

inaction of the vital organs? Because in the present instance, as in every instance of suspended animation from hanging or drowning, the vital principle, whatever it consist in, had not ceased, or deserted the corporeal frame. It continued visible in its effect, though invisible in its essence and mode of operation.

Let us apply this remark to the subject immediately before us: it will serve as a ready clew to its intricacies. In many animals, then, and in most vegetables, the living principle often continues in the same manner to reside in and to actuate the organic frame; while the vital functions, as they are called, and, in conjunction with these, all the other functions of the system, remain inactive, not for an hour only, but for months and sometimes for years. It does so in the seeds of plants and the eggs of animals, so long as they are capable of germinating or pullulating. It does so in most animals, and perhaps in all vegetables, that sleep or become torpid during the winter-season; for though in a few hibernating animals, as the hedgehog and Alpine marmot, we trace a small degree of corporeal action from their appearing thinner on returning to activity in the spring, the greater number, like dormice and squirrels, exhibit no diminution whatever. It does so, in a more extraordinary manner, in the ears of blighted corn; which, though incapable of filling and fattening, and seemingly lifeless and effete, still contain a seed that may be rendered productive of a sound and healthy increase. It does so in various species of the moss; in various species of the snail, in one or two of the snake, in the wheel-polype, sloth, and tile-eel, and a variety of other animals and animalcules, that, like many of the preceding, have been kept apparently dead and in the form of dried preparations, totally destitute of irritability, altogether withered, and in substance as hard as a board for months and years,—in some instances as long as twenty years,—and have afterward been restored to life and activity upon the application of warmth, moisture, or some other appropriate stimulus.*

These are extraordinary facts, and may be difficult to be comprehended: but they are facts, nevertheless, and may be proved at any time and by any person. But there is a fact still more extraordinary, and of infinitely higher moment; and one in which we are all infinitely more interested—a fact to which these remarks naturally lead, and which they may serve in some degree to illustrate; it is the termination of the sleep of death, the resurrection of the body from the grave.

LECTURE VIII.

ON VOICE AND LANGUAGE; VOCAL IMITATION, AND VENTRILOQUISM.

LANGUAGE, in the fullest scope of the term, is of two kinds; natural and articulate or artificial. The first belongs to most animals; the last is peculiar to man: it is his great and exclusive prerogative. This also is of two divisions; oral or vocal, which constitutes *speech*; and literal or legible, which constitutes *writing*. The first of these divisions shall form our subject for the present study; the second we will examine in a subsequent lecture.

At the root of the tongue lies a minute semi-lunar shaped bone, which, from its resemblance to the Greek letter υ , or *upsilon*, is called the *hyoid* or *u-like* bone; and immediately from this bone arises a long cartilaginous tube, which extends to the lungs, and conveys the air backward and forward in the process of respiration.† This tube is denominated the *trachea* or *windpipe*; and

* Snails revived after being dried fifteen years and more.—Phil. Trans. 1774, p. 432.
See also Mr. Bauer's Croonian Lecture "On the Suspension of the Muscular Powers of the *Vibrio Tricincta*."—Phil. Trans. 1823, Art. 1. He has revived this curious worm after perfect torpidity and apparent death for five years and eight months, merely by soaking it in water.
† Study of Medicine, vol. 1. p. 457, edit. 1.

the upper part of it, or that immediately connected with the hyoid-bone, the *larynx*: and it is this upper part or *larynx* alone that constitutes the seat of the voice.

The tube of the *larynx*, short as it is, is formed of five distinct cartilages; the largest, and apparently, though not really, lowermost of which, produces that acute projection or knot in the anterior part of the neck, and especially in the neck of males, of which every one must be sensible. This is not a complete ring, but is open behind; the open space being filled up, in order to make a complete ring, with two other cartilages of a smaller size and power; and which together form the *glottis*, as it is called, or aperture out of the mouth into the *larynx*. The fourth cartilage lies immediately over this aperture, and closes it in the act of swallowing, so as to direct the food to the *esophagus*, another opening immediately behind it, which leads to the stomach. These four cartilages are supported by a fifth, which constitutes their basis; is narrow before, and broad behind, and has some resemblance to a seal-ring. The *larynx* is contracted and dilated in a variety of ways by the antagonist power of different muscles, and the elasticity of its cartilaginous coats; and is covered internally with a very sensible, vascular, and mucous membrane, which is a continuation of the membrane of the mouth.

The organ of the voice then is the *larynx*, its muscles, and other appendages; and the voice itself is the sound of the air propelled through and striking against the sides of its *glottis*, or opening into the mouth. The shrillness or roughness of the voice depends on the internal diameter of the *glottis*, its elasticity, mobility, and lubricity, and the force with which the air is protruded. Speech is the modification of the voice into distinct articulations, in the cavity of the *glottis* itself, or in that of the mouth, or of the nostrils.

Those animals only that possess lungs possess a *larynx*, and hence none but the first three classes in the Linnæan system, consisting of mammals, birds, and amphibials. Even among these, however, some genera or species are entirely dumb, as the *myrmecophaga* or ant-eater, the *manis* or pangolin, and the cetaceous tribes, together with the tortoise, lizards, and serpents; while others lose their voice in particular regions: as the dog is said to do in some parts of America,* and quails and frogs in various districts of Siberia.†

It is from the greater or less degree of perfection with which the *larynx* is formed in the different classes of animals that possess it, that the voice is rendered more or less perfect; and it is by an introduction of superadded membranes, or muscles, into its general structure, or a variation in the shape, position, or elasticity of those that are common to it, that quadrupeds and other animals are capable of making those peculiar sounds, by which their different kinds are respectively characterized, and are able to neigh, bray, bark, or roar; to purr as the cat and tiger kind, to bleat as the sheep, or to croak as the frog.

The *larynx* of the bird class is of a very peculiar form, and admirably adapted to that sweet and varied music with which we are so often delighted in the woodlands. In reality, the whole extent of the *trachea* or *windpipe* in birds may be regarded as one vocal apparatus; for the *larynx* is divided into two sections, or may rather, perhaps, be considered as two distinct organs; the more complicated, or that in which the parts are more numerous and elaborate, being placed at the bottom of the *trachea*, where it divides into two branches, one for each of the lungs; and the simpler, or that in which the parts are fewer, and consist of those not included in the former, occupying its usual situation at the upper end of the *trachea*, which, however, is without an *epiglottis*; the food and other substances being incapable of entering the aperture of the *glottis* from another contrivance. The lungs, *trachea*, and *larynx* of birds, therefore, may be regarded as forming a complete natural bagpipe; in which the lungs constitute the pouch and supply the wind; the *trachea* itself the pipe; the inferior *glottis* the reed, or mouth-piece, which produces the simple sound; and the superior *glottis* the finger-holes, which

* Pennant, Arctic Zool.

† Muller, Collect. of Russian Discoveries, vol. vii. p. 123.

modify the simple sound into an infinite variety of distinct notes, and at the same time give them utterance.

Here, however, as among quadrupeds, we meet with a considerable diversity in the structure of the vocal apparatus, and especially in the length and diameter of the tube or trachea, not only in the different species, but often in the different sexes of the same species, more particularly among aquatic birds. Thus the trachea is straight in the tame or dumb swan (*anas Olor*) of both sexes; while in the male musical swan (*anas Cygnus*) it winds into a large convolution contained in the hollow of the sternum. In the spoon-bill (*platalea Leucorodia*), as also in the mot-mot pheasant (*phasianus Mot-mot*), and some others, similar windings of the trachea occur, not enclosed in the sternum. The males of the duck and merganser (*Anas* and *Mergus*) have, at the inferior larynx, a bony addition to the cavity which contributes to strengthen their voice.

Many of the frog genus have a sac or bag in the throat, directly communicating with the larynx, as the tree frog (*rana arborea*), while the green frog (*rana esculenta*) has two considerable pouches in the cheeks, which it inflates at the time of coupling, by two openings close to the glottis. And it is on this account they are able to give forth that kind of croaking music which they generally begin in the evening and continue through the greater part of the night. Two or three species, possessed of a similar kind of apparatus, are very clamorous animals; and, pretending to a knowledge of the weather, are peculiarly noisy before rain or thunder-storms; while several, as the jocular and laughing toad (*rana risibunda* and *r. bombina*) are of a merrier mood, and seem to imitate with tolerable exactness the laugh of the human voice, in the hey-day of their activity, which is always in the evening.

Among the bird tribes there are some possessed of powers of voice so singular, independently of that of their own natural music, that I cannot consent to pass them over in total silence. The note of the pipra *musica* or tuneful manakin, is not only intrinsically sweet, but forms a complete octave; one note succeeding another in ascending and measured intervals, through the whole range of its diapason. This bird is an inhabitant of St. Domingo, of a black tint, with a blue crown and yellow front and rump; about four inches long, very shy, and dexterous in eluding the vigilance of such as attempt to take it. The imitative power of several species of the corvus and psittacus kinds is well known; the jays and parrots are those most commonly taught, and the far-famed parrot of the late Colonel O'Kelly, which could repeat twenty of our most popular songs, and sing them to their proper tunes, has been, I suppose, seen and heard by most of us. The bullfinch (*loxia Pyrrhula*), however, has a better voice, as well as a more correct taste in copying musical tones, and the bird breeders of Germany find a lucrative employment in training multitudes of this family for a foreign market.

The talents of the nightingale (*motacilla Lucina*) for speaking are, likewise, said to be very extraordinary, and even equal to his talents for singing. But where is the man, whose bosom burns with a single spark of the love of nature, that could for one moment consent that this pride and delight of the groves should barter away the sweet wildness of its native wood-notes for any thing that art can offer in its stead?

There is no species, however, so much entitled to notice on account of its voice, as the polyglottis, or mocking-bird. This is an individual of the thrush kind; its own natural note is delightfully musical and solemn; but beyond this it possesses an instinctive talent of imitating the note of every other kind of singing bird, and even the voice of every bird of prey, so exactly, as to deceive the very kinds it attempts to mock. It is moreover playful enough to find amusement in the deception: and takes a pleasure in decoying smaller birds near it by mimicking their notes, when it frightens them almost to death, or drives them away with all speed, by pouring upon them the screams of such birds of prey as they dread.

Now it is clear that the imitative, like the natural voice, has its seat in the cartilages and other moveable powers that form the larynx: for the great

body of the trachea only gives measure to the sound, and renders it more or less copious in proportion to its volume. It is not, therefore, to be wondered at, that a similar sort of imitative power should be sometimes cultivated with success in the human larynx; and that we should occasionally meet with persons, who, from long and dexterous practice, should be able to imitate the notes of almost all the singing-birds of the woods, or the sounds of other animals, or even to personate the different voices of orators and other public speakers.

One of the most extraordinary instances of this last kind consists in the art of what is called VENTRILOQUISM,* of which no very plausible explanation has hitherto been offered to the world. The practitioner of this occult art is well known to have a power of modifying his voice in such a manner as to imitate the voices of different persons conversing at a considerable distance from each other, and in very different tones. And hence the first impression which this ingenious trick or exhibition produced on the world, was that of the artist's possessing a double or triple larynx; the additional larynxes being supposed to be seated still deeper in the chest than the lowermost of the two that belong to birds: whence indeed the name of VENTRILOQUISM OR BELLY-SPEAKING. Mr. Gough has attempted in the Memoirs of the Manchester Society, to resolve the whole into the phenomena of echoes; the ventriloquist being conceived by him on all occasions to confine himself to a room well disposed for echoes in various parts of it, and merely to produce false voices by directing his natural voice in a straight line towards such echoing parts, instead of in a straight line towards the audience; who, upon this view of the subject, are supposed to be artfully placed on one or both sides of the ventriloquist. It is sufficient to observe, in opposition to this conjecture, that it does not account for the perfect quiescence of the mouth and cheeks of the performer while employing his feigned voices; and that an adept in the art, like Mr. Fitzjames or Mr. Alexander, is wholly indifferent to the room in which he practises, and will allow another person to choose a room for him. Mr. Fitzjames is a native of France; and his vocal art and vocal powers have been paid particular attention to by M. Richerand, one of the most popular French physiologists of the day; who has also examined the vocal organs of other ventriloquists, and observes, as the result of his investigations, that although there is little or no motion in the cheeks during the art of speaking, there is a considerable demand and expenditure of air; the ventriloquist always inhaling deeply before he commences his deception, passing a part of the air thus inhaled through his nostrils, and being able to continue his various voices as long as the inspired air may last, or till he has inhaled a fresh supply.

This view of the subject induced M. Richerand to relinquish the old hypothesis of a kind of vocal organ being seated in the stomach, to which we have already adverted, and which he had formerly embraced; though it does not appear that he has very distinctly adopted any other in its stead: "At first," says he, "I had conjectured that a great part of the air expelled by expiration did not pass out by the mouth and nostrils, but was swallowed and carried into the stomach; and, being reflected in some part of the digestive canal, gives rise to a real echo; but having afterward more attentively observed this curious phenomenon in Mr. Fitzjames, who exhibits it in its greatest perfection, I was soon convinced that the name of *ventriloquism* is by no means applicable; since the whole of its mechanism consists in a slow gradual expiration; in which the artist either influences at his will the surrounding muscles of the chest, or keeps down the epiglottis by the base of the tongue, the point of which is not protruded beyond the arch of the teeth."†

M. de la Chapelle, without offering any particular explanation of this curious art, published, in 1772, an ingenious work, in which he attempted to prove that ventriloquism is of a very ancient date; and that it formed the mode by which the responses of many of the oracles of former times were delivered

* Study of Medicine, vol. i. p. 463, edit. 1.

† Nouveaux Elémens de Physiologie, in loc. Paris, 1804.

by the priests and priestesses to the credulous multitude around them. And although this able writer has not fully succeeded in establishing his point, it must be allowed by every one that no art, while it continued occult, could better answer the purpose of such a sort of imposition; for an adept in the science is capable of modulating and inflecting his voice with so nice a dexterity, as not only to imitate, with equal accuracy, the cries of dogs, cats, infants, and persons in distress, together with every modification of articulate speech, but apparently to throw the mimic sound from whatever quarter he chooses: from the ceiling or roof of a house; the corner of a room; the mouths, stomachs, or pockets of any of the company present; from their hands or feet, from beneath a hat or a glass, or from a wooden doll. A humorous artist of this kind is said to have amused himself some years ago, by frequenting the fish-market at Edinburgh, and making a fish appear to speak, and give the lie to its vender in her own gross phrasing, upon her affirming that it was fresh, and caught in the morning; the fish quaintly replying as often as she so asserted, that it had been dead for a week, and that she knew it.

This singular art has given rise to a variety of extraordinary tales, and some of them of a very amusing kind. The following, which I copy from M. Bordeau, a learned critic of the sixteenth century, is of this description, and I will for once break through our accustomed gravity in order to give it you:—

The gallant Francis I. of France had an equally gallant and very shrewd valet-de-chambre, of the name of Lewis Brabant, who was also a most skilful ventriloquist. Lewis Brabant had the misfortune to fall desperately in love with a young, very beautiful, and very wealthy heiress, whose father forbade his addresses in consequence of the disparity of his condition. The father, however, died soon after, and the courageous lover, unsubdued by a first repulse, was determined to try his fortune a second time, under favour of the new state of circumstances, and to see whether it would not be possible, upon a severe push, to call to his aid the art of ventriloquism, in which he was so considerable an adept.

He accordingly waited upon the mother as soon as decency would allow, and once more submitted his proposals. But faithful to the views of her deceased husband, the mother of the young lady made no scruple of once more giving Lewis Brabant a direct refusal. While, however, she was in the act of doing so, a low, hollow, sepulchral voice was heard by herself, and by every friend who was with her, and which was instantly recognised as the voice of the deceased, commanding her to give her daughter's hand immediately to Lewis Brabant, whom the piteous spirit affirmed he now knew to be a most worthy and excellent man, and considerably wealthier than he had taken him to be when alive; adding, at the same time, that he was at that moment suffering a part of the pains of purgatory for having ill-treated, by his refusal, so exemplary a man; and that he would not be released from them till his widow had consented.

All was mute astonishment; but Lewis Brabant appeared more astonished than the rest. He modestly observed, that whatever his merits or his virtues might be, he had no idea that they were worthy of being commemorated by a voice from the grave; but that nothing could give him more pleasure than to be made the happy instrument of extricating the old gentleman from the pains of purgatory, which it seemed he was suffering on his account. There was no doubt as to the voice; and, consequently, there was no doubt as to the path to be pursued; the mother, the daughter, the whole family, immediately assented with one accord, and Lewis Brabant had the honour to receive their commands to prepare for the nuptials with all speed.

To prepare for the nuptials, however, required the assistance of a little ready money; but Lewis Brabant was destitute of such an article. It was necessary, nevertheless, to procure it; and he now resolved to try whether the same talent which had obtained for him the promise of a wife, might not also obtain for him the material he stood in need of.

He recollected that there lived at Lyons an old miserly banker, of the name of Cornu, who had accumulated immense wealth by usury and extortion, and whose conscience appeared often to be ill at ease, in consequence of the means he had made use of; and it immediately struck him that M. Cornu was the very character that might answer his purpose.

To Lyons, therefore, he went instantly post-haste, commenced an immediate acquaintance with M. Cornu, and on every interview took especial care, on entering into conversation with him, to contrast the pure happiness enjoyed by the man whose conscience could look back, like M. Cornu's, as he was pleased to say, on a life devoted to acts of charity and benevolence, with the horrors of the wretch who had amassed heaps of wealth by usury and injustice, and whose tormented mind only gave him now a foretaste of what he was to expect hereafter. The miser was perpetually desirous of changing the conversation; but the more he tried, the more his companion pressed upon him with it; till finding, on one occasion, that he appeared more agitated than ever, the ventriloquist conceived such an occasion to be the golden moment for putting his scheme into execution; and at that instant a low, solemn, sepulchral mutter was heard, as in the former case, which was at last found to be the voice of M. Cornu's father, who had been dead for some years, and which declared him to have passed all this time in the tortures of purgatory, from which he had now just learned that nothing could free him but his son's paying ten thousand crowns into the hands of Lewis Brabant, then with him, for the purpose of redeeming Christian slaves from the hands of the Turks.

All, as in the last case, was unutterable astonishment; but Lewis Brabant was the most astonished of the two: modestly declared that now for the first time in his life he was convinced of the possibility of the dead holding conversation with the living; and admitted that, in truth, he had for many years been benevolently employed in redeeming Christian slaves from the Turks, although his native bashfulness would not allow him to avow it publicly.

The mind of the old miser was distracted with a thousand contending passions. He was suspicious without having any satisfactory reason for suspicion; filial duty prompted him to rescue his father from his abode of misery: but ten thousand crowns was a large sum of money even for such a purpose. He at length resolved to adjourn the meeting till the next day, and to change it to another place. He required time to examine into this mysterious affair, and also wished, as he told his companion, to give his father an opportunity of trying whether he could not bargain for a smaller sum.

They accordingly separated; but renewed their meeting the next day with the punctuality of men of business. The place made choice of by M. Cornu, for this rencounter, was an open common in the vicinity of Lyons, where there was neither a house, nor a wall, nor a tree, nor a bush that could conceal a confederate, even if such a person should be in employment. No sooner, however, had they met than the old banker's ears were again assailed with the same hideous and sepulchral cries, upbraiding him for having suffered his father to remain for four-and-twenty hours longer in all the torments of purgatory; denouncing that, unless the demand of the ten thousand crowns was instantly complied with, the sum would be doubled; and that the miser himself would be condemned to the same doleful regions, and to an increased degree of torture. M. Cornu moved a few paces forward, but he was assaulted with still louder shrieks: he advanced a second time, and now instead of hearing his father's voice alone, he was assailed with the dreadful outcry of a hundred ghosts at once, those of his grandfather, his great-grandfather, his uncles and aunts, and the whole family of the Cornus for the last two or three generations; who, it seems, were all equally suffering in purgatory—and were included in the general contract for the ten thousand crowns; all of them beseeching him in the name of every saint in the calendar to have mercy upon them, and to have mercy upon himself. It required more fortitude than M. Cornu possessed to resist the threats and outcries of a hundred and fifty or two hundred ghosts at a time. He instantly paid the ten thousand crowns

into the hands of Lewis Brabant, and felt some pleasure that by postponing the payment for a day, he had at least been able to rescue the whole family of the Cornus for the same sum of money as was at first demanded for his father alone. The dexterous ventriloquist, having received the money, instantly returned to Paris, married his intended bride, and told the whole story to his sovereign and the court, very much to the entertainment of all of them.

It is certain, that hitherto no satisfactory explanation has been offered of this singular phenomenon; and I shall, therefore, take leave to suggest, that it is, possibly, of a much simpler character than has usually been apprehended; that the entire range of its imitative power is confined to the larynx alone, and that the art itself consists in a close attention to the almost infinite variety of tones, articulations, and inflections the larynx is capable of producing in its own region, when long and dexterously practised upon, and a skilful modification of these effects into mimic speech, passed for the most part, and whenever necessary, through the cavity of the nostrils, instead of through the mouth. The parrot, in imitating human language, employs the larynx and nothing else; as does the mocking-bird, the most perfect ventriloquist in nature, in imitating cries and intonations of all kinds.

But the parrot and the mocking-bird, it may, perhaps, be said, open their mouths and employ their tongues, which the ventriloquist, on many occasions, does not do; and that hence the organ of the tongue is equally necessary to inarticulate and to articulate language.

Such, I well know, is the general opinion; but it is an opinion opposed by a variety of incontrovertible facts, and facts of a most important and singular nature, though they have seldom been attended to as they deserve.

Every bird-breeder knows that it is not necessary for birds to open their bills in the act of singing, except for the purpose of uttering the note already formed in the larynx, that would otherwise have to pass through the nostrils, which, in birds, prove a much less convenient passage for sound than in man; and of so little use is the tongue towards the formation of sound, that instances are not wanting of birds that have continued their song after they have lost the entire tongue by accident or disease. But without dwelling upon these points, which are of subordinate consideration, I pass on to observe, and to produce examples, that it is not absolutely necessary for a man himself to be possessed of a tongue, or even of an uvula, for the purpose either of speaking or singing; or for that of deglutition or taste. In a course of physiological study, and in a lecture upon the nature and instruments of the voice, this is an inquiry, not only of grave moment, but immediately issuing from the subject before us.

Among almost innumerable instances of persons who have been able to articulate and converse without a tongue, too loosely recorded in ancient times to be fully depended upon, we occasionally meet with examples that are far better entitled to our credit. Such is the assertion of the Emperor Justin,* who affirms, that he had seen venerable men "whose tongues having been cut out at the root, complained bitterly of the torture they had suffered;" and who tells us, in another place, of some others, upon whom Honorichius, king of the Vandals, had exercised the same barbarity; and who had, notwithstanding, "perfectly retained their speech."†

Upon the irruption of the Turks into Austria, in 1683, this cruelty was again put in practice upon many of those who unfortunately fell into their hands. Tulpius, whose veracity no man will lightly impeach, was at this time informed that one of the sufferers had escaped, and had recovered, and was still in possession of the use of speech, and residing at Wesop, in Holland; and, half doubtful of the truth of the common report, to Wesop he immediately set off, to satisfy himself by a personal examination. He saw the man, and found that he could not only speak, but could articulate those consonants and words which seem chiefly to depend upon the tip of the tongue for their

* Con. Tit. de Off. Prat. † Phil. Trans. 1742, p. 143; ib. 1747, 621; in the Abridg. viii. 586. ix. 375.

pronunciation. This is a case the more worthy of attention, because the man had been so cruelly mutilated at the roof of the mouth, that he could not swallow the smallest quantity of food, without thrusting it into the esophagus with his forefinger.*

In the third volume of the Ephemerides Germanicæ, is another case of a similar kind, and most credibly authenticated. It relates to a boy that had lost his tongue at eight years of age by the small-pox, but was still able to speak. The boy was minutely examined in a full court before the members of the University of Saumur, in France, who had suspected some deception; the report, however, was found correct; and the University, in consequence, gave their official attestation to it, in order that posterity might have no room to doubt its validity.

To these let me add one more instance that occurred in our own country, in what may be almost called our own day, and which is very minutely detailed and authenticated in the Transactions of the Philosophical Society that were published between the years 1742 and 1747.† The case, as drawn up by Dr. Parsons, relates to a young woman of the name of Margaret Cutting, of Wickham Market, near Ipswich, in Suffolk, who, when only four years old, lost the whole of her tongue, together with the uvula, from what is said to have been a cancerous affection; but who still retained the power of speech, deglutition, and taste, without any imperfection whatever; articulating, indeed, as fluently, and with as much correctness as other persons; and, like the individual whose history is given by Tullius, articulating those peculiar syllables which ordinarily require the express aid of the tip of the tongue for exact enunciation. She also sang to admiration, and still articulated her words while singing, and could form no conception of the use of a tongue in other people. Neither were her teeth, in any respect, able to supply the place of the deficient organs; for they were but few in number, and rose scarcely higher than the surface of the gums, in consequence of the injury to their sockets from the disease that had destroyed the tongue. The case thus introduced before the Royal Society, was attested by the minister of the parish, a medical practitioner of repute, and another respectable person. From its singularity, however, the Society evinced a commendable tardiness of belief. They requested another report upon the subject, and from another set of witnesses, whom they themselves named for the purpose; and for whose guidance they drew up a line of categorical examination. This second report soon reached the Society, and minutely coincided with the first; and to set the question completely at rest, the young woman was shortly afterward brought to London, and satisfied the Royal Society in her own person.‡

It appears obvious, then, that the tongue, though a natural and common organ in the functions of voice, taste, and deglutition, is not absolutely necessary to these functions; that on various occasions it has been, and therefore, may be, totally lost, while the functions themselves continue perfect.

In singing, every one knows that the larynx is the only organ employed, except when the tones are not merely uttered but articulated: it is the only organ employed, as I have already observed, in the mock articulations of parrots and other imitative birds: it is the only organ of all natural tones, or natural language; and hence Lord Monbodo ingeniously conjectures, that it is the chief organ of articulate language in its rudest and most barbarous state, "As all natural cries," he observes, "even though modulated by music, are from the throat and larynx, or part of the throat, with little or no operation of the organs of the mouth; it is natural to suppose that the first languages were, for the greater part, spoken from the throat; and that what consonants were used to vary the cries, were mostly guttural; and that the organs of the mouth would at first be but very little employed."§

I have thus endeavoured to account for the chief difficulty, and the most

* Tulpii Observ. Medicæ, Amsterd.

† In their abridged form, vol. viii. 586, and ix. 375.

‡ Study of Med. i. 499, edit. 1, where other examples are noticed.

§ Orig. and Progr. of Lang. vol. i. 6; iii. ch. 4.

extraordinary phenomenon that occurs in the art of VENTRILOQUISM,* that I mean of speaking without appearing to speak, or discovering any motion of the lips: the larynx alone, by long and dexterous practice, and, perhaps, by a peculiar modification in some of its muscles or cartilages, being capable of answering the purpose and supplying the place of the associate organs of the mouth.

It is this curious power in the art of ventriloquism that most astonishes us, and puts us off our guard; for the two other powers connected with it, of imitating various cries or voices, and of appearing to throw the voice from remote objects, are far more common and comprehensible. The power of vocal imitation where the tongue is allowed to be employed is possessed, by most persons, to a certain extent; and, by many, to a degree of accuracy, that would certainly deceive us in the dark; or if, by any other means, the performer were concealed from us. While the only point necessary to give the voice the semblance of issuing from a distant or unusual object, is to take a nice measure of the distance itself, and of the nature of the object from which it is to be presumed to issue, and so to modulate or inflect it as to produce the natural tone it may be supposed to possess, if thrown from such a distance or from such a form. It must be obvious, however, that the surprise resulting from the mystery of thus imitating voices and distances must be powerfully aided in ventriloquism by the additional mystery of the artist's motionless mouth; in consequence of which we are totally incapable of referring it to himself. In hearing, as in seeing, habit is our only guide: in both we only judge by accustomed comparisons; and we are exactly in the same manner deceived by the painter, and even allow ourselves to be deceived in regard to objects of vision, as we are by the ventriloquist, and without such allowance, in regard to objects of sound. In respect to both senses, indeed, we often deceive ourselves in judging of the most common phenomena: and hence it is not at all to be wondered at that we should be completely imposed upon by the nice delusions of art. Thus the evening sky, begirt with gold-green clouds at the extremity of the horizon, is often mistaken for the ocean, studded with islands; and the rumbling of a cart over pavement, or hard ground, is not unfrequently believed to be a thunder-clap in the heavens; and, under the influence of this last deception, we immediately transfer all the awfulness and magnificence of the celestial meteor to this clumsy piece of machinery, and are as alarmed as if the fiery bolt were about to descend upon us.

LECTURE IX.

ON NATURAL OR INARTICULATE, AND ARTIFICIAL OR ARTICULATE LANGUAGE.

HAVING, in our last lecture, examined into the seat and properties of the natural voice, let us now proceed to notice the mode in which it is applied to the formation, first, of natural language, and next, of speech, or artificial language.

Natural language is the instinctive appropriation of certain tones of the natural voice, to indicate certain feelings of the sensory: and with the few exceptions pointed out in our preceding lecture, every animal belonging to the three classes of mammals, birds, and amphibians, every animal possessed of lungs, is in some degree or other possessed of this kind of language. Its

* According to M. Magendie, whose work first appeared in our own country seven years after the delivery of the above lecture, in 1811, the larynx is supposed to be the organ chiefly or altogether operated upon in France; and ventriloquism to consist in adjusting the measure of its articulations according to the effects which the ventriloquist has observed that distance, or other circumstances, produce upon the natural voice. See Edin. Med. and Surg. Journ. lxi. 577.

scope is, indeed, often very limited; but always sufficient to answer the purposes of nature. The female of every species understands the call of the male, and replies to it as intelligibly: the young understand the mandates of the mother, and the mother the petitions of the young. This amusing department of natural history was well known to the philosophers of Greece and Rome, and attentively cultivated by them: and Lucretius, in his Nature of Things, has pursued the subject not only so correctly but so copiously, that it is almost impossible, even in the present day, to add any thing of real importance to what he has already observed.

I have termed this language of nature instinctive: and that it is entitled to this character is clear; because, even among birds, which possess the widest and most complicated range of natural language of all animals whatever, where two individuals of different species are bred up in the same bush, or in the same cage, or hatched and fostered by a female of a third species, each evinces and retains the note that specifically distinguishes the species to which it belongs. In the case of a goldfinch and a chaffinch this has been put directly to the proof. And it is by this native tongue, as Mr. Montague has justly observed, and not by the form or colour, that the process of pairing is achieved, and the female induced to select her paramour.*

Almost every animal of the three classes just adverted to exhibits a different tone of voice according to the governing passion of the moment; but more especially when under the influence of *grief*, *fear*, or *joy*; to which, in some instances, we may add *anger*; but a distinct tone for anger is not so generally traced among animals as it is for the three preceding passions.

Among quadrupeds, the elephant, horse, and dog appear to possess the greatest portion of a natural tongue. They are all gregarious, particularly the two former. In Asia, the wild elephant, and in the Ukraine, between the Don and the Dnieper, the wild horse, pursue one common plan of political society, in numerous and collected troops; and are regulated by the elders of the tribe among the elephants, and by leaders chosen for this purpose among the horses: and it is by a difference of voice, combined with a difference of gesture, that these superiors give orders, in the course of their travels from place to place, in pursuit of pasture, for the necessary dispositions and arrangements. Both kinds are extremely vigilant and active, and maintain their ranks and brigades with as much regularity and precision as if they were conducted by a human leader. Among the wild horses of the Ukraine, the captain-general seems to be commonly appointed to his station for about four or five years; at the expiration of which time a kind of new election takes place: every one appears to have a right to propose himself for the office, the ex-magistrate not excepted: if no new candidate offer, the latter is re-elected for the same term of time, and if he be opposed a combat succeeds, and the victor is appointed commander-in-chief.

The conduct pursued by the peaceful and amiable elephant varies in some degree from this of the wild horse; for, in the travels of these animals from place to place, the troops are led on by the eldest of the tribe, thus evincing a kind of patriarchal government: the young and feeble marching in the middle, and the rear being composed of the vigorous and adult.†

The natural language of the monkey kind, notwithstanding the general resemblance of their structure to that of the human race, appears to be more confined than that of most quadrupeds; and it is well known that they never attempt to articulate sounds. Linnæus, indeed, seems to have entertained a contrary opinion with respect to the ourang-outang, and asserts that he speaks with a kind of hissing noise. Buffon, however, and Daubenton, and almost every other naturalist who has attentively watched his habits, deny that he ever employs even a hissing speech. And every comparative anatomist, who has accurately examined his vocal organs, has declared him to be physically incapable of articulation, from the peculiarity of a sac or bag, in some species of the animals single, in others double, immediately connected with the

* Ornithological Diet. Introd. p. xxix.

† See note to the Author's Translation of Lucretius, vol. ii. p. 376.