of the bones is by supposing either that the absorbents had robbed them of their earthy matter, in order to supply the secerning vessels of the thigh with materials for the formation of the new bone, or, which appears to me more in accordance with the laws of the animal economy, that the vessels had, as it were by a sort of organic intelligence, (if I may be allowed the expression,) concentrated their whole power on the thigh, while they neglected the rest of the limb, the absorbents at the same time acting with their wonted energy, and depriving the bones of their earthy matter, which not being supplied, produced the appearance above described. Similar examples might be adduced where one function of the body is unusually active, while another that is supplemental to it is diminished in a corresponding degree, or where one part is preternaturally developed at the expense of another. I do not recollect having read of a similar occurrence, and I am not aware that softening of the bones of an extremity is taken notice of by any writer as a consequence of necrosis, and whether it be one that universally obtains, future observation alone can determine.

I cannot conclude this report without expressing my obligations and thanks to Dr Davidson of Marischal College, for the deep interest he took in the case,—for his kindness and readiness in forwarding my views regarding it,—and for his valuable suggestions concerning the management of the case, more especially as regarded the after-treatment.

I saw Milne ten days ago, and I have much pleasure in being able to state that his improvement, since he went to the country, has been uniform and progressive.

Aberdeen, May 18, 1834.

Art. XI.—*Case in which an Ear of Grass impacted in a Bronchial Tube gave rise to the symptoms of intense Bronchial Inflammation.* By William Donaldson, M. D. Ayr.

Miss E. F., æt. 11, on the 7th August, complained of cough and exceedingly deranged stomach and bowels, with very fœtid breath. She got two or three doses of medicine, (senna and salts,) as nothing else than a deranged stomach was apprehended. About the 4th of September she was seized with violent vomiting, of green bilious-looking matter, with much cough, and purulent expectoration so fœtid that the smell was almost insufferable; but without any fever or symptoms of inflammation. She got medicine, which produced most offensive stools.

The cough still continuing, although there was no pain in the chest, a blister was applied; this discharged freely. About this time the pulse rose to 100. The cough continuing the blister was reapplied. She complained *now* of some pain under

Fig. 1.
Button-foil.
p. 103.

Fig. 2.
Iron Nail.
p. 104.

Fig. 3.
Artificial Tooth.
p. 105.

Fig. 4.
Fragment of Walnut.
p. 106.

Fig. 5.
Fragments of Molar Tooth.
p. 108.

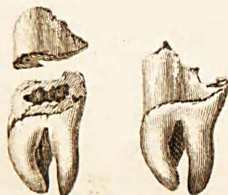
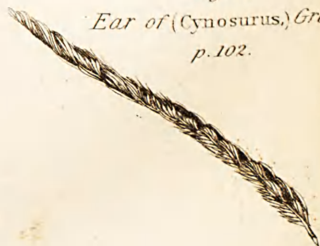


Fig. 6.
Ear of (Cynosurus,) Gras
p. 102.



G Aikman, Sc.

the blistered part, which she described as some rough substance passing up and down under the *sternum;* for this leeches were applied. On Thursday the 19th September, she had a violent fit of coughing, when she brought up a head of grass *(Cynosurus cristatus.)*

From this time she felt easier, and the expectoration became less fœtid. The cough still continuing, the blister was again applied, and as it began to discharge the cough abated, and the expectoration lost its fetor. In a week after the cough and expectoration were nearly gone. She was able to leave her room, and has continued to recover strength rapidly.

It appears (for it was concealed at the time) that, about the 1st of August, having some grass in her mouth, she was seized with a fit of coughing which almost choked her, when of course it must have got down. But this circumstance was never mentioned to any of the family, or the medical attendant, till it came up. There never was appearance of blood with expectoration but once.

The above case is very curious and interesting in many respects. The rough substance must have stuck either in the windpipe or in one of the middle-sized bronchial tubes. It did not seem to have lodged behind the palate, because the patient never complained of sore throat, or of any unpleasant feeling there.

I send you the case, with the head of grass as it was discharged, as I am not aware of any case so remarkable on record.

Annotation on the above Case, by David Craigie, M. D., F. R. S. E., Physician to the Royal Infirmary.

Though no case in which an ear of grass impacted in the windpipe or a bronchial tube, and giving rise to symptoms of acute bronchial inflammation, may be on record, there are many examples of different species of foreign bodies which had slipped through the *glottis*, and which had subsequently given rise to all the symptoms of *bronchitis* or peripneumony, first acute, then chronic, and even symptoms which were mistaken for those of *phthisis pulmonalis.* Some of the most remarkable of these cases are the following.

1. Dr Lettsom mentions a case in which the foil or covering of a button had dropped into the windpipe of a boy in October 1783, and remained there the whole winter. It gave rise to urgent cough, hoarseness, difficult breathing, expectoration of dense mucus, quick pulse, night-sweats, and wasting of the flesh and strength. It was eventually coughed up after a lapse of seven or eight months, and the symptoms of bronchial and pulmonary disease subsided. *

* Memoirs of the Life and Writings of the Late J. C. Lettsom, M. D., by T. J. Pettigrew, F. L. S. Lond. 1817. Vol. iii. p. 82.

2. Dr Mervin Nooth relates of himself, that he laboured for many months, first under a sense of weight and fulness in the left side of the breast, with some difficulty of breathing, then urgent cough, expectoration of dense mucus, constant, quick, and irregular pulse, and much anxiety and pectoral distress; and, at length, after all remedial means had been tried in vain, coughed up a leaden shot about one-eighth of an inch in diameter, with very speedy alleviation of all the painful symptoms.* He afterwards recollected, that one day after drinking the last glass of a bottle of wine, he was immediately seized with a convulsive cough, which at the time he attributed to some drops of the liquor passing into the *larynx*, but which he then was satisfied must have been the leaden shot, which its weight in this manner carried into the windpipe, and lodged probably in one of the middle-sized bronchial tubes.

3. Another case is given by Mr Howship of the same train of symptoms being produced by a nail which had slipped into the *trachea*.

"James Butler, aged 65, employed by Chippendale, of St Martin's Lane, was working in the repair of an ornamental ceiling. He had two nails in his mouth, and while looking upward at his work, a little irritation set him coughing, when one of the nails was thrown out of his mouth, and the other, in recovering his breath, to use his own words, 'slipt down his windpipe.'

"Incessant irritation, pain, and cough, directly followed, and so continued till the man was worn away to a skeleton; spitting up blood, and mucous phlegm.

"All the Faculty who were consulted pronounced his case hopeless; and if rightly represented, (in themselves convinced, that had such an occurrence taken place, it must quickly have proved fatal,) assured him it went down into the stomach, and must have passed off through the bowels. They said that what he experienced arose from the irritation it produced when in the stomach, but that it was not in his lungs as he imagined, or suspected.

"Dr Pitcairn, Mr Cruickshanks, and others saw him. Mr K. of St Martin's Lane, was with him directly after it happened. Prescriptions mitigated his sufferings a little, but could not remove them. The pain and all his complaints were fixed in the right lobe of the lungs, and he could then, as at the first instant after the accident, cover the exact spot with his hand. Spitting of blood continued to recur at intervals, and the poor fellow was consigned to certain death.

"This lasted from the 15th of April to the 12th of August following, when, after a copious spitting of blood, with a sudden

* Transactions of a Society, &c. Vol. iii. p. 1. Lond. 1812.

fit of coughing, he threw up something with violence towards his teeth, against the roof of his mouth, mixed with blood. Perceiving it a hard substance, and ever having the nail in his mind, he spit into his hand, and found it to be the identical nail that had slipt down the trachea so long before. The head of the nail was rusty when thrown up.

"April 1815. Eleven or twelve years have elapsed since this event took place, and the man has enjoyed pretty good health; subject, however, to occasional cough, slight spitting of blood, and a painful sensation, precisely in the old spot."*

4. When conversing with Dr Abercrombie regarding the case communicated by Dr Donaldson, and referring to those now mentioned, he informed me, that he and Dr Maclagan had some years ago met with a case in many respects similar, in which the foreign body had been an artificial tooth.

The patient was a lady of middle age, who had an artificial tooth pivoted, as the dentists term it, upon the stump or root of a natural tooth. In the act of masticating a bit of oat-cake one evening in October 1821, this had been detached from its position and swept into the throat in an unusually strong inspiration. Much irritation of the *larynx*, with gasping, cough, and difficult breathing, recurring in fits, were the consequence; and after the urgency of these symptoms subsided, frequent harassing cough, with dense mucous expectoration, quick pulse, uneasiness in the breast, and other symptoms of *bronchitis* ensued, and continued for several months. The treatment was directed chiefly to obviate and abate the bronchial inflammation, and to palliate the symptoms of laryngeal and tracheal irritation; and the patient continued long in a doubtful state.

At length, after much suffering, and when the bronchial disease had passed into a chronic state, the artificial tooth was coughed up by expectoration on the morning of Sunday the 23d May 1824, after the lapse of two years and seven months from its descent into the windpipe. Much relief then ensued in the breathing and sense of stifling and weight in the chest; the cough became less frequent and urgent; the pulse fell; and the patient recovered some degree of her previous health and strength. She continued, however, to cough and expectorate dense mucus; and, being very susceptible of bronchial attacks, she caught cold in July 1824, and spit up some blood in August. In the latter part of 1824, the bronchial symptoms assumed a greater degree of intensity; and, after much distress from cough and expectoration, she died on the 1st February 1825.

In this case Dr Abercrombie entertains no doubt, he informs me, that the artificial tooth had stuck in one of the middle-sized

* Practical Observations in Surgery and Morbid Anatomy, &c. By John Howship, p. 222. Lond. 1816.

bronchial tubes. After passing the *glottis* it could readily get down the *trachea* ; but it could not easily pass into the smaller sized tubes.

The case given by Dr Houston of a real tooth slipping down the *larynx*, which shall be given in a subsequent division of this annotation, affords an interesting necroscopic comment on the case of Dr Abercrombie.

5. Dr Abercrombie informed me at the same time, that he had seen, along with Dr John Scott of this city, a case in which there was reason to believe, from the history and circumstances of the case, that a foreign body impacted in one of the bronchial tubes was giving rise to a train of symptoms of the same character. Of this case I was favoured with the leading circumstances by the kindness of Dr Scott.

" H. S., nearly 4 years of age, about six weeks ago, while his sister was eating a walnut, requested a piece of it. She put something into his mouth, but whether it was a portion of the nut or the shell could not be learned from her. The circumstance was followed by immediate violent coughing, which continued to recur in fits of from three to four hours' duration.

" When I saw him about two days after the accident, I recognized, with general distress, anxious breathing and feverishness, absence of respiration in the right lung, puerile respiration in the left, and some sonorous rattle in the right bronchial tube. Next day, though the febrile symptoms were abated, the fits of coughing were repeated and violent, with intense sonorous rattle in the right bronchial divisions.

" Since that time with the sonorous rattle, the cough has been more croupy than bronchial, with expectoration of dense opaque puriform mucus, and occasional exacerbation of all the febrile symptoms. The fits of coughing are most frequent and severe in the night and morning, and are trifling during the day. The pulse keeps at about 140, and there is considerable wasting of flesh and strength, but without night-sweats. The symptoms occasionally exhibit intervals of alleviation ; and some days he is comparatively easy. During the nights, also, the symptoms are liable to vary in intensity ; and while he spends some nights in comparative ease, others are attended with high and very rapid breathing, much increase of heat, pectoral distress, and general fever, with more frequent and violent fits of coughing."

In this case Dr Scott remarks, that though we have only circumstantial evidence, there is, nevertheless, very strong reason to believe that all the symptoms depend on bronchial inflammation, induced and maintained by the presence of a foreign body in one of the bronchial tubes.

6. To the valuable case of Dr Gilroy, recorded in the thirty-fifth volume of this Journal, it is merely requisite to refer the readers.

That case is peculiar in showing that a foreign body of a peculiar mechanical configuration may give rise not only to bronchial inflammation, but to *pneumonia* and abscess of the lungs. The chicken bone, nevertheless, lay in the usual situation, the upper part of the right *bronchus*.

7. In the thirteenth number of the Dublin Journal of Medical and Chemical Science, Dr Evanson gives the particulars of a case, in an infant of one year and one month, in which the presence, in all probability, of a herring bone in the *trachea* or upper division of the bronchial tubes, gave rise to symptoms not only of *bronchitis* of the right lung, but of croup and urgent suffocation. The cough in this case was harassing and teasing, and occasionally very severe. The difficult breathing was most intense and conspicuous during inspiration; the voice was hoarse, and occasionally stridulous; the surface was hot, and the pulse rapid; and there was much general uneasiness and restlessness. This was the state of symptoms on Tuesday, the fourth day after it was believed a portion of herring bone had been allowed to slip into the *larynx*.

After the employment of antiphlogistic remedies, as leeches to the throat, purging by means of jalap and calomel, and the use of a solution of tartrate of antimony, without alleviation of the bronchitic symptoms, Mr Crampton performed the operation of tracheotomy, by removing a small slip of the *trachea*, yet without finding or extracting any foreign body. Next day, however, the symptoms of suffocation were less urgent; and though the respiration continued laborious, stridulous, wheezing, and at rate of 70 in the minute, with a copious secretion of thick mucus in the *trachea*, in the course of a few days these symptoms diminished in intensity, and the discharge became less abundant.

As the improvement proceeded, the wound was allowed to heal and become closed; and though the cough remained, and the voice continued hoarse and faint for months, it at length became natural, clear, full, and loud; while the cicatrix of the wound was so much contracted as to become hardly perceptible.

Though in this case no foreign body was found at the time of operation, it appears that the mother confessed, that, on the fourth night after the operation, when she was removing from the wound the viscid mucus which had collected, she felt something hard sticking in the sponge. A projecting point now began to appear whenever the child coughed; and the direction of this body seemed to be from the upper part and side of the wound. This circumstance, however, she concealed from the attendants, from the apprehension, she stated, of further operation; and before morning it projected so much that she attempted its removal herself, and after some force, and the discharge of a little bloody matter, effected her purpose. The body thus removed was sharp, and looked like a portion of herring bone, but somewhat

softened, and of a greenish colour. These qualities, however, it lost in drying; and when presented to Dr Evanson, it had the appearance of a bone of herring or some similar small fish, though rather less firm than natural.

Dr Evanson admits that in this case the evidence of the bone having been within the windpipe is less complete than could be desired, since it rests solely on the veracity of the mother. But he observes, in confirmation of the general accuracy of her statement, that while she dwelt much on the manifest and decided alleviation which the symptoms underwent in the course of the day, after this piece of bone was represented to have been removed from the wound and the interior of the windpipe, the report of the case as kept by Mr Hamilton, who knew nothing of the woman's story, and remains, Dr Evanson believes, still incredulous, shows distinctly, that on the same day a great alleviation took place, and continued to proceed.

8. In the same number of the same journal, Dr Houston, surgeon to the New Hospital in Baggot Street, details a very interesting and melancholy case, to which the same objection of deficient evidence does not apply. Of this case I shall give an abridged account.

John Clare, aged 29, in the condition of a servant, of temperate habits and sound constitution, had occasion to have the second molar tooth of the right upper jaw extracted in May 1830. On the first application of the tooth key, part of the crown was chipped off, and removed from the mouth by the operator. By a second attempt the tooth was started from its socket, but on being loosened from the claw of the instrument, it slipped down the throat, and was not afterwards seen either by patient or operator.

About four hours after, the patient called on Dr Houston, and presenting the upper fragment, with the statement now given, informed Dr Houston that he felt, after the extraction was completed, a momentary sharp pricking pain at the top of the windpipe, followed by a severe fit of coughing, which soon went off, but recurred again several times without evident cause, and at each time with abated severity, until after a few hours it ceased to produce annoyance. He complained, however, of a feeling of undefinable uneasiness in the chest; a sensation of weight in breathing; and a tendency to draw heavy sighs, which kept his mind in a state of continued inquietude. Occasionally, and at irregular intervals, he coughed up a little frothy mucus, untinged with blood or purulent matter. He had not, previous to the accident, been subject to any cough or other affection of the chest; and all these symptoms both the dentist and himself agreed in ascribing to the passage of the tooth down the throat.

In a consultation held twenty-four hours after the accident, the following stethoscopic signs were recognized.

"There was a mucous rattle in the lower part of the trachea, audible even to the naked ear, but very distinct when heard through the stethoscope. Both sides of the chest gave a perfectly and equally clear sound on percussion; but notwithstanding their similarity in this respect, there was a marked difference in the intensity of the respiratory murmur—the sound of the air entering into, and expanding the right lung, being obviously more feeble than that heard at the same moment in the left. There was, likewise, under the right clavicle a slight sonorous *rale*, a deviation from the natural sound of breathing not discoverable in any part of the left lung. These signs were fixed and not modified or removed by any alteration in the position of the body; nor by causing the patient to expire with violence, or to take a full breath."

It is unnecessary to give the conflicting opinions entertained as to the presence or not of a foreign body in the windpipe. The man was placed in the hospital; and after passing successively through the several stages of *bronchitis*, *pneumonia*, and *pleurisy*, first of the right, and then of the left lung, expired on the eleventh day after the accident. Upon inspecting the body sixteen hours after death, the following was the state of the organs of the chest.

The lungs on both sides presented their natural fulness, without collapse on either side. The right lung adhered to the *pleura costalis* every where, except behind, where a quantity of thin bloody fluid lay between the *pleuræ*. The left lung adhered by universal adhesion. The lymph, interposed between the pulmonary and costal *pleuræ* on the right side, was considerable in quantity, firm, and opaque, and evidently of several days' duration; that in the posterior region of the chest especially was, for a space of seven or eight inches, abundant and tenacious. The lymph forming the adhesions on the left side was smaller in quantity, and presented the appearance of a thin semigelatinous layer. All the adhesions were soft and easily broken; and when removed, the pulmonary pleura was seen very red and vascular, and on the right side livid.

The substance of the right lung was dense and indurated in every point; its tissue, nevertheless, readily gave way under the finger; and sections exposed surfaces discharging much dark fluid blood and serum. The substance of the left lung was less heavy and engorged, but exhibited marks of intense inflammation.

Upon slitting open the windpipe from the *larynx* to the lung, the tooth was found lying in the right bronchial tube about one inch beyond its commencement, with the fangs directed towards the lung, and the broken surface of the crown towards the *larynx*. It lay loose or unattached, and was readily removed when caught between the points of the scissors. The

broken surface fitted accurately to that of the crown, as presented to Dr Houston by the patient.

The mucous membrane of the air-passages, from the *larynx* to the smallest branches of the bronchial tubes in both lungs was swelled, softened, and of a deep red colour, as if minutely injected; and the bronchial tubes were filled by muco-purulent fluid round the tooth, but without abscess or breach of surface in the vicinity of the spot where it was lodged.

I have given the foregoing cases, the number of which might have been much enlarged, for the purpose of showing, that symptoms of intense bronchial inflammation, first acute and then chronic, often simulating pulmonary consumption, and even symptoms of intense peripneumony, may be induced in this manner, and may continue until the foreign body is expelled from the cavity of the bronchial tube or *trachea.*

These cases further show, that the presence of such bodies is not necessarily followed either by ulceration or abscess of the parts with which they are in contact, and that, however intense and alarming the symptoms may appear, they depend chiefly on inflammation of the bronchial membrane, more or less acute, and more or less intense and enduring. The case of Dr Gilroy is the only one in which abscess with breach of substance of the lung took place.

In all these cases it may be pretty confidently inferred from the one given by Dr Houston, that the foreign body does not pass beyond the middle-sized bronchial divisions. To its further descent, indeed, there is at once an anatomical and a physical impossibility;—anatomical, in so far as the calibre of the small bronchial tubes will not admit of further introduction;—and physical, in so far as the size and figure of the body in general will cause it to stop in the upper ramification.

It is further pretty evident that these bodies descend into the right bronchial tube in preference to the left, because it is more in continuation with the *trachea* than the left *bronchus.*

Dr Houston seems to imagine, that, in the interesting case which he has published, the weight of the tooth operated as a great and almost insurmountable impediment to its expulsion by coughing. But when we remember that the leaden shot inspired by Dr Mervin Nooth, and the iron nail inspired by James Butler, were both expelled after a long period by coughing, it is hardly possible to admit, that this should form a difficulty to the ejection of a tooth, which is certainly lighter than either a leaden shot, or an iron nail of the same bulk. The mechanical configuration of the bodies seems to constitute the most serious difficulty to their ejection by coughing.

For some observations on the propriety of performing tracheotomy in these accidents, I may refer to the paper of Dr Browne, published in the 35th volume of this Journal.