2. But, in not a few women, exhaustion of the nervous system generally, is the first and most prominent feature. The patient complains of extreme weariness and languor, and, instead of resting in the intervals between the pains, is restless, tossing about from side to side, while the pains, at first normal, assume, subsequent to the occurrence of the symptoms just indicated, the short, indecisive character pointed out by Dr. Whittle.

3. But hæmorrhage, and that, too, of an alarming character, is met with in cases where the labour has been so rapid that no time has been afforded for the development of any premonitory symptom, the muscular tissue of the patient being so relaxed, that no opposition is offered either by the os uteri or by the perineum, to the expulsion of the child; one or two sharp, powerful pains suffice to terminate the labour; but relaxation of the uterus often subsequently occurs, and hæmorrhage follows. In like manner, I have repeatedly seen hæmorrhage follow rapid delivery effected by the forceps; the operator having failed to afford sufficient time to the uterus to contract. Again, hæmorrhage frequently follows the too rapid expulsion of the placenta. Indeed, I am satisfied that undue haste is in general shown by many practitioners in the removal of the placenta.

4. Lastly, hæmorrhage may occur from want of care in the management of the uterus subsequent to the complete emptying of its contents. Doubtless in some patients the uterus contracts so firmly and so perfectly that there is no need of fear; but in very many this is not the case. The abdominal walls distended by the size of the uterus, now that that organ has become so reduced in bulk, fail to afford it any support. The old-fashioned but eminently useful binding judiciously applied is most valuable; and its application should never be omitted; in some cases, a pad slipped under the binder after the third pin has been inserted is useful; but I have so often seen it injudiciously placed that I hesitated to recommend its use; the more so as by hiding the outline of the uterus, hæmorrhage into the interior of that organ may take place, and may for some time be undetected by the attendant.

II. Being aware of the causes most likely to produce *post partum* hæmorrhage, can we not guard against their occurrence? I believe we can. Thus we can, by the timely use of the forceps, prevent the uterus being exhausted. They should be used before the symptoms enumerated by Dr. Whittle occur, or, if they have occurred, be applied the moment such are recognised. Their use does not contraindicate the exhibition of ergot. I frequently give ergot and apply the forceps simultaneously; but I should be sorry to rely on ergot alone; often it acts most beneficially; as often it fails to produce any effect whatsoever; besides, it is essential to bear in mind what experience has abundantly proved, that once its specific action on the uterus has been established, the death of the *fœtus* speedily follows—a fact established so incontestably, that ergot has well nigh altogether ceased to be administered by Irish practitioners, with the view of hastening delivery. But use the forceps judiciously, and you will seldom have any hæmorrhage. Here I would, however, protest, as I did at the meeting of the Association, against the injudicious and indiscriminate use of the forceps. I believe, judging from published returns, that not a few practitioners apply the forceps simply to save time and to free themselves from an irksome delay. Lamentable consequences certainly must follow such a practice.

The occurrence of *post partum* hæmorrhage, the result of relaxation of the uterus depending on nervous exhaustion, is fortunately less frequently met with. It is much more difficult to anticipate, and, therefore, to treat, than the preceding form. The moment such symptoms as I have enumerated exhibit themselves, delivery should be effected with the least possible delay by means of the forceps. Ergot here is still more unreliable than in the previous class of cases. Strychnia promises much better effects. I generally combine it with ergot, giving ten drops of the liquor strychnice (B.P.) with the first dose, and five with a subsequent one, if necessary. I can confidently recommend this combination.

Abnormally rapid labour, when it occurs spontaneously, cannot be prevented. The condition of the uterus in such cases, however, requires subsequently careful watching, as a marked tendency to relaxation of that organ, and consequent danger of hæmorrhage, exists; but the too rapid extraction of the head, when the forceps are employed, indicates a want of judgment on the part of the practitioner, which is highly to be reprehended; he should imitate nature and give full time for the uterus to contract as its contents are being expelled. If this caution be not exercised, *post partum* hæmorrhage is nearly sure to occur; hence an additional argument against the unnecessary employment of the forceps. Again, the same undue anxiety to terminate the labour which induces the needless application of the forceps often influences the treatment of the third stage of labour. Doubtless, the contraction of the uterus, which expels the body and legs of the child in a perfectly normal labour, frequently detaches the placenta also, but it does not in

general expel it from the uterus; on the contrary, the placenta remains in it for a time, and, acting as a foreign body, stimulates the uterus to contract still more and expel it into the vagina; time should, therefore, be given for this purpose. A skilful practitioner can at any moment, by well directed pressure, expel the placenta (traction on the funis is always objectionable), but he should not exercise this power till time be given to allow the uterus to contract; unless, indeed, the occurrence of hæmorrhage, or of some other urgent symptom, renders the removal of the after birth essential.

Finally, the third stage being terminated, hæmorrhage may be kept up by a portion of the membranes being left behind. An accident most likely to occur if the after birth have been removed by traction, by neglecting to give due support to the uterus by the application of the binder, or by the constant "kneading" of the uterus, which, by continually expelling the coagula which form round the orifices of the sinuses, induces a constant exudation of blood from them.

III. That the symptoms enumerated by Dr. Whittle are indicative of a tendency to the occurrence of hæmorrhage, will, I think, be admitted; but, seeing that the actual causes producing the hæmorrhage are numerous, it is evident, even did not experience prove it, that hæmorrhage may supervene without their previous occurrence. But of more importance is the question, Is the administration of ergot always sufficient to obviate the occurrence of *post partum* hæmorrhage when administered in full doses some time previous to delivery? I unhesitatingly affirm that it is not; and I look on the unqualified assertion that it is, as calculated to bring into disrepute an agent of the greatest value. It may restore energy for a time, but it cannot give tone to an exhausted uterus. It cannot, and it does not, restore to energy the exhausted nervous system of the patient; it will not counterbalance the ill consequences likely to follow the too rapid emptying of the uterus, or the injudicious treatment of that organ subsequently. In fine, I would conclude by saying, give ergot in cases of labour in which you suspect that *post partum* hæmorrhage is likely to occur, but do not rely on it exclusively. When symptoms indicating that the power of the uterus is flagging show themselves, prevent that exhaustion becoming excessive by the use of the forceps; when you do apply them, use them as *aids* to the uterus, not as *substitutes* for its action. Give the uterus time to contract after the birth of the child, and to throw off the after-birth, keeping up in the interval firm pressure on the fundus with the left hand; then support the abdomen by the good old-fashioned binder, and the risk of *post partum* hæmorrhage will be small. I do not mean to say that by the adoption of this or any other treatment *post partum* hæmorrhage will be entirely averted; that is impossible; but the risk of its occurring will be reduced to a minimum.

ON INFLAMMATION.

By WILLIAM ADDISON, M.D., F.R.S., Brighton.

RETROGRESSION of vascular tissue to its primitive embryo state for purposes of reparation is a proposition based on microscopical researches. Permit me to point out some surgical facts of healing in accord with, and to indicate some suggestions.

But, first, a few words on embryo-growth and its chief hindrances. About twenty years ago an American gentleman, Mr. Cantelo, exhibited a hydro-incubator in London; he furnished me with eggs for examination, permitted me to work in his exhibition-room, and allowed me to question him with respect to his hatching experiences. He told me he hatched his eggs at 106 deg. Fahr., and was very careful to preserve this temperature throughout the process.

"The more accurately," he said, "you keep the heat at 105 or 106 deg., the more successful will be the incubation, and the stronger the produce. An egg begun at a wrong heat is always injured, and the longer it is kept at that wrong heat, the more likely is the chick to be spoiled. The germ will develop at any heat between 95 and 110 deg., but at either of these extremes the chicks, if they do not die within the shell, are delicate little things not worth rearing for the market."

"The germ of a chilled or half-frozen egg is not prevented from developing, and the young chicks are hatched at the usual period; but they are never strong, many pine away and die within a fortnight, and the survivors never make fine chicken."

To see the effect of air upon the embryo, I have opened the shell of eggs at various periods of incubation: thus, on one occasion, I carefully opened an egg of seventy hours' incubation. The parts around the embryo were covered with innumerable blood-vessels, and the embryo heart was seen beating vigorously. In this state, a small thin watch-glass was placed over the broken part of the shell, and the egg returned to the warmth from which it had been taken. The following

day, twenty hours having elapsed, I visited the incubator. Mr. Cantelo told me he had looked at the preparation early in the morning, and observed the heart "was beating very feverishly;" and, when I looked, I saw a quick, hurried, and, as it were, impatient action, very different from that seen the day before.

The area covered with blood-vessels was now nearly twice the diameter it was yesterday; they had undergone great changes, were more densely crowded, and their arrangement was strangely divergent from the natural one—all within twenty-four hours.

The view was a suggestive one: the heart in feverish action, arteries carrying blood of one hue and veins blood of another hue, and an action greatly extending the *vascular area*—a sort of inflammation—in full swing from the inappropriate admission of air to a creature not three days old, and with nothing but globules or cells in its composition. Mr. Cantelo's experience and my experiments show, in a very marked manner, the injurious effects of a "wrong heat," and the admission of air upon embryo growth. I apply the facts to reparation.

In the human embryo, blood-vessels commence and grow at a high temperature, quite excluded from air and light.

In subcutaneous surgical operations, ruptured tendons and fractured bones, injured parts are excluded from air and light; an equable high temperature is secured by neighbouring parts, and the wounds heal without suppuration: because the conditions of embryo growth are fulfilled. On the other hand, external wounds are exposed to variable low temperatures, to air and light, and they suppurate, the action denoting spoiled material—spoiled by conditions unfavourable to embryo growth.

Perhaps the confluence of pustules of small-pox and deep pitting of the face might be mitigated if, on approach of the eruption, the face could be protected from cold and air. New vascular tissue of healing sores—granulations—will often fade and die away, among other reasons, probably from exposure to air and a "wrong heat." It may be, the use of suppuration is not only to throw off spoiled material, but also to form a covering to shield young granulations from cold and air. Cold air is as injurious, as much an irritant, to serous surfaces as hot water to the skin; if it be admitted to them, the parts immediately proceed to protect themselves by suppuration. In these cases, a high temperature and total exclusion of air are necessary to healing. I remember to have read somewhere an account of a boy who stumbled into a vessel of boiling pitch, burning his arms to above the elbows. The surgeon took off all the clothes he could; but found it impossible, from the hardening of the pitch, to remove the sleeves of the coat from the injured parts. Subsequently, he expressed extreme surprise at finding the parts he could not bring under his observation healed long before those parts he had been daily *dressing and cleansing*. In the same person, and in the same injury, those parts, secluded from air and kept at an equable warm temperature, healed without suppuration, and sooner than those exposed to cold and air, and dressed by the surgeon. Healing, to keep parallel with the embryo growth, must have parallel conditions.

Sometimes, in extensive burns, large sloughs have to be separated; and, upon the principles we are now discussing, the dressings ought to be as few and far between as possible; what is called cleansing the wound is often unnecessary. I should have no fear for vigorous granulations from *vibrios* or *bacteria*; for, in confluent small-pox, the ugly suppurating parts heal under temporary shields, the scabs, notwithstanding the nidus in a hot summer for eggs and germs.

Healing in different parts corresponds in time with embryo growth; skin heals sooner than tendons, and tendons sooner than bones. *Inflammation is the requisite preliminary action, fitting existing blood-vessels for a renewal of embryo growth*; and, in correspondence with the heat necessary for embryo growth, parts in inflammation are of a higher temperature than surrounding parts.

DIAPHRAGMATIC HERNIA.*

By HENRY W. RANDOLPH, Esq., Milverton, Somerset.

I BEG to present to you for your inspection a specimen of hernia through the diaphragm on the left side, in a child 3½ years of age, produced by an accident which occurred when he was a year and three months old. The opening is of an oval shape, about two inches long by an inch wide, through which had passed the entire stomach and about eight inches of colon into the left pleural cavity. The stomach, though it had lost some of its contents, was much distended with fluid, occupying nearly the whole of the left side of the thorax. There was no strangulation

of the structures within the ring; and the stomach, with the fold of intestine, was readily returned within the abdominal cavity. The lung on that side was in a state of atrophy, perfectly hepatized by the pressure of the intruding viscus, except just at the apex of the upper

L. Lungs. H. Heart. S. Stomach. I. Intestine.

lobe, which contained some aerated cells; it was wasted to about one-fifth of its proper size, and flattened against the vertebral column. The heart was healthy, and pushed considerably towards the right side. The right lung was larger than is usually seen—probably from the over-work it had to sustain in the absence of its fellow-labourer. The liver was much congested and somewhat enlarged. The intestines through their whole extent were highly vascular. The remaining viscera were in a perfectly healthy state.

The following history of the case has been furnished by my son, who made the *post mortem* examination, and had the conduct of the case.

The accident alluded to was occasioned by the boy creeping under a steam-engine belonging to a threshing-machine. The horses being attached, the driver, unconscious of the child's presence, drove on, and the little urchin was crushed between the fire-box and the ground, a space of about six inches. The details of this case, and even the accident, had escaped my recollection; but I am informed that I saw the patient immediately after its occurrence; that the child was put under treatment, and confined to bed, and in the course of a week was apparently well and running about. We never heard more of the case until last November, when my son was sent for early in the morning, the child having been seized with urging (though nothing was vomited) pain and hæmorrhage from the bowels. He was pallid, faint, with venous congestion about the lips. Astringent medicines and stimulants were administered. In the middle of the day we were hastily summoned, but before we arrived the child was dead. This led to a *post mortem* examination, and this interesting revelation of the cause of death was the result.

Since the period of the accident, now more than two years ago, the child suffered from dyspnoea, greatly increased by violent exercise, and always worse after a full meal. His mother tells me that ever since the injury he had frequently been seized with violent vomiting, lasting from two to three hours: at all other times his digestive functions seemed to have been well performed.

It is evident that the rupture of the diaphragm was occasioned by the accident, and that the stomach, which at the time was probably full, passed through the aperture. After each meal, doubtless more stomach was protruded into the chest cavity; and the lung, as it gradually became collapsed, offered less resistance to the protruding viscus. Had vomiting been effected during the last attack, the child's life might have been prolonged for a short period; but this not being possible, the pressure exercised upon the heart and lungs was, I believe, the immediate cause of death.

It is but seldom in a country practice we are enabled to make examinations after death, or to present to the members of the profession interesting matter worthy their consideration; but I cannot but think the case submitted to your notice is worth preservation, since it illus-

* Read before the West Somerset Branch.