foetal red cells which possess the specific antigen in the greatest concentration, and it is probable that most of the antibodies are specifically fixed to the red cells. Indeed the red cells may be said to constitute the first line of defence against the antibodies. In the latter, on the other hand, the antibodies have to pass through the liver, the cells of which have been shown by Boorman and Dodd (1943) to contain the Rh antigen, though not to the same extent as the erythrocytes. Is it possible that the antibodies are absorbed by the hepatic cells? If this view is correct it would seem reasonable to suppose that the antibodies can gain entrance into the circulation only after the liver cells have been more or less saturated with them.

What causes the lag in the recovery in the blood state of erythroblastic babies? Is it the haemolytic process or the hypoplasia of bone marrow, or both? The pathology of the haemolytic process in the infant may be compared with that of cases of blood transfusion from high-titre group O donors. Yet though the degree of haemolysis as judged by the fall in haemoglobin and red cell count may be severe it is but rarely attended with haemoglobinuria or evidence of renal damage such as oliguria and nitrogen retention. This is so even when Rh-positive blood has been used for transfusion. Clinically the jaundice may be minimal or there may be an increase if it was previously present. A rapidly increasing pallor is a common feature. These clinical findings suggest that the anaemia is probably also due to poor red cell regeneration rather than entirely to haemolysis.

It is well known that in animals physiological absorption of maternal antibodies via the alimentary canal is quite possible. The observations by Kerr and Robertson (1946) are of special interest in this connexion. Working with *Trichomonas foetus* antigen on cows these workers have shown that the antibodies against *Tr. foetus* present in the whey of colostrum can be absorbed by the newborn calf from the first feed after birth—and be demonstrable within 2 hours after the feed. If the calf had been fed on boiled milk for 24 hours the antibody present in the colostrum is not absorbed. This shows that the conditions in the alimentary canal which permit the passage of the antibodies disappear within the first 24 hours. These workers have also shown that *Tr. foetus* antibodies in serum can be absorbed via the alimentary canal into the blood stream in the newborn calf, though it is much less easily assimilated than from colostrum.

In this respect newborn calves and newborn babies appear to differ from each other. Parsons (1946) attributes this difference in mechanism "to the variation in placental structure; in women the placenta is thin, the blood actually bathing the chorionic villi and thus rendering the transference easy, whereas in the cow it is thick." Several layers of tissue are interposed between the maternal and foetal circulations.

In spite of the lack of proof of antibody absorption by the mouth using the present methods, there is no reason why the experimental evidence in favour of absorption should not be advantageously applied to clinical medicine. As colostrum contains a higher concentration of Rh antibodies than breast milk it would only serve as an additional precaution if colostrum feeding is specially interdicted, though breast-feeding may be allowed as is the practice at the Hospital for Sick Children.—I am, etc.,

Madras, India.

K. S. RANGANATHAN.

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Natural Position for Childbirth

SIR.—Dr. Kathleen Vaughan's letter (Jan. 31, p. 222) draws attention once more to the natural position for childbirth. Most of us must have had cases where a woman has delivered herself in this position. Nearly all women who are blessed by or who suffer from precipitate labour give birth when standing or squatting, often perhaps imagining that nothing more than movement of the bowels is taking place—that at any rate has been my experience. The most impressive demonstration that I have witnessed of the efficacy of the squatting position occurred in 1921. I had been called to a confinement at a lonely farmhouse, I believe the woman's eighth. My first visit was before 9 a.m. I called several times during the day and no progress was evident. She repeatedly proclaimed that she could never have the baby "on the bed," she must "get down to it." I called at 9 p.m. and found little or no change though the nurse appeared to be working hard with her in the left lateral position. She pleaded with me to let her "squat," and so at my suggestion a horrified nurse spread a clean sheet on the floor, the patient

squatted as illustrated by Dr. Vaughan, and in a few minutes the child was born easily and without damage to the perineum.

It has been my habit in forceps delivery to have the patient in the lithotomy position. This appears to me to be the easiest and most convenient position, especially when working with little or no skilled assistance, the thighs being held flexed on the abdomen by an "obstetric helper"—a strip of webbing passing behind the patient's neck and fastened just above each knee. In this position one has the nearest approach to natural squatting.

In her instructive and interesting book Dr. Vaughan puts forth convincing arguments for more natural, and therefore more rational, habits of living, feeding, and methods of delivering—or allowing the woman to deliver herself—in the attempt to reduce maternal and neonatal deaths. She points out that sepsis figures largely in the Ministry of Health reports. This I think is very largely determined by the mother's diet and her resistance to infection. One of the worst cases of puerperal infection I attended, with pelvic abscess and peritonitis, occurred after the birth of a puny child with no manipulation or interference of any kind. This woman confessed to me afterwards that she had not carried out instructions for dieting or taking vitamins, but had starved herself to produce a small child and have an easy time. She had a very small baby—and nearly died.

Not only is our management of pregnancies and confinements becoming more and more "scientific" and artificial, but so is the care of the newborn babe. We hear a great deal of clinics, baby weighing, and dried milk, but very little of breast-feeding. That seems to be going out of fashion. Is the modern mother, well supplied with vitamins and priority milk, incapable of producing the proper food for her baby? On booking a case in the third month of pregnancy I was once asked, "And what is the best artificial food for the baby?" Recently I spent an hour in a news theatre where a modern British hospital was depicted with its up-to-the-minute maternity block, and flashed on the screen was a picture of a lusty baby vigorously sucking at his bottle. A far prettier and more suitable "shot" would have been a happy and contented mother with her baby at the breast. I recently met an Australian woman who had had two children in nursing homes in England. She said she was always a "slow beginner" with her milk, but after the third or fourth day always had an abundant supply; but she had to plead with her doctor and the staff at the homes not to put her babies on to artificial food before she had had a real try to feed them herself.

Doubtless a great number of stillbirths and neonatal deaths are due to disproportion and the consequent difficulties in delivery, but how many of these babies are weaklings due to deficiencies in the mother's diet? Especially before the days of the expectant mothers' priorities the percentage may have been high. This together with artificial feeding, pulmonary infections, and tight wrapping—as I have previously urged—may account for many neonatal deaths. It is said that 50% of babies swaddled in the seventeenth century died in their first year. Even now, when expectant mothers receive priority foods, many of them may suffer from undernourishment, as they are unlikely to take the special supply of extras themselves if they have young children, who naturally become the beneficiaries.

I regret that Dr. Vaughan's *Safe Childbirth*, and Dr. G. Dick Read's *Revelation of Childbirth* were not available at the beginning of my career instead of at the end. I strongly recommend all who practise midwifery to study both these excellent books.—I am, etc.,

Huddersfield.

S. H. WADDY.

Peptic Ulceration

SIR.—With Mr. V. J. Kinsella's desire to apply Occam's Razor to clinico-pathological interpretations (Feb. 14, p. 318) I have full sympathy. He cites in analogy the chronic ulcer of the leg, an instance I have used for many years in this very connexion, but surely the production of pain in the peripheral nervous system has a mechanism different from that in the viscera? The middle term obtrudes itself without undue multiplication of the entities, particularly if we exclude for the purpose of this discussion extra-gastric causes such as pancreatic erosion. The interposition of the food relationship of ulcer pain inevitably introduces gastric function as a middle term: the implication of the secretion as a cause is negated by a large number of considerations such as the absence of reaction to pure acidifiers and alkalizers (HCl and NaOH), and the persistence of the same pain after the onset of a generalized obstructive mucosal gastritis with total achylia.

In carcinoma of the stomach the difficulty of explaining pain in the presence of achlorhydria was for long thought to be over-

come by introducing the element of infiltration; unfortunately for this view, in leather-bottle stomach with almost universal infiltration pain is at a minimum. The rigid fibrosis of carcinoma precludes the distension essential to the genesis of muscular visceral pain. Again the accompanying inflammatory cellulitis provides the explanation—recession or removal of the infective factor in stomach cancer by oral cleansing, gastric lavage, short circuit, etc., mitigates or relieves the pain entirely (incidentally also, as is too little known, the achylia). Hence the paradoxes that a man's best help in getting an early diagnosis of carcinoma of the stomach is to have a filthy mouth, and conversely, that in the edentulous carcinoma of the stomach is peculiarly latent. Pathology is one and indivisible, the most potent cause of fluctuations in symptoms throughout clinical medicine is the ebb and flow of inflammatory oedema.

But now Mr. Kinsella introduces the question of pain and haematemesis. Is this a Greek gift or a very subtle emphasis of the case I have outlined? Haemorrhage from "peptic" ulceration may be a slow trickle (the basis of the occult blood test) from the circum-ulcerous inflamed mucosa—gastroscopists will agree the origin is not granulation tissue in the ulcer floor—or brisk, or severe. Brisk, always recoverable, bleedings occur from erosions (the old "acute" ulcers), occurring indiscriminately as regards site. They are small, heal rapidly, and are never followed by chronic ulcer. They involve only the mucous and submucous coats, opening comparatively small vessels, and not holding them open and non-retractable by chronic fibrosis and oedema, and uncommonly involve the gastric musculature. In these erosions pain is but a transient, often absent, feature.

In chronic ulceration brisk haemorrhage may arise from erosions in concomitant gastritis (with clinical features as in the preceding instance), or from the opening of large extramural vessels by an exacerbation of devitalization and digestion. Rigidity of the surroundings prevents "natural" arrest of bleeding. Pain precedes and accompanies the bleeding, and its persistence indicates progression of necrosis and inflammatory reaction. Traditionally such cases have been treated by either complete prohibition of intake or merely sips of water—such a regime leads quickly to a total cessation of gastric function, motor or secretory. Hence the age-old fasting treatment gives as rapid a recession of ulcer symptoms as any of the most elaborate drug and diet treatments, particularly if stimulation of gastric peristalsis by iced water and the epigastric ice-bag is precluded. In fine, the treatment of haemorrhage is that best calculated to diminish ulcer symptoms; persistence of pain, as noted in the Goulstonian Lecture, is of bad prognosis, indicating despite such treatment an extension of the ulceration. That the clot in the floor of the ulcer prevents the deadly HCl from getting at and stinging the ulcer is most difficult to believe from any *a priori* chemical consideration; muscular atony from acute anaemia of haemorrhage is at least a credible accessory factor.

The haemorrhage-pain clinical features of ulceration offer therefore no contradiction but rather a substantiation of the cellulitis-myogenous view of gastric pain in ulcer and carcinoma. My original letter was a challenge to the radiologists in their claim to demonstrate healing of "peptic" ulcers; with them must now be included the physicians in the indictment that they fail to correlate morbid anatomy with the signs and symptoms of gastric disease.—I am, etc.,

London, W.1.

C. JENNINGS MARSHALL.

Oral Intubation and the Davis Gag

SIR,—I must thank Dr. I. W. Magill (Feb. 28, p. 417) for his observation on the tongue plate for the Boyle-Davis gag, which I described in the *Journal* of Feb. 7 (p. 267)—needless to say I claim no originality for the device, the principles of which must have occurred to every E.N.T. surgeon. I cannot agree, however, that intubation is not advisable for tonsil operations, though it is far from essential. As he admits that it is suitable for the more difficult and lengthy operation of cleft palate, however, I cannot see why it is not, to say the least, preferable for even short cases. After all it is a simple matter to put in a tube, and the increased safety and control of anaesthesia (on both patient and surgeon) are surely adequate compensation for cutting the hourly production rate in children down to five or six dissections.

He puts emphasis on the ability of the surgeon and the anaesthetist. Is the anaesthetist justified in assuming that the surgeon is "capable," by which I presume he means the operation is relatively rapid and avascular? These are optimum conditions—I feel it is safer policy to prepare for the worst.—I am, etc.,

Darlington.

J. S. C. MONRO.

The Danger of Intubation under Trichlorethylene

SIR,—Dr. Gordon Ostlere has recently published two articles in the *Journal* concerning the use of trichlorethylene (April 5, 1947, p. 448, and Jan. 31, p. 195). The first dealt chiefly with the use of curare in "poor-risk patients." It certainly confirmed my own belief and experience in the wide range and usefulness of trichlorethylene especially when used in combination with curare for such cases. In the second article the toxic effects as shown by cardiac arrhythmias are mentioned and Dr. Ostlere points out that trichlorethylene should not be used in the presence of an existing cardiac irregularity, and that it should be replaced by ether where an irregularity occurs and persists with trichlorethylene.

Several fatalities have occurred when this drug has been used, but one cannot always blame the drug directly—in fact it is probably safer to lay the blame in most cases partly to the technique used and/or partly to some concealed or unobserved condition of the patient which may even have been unassessable. I am unable to present any technical details regarding recorded fatalities with this drug, but I would like to mention two cases in my own experience.

Case 1.—A man aged 49—poor colour and rather wasted—was suffering from right renal calculus. B.P. 160/100. Blood urea normal. Left kidney normal. Heart and lungs, n.a.d. It was proposed to perform a right nephrectomy. "Omnopon," gr. 1/3 (22 mg.), and scopolamine, gr. 1/150 (0.43 mg.), were given and he arrived in the theatre more than usually drowsy. 0.4 g. thiopentone was then administered followed by gas-oxygen and trichlorethylene. Respiration soon answered to carbon dioxide stimulation and blind intubation performed at the first attempt. There was immediate reflex spasm and breath-holding, the breath being held at the expiration of a pronounced cough. In an attempt to relieve the spasm I administered curare 15 mg. and oxygen under pressure. I hoped that the incision might prove a stimulus to the respiratory centre, but almost immediately after the incision had been made the heart ceased to beat. Remedial measures were instituted and the heart eventually restarted by massage by an incision through the diaphragm. Voluntary respiration returned very slowly and then more rapidly, changing later to Cheyne-Stokes respiration. He was then removed to the ward and transferred to an "iron lung," being taken out at intervals. Always there was a return to Cheyne-Stokes respiration. He died thirty-six hours after the incision without regaining consciousness. Post-mortem examination showed marked atheroma of aorta and a hypertensive thick-walled heart. The coronary arteries were pipestem in character and so narrowed by atheroma that their lumina were invisible. The cerebral arteries were of similar calibre. Death was therefore due to cardiac failure as a result of the coronary atheroma and essential hypertension.

There is little doubt that this patient had not long in this world, but I feel he would have died more peacefully and in his home had a deeper plane of anaesthesia been used for the period of intubation.

Case 2.—A well-built young man, over 6 feet tall, was to have a gland excised in his neck. Exactly the same induction technique was used. Breath-holding occurred following intubation, but the pulse remained full and regular. Here I felt it was justifiable to administer curare. I gave him 10 mg. curare, but this time kept the patient in the anaesthetizing room. A gradual relaxation of spasm occurred and a return to normal respiration so that the operation was continued successfully under gas-oxygen and trichlorethylene.

These two cases I think emphasize sufficiently the danger of intubating some patients under too light an anaesthetic, and such cases should be brought out into the open.

Some anaesthetists advise using a cocaine spray before all cases requiring intubation. I would say this is unnecessary as a routine and only serves to upset a number of patients. Some prefer to intubate whenever possible through the mouth. Where relaxation is not required and the patient is well built and possesses a full upper and lower set of teeth the nasal route is often to be preferred. And finally a discussion in this journal has recently been taking place concerning the technique of Dr. Bourne, of intubating under almost maximum doses of thiopentone and curare.

We have therefore two extremes—very light, and very deep. In view of possible dangers I consider it unsafe to make intubation under trichlorethylene a routine technique unless the larynx has been well cocaineized. Rather would I suggest that laryngoscopy should be performed and a tube introduced under cyclopropane or ether, and then possibly a change made to trichlorethylene as soon as the curare has been given or the patient has settled