

hyperemesis gravidarum or other complication, the pulmonary condition usually improves during pregnancy, and this improvement is particularly marked in the later months. Whether this improvement is due to metabolic changes such as increased absorption of calcium, production of calciferol, etc., or can be attributed to some extent to compression of the lungs from below by the rise in the diaphragmatic level, is not known, but there is no doubt of its occurrence.

Then comes parturition and the puerperium, at the end of which in only too many cases one finds that all the progress made during pregnancy is lost and that an acute flare-up of the disease may occur. If we knew the cause of this sudden drop in the patient's resistance we could, perhaps, take appropriate measures. Is it due to obstetric shock, to loss of blood, or to the sudden re-expansion of the lungs with abdominal relaxation? Does it occur in women of primitive races whose delivery is easy? Does it occur after delivery by early caesarean section?

Collapse therapy by artificial pneumothorax when practicable is of course continued during pregnancy and pushed after parturition. But when artificial pneumothorax, although desirable, is impossible, should the induction of pneumoperitoneum, with or without phrenic crush, as soon as practicable after parturition be regarded as the method of election in such cases; or are there special risks attributable to the condition of the pelvic floor, etc., which render this treatment inadvisable? These are some of the questions which call for answers, and until the answers are forthcoming the temptation to terminate pregnancy in women suffering from active and acute pulmonary tuberculosis will remain.—I am, etc.,

Chichester.

P. HEFFERNAN.

### Heparin for Coronary Thrombosis

SIR,—Lest a massive dose of double strength be given as suggested in Dr. J. T. Maclachlan's letter (Nov. 1, p. 709), with what results I do not know, perhaps the massive dose recommended by Prof. Lambert Rogers in the *Practitioner*, October, 1947, p. 247—viz., 300 mg.—would be safer to give.—I am, etc.,

Worthing, Sussex.

R. H. WILSHAW.

SIR,—Dr. J. T. Maclachlan (Nov. 1, p. 709) advocates the use of heparin in cases of coronary thrombosis. On theoretical grounds it would seem that heparin is indicated in the treatment of this condition. On the other hand it would seem important to critically survey any extension of the use of an important therapeutic agent such as heparin before extending its use indiscriminately.

The interest in heparin has been stimulated recently by the classical work of Jorpes and other Swedish workers. It is of interest to note that these workers have confined themselves mainly to the use of heparin in the treatment or prevention of thrombosis arising in the femoral blood vessels following operations, and they have dealt with pulmonary embolism on the grounds that this condition arises as a consequence of undetected femoral-blood-vessel thrombosis. The femoral blood vessels have an elaborate collateral anastomosis, and heparin therapy will keep this collateral anastomosis open until such time as the original clot has become organized or canalized. In Jorpes's work there is no mention of heparin for use in either coronary or cerebral thrombosis, and it would seem that the question of coronary and cerebral thrombosis was shelved because these workers felt that heparin would not prove of much value in these conditions.

So far as coronary thrombosis is concerned I would not use it myself because (1) once a thrombus is formed heparin has no further action and will not dissolve the clot; (2) a large number of cases will die from the shock and spasm attached to the attack of coronary occlusion, and heparin will be of no value, as these cases will die instantaneously; (3) the coronary arteries are end-arteries, and as such there is no collateral circulation to carry on after the attack of thrombosis; and I cannot see how heparin will prevent infarction or ischaemia of the heart muscle leading to ultimate impairment of cardiac output or death from rupture of the heart; (4) it would also seem that if the thrombosis is, as it is so often in coronary

thrombosis, secondary to some disease or degeneration of the blood vessel such as arteriosclerosis or atheroma, then as heparin has no curative action upon the condition which is causing the thrombosis we must not expect too much from heparin therapy. I am putting these points forward not in order to air my own views but in the hope that some cardiologist will clear up the doubts in my mind. It would be a pity if a therapeutic agent such as heparin, which has been proved to be of value in certain specific conditions, should fall into disrepute because it has been used in conditions in which its use is unsuitable.—I am, etc.,

Southport, Lancs.

JOHN H. HANNAN.

SIR,—In his letter advocating heparin therapy for cases of coronary thrombosis Dr. John T. Maclachlan (Nov. 1, p. 709) suggests that it should be given after shock has been treated with morphine. He does not indicate clearly what delay there should be before using heparin. Unless someone can show any contraindications I would suggest that it be commenced as soon as possible after the attack. Pollard and I (*Quart. J. exp. Physiol.*, 1946, **33**, 267) produced evidence that heparin, physiologically, does not appear to be a blood anticoagulant. It is stored in the tissues and only enters the blood as a result of trauma. The amounts released, as a result of trauma, are hardly enough to warrant its being called an anticoagulant. In fact, as normal clotting time lengthens, the action of heparin in physiological doses is to reduce it. We feel that heparin takes part in the "adaptation syndrome" described by Selye and almost certainly plays a defensive role in the body. The nature of its action is not yet understood, but its chemical character suggests that it will be an antibody to a number of substances which occur in the body, an example being histamine.

On the hypothesis that certain aspects of shock might be due to the action or overaction of histamine or similar substances, we tried heparin as follows. A female aged 72 years had been almost totally burned. When seen three hours after the accident she was very cyanosed. During 10 minutes 70 mg. of heparin was given. The cyanosis disappeared. A further 70 mg. was given by drip during the next 1½ hours. After another hour, during which no heparin was used, the patient developed acute pulmonary oedema. 75 mg. of heparin apparently completely relieved the condition. On two more occasions before the patient died (6 hours later) the pulmonary oedema returned and was similarly relieved by heparin. Heparin supplies were limited and this prevented more continuous administration.

We have seen several cases of migraine and a case of asthma quickly relieved by a skin prick, which would produce a natural outflow of heparin into the blood. It is likely, though not proved, that adrenaline is the chemical mediator by which heparin is discharged from the tissues into the blood. When its real action is understood, it is probable that heparin will find a useful place in therapy other than as an anticoagulant. Knowledge of this action will be gained more rapidly if clinicians are alert to its possibilities.—I am, etc.,

Ossett, Yorks.

S. B. STOKER.

### Health Regulations for Air Travel

SIR,—At the present time, with a continually increasing volume of air travel, any measures directed to the prevention—as far as possible—of the introduction of disease into this country by air-borne passengers is bound to be of interest. Dr. R. H. Barrett's article (Nov. 8, p. 741) gives a résumé of the regulations approved by the International Convention for Aerial Navigation, 1944. These regulations show clearly the amount of thought and planning (blessed word!) which has been devoted to the subject. Planning, unfortunately, is not infallible.

That there is a very real danger of the introduction of infectious disease by air which might be the starting-point of an epidemic cannot be denied. "We have reached the stage when we no longer think of countries overseas as being separated by distance, but by time. . . . That is to say that countries where all sorts of unfamiliar diseases flourish are nearer to this country in point of time than the length of their incubation periods" (Presidential Address, Surrey Branch B.M.A., July 2, 1947).

Compliance with the regulations in every particular may absolve the various airways corporations from charges of carelessness or neglect when supported by all the necessary certificates required by the regulations, but nobody could possibly claim that they are an absolute preventive. Only quarantine can do that. To insist on quarantine in the case of every passenger is manifestly unnecessary and impracticable. It was to avoid delay and inconvenience to travellers by sea that the system of sanitary surveillance was adopted by the Paris Convention, and on the whole it has worked well. It must not be forgotten that in travelling by sea infectious disease may reveal itself in the course of the voyage. Travel by air, by reason of its speed, is deprived of that natural safeguard to a very great extent.

To conform to the different conditions as far as possible, recourse is recommended to preventive inoculation by the Air Convention. As we know from past experience, inoculation is by no means an absolute preventive. It may, in fact, modify diseases to a sub-clinical and much less easily recognized type, in which the sufferer is just as much a possible source of infection. Moreover, non-carriers may be converted to carriers. This appears to have been foreseen to some extent by the adoption of a form of sanitary surveillance (*vide* "Health Regulations for Entry into the United Kingdom") and the "warning card" to be given to the patient's doctor. This measure is by no means foolproof. Pressure of business and shortness of sojourn are apt to cause the patient to "fight the disease" so that he may be able to get through his work in the time at his disposal. He may try to rationalize his symptoms as "another go of my old dysentery (or malaria)" until it lays him low and he has to call in a doctor, by which time he will probably have spread infection. His doctor may be unfamiliar with tropical diseases and inclined to accept the patient's own diagnosis until the illness takes a more serious turn.

I do not think too much value should be given to "personal declarations of health" for the same reason. It has not been unknown in the past for an individual to make a false statement for reasons of expediency to avoid being held up. Persons who make false statements or fail to comply with instructions may be a great menace, and if detected should be liable to heavy penalties. It would be a sound step if every airport which receives aircraft from overseas had provision for the temporary reception and rapid diagnosis in cases of illness in persons "deplaning." This should have facilities for blood and stool examinations on the spot, and the airport medical officer should be a man with considerable tropical experience. Such provision is a matter for each country to make the arrangements which it considers to be most efficient. It is not uncommon to find that persons who have lived in hot countries are carriers of typhoid or dysentery. I have seen a perfectly fit and healthy person who, in the course of a routine examination, was proved to be a cholera carrier. These are risks that have to be taken.

It would be too much to hope that we may continue to escape from air-borne infection indefinitely. Hence the importance of adequate provision for isolation and rapid diagnosis.

I wonder who invented the horrible words "disinsectization" and "disinsection"? Would not "disinfestation" have served the purpose?—I am, etc.,

Brookwood, Surrey.

H. M. STANLEY TURNER.

### Appendicitis in the Young Child

SIR,—Dr. Howard Williams is to be congratulated on his paper (Nov. 8, p. 730) on the above subject. There is, however, a point in differential diagnosis which appears to me to need stressing and which I have not seen pointed out before. It is the inverted respiration (inspiration—pause—expiration—immediate inspiration) which is often found with the onset of peritoneal involvement. This is usually looked upon as a sign of intrathoracic disease and is especially misleading, as some 20% of cases of acute appendicitis in children are associated with or immediately follow upon an upper respiratory infection. The mechanism is the same whether the chest or the abdomen is involved; the breath is held in inspiration in the one case because of the pain of pleural involvement, in the other case because of the pain of peritoneal involvement, and the association of inverted respiration with the latter infection is particularly noticeable in childhood, where diaphragmatic respiration is naturally greater than costal respiration. Movements of the alae nasi are frequently present with the altered respiratory rhythm.

The correct diagnosis depends on the definite finding of focal abdominal tenderness or rigidity. This can be confirmed in cases of serious doubt by aspiration of the peritoneal cavity, a method I have never used but have seen employed in the U.S.A. with satisfactory results. The normal cell content is

about 2,300 per c.mm., and is mainly composed of mononuclears and lymphocytes. The pulse, respiration rate, temperature, and lymphocyte count are of little value, and x-ray films both of the chest and of the abdomen may be misleading.—I am, etc.,

Sheffield.

JUDSON T. CHESTERMAN.

### Anaesthesia for Head and Neck Surgery

SIR,—The flexible metal tube with mouthpiece described by Dr. J. G. Bourne (Oct. 25, p. 654) is an interesting piece of equipment. For some time an ordinary Hewitt's airway has been used in the same manner with good results. The fixed curve of this airway holds the tube so as to prevent deviation towards the oesophagus; it obviates the use of introducers, as does the curve given to the tube by storage in a circular tin. When large tubes are in use the airway required takes up a good deal of space, and there may be some difficulty in sliding it along the blade of the laryngoscope even if the Macintosh spatula is in use. Dr. Bourne's tube should be an advantage in these cases.

The use of "tubarine" for intubating cases of head and neck surgery is perhaps debatable, as a suitable dose of thiopentone given slowly, followed by nitrous oxide with a little trilene or ether by passive ventilation, has been found to facilitate laryngoscopy and intubation. The same mixture is used for maintenance, and local analgesia of larynx and trachea is not required. It is felt that this sequence, using only a small amount of volatile anaesthetic, is less depressing than curarization; admittedly it takes more time.—I am, etc.,

Glasgow.

C. T. BARRY.

### Control and Treatment of Diphtheria

MONSIEUR.—Je viens de lire avec un vif intérêt votre "leading article" du *Journal* de March 22 (p. 384) ainsi que la suggestive étude de Dr. James Fanning (p. 371). Cette lecture me suggère les réflexions suivantes.

D'après Collins, 7% seulement des enfants non soumis à l'immunisation contractent la diphtérie au cours des 15 premières années de la vie. Pour que l'immunisation soit efficace, elle devrait donc protéger plus de 93% des enfants inoculés au toxoïde. Or, comme je l'ai montré dans un article—"Fréquence de la Diphtérie chez l'Enfant dans ses Rapports avec la Vaccination"—le pourcentage des Schick-négatives par l'immunisation active ne dépasse pas 85 à 90% (Ramon). La vaccination au toxoïde ne peut donc pas être efficace.

Vous dites qu'en 1947 en Angleterre 50 à 60% seulement des enfants sont inoculés. En 1941 cette proportion était forcément beaucoup plus faible et ne peut pas expliquer la baisse qui a commencé à ce moment. Tous les partisans de la vaccination antidiphtérique (Goldfley, Ramon, etc.) sont, en effet, d'accord pour dire que l'immunisation ne commence à produire ses effets que lorsque 40 à 50% au moins de la population infantile est immunisée. Si la diphtérie a beaucoup diminué en Angleterre depuis cinq à six ans, elle a diminué dans de bien plus grandes proportions dans des pays où l'on n'a pas vacciné. En Suède, par exemple, de 1919 à 1938 le nombre des cas a passé de 40,514 à 113 et celui des décès de 2,000 à 10.

Vous estimez que le renouvellement des injections de toxoïde rendrait l'immunisation plus efficace. L'expérience prouve qu'il n'en est rien (voir mon étude, "La Multiplication des Injections de Rappel Rendraient-elle Efficace la Vaccination Antidiphtérique?"). Veuillez agréer, mon cher Confrère, l'expression de mes sentiments les plus distingués.

Lyon, France.

ROBERT RENDU.

### A Method of Abdominal Palpation

SIR,—I was interested to read Dr. E. W. Price's article (Nov. 1, p. 703) describing his method of inducing relaxation of the abdominal wall, which seems ideally suited to ambulant patients or those already in the erect posture. In this country most patients are already supine at the time of examination, and time would be wasted in getting them up, just as with Dr. Price's ambulant African cases time would be wasted by getting them to lie down.

I have for some years used the following simple means of inducing relaxation in supine patients who, through nervousness