side with the speed of one who hears behind him the bloodhound's bay. When he reached the top, being well acquainted with the ground, he set off at full speed in the direction of his father-in-law's house, following, not the road by which he had come, but the hill-sides, where he was not likely to be seen by any one. He took this route, in the hope that in some of the many corner-holes about the Crook, he might easily lie concealed until the hue-and-cry was blown over. Nor was he wrong in his anticipations.

After the departure of the soldiers with their prisoner, Geordie Black was surprised by the arrival of visitors that were near and dear to him—namely, his daughter Ailie with her infant child. The poor young creature knew of her husband's capture, and was on her way to Carlisle to beg his life, or to die with him. Her parents persuaded or rather compelled her to stay for a night with them, in order to take that rest of which she stood in so much need; but it may be imagined that they could offer her no other consolation. Consolation, however, was not far off, though they then saw it not. After night had set in, Geordie, with the view of excluding as much as possible all spectators of his daughter's grief, went out in person to bring a supply of fuel for the parlour fire, from the peat-stack. While in the act of lifting these combustibles, a voice whispered his name, and, finding by the terrified "Gudesake! what's that?" that it was his father-in-law, Maclaren revealed himself, and told the story of his marvellous escape. It would be hard to say whether joy or alarm were predominant in the old man's mind on hearing it, for he feared the return of the soldiers. He had, nevertheless, no thought for an instant of abandoning Neil. Going into the house for a lantern, he led his son-in-law to an unoccupied and well-concealed corner of his premises, and then having prepared both of them for the joyful and most unexpected interview, he conducted the wife to her husband's arms. They were strongly attached to each other, and their feelings on meeting are not to be described.

Lieutenant Howison and two of his men reached Crook during the night, the rest having gone, according to command, in various directions in search of the fugitive. In anticipation of such a visit, Maclaren had been carefully and securely secreted, and the servants of the household, being put upon their guard, were too faithful not to avoid all mention of Maclaren's wife's name. The lieutenant, indeed, never entertained the slightest suspicion of the landlord, but on the contrary condescended, as if sure of the sympathies of his auditor, to repeat to Geordie many emphatic denunciations of the scoundrel who kept "tumbling and rolling" down the Devil's Beef-Stand, though called upon to halt "in the king's name." The unwelcome military visitants departed from the Crook on the following day.

Neil Maclaren, the hero of this remarkable escape, contrived, with the aid of his friends, to keep himself concealed, sometimes in one way and sometimes in another, until the act of indemnity was passed by the government. He then returned with his wife to the Braes of Balquhidder, in which district he was a duniewassal, or small proprietor. Like Rob Roy, he had not disdained to seek the improvement of his fortunes by sending cattle to England, and these expeditions he sometimes guided in person. While on one of these journies, he had seen and loved, wooed and won, Ailie Black. After claiming and obtaining the immunity alluded to, he recovered (chiefly by the help of Geordie Black's well-saved *pose*) the greater part of his former heritage, and lived in peace, for the rest of his days, in the bosom of his family.

CIVILISED USAGES INTRODUCED INTO RUSSIA.

Peter the Great, in the course of his efforts to introduce civilised usages among his people, issued a decree that every man who entered the gates of St Petersburg should submit to have his beard shaved. By this and other means, Peter gradually brought about the practice of shaving, which had been formerly unknown in Russia. The Empress Catharine followed up Peter's plans for reforming the barbarous manners of the Russians. She altered the uncouth dresses of the women, by substituting the fashions of France and England, and causing silks and cambrics to take the place of furs and skins. She likewise elevated the female character by introducing the fashion of mixed assemblies, in which ladies and gentlemen for the first time mingled. This was a great step in advance; for without a free and refined intercourse of the two sexes, no people can acquire or retain the blessings of civilisation; and the more that the humanising influence of the virtuous female character is cultivated and suffered to act, the farther will society advance in improvement.

The Empress Catharine having a half-savage people to deal with, issued some exceedingly emphatic orders regarding the arrangements to be followed in the conducting of assemblies or evening parties. One cannot help laughing when they peruse these peremptory statutes. They are as follow:—

First. The person at whose house the assembly is to be kept, shall signify the same by hanging out a bill, or by giving some other public notice, by way of advertisement, to persons of both sexes.

Second. The assembly shall not be open sooner than four or five o'clock in the afternoon, nor continue longer than ten at night.

Third. The master of the house shall not be obliged to meet his guests, or conduct them out, or to keep them company; but though he is exempt from all this, he is to find them chairs, candles, liquors, and all other necessaries the company may ask for; he is likewise to provide them with cards, dice, and every necessary for gaming.

Fourth. There shall be no fixed hour for coming or going away; it is enough for a person to appear in the assembly.

Fifth. Every one shall be free to sit, walk, or game as he pleases; nor shall any one go about to hinder him, or take exceptions at what he does, upon pain of emptying the great eagle (a pint bowl full of brandy). It shall likewise be sufficient, at entering or retiring, to salute the company.

Sixth. Persons of distinction, noblemen, superior officers, merchants, and tradesmen of note, head workmen, especially carpenters, and persons employed in chancery, are to have liberty to enter the assemblies; as likewise their wives and children.

Seventh. A particular place shall be assigned the footmen, except those of the house, that there may be room enough in the apartments designed for the assembly.

Eighth. No ladies are to get drunk upon any pretence whatsoever, nor shall gentlemen be drunk before nine.

Ninth. Ladies who play at forfeitures, questions and commands, &c. shall not be noisy or riotous; no gentleman shall attempt to force a kiss, and no person shall offer to strike a woman in the assembly, under pain of future exclusion.

Such, according to our authority, are the statutes upon this occasion, which, in their very appearance, carry an air of ridicule and satire. But politeness must enter every country by degrees, and these rules resemble the breeding of a clown, awkward but sincere.

A VISIT TO THE ZOOLOGICAL GARDENS.

FOURTH ARTICLE.

These interesting enclosures consist of two divisions, called the South and North Gardens, which are separated, rather unfortunately, by a public road, and the communication betwixt the two is by means of an arched tunnel under the thoroughfare. Our preceding articles referred exclusively to the southern department of the gardens, which is first reached by the common entrance, and we now invite the reader to accompany us in our sauntering visit to the northern grounds situated beyond the tunnel, and which, though of inferior dimensions, are full of interest to the lover of animated nature.

In proceeding towards the northern division, we pass a cattle-shed, partitioned into compartments like so many cow-houses, to which open paddocks are respectively attached. Here three interesting animals present themselves—a Burmese pony, which is a small handsome creature, from the collection of his late majesty; a Brahmin bull; and a female buffalo. The Brahmin bull (Bos Taurus) is from Hindostan, where it is called the Zebu or Daswali, and held as an object of religious veneration. In size it resembles a common bull of this country, but is of a pale cream colour, and possesses high shoulders, or a species of hump. This fine animal was received about five years since by the society from India. In the paddock adjoining, as we are informed, a cow of the same Indian breed is occasionally kept, along with her calf. It is impossible to look upon this specimen of a creature of idolatrous worship without recalling to mind the long history of superstition in the East. From the most remote times, the bull, the cow, the ox, or the calf—it is all one—have been mystical types of the Deity or of his works. Among the ancient Chaldeans, the bull was placed as a sign in the zodiac; it typified the sun in more than one system of mythology; was worshipped by the names of Apis and Mnevis among the Egyptians; the Greeks adopted it, or rather the cow, as a type of the earth, and, as such, it had a place in the heathen worship of the Celtic nations. The Hindoos are the only people who perpetuate this idolatry. According to their cosmogonies, it is to be esteemed as the primordial animal—the first created of the three kinds of gods, who were directed by the Supreme Governor of the world to furnish the earth with animated beings. It will naturally be supposed that the main cause for all this veneration is the extreme utility of the animal. The cow furnished a large share of the food of a primitive people, and the ox tilled the ground. From its services in drawing the plough and treading out the corn, arose agriculture and territorial rights, wealth, commerce, leisure, and learning; and thence, to continue the picture, mankind becoming abstracted from war and personal aggression, the animal from which so much good sprung, was constituted an emblem of justice—the type of Siva. But in recalling to remembrance these shreds of the ancient history of Bos Taurus, we are forgetting Bos Bison, or, as some call it, Bos Americanus, the buffalo which resides in the adjoining enclosure. This, as we have mentioned, is a female, and therefore does not present the wild shaggy appearance which might be expected from it. It is a young one of the year 1830, from Hudson's Bay, and was a donation to the society by the Hudson's Bay Company. We should like much to see a few genuine buffalos of the American prairies. These animals, which resemble wild oxen, only that they have high humpy shoulders covered with shaggy hair, and bristling fierce heads, rove in immense bands over the western plains of North America, climb the Rocky Mountains, and traverse the borders of the Columbia, and other rivers of the Pacific. Their speed in running is extraordinary. With the velocity of the wind, and bellowing like the loudest thunder, they go helter-skelter across the prairies as many as ten thousand in a single band, trampling down every obstacle in their heedless flight, and crossing rivers in such density, that the waters are often dammed up and flood the adjoining territory. A sight of one of these droves in its mad career, would be worth a world of the petty spectacles of hare or fox hunting in England.

On issuing from the tunnel, by an easy ascent, into the north gardens, the first object which attracts our attention is a large cage containing a number of squirrels of different species. Among others, we perceive the Black and Capistrated Squirrel, both natives of North America, and pretty little animals of their kind. There not being much to see about them, however, we turn down a pathway to the right, leading to a repository of carnivorous quadrupeds. Here we find the regular show or exhibition animals, such as tigers, leopards, ocelots, lynxes, lions, jackals, and so forth. We do not consider that the collection of these creatures is very good. We have, for instance, never yet seen a good specimen of the lion and lioness in these gardens, at least none to compare with those in a rival establishment—the Surrey Zoological Gardens. Among the animals in the repository before us, there is exhibited a specimen of the Malayan Sun-Bear. This creature is a native of Sumatra, in India, and is found only in hot countries, in the immediate vicinity of the equator. Its food is chiefly vegetable, and it occasionally, when in a wild state, causes much damage, by devouring the young shoots of the cocoa-nut tree, which are particularly grateful to it. It is also fond of honey, for the lapping of which, from confined situations in trees, its lengthened tongue is well suited. Here, also, is a fine pair of Striped Hyænas; the male is, we believe, from the Cape of Good Hope, and the female from India. Unlike the rest of its species, the female is remarkably tame. Hyænas have usually a ferocious dog-like appearance, and are rarely subdued to gentleness. In some parts of Africa, they hunt in packs, and slaughter all the animals that fall within their reach, belonging to the inhabitants of the villages. Bruce, in his Travels, relates the following particulars regarding their predatory exploits:—"These creatures were a general scourge to Abyssinia, in every situation, both in the city and in the field; and, I think, surpassed the sheep in number. Gondar was full of them, from evening till dawn of day; seeking the different pieces of slaughtered carcases which this cruel and unclean people expose in the streets without burial; firmly believing that these animals are the Falasha or evil genii, transformed by magic, and come down from the neighbouring mountains to eat human flesh in the dark with safety. Many a time in the night, when the king had kept me late in the palace, and it was not my duty to lie there, in going across the square from the king's house, not many hundred yards distant, I have been apprehensive lest they should bite me in the leg. They grunted in great numbers about me, although I was surrounded with several armed men, who seldom passed a night without wounding or slaughtering some of them. One night in Maitsha, being very intent on an observation, I heard something pass behind me towards the bed, but, upon looking round, could perceive nothing. Having finished what I was about, I went out of my tent, resolving directly to return; which I immediately did, when I perceived two large blue eyes glaring at me in the dark. I called up my servant with a light; and we found a hyæna standing near the head of the bed, with two or three large bunches of candles in his mouth. To have fired at him, would have been at the risk of breaking my quadrant or other furniture; and he seemed, by keeping the candles steadily in his mouth, to wish for no other prey at that time. As his mouth was full, and he had no claws to tear with, I was not afraid of him, and, with a pike, stuck him as near the heart as I could. It was not till then that he showed any sign of fierceness; but upon feeling his wound, he dropped the candles, and endeavoured to run up the shaft of the spear to arrive at me, so that I was obliged to draw my pistol from my girdle and shoot him; and nearly at the same time, my servant cleft his skull with a battle-axe. In a word, the hyæna was the plague of our lives, the terror of our night-walks, and the destruction of our mules and asses, which, above every thing else, are his favourite food."

Leaving the tigers, ocelots, and lynxes, after a passing notice, we return towards the tunnel, and proceed in a path leading in a western direction. This brings us to a variety of enclosures, but we direct our atten-

ion, in the first place, to a house containing a couple of elephants and a rhinoceros. The elephants are accommodated with apartments on one side of a passage, and the rhinoceros dwells in one on the other. One of the elephants is much smaller than the other. The larger is of prodigious size—by far the largest we ever saw in any exhibition, but possesses the usual gentleness of character of its tribe, and seems fond of any little article of food handed to it. When it arrived in the gardens three years ago, it was about eleven years old, and its increase since has been upwards of a foot. The character of the elephant is so well known, that nothing here may be said on the subject; we beg only to add the following anecdote of Chuny, an elephant similar to this, at one time exhibited in Exeter Change. It is in the words of the Quarterly Review:—"The rage for which poor Chuny paid the forfeit of his life, was, there is little doubt, brought on by the toothache—yes, a toothache, gentle reader—originating in a local injury, and exasperated by the cold blasts of the early year. On dissection, a large quantity of matter was found in the jaw, near the base of one of the tusks. Chuny—the living mountain—was kept in awe by a small terrier dog that had been trained to walk up and down the bottom beam or ledge in which the great uprights of his den were fixed, in the absence of his keeper, in order to prevent the elephant from knocking violently against the barrier with his trunk, as he would do, so as to shake all around him if he was not watched. This was when his den opened upon the window that looked eastward into the Strand. One blow of his trunk—that tremendous and wonderful engine wherewith the elephant can tear down trees, remove artillery, or pick up a sixpence—would have rid him of his fear; but there he stood, huddled up in a corner of his den, gazing in horror at the pigmy that made him tremble, reminding us of the merchant in the fairy tale under the visitation of the night-hag. And yet his sagacity was great. The late Dr Wollaston visited him one day, taking with him a quantity of nuts, a considerable portion of which were bad, and selected for the purpose; these were kept separate from the rest. The doctor gave Chuny one good nut after another, and now and then a bad one; by and bye he increased the proportion of bad, and at last gave him a handful of bad ones at once. The dust and ashes that flew forth as he crunched them, made an impression on Chuny; for when, after this dose of bad ones, the doctor continued his offers of single nuts, Chuny took every nut with his trunk, laid it on the floor, set his enormous foot on it just heavy enough to break the shell, and, if the nut was a good one, picked the kernel up and conveyed it to his mouth. Dr Wollaston saw him do this again and again, without crushing a single kernel, and was charmed with the delicate adjustment of such an overwhelming weight, and the nice adaptation of such a seeming unwieldy power. But we must leave our elephant for his massive brother the rhinoceros (continues the same authority), the personification of clumsy brute force; and looking, as we heard it facetiously remarked, as if his clothes were not made to fit him—observing, by the way, that those who wish to have a clear and correct view of the mode of catching and subduing wild elephants in India, have only to visit Mr Daniell's panorama, where the whole process is admirably depicted. The mutual hatred between the rhinoceros and elephant has been the theme of many a tale, from Sinbad's description of the fight, so characteristically terminated by the roc carrying off both combatants in her claws, to the less questionable relations of modern travellers and historians. When the rhinoceros before us first arrived, the elephant certainly showed no good will towards him; but there was a reason for this. The crowds that used to surround the elephant, and reward him with cakes and fruit, deserted him for the new comer, and we have seen poor Jack, at such times, go through all his tricks without a single spectator, in the hope of regaining the popularity which his rival was taking from him before his face. When these two animals were conducted to their new abode, a scene occurred which may perhaps throw some light on their alleged mutual aversion. They were lodged close together, but so that one could not be seen by the other. The apartment of the rhinoceros was separated from that of the elephant by two doors; the door nearest to the rhinoceros being of oak, and that next to the elephant of deal. The elephant one day broke the deal door with his tusks, and then made a push at the exposed oak-door, which carried it off its hinges. What happened before the keepers came, they of course knew not; but when they arrived, they found the rhinoceros in the apartment of the elephant, standing at right angles with him, and with his head under the elephant's belly: the latter, to use the expression of the keeper, was 'all of a tremble.' The young female elephant, which was at that time confined in the same apartment with the large one, had apparently escaped from the scene of action by entering the rhinoceros's apartment, where she was discovered, standing quietly. The large elephant and rhinoceros were then separated by the keepers, the rencontre not having produced the slightest injury to either. The relative sagacity of the two animals was well shown, soon after they took possession of the house from which they are now excluded. The rhinoceros was one day observed pushing his straw to the side of his apartment within reach of the elephant's trunk, who protruded that organ round the end of the partition, and from time to time bore off the litter. Trunkful after trunkful was abstracted, but still the stupid rhinoceros continued to push the straw towards the place whence it disappeared: the twinkle in the elephant's eye, as he enriched his own bed at the expense of his simple neighbour, was capital."

STAMMERING.

The vocal organs in man, or the organs of speech, as they are more commonly called, consist of the chest for containing air, and the respiratory muscles for inhaling and expelling it; of the larynx, or cartilaginous box in the windpipe, with its narrow aperture called the glottis at the top, for producing the voice, and for varying its pitch; and of the short tube of the mouth, with the tongue and lips, for further modifying the vocal sounds. Such is nearly the description of the apparatus of the human voice given by Dr Arnott, and, with a very little additional explanation as to the mode of forming elementary sounds, it is sufficiently explicit for the purpose at present in view, of examining into the nature of the imperfection termed Stammering, or Hesitation of Speech.

In a well-written treatise on the Elements of Language, which has for its object the elucidation of the subject of stammering, Mr T. Borthwick observes, that the organs pertaining "to the instrument of the voice or speech, are, to a certain extent, of an involuntary or self-acting nature. They can be subject to no peculiarity of action but what is constant, affecting every sound or word continually in the same manner. They are the passive agents of the organs of respiration which act on them." This is perfectly true of the actual production of the sound in the larynx, which is the musical instrument of the voice. The same results will always passively follow from the same influences. A great portion of the vocal apparatus, at the same time, is under the power of the will. The regulation of the acting force of the respiratory muscles—the enlargement or diminution of the size of the glottis, the orifice of the windpipe, and the pitch-pipe of the voice—the modification of the voice by the mouth and lips—are all important vocal actions, entirely dependent on volition. By the mouth and lips, no less than fifty modifications of the voice, easily distinguishable from one another, can be made, though no single language contains letters representing nearly so many sounds as these. The most simple of these modified sounds are called vowels, which consist simply of the voice as it passes through the open mouth, and is influenced only by the degrees in which the mouth is opened and elongated. These vowels are generally regarded as five in number, *aw*, *a*, *e*, *o*, and *oo* (*i* and *u* are double sounds or diphthongs, *ai* and *iu*), to which has been sometimes added that sound which *e* has in the English word *bell*. The simplest of all the vowel sounds is the Roman e, or the a of the English word care, and its simplicity, or facility of utterance, arises from the mouth being in its most natural state of relaxation, at the moment when the sound is formed. It is of importance for the reader to bear this in mind. A consonant is merely one or other of the vowels, ended or begun by certain movements of the mouth, or rather the tongue and lips. A vowel, on the contrary, is a sound that can be continued, without variation, as it originated. Being compound sounds, consonants, in all their varieties, may be regarded as more difficult of enunciation than vowels.

Such are the elements of language, and the proximate means of their production. It is not here, however, it is not in the muscular movements of the tongue, lips, or mouth, that the source of the defect or impediment of speech called stammering is to be sought. On this point almost all inquirers into the subject are agreed. Where, then, is the cause of the evil to be found? Is it in the larynx, where the vocal sounds are formed? Is it in the glottis, which, in proportion as the epiglottis, or valve covering it, is opened up less or more, renders the pitch of the voice lower or higher? Or, is it in the action of the respiratory muscles, which, in expelling the air through the windpipe, create the sound in the larynx, in the same manner as a French horn or other wind instrument is sounded by blowing through it? With regard to the first of these parts, the larynx, which is a portion of the vocal apparatus not under the control of the will, the defect, if it lay there, would be obviously one of structure, and incurable. Fortunately, however, stammering is not incurable, and does not depend on organic defects in the larynx, or indeed on defective structure any where. On this point, as with regard to the mouth, physiologists are agreed. But with regard to the glottis or pitch-pipe, and the respiratory movements or bellows, of the voice, this is not the case. Two of the most judicious writers on the subject that have yet appeared, disagree with respect to these parts. Dr Arnott conceives the defect of stammering to depend almost universally upon irregular movements in opening and closing the glottis, while Mr T. Borthwick, the writer already alluded to, regards certain irregular actions of the respiratory muscles as the cause of interrupted speech. (The respiratory muscles, it may be explained here, include all those muscular masses on the front and back of the chest, and those that pass from one rib to another. But the great muscle of respiration is the diaphragm, which passes obliquely across the middle of the trunk, and divides the chest from the intestinal cavity or abdomen. It is by the alternate contraction and relaxation of the diaphragm (midriff), in the emptying and filling of the chest, that the sinkings and protrusions of the abdomen are caused.) As both Dr Arnott and Mr Borthwick hold the disease to be curable, and as their opinions are rational and intelligible, it may be both interesting and useful to state them briefly and distinctly. Dr Arnott remarks, that, to a person ignorant of anatomy, and not knowing where the glottis is, it may be a sufficient explanation to say, that it is the slit or narrow opening at the top of the windpipe, by which the air passes to and fro from the lungs, being situated just behind the root of the tongue. It is that which is felt to close suddenly in hiccup, arresting the ingress of air; and that which closes to prevent the egress of air from the chest of a person lifting a heavy weight, or making any straining exertion. (A beautiful example, by the bye, of a physical truth, is afforded in the latter case, where a little muscle, closing the glottis, is enabled, by its position at the top of the *column* of air in the windpipe, to resist the whole action of the respiratory muscles tending to force the air through the glottis.) It is by the repeated shutting, also, of the glottis, that a person divides the sound in pronouncing several times, in distinct and rapid succession, any vowel, as o—o—o—o. Now, the glottis, during common speech, needs never be closed, and an ordinary stutterer is *cured*, if, by having his attention properly directed to it, he can *keep it open*; for the irregular closing of it during speech is the source of the impeded utterance.

This is Dr Arnott's opinion respecting the cause of stammering; and in the voluntary effort of attention, necessary to keep the glottis open, consists all that is required, according to him, for its cure. The fact that *singing* is effected principally by enlarging or diminishing the orifice of the glottis, yet constantly keeping it open, is referred to as strongly corroborative of this view, seeing that many persons who stammer in speech, can often sing without the least interruption; which is owing to the fact, that the continuity of the tune does not allow the glottis ever to be closed. On this circumstance is based Dr Arnott's mode of proceeding in endeavouring to cure the defect. The subject of it must attempt to make his speech a continuous emission of sound, as in singing; and this will be best done by filling up the pauses between words by some simple vocal sound. The Latin *e*, or the *a* in *care*, being the simplest of all, is best fitted for the purpose. Many persons, indeed, who do not stammer (properly speaking), employ this plan in seeking words to express themselves; saying, for instance, "e . . . I e . . . I think e . . . I shall;" the sound never ceasing until the end of the sentence. Now, a stutterer, who, to open his glottis at the beginning of a phrase, or in the middle after any interruption, uses such a sound, will not even at first be more remarkable than a common drawling speaker. Dr Arnott says that persons who could not read a page in half an hour, were able to read it immediately afterwards quite smoothly, when instructed by him to continue the emission of sound by inserting the conjunctive *e*. Even after this is fully understood, however, by the stammerer, great care, patience, and pains, are requisite to effect a cure. The morbid tendency to close the glottis, or the habit-weakened power over the muscle effecting that closure, can only be remedied by long perseverance.

In closing his directions for the cure of stammering, Dr Arnott alludes to an American practitioner, who got much money, several years ago, from persons in Britain labouring under this defect, and whose whole treatment consisted in directing his patients to fill the chest before beginning to speak. Of this the doctor approves, and says, that, as the glottis must be kept open to permit the escape of the air, the person will be for the time secured against the occurrence of stammering. Mr Borthwick has some remarks on this point, which certainly appear to be just and pertinent. He observes, that the practice is unnatural, and that the breath so acquired cannot be properly controlled or regulated. "It is even a measure (says he) instinctively avoided by *ordinary* speakers. When a more than usual inspiration accidentally occurs, as in sighing, or exhaustion from bodily exertion, an ordinary speaker invariably allows the superabundant quantity of breath to escape before he begins to speak. Now, even in these states, a single observation will satisfy any one that the chest is far from being filled '*to the utmost*.' It is absurd, therefore, to prescribe, as a cure for morbid embarrassments in speaking, a practice the reverse of that which nature, when acted upon by incidental causes, adopts to *avoid* embarrassments."

Mr Borthwick has himself been the subject of this annoying defect, and his treatment and cure of his own case have had the result of placing under his care, first and last, more than a hundred cases, he tells us, of stammering. His opinions, therefore, are deserving of attention. Regarding the theory already stated, Mr Borthwick observes—"This action of the glottis has been described by Dr Arnott as the cause of the impediment. His conclusion, however, is incorrect. The closing of the glottis is a mere effect of the impediment." The hypothesis suggested in the place of Dr Arnott's by the objector, is, that the practice of confirmed stammering is the combined result of a deficiency in the ordinary extent of muscular power in the respiratory muscles, and the effect of mental emotions and influences on the act of respiration. The latter of these causes must, it is obvious, be in a great measure consequent on the first. Superfluous inspirations, or inhalations of air, at unseasonable moments,