," they shall recover their lost ground, and bring back to their empty benches the more respectable classes by whom those benches used to be occupied. If this is the nature of their calculations, most certainly, they are in danger of falling between the two stools. Some from rational and some from religious conviction, many who formerly patronised the theatre have now turned their backs upon it; and though it might be difficult to decide with which they are most disgusted—the looseness of the lobby or the swearing on the stage, yet we are persuaded that the growing unpopularity of theatrical representations amongst the middle class, is to be traced chiefly to the persuasion that the excitement they produce is unwholesome and pernicious, and calculated, like all factitious stimuli, to blunt the sensibilities.

Our ingenuous youth sometimes hear of a manager boasting that he has purified the administrative department of his theatre to such an extent that the most delicately modest female need not scruple to attend it, and of the appearance of original dramas from learned and gifted pens, which are wholly free from coarseness and obscenity. To counteract in some measure the influence of such statements, we append a few remarks.

The derivation of the words which signify "Tragedy" and "Comedy" the termination of each of which is derived from the Greek verb "to sing," and that of "Scene," which plainly points to a shady spot surrounded by trees, afford a far simpler method of arriving at the origin of the Drama than the learned would seem to allow. In fact, they go far to prove that it was the amusement of a happy rural population, under a genial sun; that it consisted of singing and dancing, accompanied at intervals by those who did not take an active part in the performance, and