were, therefore, simply damp, and on the outside appeared some patches of whitish mildew. The coffin-plates were in good preservation, being only slightly rusted at the backs and edges. These particulars are mentioned as bearing on the condition in which the bodies were found.

The coffin of the elder boy contained a quantity of shavings. These were damp and discoloured, like shavings kept in a cellar, but were not actually wet. The smell given forth from the bodies was peculiar. It was unlike any dead-house or dissecting-room smell; and, though offensive, was not nearly so much so as might have been expected. Perhaps there is not such a thing as a salt smell, but that is the term which would convey some idea of the odour. I have smelt something similar in close bedrooms where red herrings have been cooked.

The face of the elder boy was dry, and of a dark brown colour; the soft parts of the nose were gone, and the mouth was wide open, the lower jaw looking as if dislocated. From the right upper jaw, one of the teeth was hanging out of its socket. When the head was lifted, the skull at the back separated entirely from the muscles and scalp as if it had been macerated, and the muscular structures were seen to be of a grey colour, moist and pulpy. The brain, as seen through the foramen magnum, was a mere pulp; and of the eyes, only traces were seen at the bottom of the orbits. The skin of the chest and abdomen was of a reddish-brown colour, as was that of the thighs. These last were in good preservation, and had a mummified appearance. The genitals were converted into a mass of adipocere; but it would have been quite possible to ascertain from them the sex of the child had it not been known.

The younger child had been a well nourished infant. The face had only slightly shrunk; the cheeks still showed the plumpness of babyhood; the lips were only slightly separated, and one could almost fancy a smile on them. The soft parts of the nose were gone, and the orbits contained a thick yellow fluid. The skin of the chest and abdomen was dry, and reddish-brown in colour. After an incision had been made down the sternum, the skin and muscles left the ribs on a slight touch, and were rolled back as easily and completely as if made of thin lead. The genitals were converted into adipocere; and in this case also the sex could have been determined. The feet of this child were covered with woollen socks, which appeared soaked in a fluid like that in the orbits.

In both children the lungs were the most decomposed of any of the internal organs. The heart of the younger child was in a capital state of preservation; internally it was moist, and really looked as if it were that of a recently deceased subject.

M. Devergie, as quoted by Dr. Chambers (*Lectures, Chiefly Clinical*, p. 3), says, from notes made on the bodies at the Morgue at Paris, that it is four and a half months before complete destruction of the face occurs, and the bulky muscles of the neck and thighs are converted into adipocere. In the cases of these children, seven months had elapsed between the burial and the exhumation. In a wet soil the process of decomposition would have been hastened. The bodies had been buried within a few days (nine, I believe) of each other, but not in the same grave.

It would have been exceedingly interesting to have had an opportunity of examining the body of the father of these children. He had been buried more than twelve months. Every search was made for him; but the absence of any record of the place of burial, and the firm conviction on the part of each person who attended the funeral, that the man had been buried at a spot where nobody else who had been present remembered his being buried, and the sexton's general bewilderment, and the fact that the names had, in many instances, been effaced from the coffin-plates, in consequence of their having only been painted on in some material which does not stand damp, caused the search to be abandoned.

Exhumations are not of common occurrence, but they do occur; and I shall always retain the idea that the grave of the man we sought really was opened, and that the failure in identifying his coffin was caused by official carelessness.

Where no head-stones are erected, it would be easy to have a number or the initials of the deceased burnt on the coffin. Certainly it would not, to the popular eye, look so well as the name in full, inscribed on tin plate impressed with the figures of angels furnished with anatomically impossible wings, but it would be efficacious in preventing such a failure as happened at St. Helen's Auckland; and some plan ought to be adopted by which, if it be necessary to exhume a body, there might be a reasonable chance of finding it.

Since the above paper was written, I have been informed that arsenic has been found in the bodies of these children.

MUSCULAR TREMORS, IN THEIR RELATION TO LEAD-POISONING.

By W. A. HOLLIS, M.D.,

Medical Registrar and Casualty-Physician to St. Bartholomew's Hospital.

IN several cases of suspected lead-poisoning, I have noticed the presence of considerable muscular tremor. This tremor may or may not be associated with distinct symptoms of saturnine paralysis; and it usually affects, in the first instance, the muscles of the forearms, subsequently the muscles of the face, and in one case (that of an oil-cloth printer) it attacked the muscles of the trunk and lower extremities generally, simulating in its severity well-marked mercurial tremor. In a former number of this JOURNAL (February 10th, 1872), I noticed the case of a brass-finisher, who, with other well-marked symptoms of lead-poisoning, had both paralysis of the extensors of the forearms and considerable muscular tremor of those extremities; and in a previous volume (July 1st, 1871), I also recorded the case of a looking-glass silverer, wherein there appeared to me to be poisoning by both lead and mercury conjointly. In this patient there was great muscular tremor. I have since had the opportunity of comparing several other cases of lead-poisoning, and I conclude from them that the mode by which the lead obtains access to the system operates greatly to determine the character of the subsequent symptoms. A comparison of the cases which I had recorded in my notes showed that occupations involving the use of the metal or its combinations in a heated condition greatly favour the early production of muscular tremor in association with symptoms of lead-poisoning; whilst, on the other hand, employments in which the metal is used in a cold state are far less frequently the cause of this peculiar symptom in the workmen, although they may be affected with saturnine colic or even paralysis. In the cases of the oil-cloth printer before mentioned, the tremor was especially severe at night-time, and was associated with the distinctive blue-gum-line and frequent attacks of colic. I have observed this tremor with other well-marked symptoms of lead-poisoning in brass-founders and finishers, type-founders, looking-glass silverers (although in these cases possibly the mercury employed may complicate the symptoms), and lead-pipe makers, all of whom employ the metal in a heated state. I have occasionally, although rarely, found white-lead workers, engine-fitters, and plumbers, affected with the tremor, but painters are generally exempt.

As regards white-lead workers, I find, upon inquiry, that persons employed in such factories are necessarily exposed to considerable heat for hours together. In the case of plumbers and gas-pipe-fitters, although their occupation does not necessarily involve a prolonged stay in an apartment containing the heated metal, yet they are frequently brought more or less closely into contact with it in a hot state. With regard to gas-fitters, I have notes of one man who had well-marked muscular tremors, with colic and constipation, without, however, a distinct blue-gum-line, although the gums were spongy. This man was accustomed to apply his mouth to the lead and other metal pipes, and, by an inspiratory effort, to test the joints after the process of soldering. I think this last case supplies a clue to the explanation of the appearance of muscular tremors in the others. From it I conclude that heat is not a necessary, although a frequent, factor in the production of saturnine tremor, as it is unlikely that the tremulousness of the muscles in this case was induced to any great extent by the heated solder. Heat probably aids the rapid production of lead-poisoning in persons engaged in the above-mentioned occupations, by permitting the aspiration of the metal or its compounds in the form of a vapour. We can readily imagine, if this conjecture be correct, that the action of a poison, when it obtains access to the body by means of the great mucous surface of the respiratory system, should be more rapid and general than when it is conveyed in small quantities through the integument of the extremities, especially (as is the case with lead) when the poison is essentially slow and local in its operation on the system.

If we look for a physiological interpretation of the cause of the tremor in such cases, perhaps the best one will be found by adopting Heubel's views (*Pathogenese und Symptome der chronischen Bleivergiftung. Experimentelle Untersuchungen*. Berlin, 1871). He accounts for the fact that in lead-palsy, muscles, which are innervated by a single nerve, are not all equally weakened, by supposing the lead to affect the peripheral intramuscular extremities of the nerves rather than the main branches, so that certain bundles of muscular fibres may be deeply affected by the lead, whilst others closely adjoining them are much less so. Supposing this reasoning to be correct, we can easily understand why tremor occurs in the early stages of this disorder. "Tremor", to use the words of Sir Thomas Watson, "is always a token of debility". If certain fibres in a muscle be weakened, partly by the implication of

lead among their molecular constituents, and partly by the loss of nervous power, in the way mentioned by Heubel, an uncertain intermittent contraction of the enfeebled fibres will in all probability replace that "sustained state of gentle contraction" which produces their "tone" in health, and consequently a general tremor of the affected muscle will quickly ensue.

MECHANISM OF EXPULSION OF THE PLACENTA.*

By WILLIAM LYON, A.M., M.R.C.S.Eng., Peter-Culter, by Aberdeen.

HAVING had my attention directed to the natural mechanism of the expulsion of the placenta by reading Dr. Matthews Duncan's paper, I was anxious to know what could be learned of the subject from books. I was both disappointed and astonished at the unsatisfactory results of my search, and to find that the subject was not even alluded to in the directions given by midwifery authors for the management of the placenta. I have been long satisfied that Nature observes a particular form in the expulsion of the placenta, from careful observation of the manner in which she conducts the ordinary process.

In most cases of detached placenta, where undue interference has not been practised, we find, on examination, that its lower part is lying in the cavity of the pelvis, and its upper more or less above the brim. When the uterus contracts, the placenta is folded on itself, with sometimes the uterine and sometimes the foetal surface in contact, and the folds always longitudinal or in the direction of the length of the passages. The doubled mass is then expelled with its two edges foremost, and the part which first passes the os vaginae is the point where the two edges meet in forming the double.

I have so often observed this process, that I believe that every placenta, when separated from the uterus, will be expelled in this form, provided that Nature is allowed to work alone, and no pretended assistance is given by pulling the cord or otherwise. We cannot help admiring the mechanism displayed in this process as much as we admire that of natural labour; and we must at the same time be convinced of the propriety of withholding all interference, except what may contribute to uterine contraction—the only admissible moving power. The adaptation of the mass to the shape of the passages, and its consequent facility of egress, will be more apparent if we contrast the case with one in which the protrusion is effected by pulling the cord. Under such circumstances, the placenta is brought through the passages in the form most certain to offer resistance, and is protruded like a plug. The irritation caused by this treatment may raise a pain, which may assist in its expulsion; but it is remarkable how much force is often required to effect that purpose, if the placenta be of large size. Cases may occur, however, which may seem to contradict my statement. We may sometimes feel the placenta advancing in the form of a smooth ball, by purely uterine effort; and may be unable to detect the edge of the mass; but, on particular examination, we find that the insertion of the cord is up in the cavity of the uterus, and that the membranes are still adhering to the edge of the placenta. The situation of the insertion of the cord proves that the presenting part must be the edge of the placenta; and, if we wish for further proof, it will be obtained by tearing the membranes with our finger-nail, and converting the case into an ordinary natural one. If the expulsion take place before we can accomplish that, as is sometimes the case when the membranes are strong, we can take the most prominent part between our finger and thumb, and retain our hold till it is completely protruded, when we will be quite sure. We find also, in cases in which the whole mass is brought into the pelvis by traction of the cord, that it will be expelled, if left to uterine contraction, in the regular way, and not otherwise; whereas, if the traction be continued till the completion of the process, the part which is first protruded is that into which the cord is inserted. Under the same circumstances, also, if it be necessary to help the pains, we effect our purpose most easily by reaching the edge of the placenta with our finger, and using a little pressure on it, so as to form a natural folding. It will then be in the most favourable position for being expelled, whether it be left to the action of the uterus, or assisted by pulling the cord.

We must look on this subject as something more than mere matter of curiosity, because it affects the management of the placenta—a very important part of labour. The temptation to pull the cord, both when there are no pains and when they are not sufficiently strong, is the cause of much rough treatment; and such conduct can only be defended

on the ground that it tends to ensure contraction of the uterus. But surely such a state is more certain and less painful when induced by the natural effort, or by manipulation of the uterus in the abdomen.

ON ANÆSTHETICS.

By WILLIAM ALEXANDER, M.D., F.R.C.P.,
Senior Physician to the Halifax Infirmary and Dispensary.

THE general subject of anæsthetics, to which the JOURNAL prominently calls the special attention of the profession at this moment, is second to none other in its importance and practical value; and, having had frequent opportunities of witnessing the relative merits of nearly all these agents, and having introduced the hydrate of chloral from Berlin, I have to offer a few reflections as my mite of contribution to the appeal of the editor.

During 1847 and the two or three following years, we used ether inhalation at the Infirmary here, and privately pretty generally, without any ill result. We found it very apt to occasion cough and a sense of suffocation, which might probably have been obviated had the patient previously practised with the mouth-piece, and had an anhydrous preparation been employed. Total oblivion was with difficulty obtained, and the cerebro-spinal reflex action never utterly lost. The volatile liquid used had about 85 per cent. of ether, with a gravity of 0.750, and was given in half-ounce quantities every two or three minutes until the desired effect was induced. Its stimulating, intoxicating property was often very conspicuous, as evinced by very profane ejaculations. As with chloroform, I look to the respiration rather than the pulse, and see that the heaving of the chest is properly performed, voluntary suspension of that function being commonly attempted whilst consciousness remains. No doubt the pulse must be carefully watched, since paralysis of the cardiac ganglia and pneumogastric nerve is unquestionably the customary cause of death.

For etherisation, Morgan's inhaler, used at Mercer's Hospital, would probably answer better than that of my late friend, Dr. Snow, as it altogether obviates the dilution of the vapour by atmospheric air, and thus earlier secures the object desired; but the conical towel and sponge, or even folds of lint, supply a ready method and answer the purpose. An empty stomach is desirable, though after-sickness very rarely follows, and the somnolent effect soon vanishes.

So far as is yet ascertained, the percentage of accidents is very greatly in favour of ether. Dr. Jones, who was a great authority on this matter at St. George's Hospital, feels assured that, efficiently administered, ether will soon supplant chloroform as the anæsthetic in general use. It should not be forgotten, however, that casualties have always occurred occasionally, and are incident to operative manipulation arising either from shock or syncope, or from idiosyncrasy of constitution. "If a sufficient amount of chloroform be given to produce narcotism," Dr. Jones observes, "there is sufficient in the system to cause death in these cases"; and he illustrates the axiom by reference to a case in which but five per cent. of it was inhaled—the amount prescribed as being within the limit of safety—and yet the patient died suddenly without any warning, by lividity of countenance or other symptom. Unlike such instances, the signals of danger usually come on gradually, and may, fortunately, be arrested. When full narcotism is accomplished and consciousness abolished by chloroform, it seems very desirable, if the effect be desired to be kept up, to change the anæsthetic to ether or nitrous oxide. Mr. S. Charles Smith of this town informs me that this practice is already adopted at most of the London ophthalmic hospitals.

In the selection of one of the two great agents, I should be much governed by the precise nature of the case; as, for example, traumatic injury with hæmorrhage, or a morbid condition of the heart or other viscera. Wherever alcohol would be indicated I should give the preference to ether, its special action being stimulant. Complete stupor by the protoxide of nitrogen is difficult and ephemeral, though safe, and is accompanied by a great mitigation of local pain under the knife. It is rather a curious circumstance, as mentioned by Mr. Woodhouse Braine, that the lowest known temperature is produced on the combined mixture of two anæsthetics—the bisulphide of carbon and compressed liquid nitrous oxide; viz., 220 deg. below zero of Fahrenheit.

On a review of the question so hastily and imperfectly expressed, my impression is, that the late ventilation of the subject has greatly added to the store of our knowledge, and restored ether to its pristine position. It has given us the option of one or other of these agents, or a combination of them in any threatened cardiac failure. Profound narcotism is, no doubt, more easily induced by chloroform, were it unattended by danger. On Tuesday last I administered a drachm and a

* Read before the Deeside Medical Association.