factory fibres, since it is found in animals devoid of smell. Like the optic chiasma, it is taken advantage of by crossing fibres of the great brain, its size varying inversely as that of the corpus callosum. By this root, the fibres of the olfactory nerve reach the extremity of the temporo-sphenoidal lobe, presenting, in their decussation, a close analogy to the optic nerves. The outer, larger, and more important root, lying on the under surface of the brain, passes backwards into the pyriform lobe. Here it divides into two parts, an outer thin expansion, which spreads over the surface of the lobe, and an inner thicker portion, which, passing to the inner side of the lobe, tucks itself in under the edge of the cortex-mantle. Omitting, for the moment, any account of the relation of these fibres to the hippocampus, the lecturer stated that the olfactory nerve was to be traced through the fimbria, posterior pillars, body, and anterior pillars of the fornix, into the corpus mammillare (*corpora albicantia*), in which it turns up as the bundle of Vieq d'Azyr, into the anterior end of the optic thalamus. The anatomical connections of this root were explained, and its functional continuity was proved by an appeal to what might be termed one of nature's experiments. In all aquatic mammalia, the sense of smell is either deficient or absent. In the porpoise, it is completely abrogated. The olfactory bulb is reduced to a mere cord, and all the other portions of the olfactory tract just indicated show a corresponding want of development. The cross section of the body of the fornix of a specimen examined, with a view to deciding this question, was less than one ninth as great as that of an ox brain of the same weight. It contained only those fibres termed by Huxley "precommissural."

Returning to the hippocampus, the lecturer stated it as his belief that the special structures here attached to the folded-over edge of the cortex, the cord of large multipolar cells and its cap of fascia dentata, that is to say, are portions of the olfactory bulb. The microscopic appearances of the cells of the fascia dentata are precisely similar to those of the cells of the glomerular layer of the bulb. In the porpoise brains as yet examined, of which none, unfortunately, were in good condition for the purpose, no fascia dentata could be found. The edge of the cortex was simply folded over, and the posterior pillars of the fornix spread out into the medullary lining of the ventricle, without forming a true corpus fimbriatum.

Relation of the Cerebral Cortex to the Central Grey Tube.—In the wall of the neural tube, where it is dilated at its anterior end to form the primary cerebral vesicles, a second layer of grey matter is developed on the outer side of the sheath of white fibres. This may be conveniently referred to as the peripheral grey tube. As the key to the central grey tube was to be found in its segmentation, the question arises as to whether the outer tube is similarly divided up into areas; and if so, what is the relation of its segments to those of the central tube? There is no reason for believing that any sensory nerve-fibres end directly in the cerebral cortex, or motor fibres take origin there, to pass to their destination without interruption in the central grey tube. On the other hand, there is abundant evidence that the areas into which the lower tube is divided are represented in the higher one. Experimental stimulation and ablation of cortical areas, as well as pathological observation, have thrown much light upon this subject. The evidence with regard to cortical localisation, submitted in this lecture, was obtained from the comparison of the brains of animals endowed with different degrees of motor and sensory development. It was shown that all mammals might be divided into two classes; the hunting and the hunted. Herbivora depend for safety on the eye, their sense of smell being of little use in helping them to escape from the neighbourhood of their foes; carnivora seek their prey with the nose, it being of little consequence, apparently, as may be inferred from the habits of young dogs, and from the strong smell of the carnivorous quarters of the Zoological Gardens, whether or not their own bodies emit a powerful odour. More common, however, than exceptional—sensory development, is marked deficiency; and, amongst other brains, the otter's was pointed out as that of an animal in which the sense of smell is reduced to a minimum.

It was shown how the development of the temporo-sphenoidal lobe varies as the sense of smell; that of the postero-internal part of the occipital lobe, as the sense of sight. The location of the other senses may, in like manner, be discovered by observing the brains of animals in which they are unusually well or badly developed. The general result arrived at confirms, in the main, the allocations of experimental physiologists.

The lecturer then proceeded to show how, while the first nerve has its secondary centre in the temporo-sphenoidal lobe, the area for the second nerve lies above and behind this, and such others as have already been determined occupy a reversed position from behind forwards on the cerebrum. This is only to be explained by supposing

that the great brain has in its growth twisted over in a single spiral coil.

Although, in such a plastic tissue, developmental markings are soon obliterated, observations of the changes in form of the foetal brain entirely confirm this conclusion. At first, the cerebral hemisphere is directed forwards, the foramen of Monro leading into the back of its cavity. Then, first of external markings, the rhinal fissure appears, separating the pyriform lobe from the rest of the hemisphere. Being attached at its anterior end, the olfactory nerve soon asserts a traction on the growing brain, causing its outer wall to sink in as the fossa of Sylvius, which later on is closed over, and reduced to the fissure of Sylvius. The foramen of Monro enters now the lateral ventricle near the front. In certain stages of its growth, the cerebrum has all the appearance of a coil. Only in this way, too, the lecturer contended, can the circuitous route of the olfactory nerve be explained. Arising from the neural ridge of the first vesicle, it is at first pushed down forwards by the budding cerebral hemisphere. Becoming then adherent to the hemisphere, it is lifted up again, and carried round with it over the upper margin of the foramen of Monro. The advantage of this twisting over is to be found in the globular form afforded to the brain. One may conjure up a ludicrous picture of what a man's head would be like, were space no object, and all the secondary centres of the cortex arranged, as in an alligator, in a rectilinear series.

SUDDEN DEATH FROM HÆMORRHAGE INTO THE ABDOMINAL CAVITY DURING MENSTRUATION.

By EDMUND J. PENNY, M.R.C.S. Eng., etc.,
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At 4 A.M. on November 11th, 1885, I was summoned to R. E. T., aged 27, a resident of Hayes, Middlesex, who was said to be very ill. Within ten minutes I arrived at the house, and found that life was extinct, with all the signs of collapse present. Her husband stated that she had always enjoyed good health, and was the mother of two children. She was perfectly well until about 7 on the previous evening, when she complained to him of pain in the region of the stomach, which she attributed to the fact that she was menstruating at the time, and said she thought she would go to bed. She gradually grew worse, was extremely restless, complained of pain in her chest, and of difficulty of breathing; but refused to allow medical aid to be summoned, as she said she would be better in the morning.

Shortly before 4 A.M., her condition becoming more serious, my attendance was requested; but the patient had already died during her husband's short absence.

A necropsy was made on November 13th, by Mr. E. J. Parrott and myself. The body was well nourished. Rigor mortis was present. The surface was unusually blanched. There were well marked blood-stains to be seen at the external genitals. The lungs were found to be healthy; the pleura was normal, and the pleural cavity contained its natural quantity of serum. The pericardium was natural, with the usual amount of fluid. The muscular tissue of the heart was healthy. The ventricles were contracted; there was a small clot of fibrin in the left ventricular cavity. The valves were healthy. After the thoracic viscera were removed, the diaphragm was seen to bulge upwards in an unusual manner, particularly on the right side. On opening the abdominal cavity, a large quantity of dark fluid blood immediately escaped, and the whole of the right side of the abdominal cavity was found to be full of fluid and semi-coagulated blood; while the right iliac fossa was occupied by a tolerably firm clot, of the size of a foetal head. The viscera were carefully removed and examined, and were found to be healthy, with no trace of lesion. The aorta and its principal branches were also minutely examined, and found to be everywhere healthy, nor could any lesion be discovered in the veins. On removing the large clot from the right iliac fossa, and tracing it onwards, it was found to lead to the right ovary; and a small but firm clot, at least an inch in length, was discovered attached to the outer surface of that organ. Two ruptured Graafian vesicles were also seen, to one of which an ovum was adherent; and, in the neighbourhood of these, several small blood-vessels were found to be distended with clot, one of them being distinctly ruptured; and it was to this site that the clot above-mentioned was found to be adherent. The left ovary also showed signs of activity having taken place previously to death; and on its surface were seen small blood-vessels filled with clot, whilst an ovum was also attached to it. The uterus, which was not removed, appeared to be normal.

The occurrence of hæmorrhage into the abdominal cavity, due to the rupture of a Graafian follicle during menstruation, is undoubtedly rare; but it is, notwithstanding, admitted by various writers on Obstetrics, and notably Dr. Graily Hewitt. Hæmorrhage, in this case, evidently took place very slowly, occupying at least nine hours, while the quantity of blood extravasated was enormous.

It seemed as if the whole body had been drained into the abdominal cavity; and the facts above stated, to our minds, so clearly indicated the ovaries as the seat of the hæmorrhage, that I had no hesitation in stating such to be the cause of death at the coroner's inquest.

A SIMPLE METHOD OF ARTIFICIAL RESPIRATION.

By JOHN ARTHUR FRANCIS, L.S.A.

THE desideratum at which we aim in artificial respiration, is to obtain a method of as simple a character as possible, combined with the maximum of efficiency. In cases of drowning, especially, many lives would doubtless be saved, which are now sacrificed, were the first comers aware of a method requiring no previous practice, and which could be understood from, say, a short paragraph in a newspaper, or a moment's conversation with a friend, without practical illustration. The usual course for bystanders to pursue seems to be to loosen the clothes about the neck, and to vigorously rub the hands whilst someone fetches a policeman, who in his turn sends for a medical man. Upon his arrival, the patient is found to be a very fair subject for an undertaker.

In a short note to the BRITISH MEDICAL JOURNAL in 1884, I drew attention to a method of extreme simplicity, which has been very successful in my hands in many cases of apparently still-born children, and in one very alarming case of chloroform-poisoning. I have great belief that the same means would prove equally efficacious in cases of drowning, both in children and in adults.

The main indications in artificial respiration are, apparently, (1) to loosen clothing, braces, etc., so as to allow free movement of the chest, and prevent constriction of the neck; (2) to bring the trachea, larynx, and pharynx as nearly as is anatomically possible into a straight line with the openings of the mouth and nose; (3) to obtain as deep an inspiration as possible by elevating the ribs and depressing the diaphragm; and (4) to get a deep expiration.

Now, although the accepted modes of restoring respiration have proved very successful in the hands of medical men, the trained staff of the Humane Society, and, doubtless, many policemen, etc., yet I think they are almost unknown to the general public, who have not attended ambulance lectures. What we require is, that an efficacious method should be as well known and as easily learnt as the fact that a poultice is a proper application for a boil.

What I claim for my improvement is, that it would soon be understood by the laity, and that it fulfils the last three indications mentioned above more thoroughly than the present accepted methods.

I remember, in two cases of drowning where I was sent for, watching a couple of policemen attempt the Marshall Hall proceeding. As the subjects had been submerged for eight and four hours respectively, I did not interfere. In both cases, the chin was on the chest, and the mouth and nose obstructed by the arm in the semi-prone position. This appeared to me a thing to be avoided. The Sylvester mode, adopted by the Royal Humane Society, is an improvement; but I think that the bundle of clothes under the neck is a mistake, as it is apt to slip up and throw the head forwards; and that the proceeding to procure inspiration acts in no way on the diaphragm, whilst a great deal of expansion of the chest is lost by not making use of the weight of the arms and ribs, combined with an extended spine.

Howard's is a still further improvement. The bundle under the back extends the spine and raises the ribs and sternum, at the same time that the intestines gravitate from the diaphragm, and tend to cause inspiration by depressing that muscle through the alteration of the pressure in the lungs. But, in this case, the advantage of a good deep expiration, which seems to me of nearly equal importance, following the admission of air into the chest, is lost or rendered less by the bundle of clothes, which keeps the ribs permanently raised. His plan of kneeling across the abdomen, and springing backwards with the hands on the thorax, though apparently very successful in experienced hands, seems to present elements of danger, should it be undertaken by a heavy, clumsy, and inexperienced man.

Now, I believe that my method combines all the advantages of the above in a greater degree, without the disadvantages attending them; and also possesses the required simplicity. It is, merely, the body having been laid on the back, with clothes loosened and the mouth

and nose wiped, for two bystanders to pass a narrow lever of any kind under the body at the level of the waist, and raise it till the tips of the fingers and the toes of the subject alone touch the ground; count fifteen rapidly; then lower the body flat to the ground, and press the elbows to the sides hard; count fifteen again; then raise the body again for the same length of time; and so on, alternately raising and lowering. The head, arms, and legs are to be allowed to dangle down quite freely when the body is raised. A child can easily be manipulated by one person with a hand under each loin. For an adult, the best way is for two persons to grasp each other's right hand under the body, and then raise it. A stout walking-stick or umbrella would be efficacious, where the operators were too weak to lift up the patient with one clasped hand. To join both left and right hands with those of another person, would probably form too great a plane for the body to rest on, except in the case of a very tall patient, and prevent the full extension of the spine.

With regard to the tongue in suspended animation, I am inclined to believe that the danger of the tongue obstructing the entrance of air to the lungs is somewhat exaggerated; at least, in children I have never observed any necessity for interfering with that organ, and the air has apparently passed through the nose in preference to the mouth, and that quite freely. Although, of course, medical men would use their own discretion in such a matter, according to the exigencies of the case, yet I think it would be wiser for ambulance books, etc., not to instruct the public to pull out the tongue. An ignorant person would probably interfere greatly with the attempt at artificial respiration, would very likely close up the mouth by holding the tongue against the upper jaw, and finish the case by obstructing the nostrils with the palm of his hand.

Of course, in addition to my method of respiration, other aids are not to be neglected for restoring the circulation, such as hot brandy and water, when the patient can swallow, etc.

It seems to me that the position of the body, when raised as described, mechanically puts upon the stretch all the muscles of inspiration, except the external intercostals, and that the position of the ribs, sternum, and clavicles, allows their weight to aid considerably in the expansion of the thoracic cavity. The intestines and abdominal viscera also gravitate towards the pelvis, and would doubtless draw down the diaphragm.

PELVIC TUMOUR COMPLICATING PREGNANCY.

By JOHN W. TAYLOR, F.R.C.S. Eng.,

Surgeon to the Birmingham and Midland Hospital for Women.

THE signs and symptoms attendant on the case of pelvic tumour, described by Dr. Horrocks in the JOURNAL of March 6th, are so very similar to those which we have often found in Birmingham to be associated with distension of the Fallopian tube, that I may, perhaps, be pardoned for suggesting the possibility of the presence of this condition in the case which he has published.

If acutely distended, the tube may be of almost solid hardness; although, when examination is repeated, there will probably be found a time or times when there is some elasticity or semifluctuation, indicating the probable presence of fluid. The tumour is generally intimately adherent to the back of the uterus, and can be traced from its posterior surface towards one or both sides, according as one or both tubes may be involved. It is decidedly tender to touch, and feels, on hasty examination, very like a retroflexed uterus. It is more likely to be mistaken either for this or for a myomatous outgrowth (sub-peritoneal fibroid) than for any other condition. Because it is adherent to the uterus, it moves rather rigidly with that viscus, and does not disappear on the use of the uterine sound, as a simple non-adherent flexion of the uterus may do. It is generally accompanied by pain, increased before and during menstruation; although, for some reason or other, it is not always the side affected that is the chief seat of pain. Sexual intercourse is usually painful; but all symptoms may be in abeyance when the condition is one of hydrosalpinx, and is chronic and stationary.

When confined to one side, it forms no bar to the occurrence of pregnancy. I have had until recently a case under my care, in which the signs of a distended tube have existed for nearly two years. The symptoms have been but slight, and consequently no operation has been performed. The patient is now about six months pregnant; and the tube, although somewhat larger in size than before the pregnancy, has not at present occasioned any serious inconvenience or difficulty. It is a question, however, which only increased experience can determine, whether this condition, when existing during pregnancy and labour, does not expose the patient to rather serious risk.