Comment.—If there had been skeletal traction for six weeks all this would have been avoided. The bones were devitalized by plating, and then the plate removed and passive movements applied at the very moment when the bones were in their weakest condition.

The B.M.A. Model Scheme for Fracture Clinics

These cases provide fair examples of why so many fractures are slow in recovery and why so many patients suffer permanent disability. Unnecessary suffering and unemployment are being inflicted on thousands, while millions of pounds are wasted by insurance companies, and further millions are lost by workmen. It is easy to prescribe the remedy for this state of affairs, but desperately difficult to have this remedy carried out. The remedy is, of course, organization of treatment, with its triple conditions of unity of control and responsibility, continuity of treatment, and efficient follow-up. The model scheme for an organized fracture clinic is set out by the Fracture Committee of the British Medical Association, and may be studied in actual working in Manchester, Liverpool, and London. Every large hospital, whether voluntary or municipal, should have such a clinic.

Fracture cases must no longer be treated by casualty officers and house-surgeons, and then the patient sent away home, or to the municipal hospital, without adequate instructions. Cases must no longer be treated at two or three different hospitals, without proper co-ordination of the staffs. If cases of bad fractures are admitted into cottage hospitals they should be transferred to the nearest clinic within a short period and not kept for months, or else a special surgeon should be available for consultation at such hospitals, with power to carry out treatment or to advise transfer.

At first sight it would appear that the municipal hospitals are the institutions where the reformed system can most readily be instituted, since these are all under the control of the Ministry of Health. But this is unsatisfactory unless there is an honest liaison between the voluntary and municipal hospitals. Unless there is co-operation, cases will be taken first to voluntary hospitals and early treatment carried out, and then they will be transferred to municipal hospitals; thus the evil of divided responsibility will dominate the situation. Therefore the voluntary hospitals must be prepared to organize their own fracture clinics and then co-operate with the municipal hospitals with one staff, one head, and an efficient follow-up system. In cities where there is more than one voluntary hospital each institution should either organize its own fracture clinic or else refuse to treat fractures, and refer the patients to the hospital which has such a clinic. At present most voluntary hospitals are so overwhelmed by the problem of financial stringency that the managing bodies are disinclined to adopt any new policy which cannot pay its way. The provision of extra paid assistants in the new fracture clinic, the installation of portable x-ray apparatus, the payment of clerical staff to keep the follow-up records, all involve the outlay of money. But we have also to face another difficulty, which is that specialization in the treatment of fractures is not a remunerative job and therefore does not attract many young surgeons.

Consider what happens when a motor accident occurs in which the car is smashed and the driver's bones are broken. The car is sent to the works and the man to hospital; the car is paid for, but the man's bones have to be mended as a matter of charity! It would be only just and fair for insurance companies to be asked to pay for the repair of the broken bones. But they certainly would only do this if compelled by legal enactment, and the innovation would be an addition to their present liabilities. On the other hand, if insurance authorities

could be convinced that organization of fracture treatment would effect so much saving in compensation as more than to cover the cost of the treatment, then the matter would bear quite another aspect.

We claim to have proved that this actual saving would be effected. Böhler has proved it in Vienna, where the national insurance company profits by his organization. Therefore, we are asking insurance companies not to incur further liability, but rather greatly to lessen their present liability. The proper payment of a fracture clinic would involve from £500 to £1,500 a year at hospitals of 100 to 300 beds. This would cover the payment of the director for part-time work, one to three assistants for whole-time work, and the clerical staff. If some force of reason or persuasion could induce the insurance companies to offer the sum I have suggested to every suitable voluntary hospital which would properly organize a fracture clinic, I believe that the present system of *laissez-faire* would give way to one of eagerness to adopt the new suggestion.

ANALGESICS IN LABOUR*

BY

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Discussions on analgesics in labour are so often confined to a series of cases recited with results to mother and child that I intend to approach the subject from a somewhat different aspect, and for the following reasons. (1) Whatever analgesics are employed the results to mother and child in most published series are essentially the same—good; in a search of the literature on the subject I can find no series in which the conclusion reached by the author is that his or her special analgesic is either of little value or even harmful. (2) It is usually left to the critic, who is often an advocator of some different method, to find the fallacies in the therapy employed by others. (3) It is difficult enough to follow a series of statistics from a monograph, but it is still more difficult to follow them when a few lantern slides, bristling with mortality rates, are thrown on a screen just long enough for the observer to fail to read the last line, and almost impossible to do so when the figures are rapidly read out as part of the text of an address. (4) The literature on the subject is voluminous, and having read with a mixture of pleasure and weariness a large part of that published in the last ten years or so, I have come to the conclusion that, though many of the methods described are sound in theory, in practice they are impossible to put into effect as a routine, more particularly in domiciliary midwifery—the practice in which most of us are mainly interested. My reading has led me to the conclusion that a great proportion of the writing on the subject only deals with one part of labour—namely, the second stage—and that no differentiation seems to be made between analgesia, amnesia, and anaesthesia.

Now by analgesia I mean the relief of pain, and when the term refers to labour it must obviously apply to the whole of labour—that is, from its commencement to the termination of the third stage. This brings me on to the dangerous ground of just how far analgesia is desirable and expedient in the interests of the mother and the child for the whole of a labour, as well as the degree to which the analgesia should be pushed. We are all agreed that complete analgesia can be secured by full doses of chloroform, but even the most ardent advocates of complete analgesia

* Read before the Chesterfield Division of the British Medical Association on January 18th, 1935.

for the whole of labour would hardly countenance giving chloroform for twenty-four or more hours, as would frequently be necessary to attain complete analgesia with this drug.

This brings me to the question of the duration and degree of analgesia that are ideally to be aimed at, but before dealing with that question I must briefly review the actual mechanism of pain and certain general considerations of this all-important symptom. At the meeting of the British Medical Association held in 1934 considerable time was spent in discussing pain *per se*, and a masterly opening of the subject was made by David Waterston and Macdonald Critchley, upon whose papers I propose to draw in this address.

Our knowledge of the changes brought about in the body by the influence of pain is very scanty, and what we do know is most confusing; in fact, it tells us little, if anything, of the cause or the severity of pain, and whether the pain itself is the cause of the reaction.

Psychological Concomitants of Pain

There are many psychological factors associated with pain. For example, the pain associated with labour so dominates the patient's mentality that while the stimulus is acting she is, as a rule, unaware of other internal or external impressions. At the same time we are often impressed by the fact that the more severe pains of the second stage of labour seem to be borne with greater fortitude than are the lesser pains of the first stage. This fact would seem to point to a subconscious recognition by the patient that the pains are accomplishing a purpose which will in due course bring about the abolition of the stimulus, and are therefore "protective" in character. This postulates the necessity for applying analgesics during this all-important first stage of which patients are so intolerant.

Another aspect of pain exemplified by labour is the disorganization of the sense of time associated with painful experiences. Under the influence of hyoscine the flight of time seems to be more rapid, and this is one of the valuable assets of this drug in labour, as after its administration, even when not pushed to the stage of coma, or even sleep, what has up till then seemed to the patient an eternity, now has a lesser time value and therefore a less terrifying aspect.

Under the stress of any form of severe pain nature has made a wonderful provision to meet the stimulus by the advent of sleep. There are numerous examples in literature of this well-known fact—for example, Jack London in *The Star Rover* describes the vivid dreams of Darrell Standing whilst undergoing torture. We have all seen the same phenomenon in patients during labour. Many a time we have watched the profound sleep of psychical exhaustion which has succeeded each labour pain, following which the patient has described the dreams she has had, which have floated her into the realms of fantasy, or been filled with the more mundane things of domestic life.

Mechanism of Pain Production

We know little of the mechanism of the production of pain in labour, or indeed of pain in any of its forms; there is no stimulus which produces pain with every application, and the nerve paths along which the stimulus travels are unknown. Why, for example, should the transition from the contractions and relaxations of the uterus in pregnancy, to a like process with the mere addition of the phenomenon of retraction of the muscle fibres, creating the state we call labour, be almost invariably associated with intense suffering?

At the same time, until something of the mechanism of pain production is known, we cannot understand fully

the action of anaesthetics and analgesics, nor have we a scientific basis for producing relief from this symptom. Variations in the stimulus applied to different nerves we know do not alter the quality of the impulse transmitted by those nerves—for example, division of the optic nerve, or the cutaneous nerves of the skin, only gives rise to a sensation of light or tactile sense and not to pain. Probably researches will lead to no one underlying cause for the processes and mechanisms operating in the various qualities of pain from different stimuli.

Though the labour pains of one woman have much the same character as those of another, we are all aware that the intensity, quality, and quantity of the pain vary throughout wide ranges under the stimulus of this same cause—namely, labour. Labour pains are often accompanied by other symptoms such as pallor, fainting, and sweating, but as these are not invariable concomitants we must assume that the various paths carrying the pain impulses are different from those others carrying the stimulus which excites the sympathetic system. Different pain responses can be elicited by the same stimulus applied to different tissues, and in the complex anatomy involved in labour there is probably a combination of different varieties of pain which we allude to generically as labour pains. Sir Thomas Lewis has proved experimentally that pain can be elicited from muscles which have not a proper blood supply, by the production locally of a chemical material which he calls the "p substance," and that the introduction of this substance into an area creates a condition of susceptibility in which stimuli usually painless cause pain from the affected area. Maybe it is this substance which causes the pain in intermittent claudication, and it possibly accounts for the difference between the painlessness of contractions of the uterus during pregnancy, and the painful contractions produced in labour when the phenomenon of retraction reduces the blood supply to the organ. Further, Forman has shown that areas of heterotopic visceral pain, or referred pain, have this "p substance," which can be abolished by the local injection of not only anaesthetic preparations, but even normal saline, which presumably dilutes this substance and renders it inert.

It is not improbable that future researches into the mechanism of the production of pain in labour will be along the lines foreshadowed in the researches of these two workers, and that we shall actually attack the pain-producing mechanism to accomplish the ideal of painless childbirth. In the meantime, however, we must accept the fact that pain does accompany the labour contractions of the uterus, that we know little or nothing of either the chemical or hormonal stimulus causing it, nor yet of the paths along which the stimuli travel to reach the seat of appreciation. Our attempts at relief, then, must of necessity be empirical, with all the attendant risks of such unscientific therapy.

Practical Considerations

Passing now to the more practical discussion of when the relief is to be afforded and in what form, I would say first that in my belief the greatest factor in the relief of pain we can afford is to instil into the patient a right attitude in which to approach her ordeal; to aim at a calm and fearless frame of mind in her, best brought about by a complete confidence in her accoucheur. This confidence can be best obtained by, humanly speaking, offering her a safe passage to herself and her unborn infant, and telling her that there is no pain in labour which it is impossible to relieve, and that this relief will not be withheld should her endurance fail or the necessity arise. Assuming that the mechanical factors of the labour and the chemical factors of bodily health are normal, I look on this physiological mental state as the most

important process in the relief of pain. Those long-drawn-out, lingering labours due to primary uterine inertia seem more particularly to be associated with that highly strung, nervous woman who approaches her labour with a sense of dread, and whose lack of confidence in her accoucheur, usually a midwife, arises from the knowledge that by law the latter is precluded from the use of more than the simplest remedies against pain. How often do you encounter these cases in your own private, or hospital practices? Far less, I am sure, than in those cases to which you are summoned by a midwife.

Having now embarked on the conduct of this labour with a patient in the right mental state to bear with fortitude a part of her ordeal, when should drugs or other therapy be applied to relieve pain, and what form is this therapy to take?

In all cases in which operative intervention is necessary, or in which relaxation is required for purposes of diagnosis or to prevent perineal damage at the end of labour, we are agreed that anaesthesia is essential, but we are not justified in giving sedatives and analgesics which add to the risks of either the mother or the infant.

The difficulties of constant observation in domiciliary practice, and the additional expense involved, are surely a prime responsibility of the country as a whole, and should not be insurmountable; but much can still be done under existing conditions.

I do not propose to advise you, in the present conditions under which we work, to conduct your confinements in a Utopian manner, by employing a skilled anaesthetist to spend hours giving gas and oxygen by some such apparatus as that of McKesson, which is cumbersome, requires constant, almost daily, practice to use efficiently, and is not without its disadvantages and even risks, though a complete state of analgesia and amnesia can be attained by its employment for hours at a time if necessary.

There are simpler remedies which neither inhibit the effect of the uterine contractions nor add to the risks of the labour in any of its three stages, and which can be more easily given.

Chloral as a Sedative

This drug, used either alone or in combination with potassium bromide, still holds pride of place as a sedative in the early part of the first stage of labour. In fact, in the Jessop Hospital it has become almost a routine to administer a dose of chloral to a patient admitted in the early part of labour. It may be given with safety at any time, and it is a matter for individual decision when to start its use. For my own part, my guiding rule, in the absence of physical signs of exhaustion on the part of the mother, is to wait before giving anything in the first stage until there is an insistent request from the patient herself for relief from pain.

When the drug is given it is best administered in much larger doses than the *Pharmacopoeia* defines. I have never seen any ill effect from the giving of 30 to 40 grains and repeating the dose in one hour—in fact, I never give less than 30 grains as an initial dose. Patients taking this in sips of 4- to 6-ounce mixtures, in either water or glucose water, rarely suffer from the vomiting which this drug causes in more concentrated solution.

Though a few are unaffected by its action, its sedative value is undoubted in most cases, and it is of exceptional value in nervous and excitable patients to tide over the time until a drug more analgesically effective is required, or as an adjuvant to morphine in the prolonged labours of primary inertia.

Contrary to the teaching of pharmacologists, who state that the drug causes relaxation of unstriated muscles, we

have found that, given in large doses, the opposite effect seems to occur in the uterus in many cases, though the possibility exists that it may exert a specific effect on the cervix and cause its relaxation.

Hyoscine Narcosis

This drug, used in combination with morphine by a complicated therapy involving the almost constant attendance of the doctor, and certainly of a trained nurse, often in a very expensive nursing home called a "twilight sleep" home, lost favour with most obstetricians because of these facts. A more scientific contraindication to this combination is the undoubted risks of its use in a prolonged labour, and its attendant evils, together with the common condition of asphyxia or oligopnoea in the infant. As a result of the possibilities of these adverse effects being due to the morphine a new technique for the administration of hyoscine alone was elaborated by Bertha van Hoosen of Lyola University, U.S.A., and tested out in this country in 1929 by Jennings at Queen Charlotte's Hospital, with eminently satisfactory results. After trial in many places, including the Jessop Hospital, his paper received much favourable notice, and for my own part I have used a modification of his method to a great extent since his communication appeared in 1929.

In his technique somewhat heroic doses of hyoscine hydrobromide are employed—namely, 1/100 grain repeated in half an hour, and again in the second half-hour, with readministration of 1/100 grain in each succeeding two hours. I found that in such large doses, so frequently given, an almost constant supervision of the patient was demanded, partly because of what I must admit is an unjustified fear that these large doses are dangerous and might lead to respiratory centre paralysis, and partly because in a few cases the patient became so violent that chloroform had to be administered to restrain her reactions to the drug. Taking a middle course between the school of "twilight sleep" and the van Hoosen school, it is my custom when using hyoscine therapy to administer 1/100 grain, to be repeated in three-quarters to one hour, depending on the reaction of the patient to the first dose, to give a third dose in another two hours, and a fourth in three further hours. Though this in essence is the dosage and time, I frankly admit that I am more guided by the reactions of the patient to the drug than by a hard-and-fast rule of time and dosage. The stage of labour at which to commence the therapy is roughly, in a primigravida, when the cervix is taken up and the os from three fingers to half dilated, and the patient having regular pains of fifteen to thirty seconds' duration at intervals of not longer than ten minutes (usually seven to eight minutes). This period in a normal labour averages about eight to ten hours after its commencement, and the subsequent duration is apparently shortened, so that it is complete in a further six to eight hours; hence it is rare for more than four doses, and usually less, to be given, though no ill effects seem to accrue if five or six administrations are necessary.

Often the preliminary dose is given with a few whiffs of chloroform; the patient is kept as quiet as possible in a room illuminated with just sufficient light to render ordinary attention possible. In a multigravida the time to begin treatment in order to obtain amnesia is not so easy to gauge as in a primigravida, but again the guiding principle is good pains every five to ten minutes, and lasting fifteen to thirty seconds. I will add here that the nearer to the time of delivery the treatment is commenced the greater will be the degree of amnesia that the patient exhibits afterwards. As a rule the patient does not come strongly under the influence of the drug until

the second dose has been given, and close observation of the patient would show that the pains are felt, though not remembered, so the use of the term "analgesia" rather than "amnesia" is open to criticism.

The restlessness of the patient during the pains varies from a slight bodily movement accompanied by groaning to violent fighting and shouting, which, fortunately, is rare, but can be somewhat alarming to the attendants and others in the house. The majority of patients fall between these two extremes, and the reaction bears no relation to the strength and durations of the contractions, but is rather a measure of the patient's idiosyncrasy to the drug. Between the pains most patients are perfectly quiet, and lie with a flushed and slightly cyanotic face, dilated pupils, and slightly raised pulse rate, and complain from time to time of thirst. Once again I must add that a good nurse is necessary if a state of complete narcosis, as evidenced by the "memory test," is to be maintained, as such restraint as can be obtained by a tactful but firm demand for quietude on the part of the patient is less likely to precipitate attempts at getting out of bed than actual mechanical compulsion—also catheterization from time to time is often required.

With a fully attained hyoscine narcosis, even the actual delivery of the head over the perineum is a time of complete oblivion to the patient. I am sure, however, that it is wiser, if only to attain a greater degree of sterility by a completely anaesthetized patient, to give chloroform or some other anaesthetic for the actual crowning and delivery of the head.

The advantages of the use of this drug, given as I have described, are: (1) it is simple to give; (2) it rarely is accompanied by hyperexcitability; (3) the severe labour pains of the end of the first stage are mostly forgotten, and certainly those of the second stage; (4) the voluntary expulsive efforts of the second stage, if diminished, are not stopped; (5) oligopnoea does not occur in the infant; (6) the third stage is not prolonged; (7) post-partum haemorrhage does not occur.

One contraindication I must mention, and that is albuminuria, because hyoscine diminishes the kidney excretion, and I think some other analgesic should be given in these cases.

Morphine in Labour

As in many other conditions, morphine is still one of the most valuable, if not the most valuable, and certainly most used drugs we employ as a sedative and analgesic in labour. Its special use is for cases of primary inertia in which chloral alone seems to be insufficient; in cases of colicky uterus, in which a local contraction ring develops as the cause of delay; and for those cases in which hyoscine is undesirable because of the environment or of inadequate supervision due to the lack of a skilled nurse.

You are all so conversant with its use that I need not discuss the analgesic action of morphine, nor its effects on uterine contractions, sleep, thirst, vomiting, respiration, pulse, and foetal heart rate. I will merely state that, given in therapeutic doses such as are employed in other conditions, no ill effects seem to accrue to the mother or to the infant, provided no dose is given later than two to three hours before the child is born. It is thus undesirable to use during the second stage.

Other Drugs in the First Stage

The very multiplicity of other drugs used in the first stage of labour as analgesic remedies only goes to show that we have not yet found the ideal. I will content myself with enumerating a few, without giving the details of their administration.

The fact that magnesium sulphate synergizes with morphine and ether has hardly been given the trial in

this country which Gwathmey's proved claims would seem to warrant. I have used his technique in a few cases and found it good but tedious, and not always easy to get the required effect, and I have not pursued its trial, as I can see no advantage over the easier and at least as effective hyoscine therapy.

Of the barbiturate group of drugs I have only given a trial to nembutal—using up to $7\frac{1}{2}$ grains in twelve hours—but one or two of the patients became so profoundly pallid and comatose that its further use alarmed me. It is only fair to state that its advocates are most enthusiastic about it, and I recently heard a most convincing address by Reynolds of Manchester on the satisfactory administration of this drug in a series of 243 cases.

Regarding the uses of sodium amytal, pernocton, evipan, and avertin in labour my experience is *nil*. I have occasionally used paraldehyde (paraldehyde 5i in 5ss olive oil per rectum for each stone of body weight, maximum 3i), but not in a sufficient number of cases to express an opinion of its value.

Relief of Pain in the Second Stage

You may wonder why I have up to now hardly mentioned either chloroform or nitrous oxide, both of which have been largely to the fore lately in use as analgesics and amnesics rather than as anaesthetics. The reason is that up to the present I have mainly been dealing with the first stage of labour, and the two main advocates of these remedies, Rivett with chloroform and Minnitt with gas and air, claim them as valuable only in the second stage or when the pains are particularly strong at the end of the first stage.

An investigation is at present being carried out by the British College of Obstetrics and Gynaecology, working with a grant from the National Birthday Trust, on five methods of analgesia in labour: (a) chloroform capsules, (b) Minnitt's gas apparatus, (c) Menell's chloroform apparatus, (d) Browne's chloroform inhaler, and (e) paraldehyde.

The Jessop Hospital is testing Minnitt's apparatus and Browne's inhaler. One of the objects of the whole research is to explore the possibilities of any of these or other anaesthetics being placed in the hands of midwives for use in their own practices as analgesics in labour.

In the meantime, I have found no better analgesic in the second stage beyond the drugs I have mentioned than the chloroform *à la reine* as used in 1847 by Sir James Young Simpson, or the more modern gas and oxygen, by the apparatus of McKesson or Boyle.

Anaesthetics

As an anaesthetic, in contradistinction to an analgesic, in normal labour or for simple obstetric operations, I still belong to the die-hard school which thinks that chloroform is safe, and I use it as a routine. Gas and oxygen, and also ether, I use in selected cases, where, for example, an element of shock is present, or if I have the services of a skilled anaesthetist, and he prefers it, in nursing-home or hospital practice. But I think if a poll were taken of the anaesthetics used in labour chloroform would head the list still, and I doubt if many could recount cases of fatality or even ill effect. The cases where its use is undesirable are as well known to you as to me.

Conclusion

In conclusion, I would stress the point that individuals differ in their sensitiveness to pain with an apparently identical stimulus both from one another and under varying circumstances. The threshold of sensitivity is reduced by debilitating diseases, cold, and fatigue, as well as by such social factors as artistic temperament, culture, education,

and a delicate upbringing. All these factors must be taken into account in deciding the degree, duration, and method of analgesic relief.

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LIGATION OF SPLENIC ARTERY FOR ADVANCED SPLENIC ANAEMIA

BY

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In spite of a great amount of excellent research there still exists an almost complete ignorance as to the cause of splenic anaemia. Whether it is a primary disease of the spleen or not, removal of the spleen may bring about a remarkable improvement in the patient's condition, even although the disease has progressed to a late stage. In these late cases, however, the operation mortality remains very high, largely owing to the fact that all are poor surgical risks, and that in most of them adhesions to the diaphragm are present. These adhesions may extend from the costal margin, up over the whole of the outer surface of the large spleen, and include the upper pole and part of the under surface. As the separation of this area, which lies so deeply and so far back, cannot all be done under direct observation, control of bleeding is very unsatisfactory. Some of the adhesion vessels are quite large and haemostasis most difficult, and yet one of the essentials for success is a dry field at the end of the operation. It follows, therefore, that cases occur in which splenectomy is quite unsafe.

Fortunately, it can now be shown that the relatively simple procedure of ligation of the splenic artery will bring about atrophy of the spleen and clinical results similar to those of splenectomy, even in cases in which the disease has progressed to the stage of cirrhosis of the liver, ascites, and gastro-intestinal haemorrhages.

A review of the literature reveals the fact that ligation of the artery has been used with success in most of the conditions for which splenectomy is indicated. Long (1905) performed the operation on a case where a floating spleen had become fixed by adhesions. Lantz (1914) ligatured the artery, owing to a displaced spleen having

become firmly adherent to the base of the bladder, and causing pain on urination and defaecation. At the end of six months, bimanual examination failed to reveal the spleen. Stubenrauch is reported to have applied the method with success to a case of cutaneous, renal, and intestinal haemorrhage. Valdoni (1929) reports a case of haemolytic jaundice so treated. It was, however, a reference by J. W. McNee (Lettsomian Lectures, 1931) to the possibility of such a measure that suggested its application to the case which follows.

Case Record

A married woman, aged 26, consulted me on December 12th, 1929, owing to general weakness, which dated back to a miscarriage three months before. There was apparently no excessive blood loss, and the pregnancy had reached three months. She looked pale, and an abdominal examination revealed enlargement of the spleen, the notched border of which was easily palpable. No other abnormality was noted. When told of the splenic enlargement, she remarked that when 7 years of age—that is, nineteen years before—a doctor who had examined her made the same observation.

Blood count: Red blood cells, 5,400,000 per c.mm.; white blood cells, 4,400 per c.mm.; haemoglobin, 81 per cent. Differential count: polymorphs, 65 per cent.; lymphocytes, 28 per cent.; large mononuclears, 4 per cent.; eosinophils, 3 per cent.

Splenectomy was advised, but was not enthusiastically received, and owing to her change of residence she was not seen again until March 26th, 1931. She staggered into the room, extremely pale, and with enormous abdominal distension. She gave a history of having missed three periods, of being troubled with vomiting, and finally suffering from several severe attacks of haematemesis, for which she was attended at her home in a country town. The abdomen was huge, with spleen and ascites, and she appeared to be about three months pregnant. She was admitted to hospital, and nine pints of fluid were slowly withdrawn. The lower border of the spleen reached the level of the anterior superior spine. Blood count: Red blood cells, 2,600,000 per c.mm.; white blood cells, 3,500 per c.mm.; haemoglobin, 35 per cent. Differential count: polymorphs, 56 per cent.; lymphocytes, 38 per cent.; large mononuclears, 2 per cent.; eosinophils, 5 per cent.

Following the tapping of the abdomen there was slight improvement in the general condition, but melaena occurred. Weekly tapings became necessary to keep her comfortable. Three weeks after admission, in spite of recurring gastro-intestinal haemorrhages, she was somewhat improved, and it was decided to empty the uterus, which was done with a minimum of disturbance by means of tents. Following this the haemorrhages ceased although the ascites continued.

Further delay was caused by an attack of perisplinitis and left basal pleurisy. The temperature rose to 100°–101° F., the spleen was tender, and there were friction sounds over the splenic area in front and the left base posteriorly. At the end of five months from admission, during which time she was regularly tapped at intervals of seven to fourteen days, it was decided to remove the spleen if possible. After careful typing and cross-typing she was given 10 oz. of blood by the citrate method, and as there was not the slightest reaction this was followed in five days by 15 oz. from the same donor, and the abdomen opened (September 8th, 1931).

The huge spleen was found to be hopelessly adherent to the diaphragm and the abdominal wall. A small area was separated, but the adhesion was remarkable for its firmness. The liver was pale and slightly nodular, but did not appear to be enlarged.

It was decided to ligature the splenic artery, and this was done by means of a double ligature about 9 cm. from the spleen. After the abdomen was dried out, the surface of the liver was roughly scrubbed with dry gauze, and was sutured to the parietal wall. The omentum was then sutured to the scarified peritoneum on either side of the incision, while two tails were carried through slots in the rectus sheath.

The patient stood the operation very well. The spleen became extremely tender, but this gradually passed in about