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The Diagnosis of Ectopic Gestation

H. B. Atlee, M.D.

No other condition in the pelvis is so fraught with diagnostic hazard as ectopic pregnancy. Part of this difficulty is because most people do not fully recognize that ectopic pregnancy divides itself into two definite clinical groups, which some of us call acute and chronic ectopic. The difference between these two constellations of symptoms is due to the amount of blood lost in the peritoneal cavity and the rapidity with which it is being lost. If a lot of blood leaks quickly into the peritoneal cavity we get acute ectopic and where the leak is slower and the quantity less we get chronic ectopic—although there is a no man's land in between where the two groups merge into one another. In acute ectopic the evidence of internal hemorrhage is pretty clear, in chronic ectopic there may be no evidence whatsoever of internal hemorrhage. The next difficulty in the diagnosis of either acute or chronic is the frequency with which symptoms of the red herring variety appear and lead the diagnostician astray.

To circumvent this *diablerie*, the astute diagnostician will, therefore, look for two symptoms, abdominal pain and some anomaly of menstruation. If these two symptoms are present either in the acute or chronic constellation he will say to himself, this is an ectopic, until he can prove it otherwise. By adopting this policy more correct diagnoses will be made.

But no matter how wise or cautious he may be about interpreting his symptoms he will run into cases where the picture entirely mimics some other condition or where some other condition entirely mimics ectopic. While the common mistake is between ectopic and pelvic inflammatory disease, such other conditions as appendicitis, twisted ovarian cyst, red degeneration in the small fibroid, endometriosis, and benign uterine bleeding may be misdiagnosed as ectopic or ectopic may be misdiagnosed for one of these.

Acute Ectopic:

The woman with acute ectopic usually has severe pain in her low abdomen. It may be on the side on which the tube is located but just as often it is in the centre of the abdomen and some times it is only felt in the rectum. The low abdomen may be tender all over but usually it is tender on the side affected. The temperature tends to be subnormal in the early hours of the disease and there may not be any change in the leukocyte count but if the condition has been present for several hours the temperature tends to become elevated and the leukocyte count may rise as high as 35,000. The evidence of internal hemorrhage is usually quite clear—the woman is pale, she may faint, she has to lie down because she feels faint and there may be moveable dullness in the flanks due to the effused blood. The diagnosis in acute ectopic is usually not particularly difficult because of this evidence of considerable internal hemorrhage.

Chronic Ectopic:

The picture tends to be much more vague and there are often present the red herring symptoms previously mentioned. None of the symptoms may be very marked. The woman may just have a vague low abdominal pain and some anomaly of menstruation, but she does tend to run a slight temperature

and to have leukocytosis up to 15,000-18,000. She may have absolutely no evidence, as shown by the hemoglobin index or general appearance, of internal hemorrhage.

Anomalies of Menstruation:

It is generally thought that patients with ectopic pregnancies will have had some short period of amenorrhea. This is true only in about half the cases. The p.v. bleeding, even though it may be only a brownish discharge, is present in practically every case and persists. The acute ectopic may have no vaginal bleeding when the case is first seen although this will develop later.

Mass in the Pelvis:

On examining these patients either with acute or chronic ectopic pelvically, no mass will be felt in a large proportion of the cases until an anaesthetic is given and even then there will be the occasional case where no mass is felt. **But the patient will be tender** on the side on which the ectopic is present.

Needling the Pouch of Douglas:

Personally, I have not found this as helpful as some others appear to do. Where one gets frank, free liquid blood in the syringe in quantity the diagnosis is usually clear anyway. It is the case where little or no blood comes away that one is still left in doubt, but if the blood is old and dark, even if it is only a small splatter, ectopic is probably the diagnosis. Where needling is some times helpful is in differentiating between blood and pus.

In conclusion, I would say about this condition that if you have a woman in the child bearing period who has low abdominal pain and some anomaly of the menstrual periods the best thing to do is to consider her as ectopic, examine her under an anaesthetic and if a mass is felt on one side either try to confirm its nature either by needling the Pouch of Douglas or opening the abdomen.

The Mother With a Temperature

Carl Tupper, M. D.

The responsibility of the doctor to the mother does not end with the delivery of the baby and the placenta. What profiteth a doctor if he delivereth a woman safely only to have her succumb to infection or embolism before she leaves hospital. Let us then briefly discuss the causes of puerperal temperature.

The temperature of a puerperal patient is less stable than in the non pregnant state. Slight elevations are not infrequent and often without apparent cause. It is generally agreed that a temperature rise within the first 12 to 24 hours may be explained adequately on the basis of physiological reaction following severe muscular exertion. Nevertheless, a rise in temperature should never be overlooked. For statistical purposes true morbidity occurs when the temperature is 100° or more for two or more successive days. The best rule to follow is "any rise in temperature means infection" and calls for immediate investigation.

In general there are five possibilities for a rise in temperature in the puerperal woman and all these should be investigated before starting treatment.

(A) **Urinary Tract Infection**—usually a cystitis. This is the commonest cause for a rise of temperature in the puerperal woman, is often accompanied by chills, frequency and dysuria. It may develop as an exacerbation of previous urinary tract infection or may be the result of carelessness in the routine management of the bladder during labour and the early puerperium. The cause—varied but the commonest—is B Coli.

Investigation:

(i) A catheter specimen of urine with microscopic study—the presence of pus would suggest urinary tract infection.

(ii) If available it is often wise to send 200-300 cc's of urine (catheter specimen) for culture and sensitization. This is especially important if one finds several days later that your treatment is not working. By this time you will have your organism isolated and drug sensitivity tested.

Treatment: Some form of sulfa drug. Note—always recheck at first postpartum visit to avoid condition becoming chronic.

(B) **Respiratory Disease**: In this day of decreasing general anaesthetics this complication is decreasing. Nevertheless it must always be suspected—the chest must be examined, an X-ray taken and if anything found appropriate treatment given. All too often following a general anaesthetic a patient will vomit—aspirate some particles of food—and in turn set up a reaction in the lung either by blockage or by irritation and an aspiration pneumonia follows. Encouraging our patients to cough up any material from the lungs will help to prevent this occurring.

Investigation:

- (i) X-ray
- (ii) Chest examination
- (iii) Sputum to lab.

Treatment:—antibiotics.

(C) **Infections of the Breast:**—About the third day the breasts fill up and become quite painful. Some note a rise in temperature at this time which they call "milk fever" due to engorgement. I say any rise in temperature suggests infection and should be so considered until proven otherwise.

Infection in the breast is localized—shows evidence of inflammation in that it is tender, reddened and hot and is usually associated with some crack in the nipple. In this stage it is still a cellulitis and probably will respond to therapy without any breakdown. However, if left it may progress to abscess formation with destruction of breast tissue.

Cause—usually staphylococci.

Treatment:—Cellulitis—(a) hot compresses
(b) broad spectrum antibiotic (aureomycin).

Abscess—surgical drainage.

Never forget the breasts in a temperature rise.

While treating a cellulitis the patient may continue nursing on her non-affected breast—draining the affected breast with a breast pump. If an abscess forms—discontinue breast nursing.

(D) **Thrombophlebitis:**—The common site is in the lower extremities usually the superficial veins and less commonly the deep veins. Since this is an inflammatory process, the danger of embolism is small. The diagnosis is easily made by (1) swelling of the leg; (2) evidence of inflammation along the course of the vein.

Treatment: (1) strapping the leg
(2) antibiotics
(3) early ambulation.

The above is not to be confused with a phlebothrombosis which is usually a non-inflammatory process and very prone to embolism.

(E) **Puerperal Uterine Infection:** I purposely placed this last because all too often we point to it as the cause of puerperal temperature without ever investigating other possibilities. Only when I have excluded all other causes do I then begin to think of the pelvis. In brief my findings should be:

- (i) foul smelling discharge
- (ii) tender uterus
- (iii) lower abdominal pain.

These findings should immediately suggest the source of our temperature. Occasionally an abscess along the genital tract will be found but this is rare. Sometimes nothing is found and with the other four causes excluded I must presume the infection is in the uterus although I can find no cause for it.

Treatment:—(a) Culture from uterine cavity—very easily done by introducing a speculum and taking a culture from the open cervix.
(b) Some form of ergot to encourage involution of uterus.
(c) Fowlers Position in bed to encourage drainage.
(d) If anaemic—blood transfusions.
(e) Blood culture.
(f) Antibiotics—we usually start with dicrysticin. By 3rd or 4th day if temperature is still up the culture with true organism will be available with sensitivity.

In conclusion then a post-partum woman with a temperature should have the following investigation:

- (a) Catheter specimen of urine
- (b) Investigation of chest
- (c) check breasts
- (d) Check lower extremities, and
- (e) check genital tract.

In a fair percentage of cases your examination will be negative and the cause of the temperature not found. I then assume the cause is in the uterus although symptoms and signs do not suggest this. Nevertheless if all else is negative I treat the case as one of intrauterine infection.

Antibiotics in the Preoperative Preparation of the Colon: Evaluation of the Present Status, Robert Turell, M.D., and Stanley J. Landau, M.D., New York. *Journal of International College of Surgeons*, 31:215-224 (Feb.) 1959.

The authors assess the present value of some antibiotic agents currently used in so-called preoperative sterilization of the colon. The one-day or two-day preparation using a sparsely absorbable and readily absorbable antibiotic is highly effective. The benefit derived from antibiotics should be balanced against the potential reactions or risks.

The advisability of the use of physiologic solution of sodium chloride instead of tap water for bowel irrigation to prevent water intoxication and the avoidance of excessive purgation to prevent undue loss of potassium, which may be responsible for postoperative hypokalemia, are discussed. It appears that the two features last mentioned have not, up to the time of writing, been given sufficient attention in preparation of the colon for operation. The problem of rapid recolonization of the patient's large intestine after so-called temporary sterilization of the colon by the normal preoperative coliform flora remains to be solved.

Antepartum Bleeding

W. G. Colwell, M.D.

This discussion will deal with bleeding in the last trimester.

Main Causes:

- (1) Abruptio Placenta
- (2) Placenta Praevia
- (3) Carcinoma of the Cervix Uteri

As is well known, the vast majority of cases occur in the first two groups but since carcinoma of the cervix can occur in any age group, it must be ruled out before dismissing it as a cause. Bleeding in carcinoma in pregnancy is the same as it is apart from pregnancy, being first noticed as rule after coitus or straining at stool and preceded or accompanied by a vaginal discharge, which is characteristic in that it is inclined to be thin and watery and to have a distinct odor. The case should be thoroughly investigated and treated as though the pregnancy did not exist, except after the period of viability where a Caesarean Section preceding the radiation treatment would be performed.

The incidence of abruptio placentae and placenta praevia is given in two articles from the recent literature—the first one by Kimbrough and Jones, *American Journal of Obstetrics and Gynecology*, March/48; abruptio placenta 1/250, placenta praevia 1/307; and Eadie and Randle, *Journal of Obstetrics and Gynecology*, January, 1954; the incidence of abruptio 1/251 and placenta praevia 1/200. The incidence varies considerably but these are fairly typical examples.

Abruptio Placenta—Premature Separation of Placenta: Etiology:

About 50% of the cases are associated with toxemia of pregnancy while in not a few instances trauma may be a factor, such as a blow on the anterior uterine wall or a fall, particularly if the placenta should be on the anterior wall. Another instance is that occasionally, in well intentioned but poorly conducted attempts at external version in a breech presentation, bleeding has resulted from separation of the placenta with clinical evidence of the detachment, and loss of foetal life.

Symptoms and signs of clinical separation of the placenta:—One or more of the following:

- (1) Continuous uterine pain,
- (2) A tense, tender uterus,
- (3) Evidence of intrauterine or concealed bleeding,
- (4) Frank external bleeding.

Classification:

Mild,
Moderate,
Severe.

Mild cases usually occur during labor and as a matter of fact many of these patients when first seen, are in labour, about 50%, and the evidence is that there

is more bleeding than one would expect and also perhaps a slight increase in uterine tension. The severe cases are those associated with moderate or profuse bleeding which may be apparent, concealed or mixed.

Treatment:

The mild cases as a rule do not present either foetal or maternal distress and since the patients are usually in labour no interference is necessary if they remain of a mild nature. In the moderate and severe cases it is a different story. If not in labour and the bleeding is severe, then Caesarean Section is the treatment of choice, even though the baby may be dead. The uterus must be emptied in order to stop the bleeding. It is needless to say that the patient should be in as good a condition as possible before you do the Caesarean Section. If the patient is in labour and there is sufficient dilation of the cervix to permit rupture of the membranes, then I feel that this should be done. If, however, the bleeding cannot be controlled by this method, Caesarean Section would be proceeded with. Blood must be available at all times and in quantities sufficient to deal with the most severe bleeding. It is better to have more blood than is necessary, than too little.

It must not be forgotten that hypofibrinogenemia, and even afibrinogenemia, is a fairly common accompaniment of the bleeding which occurs in abruptio placenta, particularly so if the bleeding is severe or long continued. It is recognized that this may complicate matters and should always be looked for in cases of abruptio by reckoning the clotting time of the blood and if this is prolonged, the fibrinogen level in the blood should be ascertained if possible. This takes some time as a rule and if the case is urgent, fibrinogen should be given even on suspicion that this condition may be present. If it is given it should be given in 6 gm doses and is available through the Red Cross. The fibrinogen level can be increased by the giving of repeated blood transfusions but this is a much slower way of raising the fibrinogen than is the giving of the actual fibrinogen itself. This condition is not very often seen as a complication apart from abruptio placenta. I have never seen it in placenta praevia.

Placenta Praevia

Etiology—unknown. The term placenta praevia means a low implantation of the placenta in the uterine cavity and we distinguish three types: central, marginal and lateral.

Central is one in which the placenta is completely across the internal os; marginal is one in which the internal os is not completely covered and the lateral is one in which the lower edge of the placenta is at the rim of the internal os.

Signs and Symptoms:

Characteristically, the symptoms are those of sudden onset of bleeding from the vagina not associated with labour and occurring as a rule 2-4 weeks before term. It may not occur until the onset of labour and very occasionally may make itself apparent in the latter part of the second trimester of pregnancy. I can recall one case which occurred at 5½ months in which the placenta was of the central variety. Slight bleeding early in the pregnancy is a fairly common occurrence in cases which later turn out to be placenta praevia. The bleeding may be mild or severe, usually the former, although on occasions it may be severe enough to warrant immediate treatment.

Diagnosis:

This condition must be distinguished from abruptio placenta, and symptomatically the chief difference is the fact that placenta praevia is unaccompanied by pain. On examination the patient will be seen to be bleeding to a varying degree; abdominal palpation—in cases where a fair amount of placenta is in the lower segment, the presenting part may be displaced laterally, preventing the presenting part from entering the true pelvis. This should be confirmed, if there is any doubt, by having the patient in the standing position when palpating and noting that the lateral displacement is still present. X-ray examination by a soft tissue technique, is very helpful in confirming or denying a placenta praevia. With proper technique, in the vast majority of cases, the position of the placenta in the uterus can be demonstrated by X-ray and we use it in almost every case. Only in those cases in which immediate treatment is necessary is X-ray visualization not done.

Management:

Since the majority of cases occur two weeks or more before the expected date of confinement, every effort should be made to carry the patient as near term as possible. Treatment should be in hospital and consist of rest in bed. Blood should be made available and given where necessary and apart from X-ray examination of the patient to locate the placenta and abdominal palpation, no examination should be done unless you are forced to do so by increase of bleeding.

Since Caesarean Section is the treatment of choice in all cases of central placenta praevia, and in most cases of marginal placenta praevia, one should be prepared to do this operation when a vaginal examination is made; in other words, have everything ready, using what we call a double setup, with the patient in the operating room. Vaginal examination will usually reveal the exact situation of the placenta. In cases of lateral praevia, rupture of the membranes and the application of a tight abdominal binder which forces the presenting part down against the separated placenta controls the bleeding and is the treatment most used. Once in a long time where in a case of placenta praevia the baby is dead and a Caesarean Section, due to circumstances, is not feasible, or where severe bleeding occurs on examination, a Braxton-Hicks version going through the placenta and bringing down a leg may be performed. This was done in the case that I mentioned earlier in the 5½ month placenta praevia, with very little bleeding occurring on going through the placenta. It should never be done on a live baby because there is a 100% foetal mortality.

In conclusion, antepartum bleeding is a serious complication of pregnancy and along with post-partum hemorrhage plays a large part in maternal and foetal mortality. It should be recognized and properly diagnosed, as soon as possible, so that appropriate treatment can be instituted, not the least of which is readily available blood. One must not forget the possibility in cases of abruptio placenta of the association of hypofibrinogenemia or afibrinogenemia which may seriously affect the outcome of severe abruptio placenta if it is not recognized and promptly treated. Lastly, do not forget the possibility of cancer of the cervix occurring during pregnancy and giving rise to a bloody vaginal discharge.

Heart Disease In Pregnancy

K. M. Grant, M.D.

Although cardiac disease and cardiovascular complications are present in only about 2% of all pregnant women, heart disease remains the fourth most common cause of maternal mortality. Rheumatic heart disease constitutes 90 to 95% of all pregnant patients with heart lesions, with congenital defects the next most common. Modern operative therapy for some types of congenital heart disease will, no doubt, make this association with pregnancy more common in the future. Hypertensive cardiovascular disease in pregnancy would include those with a history of prolonged hypertension prior to pregnancy, and would of necessity be few in number because of their age. Myocardial infarction is uncommon, there being less than a dozen proven cases having occurred during pregnancy.

Diagnosis:

This is based on a history of rheumatic fever; or upon clinical examination of the heart, a lesion is detected; or the electrocardiogram taken on a suspected case.

Since a history of rheumatic fever is often not obtainable from many patients, a proper examination is the most accurate way to detect heart lesions. It must be remembered, however, that not all murmurs heard during pregnancy are necessarily organic. Some are functional, and disappear after delivery. Where there is any difficulty making an accurate diagnosis during pregnancy, and where any doubt exists, such patients should be managed as though she has an organic lesion, keeping in mind the emotional impact such an impression leaves on the patient herself.

Classification:

The therapeutic-functional classification prepared by the New York Heart Association will aid in the management of cardiac patients.

- Class A. Patients with cardiac disease whose physical activity need not be restricted.
- Class B. (Functional Class I) Patients with cardiac disease whose ordinary physical activity need not be restricted but who should be advised against severe or competitive efforts.
- Class C. (Functional Class II) Patients with cardiac disease whose ordinary physical activity should be moderately restricted and whose more strenuous habitual efforts should be discontinued.
- Class D. (Functional Class III) Patients with cardiac disease whose ordinary physical activity should be decidedly restricted.
- Class E. (Functional Class IV) Patients with cardiac disease who should have complete rest in bed or in a chair.

Physiology:

That pregnancy imposes a real burden on the circulation is evidenced by the number of cardiac patients who develop failure for the first time during pregnancy. Probably the most important factor contributing to this burden

is the increase in total blood volume, and the increase in cardiac output necessary to maintain it. This initial rise in **output** begins at the end of the first trimester, gradually increases and reaches a level of some 35 to 50% above that of the normal blood volume until the last month, then decreases below normal values in the last few weeks. These changes more or less coincide with the alterations in blood volume.

Vital capacity does not change significantly during pregnancy.

An increased heart rate and work per beat are required to take care of the increased work of pregnancy.

The physiological changes just described account for the increased work of the heart during pregnancy. Such changes are well borne by the heart which is well compensated. If the cardiac reserve is minimal, failure is most likely to occur in the early part of the last trimester, when plasma volume is maximum. If the strain is well tolerated during this period, failure is unusual during the last month or even during delivery and the early puerperium.

Although decompensation rarely occurs during labor, it not infrequently develops immediately after delivery or during the early post-partum period. This has been ascribed to a rather sharp increase in plasma volume in the circulating blood during and following the delivery of the placenta, and averages as much as 500-600 c.c. in an average sized woman. This sudden increase may be responsible for failure in those cases which appear immediately after delivery. There is considerable clinical evidence that decompensation following Caesarean Section is considerably higher than after vaginal delivery.

Prognosis:

This will largely depend upon the severity of the lesion and on the length of time the lesion has been known to exist. Those patients with Class I and II lesions will rarely decompensate, at least not more than 7-10%, but more than 50% of those with Class III and IV lesions will suffer from failure during pregnancy. The mortality rate in the two latter groups runs as high as 16-18% for mothers and 30% for babies. The incidence of decompensation also increases rather markedly in those cases with known lesions of over ten years duration.

Cardiac failure occurs much more frequently in women who have decompensated before, during pregnancy or at any time.

The mortality in cases with auricular fibrillation is high. It is also high in patients with very large hearts.

Careful prenatal management of the patient with heart disease, keeping the strain on the heart to a minimum during pregnancy and delivery, will greatly reduce the risk to such patients.

The prognosis for the baby in uncomplicated cases is good. Where decompensation interferes with the oxygen supply to the baby, however, infant mortality will be increased.

Prophylaxis:

There is little doubt that mortality from heart disease could be considerably reduced if pre-marital and pre-conceptual examinations could be carried out. In this way unsuspected lesions would be discovered, and where serious complications are likely to arise during pregnancy, suitable warning and proper advice could be given re the hazards of pregnancy.

Treatment:

Certain rules should be followed in the management of patients with cardiac disease during pregnancy, labor and the puerperium. In general about 7-10% of patients in Class I and II show signs of failure, about 75% in Class III and 100% in Class IV.

During pregnancy, if a proper evaluation of the heart has not been made recently, or if the lesion is only discovered early in pregnancy, it would be wise to have her admitted to hospital for proper study. Close attention should be paid to any history of previous cardiac complications during pregnancy, electrocardiogram, cardiac shadow study, chest X-ray, and consultation with a cardiologist whenever possible.

In view of the relatively high incidence of these patients who show signs of failure for the first time during pregnancy, one must consider pregnancy a real burden. Hence, **extra bed rest** becomes necessary, eight to ten hours straight rest at night plus two or more intervals of a half to one hour during the day is advised. Patients in Class III and IV should be kept at almost complete rest, preferably in hospital, during most or all of the pregnancy. Patients with a previous history of failure should be hospitalized early and kept under close observation and rest until delivered.

Careful checking of weight gain and limitation of sodium intake are important. Diuretic agents may be helpful and necessary for the treatment of oedema. Pregnant cardiac patients should be checked every 2 or 3 weeks during the first 6 months, and preferably every week thereafter.

The signs of failure are rarely acute, but are usually insidious and slowly progressive over a period of several weeks and may be rather easily overlooked. The mild cough, or even a little blood in the sputum may be attributed to an upper respiratory infection, and a cough mixture with codeine often prescribed. A few rales at the lung bases have often been attributed to a bronchitis, and the true cause overlooked. **Whenever a cardiac patient contracts any of the above symptoms or signs, it should be regarded as failure** until it is proven otherwise, and she should be hospitalized at once for more careful observation and treatment if indicated.

Patients with frank decompensation and auricular fibrillation must remain in hospital during the remainder of the pregnancy, even though treatment has brought great improvement.

All cardiac patients who are not already in hospital, should be brought in for rest and observation at least two weeks or more before the expected date of delivery.

Digitalis therapy is of course necessary in patients with signs of cardiac insufficiency.

During Labor—because the blood volume and hence the cardiac load is decreased considerably during the few weeks before term, pregnancy should be allowed to continue until labor begins spontaneously whenever possible. Induction for heart disease is not indicated, and only done where an obstetric indication exists, and conditions for it are favourable.

The pulse rate and the respiratory rate are probably the best indications of heart function during labor. Where the pulse rises to 110 or higher, and respirations exceed 24 during the first stage, she should be rapidly digitalized (intravenously), and morphine 1/6 to 1/4 grain given frequently enough to obtain proper and safe rest and sedation. Oxygen should be administered

continuously. If pulmonary oedema develops phlebotomy should be performed if necessary, and may be life saving.

Penicillin, $\frac{1}{2}$ - 1 million units or more intramuscularly should be given every 12 hours during labor. Early care to avoid introducing infection during labor is, of course, imperative. Other antibiotics may be used where penicillin is contraindicated.

Delivery:

Vaginal delivery is certainly preferable and advisable in all cardiac cases. Abdominal delivery should rarely, if ever, be done except where an obstetrical indication is present, and should not be done merely to sterilize the patient. Statistics generally show the mortality rate from Caesarean Section to be 5-6 times greater than from vaginal delivery.

Some authorities feel that Caesarean Section should be done in all cases with coarctation of the aorta to avoid rupturing the aorta during the strain of labor. I feel most of them can be safely delivered with low forceps when no pelvic obstruction exists.

Regional anaesthesia is advisable for delivery. Local infiltration or pudendal block will be sufficient for most cases, but saddle block or caudal, may be necessary in a small number of primipara with a rigid perineum or a mild degree of outlet contraction.

Ether is probably the safest general anesthetic agent when one is necessary. However, spinal anesthetic has its advocates, but the risk is rather great.

Delivery should be completed when the presenting part has begun to distend the perineum, and low forceps extraction should be the rule to avoid the strain of the perineal phase of bearing down.

The sudden collapse and decompensation which may follow labor, due to the sudden dilatation of the splanchnic veins, may be prevented by placing some weight, such as sandbags, on the abdomen, or large towels rolled up and a tight binder applied over them for several hours.

Postpartum:

Patients with cardiac lesions, except those entirely asymptomatic, should be kept at rest in bed for several days, as failure may still occur during this period of time. If sterilization is contemplated, it should certainly be delayed beyond the usual day or two following delivery. Antibiotic therapy may also be advisable for a few days.

Therapeutic Abortion:

Therapeutic abortion in cardiac cases constitutes a real hazard according to the statistics from many clinics, and is becoming a much less common procedure than heretofore. Where proper care and prolonged hospitalization can be given to the more advanced cases, it should become more or less unnecessary. It should be reserved for those cases with previous severe decompensation, auricular fibrillation, and advanced Class III and Class IV cases. It should never be done during any phase of failure. If done vaginally, the pregnancy should be not over 14-16 weeks. If done abdominally, the tubes should be ligated.

Cardiac Surgery:

The benefits which are being reported for the correction of valvular lesions and congenital defects may well alter, rather markedly, the outlook for women with cardiac disease. Though most cardiologists and cardiac surgeons prefer doing these cases when not pregnant, many cases are being done during pregnancy, preferably by the end of the first trimester. If more or less normal function is restored, many of the hazards of pregnancy will be removed.

It might be well to move cautiously, however, as the mortality from good medical management during pregnancy is very low indeed, and only a select few should be exposed to the extra hazard of cardiac surgery.

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"The Influence of Maternal Iron Deficiency on the Newborn"

Sims and Lund of Rochester New York (Quart. Rev. of Pediatrics 12:218, 1957) studied 18 anemic and 18 non-anemic mothers and their babies. The infants of anemic mothers showed a mean circulating Hemoglobin mass of 14.0 Gm/Kg whereas those of the controls showed 16.5 Gm/Kg. The difference was significant and represented 15-20% of the iron available for Hemoglobin synthesis in succeeding weeks.

Significant differences were also found in the serum iron levels of the two groups, the babies from anemic mothers showing average serum iron levels of 78 gamma % whereas the control group showed 118 gamma %. This difference was greater than the range of difference in either group.

Contrary to the view generally held, it appears that significant maternal anemia does have a definite bearing on what the fetus will be able to absorb and utilize, and anemia in the infant may begin in the prenatal period.

Vaginal Discharges

J. McD. Corston, M.D.

Vaginal discharges may be due to an excessive amount of normal secretion of the cervix and vagina or to an infection causing a whitish discharge which contains pus, debris, and organisms.

This distressing complaint is exceedingly common. The amount of discharge must be assessed by the examiner because what one woman regards as excessive may be looked upon as a normal amount by another. Likewise in certain women leucorrhoea may cause great worry and distress of mind out of all proportion while in others it may be only a local inconvenience. I am sure that most of us have patients coming to our offices convinced they have cancer or venereal disease because of the presence of a slight whitish vaginal discharge.

It has been estimated that one out of every five women in the United States suffers from leucorrhoea at one time or another. This common female complaint is nevertheless frequently dealt with in a hit-or-miss fashion. The well worn medical advice to most women given by many doctors viz. to "go home and douche with vinegar and water every day" does not constitute very sound therapy. In the first place unless the cause of the vaginal discharge has been determined with the aid of the microscope and examination this treatment with vinegar may be the very worst thing to be done in a particular case. Supposing a patient suffering from thrush infection is advised to douche with vinegar. This at once makes the vagina sufficiently acid in reaction to provide an ideal medium for the monilia to grow and thrive and so the discharge and symptoms are made worse. Secondly, if vinegar douches are prescribed for a case of trichomonad vaginitis, I believe one must indeed be naive if he expects one douche a day or even two or three a day to keep the ph. of the vagina at a level which will discourage the growth and multiplication of the stubborn trichomonas. If doctors stopped prescribing vinegar douches, I am sure the vinegar industry would be forced to close down but this would be justified if women with leucorrhoea were treated more rationally from a therapeutic point of view.

The Acid Reaction of the Vagina:

Between puberty and the menopause the vaginal secretion is slightly acid with a ph. of about 4.5. It is slightly more acid during the two weeks following menstruation than in the "luteal" phase for the two weeks preceding menstruation. This acidity is due to the presence of lactic acid which is formed from the glycogen of the vaginal epithelium with the help of Doderlein's Bacillus. These Doderlein Bacilli disappear at about the tenth day of life in a female infant's vagina and do not reappear until puberty. Likewise they disappear after the menopause. Without this protective acidity the pre-pubertal child and the post menopausal woman are prone to easier invasion by all forms of infection.

Classification of Leucorrhoea:

- (a) Vulvo-vaginitis of children before puberty may be gonococcal, pyogenic, trichomonad infection or due to foreign bodies or pin worms.
- (b) Post-menopausal vaginitis is caused by pyogenic infection or trichomonas. Gonorrhoea may be uncommon but very severe.

(c) The commonest cause of leucorrhoea during the child bearing years is the trichomonas. However, during pregnancy "thrush" or infection with monilia albicans is fairly common. Occasionally one sees trichomonad infection also during pregnancy.

(d) Cervical leucorrhoea. In the majority of cases it is an excess of the normal mucus secretion of the cervix which is not due to an infection. Chronic cervicitis often also causes an excessive secretion which manifests itself as a leucorrhoea.

(e) Discharges due to cancer of the cervix or body of the uterus or fallopian tube. Also discharges are obviously due to ulcers, foreign bodies and fistulae.

(f) "Mental" leucorrhoea. This condition usually is associated with the frustrated nulliparous female of the early thirties. In these individuals the pelvic organs are often in a state of chronic vascular congestion. This reacts upon the cervical glands and causes a steady trickle of secretion which may cause great mental distress.

Investigation of a Case of Leucorrhoea:

Children:—On examination in a good light a mild redness of the labia and a very much more marked degree of redness of the hymen and lower part of the vagina will be seen. Culture and smears of the slight purulent discharge are taken and a specimen for hanging drop examination to exclude trichomonas is examined. The child should also be examined for pin worms and foreign bodies.

Adults of the Fertile Age period:—The patient must be instructed not to douche for at least 24 hours before examination so that the amount of discharge may be assessed, and a good specimen be obtained for investigation. The examination must be performed with the aid of a good light and a speculum. Under direct vision a blunt stick is dipped into the vaginal pool at the vault, the cervix and finally the urethra. Smears on glass slides are immediately made with these three fresh specimens. Finally a sample is taken again from the posterior vault of the vagina, dipped into and gently mixed with one drop of normal saline on a clean glass slide. A cover slip is placed on this drop and it is immediately examined under the microscope before it dries. The flagellate trichomonas vaginalis is easily identified in this manner. Monilia albicans is more difficult to find but with a well established infection it is usually quite obvious. A determination of the ph. of the vagina sometimes helps in the diagnosis of vaginitis. The smear slides are sent for staining and examination for the presence of gonococci.

CHRONIC CERVICITIS

This condition should not be confused with an erosion of the cervix although the two may be co-existent.

An **erosion of the cervix** does not per se require any treatment. It is merely a visual picture of the never ceasing interplay between the two types of epithelium in the endocervix under the influence of circulating hormones. When the columnar epithelium of the endocervix grows down over the squamous epithelium of the lower cervix the examiner sees an oval shaped reddened surface of varying size. If this same patient is examined two weeks later the erosion will probably have disappeared because the squamous epithelium has

re-asserted itself and forced the columnar epithelium back into the endocervical canal.

Chronic cervicitis, however, is a definite clinical and pathological entity. The endocervical canal will probably contain a muco purulent discharge. The cervix itself may show an ectropion due to old lateral lacerations suffered at childbirth. Nabothian follicles are usually present in the cervical tissue.

TREATMENT OF LEUCORRHOEA:

(i) Vulvo-Vaginitis of Children:—Local treatment in children is to be avoided. If the infection is gonococcal the usual treatment with penicillin and sulfonamides will be sufficient.

If the infection is pyogenic, stilboestrol in small doses viz. 0.1 mgm tablets by mouth daily for ten days will aid the vaginal mucosa to grow thicker and become resistant to the infection. This may be combined with antibiotic therapy.

If the leucorrhoea is due to pin worms then specific treatment is indicated. Foreign bodies are detected and removed under anesthesia.

(ii) Post-menopausal Vaginitis:—Saline douching in the morning and estrogen cream inserted into the vagina every night for two weeks is usually successful.

(iii) Trichomoniasis:—When the diagnosis is made microscopically the vagina is swabbed with pledgets of cotton wool which have been soaked in saline. The vagina is thoroughly dried. Finally strovaginal powder is insufflated into the vagina. The nozzle of the insufflator is then directed into the urethra and the powder is blown into the posterior urethra.

Stovaginol tablets are prescribed—two to be inserted into the vaginal vault every night. Every morning the vagina should be filled with an acid jelly such as Acijel. This treatment must be continued for at least ten consecutive days.

The tablets but not the jelly must be used **during the next ensuing period** because it is at this time that a recurrence often occurs.

If the patient is pregnant insufflation is contra-indicated because of the danger of air embolism.

(iv) Thrush Infection:—This condition usually, but by no means always, occurs during pregnancy. It is due to monilia albicans which looks like bamboo rods and clusters of spores under the microscope. The discharge is scanty, curdy and causes very severe pruritus vulvae.

The treatment of thrush infection is with gentian violet (1 percent). This is specific for monilia infection but it has the great disadvantage of staining. Other preparations are on the market which are also effective. An excellent way to give immediate relief from the severe pruritus is to advise soda bicarbonate sitz baths.

(v) Cervical Leucorrhoea:—If chronic cervicitis is present cauterization of the cervix is indicated. If the cervix is markedly involved it is preferable to admit the patient to hospital and perform conisation of the cervix under anesthesia. Before either of these procedures are performed cancer must be excluded by a Papanicolaou smear and, when indicated, a generous wedge biopsy of the cervix. Following cauterization or conisation the local applica-

tion of triple sulpha cream facilitates healing. About the tenth day following conisation when the slough is separating a blood stained discharge or actual hemorrhage may occur. The patient should be warned of this eventuality.

(vi) "Mental" Leucorrhoea:—If after examination, investigation and assessment of the patient this diagnosis is made, much time will be saved and wasteful treatment avoided by referring the patient to a psychiatrist or by treating the patients psychogenic troubles.

DOUCHING AND SO-CALLED FEMININE HYGIENE:

Tens of thousands of North American women are douche crazy. This is largely due to the rather offensive advertisements in some widely circulated women's magazines. The douching agent or suppository thus advertised usually contain mild chemicals. This type of douching causes an irritation of the delicate vaginal mucosa with subsequent low grade vaginitis and resultant leucorrhoea. Doctors and nurses are to blame in many of these cases because they often advise the young woman to douche in the interests of what is popularly known as "feminine hygiene." Douching is not physiological in that it may destroy the delicate ph. balance in the normal vagina and thereby weaken natural resistance to invading organisms. Many cases of leucorrhoea come to the doctors office for treatment. Examination will show no specific organism but the history will often elicit the fact that the woman is a habitual doucher. She uses lysol or some other irritant douche because her mother, the next door neighbor, or some national womans magazine has told her it is the thing to do. It must be the responsibility of the medical and nursing professions to counter this widespread douching propaganda with a commonsense, scientific, physiological, explanation when the occasion arises in day to day practice.

Endometriosis

I. A. Perlin, M.D.

This term implies the invasion by the endometrium of tissues to which it is foreign. These aberrant deposits undergo the same physiological changes as the uterine mucosa with periods of swelling and bleeding thus forming inter-tissue tumors. The condition can be symptomless, evidence of its presence being found incidental to surgery for other reasons, or there may be varying degrees of symptoms sometimes of an extreme degree.

There is no evidence that this ectopic endometrium is more prone to malignant change than is normally-placed endometrium. Where it does occur occasionally in the ovary the lesion is usually an adenoacanthoma with its low degree of malignancy and good prognosis.

The histogenesis of this condition has been a cause of argument for many years and at present it is felt that no one view can account for the widespread areas involved. In its simplest form endometriosis arises from direct extension or invasion as seen by the down growth of the endometrium into the uterine muscle producing the so called adenomyomas (localized) or endometriosis uteri (or internal) where this is diffuse through the musculature. The findings here are not unlike those for fibroids producing either a smooth or irregular, enlarged uterus and accompanied by excessive menstrual bleeding. Fibroids are generally painless whereas quite commonly pain during the menses is a symptom of adenomyosis, due, it is felt, to the collection of blood in the dense tissue.

Direct invasion, however, does not explain the presence of endometrial tissue in areas outside the uterus. If one were to open an abdomen in a case of endometriosis the picture would be an extremely varied one:—from the single endometrial cyst of one ovary, or the bluish puckered nodules on the utero-sacral or round ligaments to the almost "frozen" pelvis involving all the pelvic structures including rectal and sigmoid wall. In fact, because of the infiltration of the bowel this might be mistaken for malignancy.

Other sites that have been reported are at the umbilicus, in laparotomy scars, on the pleura and more recently in the lung. As a result there may be a myriad of symptoms with often confusion in the diagnosis.

Sampson in 1921 proposed the Tubal Reflex theory which suggests that endometrial cells pass through the tubes during menstruation and become implanted on the ovary and other structures in the pelvis. While this may be true for areas close to the tubes it is difficult to accept for the remote areas.

Myer, Novaack and others suggest an embryologic basis. The mucosa of almost the entire genital tract as well as the germinal epithelium of the ovary represents varying degrees of modification of the celomic epithelium—the primitive peritoneum. Under certain inflammatory or hormonal stimulation embryonal cells of the celom may grow and produce tissue such as endometrium. This may therefore occur in such areas as the umbilicus, hernial sacs, etc.

Still others like Halban believe there is lymphatic or even hematogenous spread of desquamating endometrial particles which may account for the finding of lesions as far removed as the chest.

It seems likely from all this that the histogenesis is not always the same—any or all factors might well come into play.

Diagnostic Points:

Although endometriosis can be found to occur during any part of the active reproductive age, by far the majority of cases seem to become problems between 30 and 40 years of age. Further the usual history is that the patient has never had any children or perhaps one child some years before—in other words there was no break for a long time in the routine monthly swelling and bleeding of the "little Uteri."

There are no characteristic set of symptoms and these range from none at all to often very severe complaints. A very frequent symptom is *Dysmenorrhoea*—acquired in type and becoming progressively more severe. The pain lasts throughout the period (rather than premenstrually and 1st day or so) with some residual discomfort for a few days after the period is finished—this is explained on the basis of the regular monthly bleeding within the endometriotic areas causing tension. With involvement of the utero-sacral ligaments the pain is often referred to the rectum or to the lower sacral and coccygeal regions.

Abnormal bleeding is not a usual symptom unless there is adenomyosis with the resultant menorrhagia.

Dyspareunia may be a factor when the ovaries are adherent in the Pouch of Douglas or there is involvement of the utero-sacrals. In advanced involvement of the sigmoid and rectum there may be symptoms of obstruction. There may be difficulty on examination to differentiate between endometriosis and pelvic inflammatory disease when one finds in one or both sides of the pelvis a tender mass consisting of adherent tube and ovary. Here a good past history particularly of previous acute episodes would be very helpful. Recto-vaginal bimanual examination is most useful in feeling the shotty nodules in the utero-sacrals and if these are present and associated with dysmenorrhoea referred to lower back or rectum then diagnosis is very likely endometriosis. Occasionally if there are deposits in the cul-de-sac one can see the bluish tint behind the cervix by means of a speculum.

Many times the diagnosis is made only at surgery for some other pelvic or abdominal problem. On the other hand, during the laparotomy for endometriosis, although the lesions look so in the gross, the pathologist has difficulty in being definite because the endometriotic tissue is not clear-cut on section. It is advisable to pin-point suspicious areas when material is being sent to the laboratory because they do not look the same as when in vivo.

Treatment:

The ovaries are necessary for the inception and continued activity of the disease. It seems logical therefore that if the ovaries are rendered functionless either by removal or by X-ray then the situation should improve. However, in by far the greater number of cases castration is not necessary in order to obtain relief—this is extremely important to the younger woman who can still have a family. Since the symptoms and findings are due to the presence of the aberrant endometriotic deposits it is likely then that—(1) prevention of the bleeding phase over a long period of time or (2) the removal of the areas would, of necessity relieve the complaints.

(1) (a) If the patient is successful in getting pregnant there will be a lessening of the symptoms due to endometriosis when the cycles are reestablished after delivery.

(b) Oestrogens in gradually increasing doses, have been used successfully by Karnaky and others to prevent menstruation from occurring over a period of 3 to 9 months. Unfortunately many patients cannot tolerate large doses of the hormone, and sometimes very severe withdrawal bleeding may occur—so that this therapy is not without its drawbacks. If successfully given it is a worthwhile medical treatment.

(2) Surgery is by far the major form of treatment. What has to be done varies with the degree of involvement. It is true that if the ovaries are removed the stimulating influence is gone. This is rarely necessary, however, for the average case. In the older woman or woman approaching 40 who has had her family, castration with hysterectomy is probably the best treatment. But in the younger patient conservative surgery should be the keynote. Removal of the involved areas, resection of ovaries, cauterization of the little nodules results in cessation of symptoms and conserves the child-bearing function. Reports indicate that anywhere from 45% to 70% of patients who have had conservative surgery have succeeded in becoming pregnant.

Where there is extensive bowel involvement and providing care is taken that the lesion is endometriotic and not malignant then castration is preferable to extensive bowel surgery.

(3) X-ray has been used but it has little to offer since it acts only when a castrating dose is given—this is not desirable in by far the greater number of cases.

The Problem of Prematurity

A survey of the literature reveals that out of every 100 pregnancies, premature labour will occur in only 5 to 8% of these, yet prematurity accounts for well over 30-40% of all perinatal deaths. This fact in itself indicates the importance of considering the factors associated with premature labour. In over half of these there is no associated maternal factor or cause. In the case in which a maternal factor can be shown to be associated with this condition, it is possible that something can be done and it has been shown that good pre-natal care can reduce the incidence of prematurity by at least one half. Toxemia, bleeding in pregnancy, elective Caesarian Section, and multiparity all play a part. It is easy to see how good pre-natal care with attention to the above factors can reduce the incidence of prematurity.

The Use and Abuse of Blood Transfusion In Obstetrics

S. C. Robinson, M.D.

The dramatic and gratifying decline in maternal mortality which has occurred during the lifetime of our older colleagues, is due primarily to three innovations:

- (1) the replacement of blood loss
- (2) the control of infection by antimicrobial drugs
- (3) the improvement in indications for and technique of cesarean section.

Each of these developments carries with it intrinsic dangers. The simplicity and safety of abdominal delivery has led to its abuse by those who see the obstetrician rather than the mother and her baby as the central figure in the obstetrical situation. The abuse of antimicrobial drugs has led in some instances to a tolerant attitude toward careless technique and also to the development of resistant strains of bacteria and the unrestrained growth of certain fungi. The abuse of blood transfusion has given rise to evils among which are:

- a false sense of security in the face of danger.
- a disregard for iron deficiency states.
- inadequate diagnosis and faulty treatment of anemias.
- complications from blood transfusion itself, including immediate reactions due to incompatibility, delayed complications such as hepatitis and renal damage, and 'occult' sensitization leading to hemolytic disease in later pregnancies or reaction to subsequent transfusion.

I find it convenient to think of the various stages of pregnancy and childbirth when one might be faced with a situation where a decision regarding transfusion may have to be made.

Complications of Early Pregnancy Characterized by Blood Loss:

The two conditions with which we are faced at this stage are of course abortion and ectopic pregnancy. It is obvious that in the presence of shock due to blood loss there is no satisfactory treatment program other than:

- (1) stopping the bleeding
- (2) replacing the blood loss

Countless lives are being saved daily by the prompt and aggressive application of these principles. No reasonable person will question the necessity for even multiple transfusions in the face of severe surgical shock due to profuse hemorrhage nor is there any really effective substitute. The use of albumin, plasma, or the plasma expanders may have a temporary value while blood is being obtained, but these will not replace oxygen carrying erythrocytes. On the other hand, to use blood transfusion in the case who is no longer bleeding, who is not in shock, and who is in no serious danger, simply because she has lost an (for the moment) unknown volume of blood, is both reckless and thoughtless. Transfused blood is simply on loan from the donor and must of course be replaced by the individual's own hemopoietic tissues. The **average** life span of the transfused red blood cell is probably no more than 40-50 days. After this time, the value of a transfusion lies only in the minute amount of iron (250-275 mgm.) it contained. Other and better means of supplying large amounts of iron are available and more logical.

In cases of ruptured ectopic pregnancy where a substantial amount of liquid blood is found in the abdomen, this is of course a useful and safe substance for transfusion and should be used for this purpose. It should, of course, be kept sterile with rigid precautions, citrated and filtered.

Complications of Late Pregnancy Characterized by Blood Loss:

While both abruptio placentae and placenta praevia may be associated with profuse blood loss and maternal shock, in most cases wise and expeditious obstetric management will prevent this serious result. Surely, in the interest of both mother and child we are bound to act with dispatch rather than sit in a fool's paradise watching a transfusion drip in while blood gushes forth from the other end of the patient.

Complications of Labor and the Puerperium Characterized by Blood Loss:

Apart from the two complications mentioned above and possibly the ruptured uterus (which should be recognized), blood loss is not a complication of labor itself.

The syndrome of Hypofibrinogenemia has been discussed in dozens of papers in recent years. While rare, this complication may be disastrous and is generally said to occur in one of the following situations:

- (1) Amnionic fluid embolism
- (2) Abruptio placentae
- (3) In association with a fetus dead a month or more in utero.

Certainly forewarned is to be forearmed and in these circumstances, the prudent physician will

- have a couple of bottles of fresh blood crossmatched,
- have fibrinogen available,
- tape a sample of maternal blood to the bed and observe it from time to time for evidence of good clot formation and the **maintenance** of this clot.

Most cases of caesarean section other than those performed for bleeding complications, will not require transfusion. The blood loss at operation should not exceed that of vaginal delivery. Nevertheless one may take comfort from having matched blood available for the unanticipated situation. But let us not be tempted to lightly cash in this insurance.

During the past year I have seen two cases of severe maternal shock caused by blood loss associated with retained placenta. Both of these could have been prevented. In the absence of bleeding, the retained placenta is no great hazard and one may safely wait an hour or more, perhaps using an intravenous oxytocin drip, for the placenta to be expelled. However in the presence of bleeding, there is no reason for delay and the sooner the uterus is emptied, the sooner the bleeding will stop. I need hardly add that after the placenta has been removed manually the uterus must be explored to determine that it is intact.

Complications of the Puerperium Characterized by Blood Loss:

For practical purposes, these fall into two categories:

- (1) Bleeding from the uterus which is not empty. Obviously these cases must be anesthetized and the uterus emptied. "The empty uterus does not bleed." Surely we may recognize these cases and treat them properly **before** they are in shock and require transfusion under desperate circumstances.

(2) Bleeding from lacerations. These may be in the cervix, the vagina or the perineum. Provided there is adequate exposure they are not difficult to suture. There is no excuse for 'watching' while a woman lies in bed and bleeds. She should be taken to the operating room, examined, and treated appropriately.

Anemia in Pregnancy:

While almost any type of anemia may occur during pregnancy, for practical purposes the anemias fall into three categories, one common, and two rather rare. These are:

- (a) iron deficiency
- (b) megaloblastic
- (c) aplastic

Before any treatment is commenced, a diagnosis by peripheral and bone marrow smears must be made.

To say that iron deficiency anemia is common in the young woman and almost the rule in those who have had more than a single pregnancy is literally the truth. Startling as this statement may seem, one has only to consider the problem of iron metabolism, the limits of iron storage, and the needs of a single pregnancy to understand why this must be true. The total iron deficit in the woman who is even moderately anemic will exceed 1000 mgms. When we remember that iron cannot be absorbed from the gastro-intestinal tract at a rate in excess of 2-5 mgms. per day even under optimum dietary and therapeutic conditions, the futility of brief periods of oral iron therapy is apparent. On the other hand, long term oral iron therapy is generally effective and large prescriptions are (in the long run) economical. Let me again state that a single blood transfusion only contains 250-275 mgms. of iron which the recipient will ultimately use. For therapy when time is limited, as in late pregnancy, we have available iron-dextran for use by injection. The value and effectiveness of this substance is no longer in doubt and under these circumstances is indicated. Not only can hemoglobin levels be raised, but storage iron to meet future requirements and emergencies can be restored by this means. Why use transfusions which are of limited value, and which in themselves carry a mortality hazard estimated as being between 1:100 and 1:2000?

Megaloblastic anemia in pregnancy responds remarkably well to Vitamin B12 or Folic Acid or both, and transfusion will confuse rather than augment the therapeutic response.

Aplastic anemia in pregnancy is not well understood. It is characterized by a fairly normal peripheral blood smear and fails to respond to any known treatment, but disappears after the pregnancy is terminated. Clearly, where this anemia is severe, we have no alternative but to use transfusions to maintain the mother's health until she is delivered. Let us be doubly sure she is given only properly cross-matched blood of her own type.

Human blood is antigenic. Much has been learned of the various blood groups, the antigenic substances and antibody responses through the brilliant studies of such men as Landsteiner, Weiner, Levine, Fisher, Race and others. But knowledge is still incomplete, methods of identification are imperfect and prognostication uncertain. Accidents do occur.

Infectious substances may be borne by blood and blood derivatives. Deaths do and will continue to happen as a result of transfusions. Can we do less than satisfy ourselves as to the clear and definite indication before we allow our patients to be transfused?

A Case Report

S. Bodnar, M.D.

Mrs. M. W. 35 years old, gravida 13, para. 10 was admitted to the Grace Maternity Hospital on March 28th, 1959 by ambulance. She has 10 healthy children, the oldest 15 years of age. She had no complications with her first ten pregnancies. One of the last two ended in 1957 at three months in spontaneous abortion and the second in January, 1958 at four months, at which time she was told she had high blood pressure. From January 1958 until March 1959 she continued to have frequent headaches. She had her last menstrual period on September 6th, 1958, expected date of delivery June 13, 1959.

On admission she was complaining of headaches for one month, and for the past four days has had vomiting and blurring of vision. She has been in the hospital at the Western King's Memorial from March 24th, 1959 where she was treated with Diuril, Gravol, Demerol and bed rest, because of the high blood pressure and was then transferred to the Grace Hospital, Halifax, N. S.

Personal history was non contributory—obstetrical history is mentioned above.

Functional inquiry revealed: headache and blurring of vision. Patient was unable to distinguish between 2-3 or 3-4 fingers with right eye, but had normal vision in the left.

On physical examination: temperature 98.6, pulse rate 100 per minute, respiratory rate 22 per minute. Eye grounds showed arteriolar vasospasm with exudates and some blurring of the disk (more marked on right eye). Teeth were carious. Blood pressure 206/100 mm. There was a grade 2 pulmonary systolic murmur, and grade 2 mitral systolic murmur. Femoral pulses were normal.

Obstetrical examination: fundus is 2 fingers above the umbilicus. The presenting part was breech, floating above the inlet. No foetal heart sounds were audible. The patient was not in labour.

Investigation: Haemoglobin 12 grams, urinalysis—specific gravity 1.015, albumin 2-plus, sugar—negative, acetone—negative, microscopic: W.B.C. 2/high power field.

She was placed on routine ward toxic regime, with low salt diet, blood pressure q 15 minutes, darkened room, tongue depressor with suction in readiness, recording intake and output, daily specimen of urine. She also received Sodium Amytal, grains 5 $\frac{3}{4}$ Magnesium Sulfate, grains 10 intramuscularly stat and grs v q 6 h for 6 doses; and Apresoline drip, 20 milligrams in 500cc of 5% glucose in water with 30 gtts per minute (and to be adjusted to blood pressure).

As a result of the introduced treatment her blood pressure came down to 120/80. Albumin in the urine still remained 2-plus, with the same microscopic finding. Her intake and output were normal. Subjectively she showed some slight improvement. After this transient improvement her blood pressure gradually went up again to 170/110. She became gradually more listless. Her electrolytes on March 30, 1959 showed a metabolic acidosis. She received Sodium 1/6 Molar R lactate, 250 cc with 40 MEQ/L of potassium. Medical

induction and artificial rupture of membranes were performed and she delivered a premature, macerated stillborn infant, weighing 2 lbs, and 2 ozs. on April 1, 1959. Her electrolytes were repeated daily, fluid intake accordingly. On April 3, 1959 the patient became slightly cyanotic. Her breathing was similar to the Cheyne-Stokes breathing. Oxygen was applied with mask and as a result of it her breathing improved, her cyanosis disappeared. Her blood pressure was 170/110, albumin 2-plus in her urine and there were numerous pus cells found microscopically. Her temperature, pulse rate, respiratory rate were normal. The uterus was three fingers below the umbilicus with serous lochia. The patient was transferred for further investigation and treatment to the medical department of The Victoria General Hospital where she received full investigation of her chronic nephritis, including cardiac investigation. She was placed on oxytetro cycline, 1 gram daily and on 20 grams protein diet with increased fluid intake. Subjectively she improved very nicely. Her blood pressure remained at the same level—130 to 170 systolic and diastolic 90 to 110. Several urinalyses revealed specific gravities of 1008 to 1016. There was consistent albuminuria present ranging from 100 to 300 milligrams percent.

In spite of good urinary output the B.U.N. remained elevated at 56 milligrams percent. In view of the renal arteriosclerosis, retinal exudate, hypertension, elevated B.U.N., with albuminuria and urine specific gravity, it was felt that she had chronic glomerulonephritis and toxæmia of pregnancy, Her soporous stage could be explained by a barbiturate restriction owing to the repaired renal function.

She was discharged on April 10, 1959 to continue on a restricted protein diet with increased fluid intake and return for reassessment in six months. She was strongly advised to avoid pregnancy.

Summary:

A case of chronic glomerulonephritis and toxæmia of pregnancy was present and routine and specific treatment followed on the obstetrical ward service of the Grace Maternity Hospital.

In conclusion I should like to add the following:

(1) Although the administration of the antihypertensive drug is widely accepted and introduced in the obstetrical units and hospitals in the therapy of pre-eclamptic toxæmia, in the instance of azotemia, this therapy does represent a certain risk.

(2) Although it is widely known and generally accepted that the percentage of the remaining kidney damage, after pre-eclamptic toxæmia, is less than ten, the instance of a second pre-eclamptic toxæmia of the same patient should be regarded potentially as a chronic nephritis and should be fully investigated as such.

Injuries of the Cervix

G. M. Jasey, M.D.

The following case history is presented to illustrate how easily injuries of the cervix may go unnoticed following a delivery, and how the resulting lesion may complicate a future delivery.

The patient, a twenty-five year old white para 0, gravida 1 female, was admitted to Grace Hospital, December 9, 1954, two and a half hours after onset of contractions. The membranes had ruptured forty-five minutes before the beginning of labor. There was no prenatal pathology. On admission her Hb was 13.0 Gm Bp 120/72, and urinalysis negative for albumin and sugar. Abdominal examination revealed a term sized fetus, presenting as a vertex, ROA, with good heart sounds. The labor progressed well and she was delivered six hours and forty minutes after onset of contractions, of an eight pound fifteen ounce healthy female infant. A first degree laceration of the perineum was repaired. Her post partum course was uneventful.

Four years later she was admitted to Grace Hospital, with her second pregnancy, two hours and thirty minutes following onset of contraction. Again there was no prenatal pathology. Her hemoglobin was 13.5 Gm Bp 126/80. Urinalysis was negative for sugar and albumin. Abdominal examination showed a term fetus presenting as a vertex LOP, with good heart sounds. The following day, after thirteen hours of good labor, rectal examination suggested a fully dilated cervix. She was prepared for delivery. Vaginal examination revealed the cervix was completely effaced but was not dilated. Complete atresia of the cervical os was diagnosed and Dührssen's incisions made. A 7 lb. 12½ oz. healthy female infant was delivered spontaneously. The cervical incisions were repaired.

In the interval between the two labors there was no history of gynecological disease, operations, or abortions. The only known explanation of this atresia was her first delivery. It is not difficult to conceive that her second labor might have ended in a Caesarean section which indeed was contemplated had the Dührssen's incisions not been possible.

Most cervical injuries are obstetric in origin. If not promptly discovered and treated they may lead to later morbidity, operation, added hospital costs and complications in future pregnancies and deliveries. Some injuries suggested because of associated external hemorrhage or delayed hemorrhage, will usually be diagnosed and treated early. However, extensive trauma to the cervix may occur with minimum bleeding. If the consequences of belated recognition are to be avoided visual inspection of the cervix, as well as manual exploration, should be a routine procedure in every delivery, especially those complicated by dystosia or operative delivery.

Maternal Mortality Committee Report

Presented at the May Meeting of the Medical Staff of
Halifax Infirmary

M. G. Tompkins, M.D.

Tonight we would like to present four cases from the Maternal Mortality files. I am sure you are well aware of the Maternal Mortality Committee, which is supported by a Provincial-Federal Grant and is administered by The Medical Society of Nova Scotia, under the Chairmanship of the Maternal and Child Welfare Committee of the Province of Nova Scotia.

Before entering the discussion of these cases I think it is necessary to stress several points.

This Committee has been functioning approximately one year. A great deal of information has been obtained from studies to date. I would stress the purposes of this Committee. We are trying to determine, accurately, the maternal death rate in Nova Scotia, and, more important, to determine methods by which we can reduce this rate. With this in mind we have studied several deaths. We have been extremely critical, on purpose, so as to find preventable factors which could alter the outcome of such cases. Naturally, looking at a case, in retrospect, one can obviously see difficulties that existed and can make very easy, clear decisions. This is not as easy when one is dealing with the actual case, but as I said, this is done on purpose to try and make our study more beneficial. Another point that I would like to stress is that all these cases are anonymous. I, personally, do not know the names of these patients nor of the Physicians involved nor of the Hospital where the deaths occurred. The Committee Members are in a similar situation, with the exception of the Investigator involved. The cases were discussed impartially, without any recognition whatsoever. Tonight I would be pleased if you, as a meeting, would enter into this discussion fully. Be as critical as you wish not only of the Committee, but of the Committee's opinion and the way in which the case was interpreted. However, I must insist that no identification, whatsoever take place. You might feel that this is a case with which you were associated or know about and make some attempt at identification. If this should occur I think we would have to terminate the discussion as it would do untold harm to this study.

With this in mind we would like to present the following cases:

CASE NO. 1

This is a 36 year old para 4, gravida 5, admitted to hospital at about 10.00 p.m. She was approximately 34 weeks pregnant. About 1 hour before her admission to hospital she was seized with sudden, severe abdominal pain and began to hemorrhage p.v. She called her doctor who immediately had her admitted to hospital.

On admission her blood pressure was 124/76, pulse 88, she was bleeding profusely and complained of constant abdominal pain. Her attending Physician was notified and visited the patient within a very short period of time and an examination was carried out. A consultant was present when the examination was done, and the combined opinion was reached that this was a

severe abruptio placenta with a dead baby. The cervix was a quarter to half dilated. The woman was in good labour. The membranes were ruptured and measures to correct shock, etc., were carried out, in that intravenous therapy was instituted. Grouping and cross-matching had been done. Morphine was given for pain.

The past history of this individual was uneventful with the exception of a severe dermatitis which was treated with Cortisone for the past 6 or 7 years.

Between 12 midnight and delivery of a stillborn at 5.15 a.m., the patient apparently bled very little. Her condition was good. Her blood pressure varied between 92/50 and 120/80. She had been grouped and cross-matched and given 500 c.c.'s of 5% Dextrose and water. During this period of time she was given Morphine for pain and Trilene for the delivery. The delivery, itself, was uneventful. Post-delivery she was given Ergometrine, 1/2 milligram intravenously. The consultant inquired about the patient's post-delivery state and was told it was satisfactory, but he did not visit her.

Post-delivery condition of the patient was apparently good. However, at 6.00 p.m., approximately 12 hours after delivery, a notation on the nurse's notes states that the patient was catheterized and only one-half ounce of urine was obtained. No one was notified to this effect. The following morning, approximately 24 hours post-delivery, she was again catheterized and only one-half ounce of urine obtained and at this time her attending Physician was notified. He, in turn, called a Medical Consultant but treatment was not instituted until 5.00 p.m., that afternoon 36 hours following delivery and 24 hours following the first catheterization when only one-half ounce of urine was obtained and 12 hours following the second catheterization, at which time again only one-half ounce of urine was obtained. At this time, 36 hours after delivery, the first notation of the hemoglobin level, appeared on the chart, which was 5.7 grams or 39.5% with a PCV of 20%. The first blood was given at 2.30 p.m., approximately 30 hours post-delivery. Also, at this time, the patient was started on Solucortef, 75 mgs., in 750 c.c.'s of 5% glucose and water. This was the first time she had received any Corticoid therapy since arriving in hospital. Treatment, from this point of view, was carried out under the direction of the Medical Consultant. Following this there was slight improvement in the general condition of the patient. However, she still remained anuric and following the initial improvement the patient expired 9 days after admission to hospital with pulmonary oedema and heart failure. The post-mortem diagnosis is as follows:

1. Anuria.
2. Generalized Oedema.
3. Pulmonary Oedema.
4. Hydrothorax.
5. Acute Nephritis.

This case was studied by the Committee and the following conclusions were reached.

First of all the Committee felt that the death was preventable and that the preventable factors were as follows:

- a. An error in judgment on the part of the attending Physician, who did not know the dosage of Meticortin the patient had been on and did not institute Corticoid therapy immediately after admission to hospital.

- b. The same error in judgment on the part of the Obstetrical Consultant who also knew that the patient was on Meticortin therapy. Also he did not follow the Consultation to its completion.
- c. An error in judgment on the part of the Medical Consultant in that there was a delay of approximately 12 hours, after notification of anuria, to the time the patient received therapy. The patient was then given excessive fluids and died of over hydration.
- d. It was felt by the Committee, that Hospital Personnel were negligent in the documentation of the chart. Additional points were: improper nursing care, post-partum, with failure to notify the Interne Staff or the Physician in charge or the Consultant, following the first sign of impending anuria.

It is the opinion of this Group that the hospital administration should make wider use of the Interne Staff. Any communication, between Physician and Hospital Personnel, regarding patients, should take place at the Interne-Physician level. It is the feeling of the Committee that all nurses, both in the case room and in the post-partum wards, should be instructed that proper records must be kept of: intake and output, fluids administered, blood pressure, pulse, etc., on all seriously ill patients, all post-partum hemorrhages, ante-partum hemorrhages, including placenta previa, toxæmia, abruptio placenta and all Caesarian Sections and difficult deliveries. It is the opinion that this individual, although she had a severe abruptio placenta, had received moderate care for this matter. She died of anuria, associated with abruptio placenta. However, the biggest single factor contributing to the demise of the patient was the fact that Cortisone was not administered.

Notification of case room staff of previous medications is essential. With many people receiving Corticoids, for one reason or another, this problem is going to present itself again and again.

CASE NO. 2

The next case concerns a 29 year old woman. She had been treated for high blood pressure since her early teens. She was very obese. She stated that she had always had irregular menstrual periods, going for months at a time without a period.

She first visited a doctor in June 22, because she was feeling unwell, had a distended abdomen and oedema of her legs. An X-ray picture of her abdomen revealed a fetus near term. This came as a great shock to the patient as she did not suspect pregnancy.

On June 26 she came under the care of another Physician. Examination revealed that her blood pressure was 240/120 mm of hg, and she had gross oedema of her extremities with puffiness of her face. The urine contained albumin (plus-plus). The hemoglobin level was estimated to be about 10 grams percent. She was placed on bed rest, Phenobarb and Diuril and was seen daily for a week. Her blood pressure gradually fell to 160/110 mm of hg., and stayed there and the urine became negative for albumin.

On July 16 she began having labour pains and was admitted to hospital. After 2 days the pains stopped and she was discharged. During the hospital stay fetal heart sounds were normal.

She was next seen on July 26, by her Physician, at which time she complained of severe backache. Examination revealed: bilateral cost-vertebral angle tenderness, temperature 102 degrees, intermittent chills. The urine

contained numerous pus cells and albumin (plus). She was treated with Triple Sulfa and Fortemycin and her fluid intake was increased. The blood pressure remained at 140/110 mm of hg. A diagnosis of Pyelonephritis was made. The patient improved within 2 days.

On July 31 she again complained of back pain. She stated that she had not felt movements of her baby for 2 or 3 days. The blood pressure was 160/90 mm of hg.

On August 1, she was again admitted to hospital and X-rayed. There was a very large baby present. No fetal heart sounds were heard. There was slight bloody show, but no contractions although her abdomen was very hard. She was given Morphine, $\frac{1}{4}$ grains, for her back pain. At 6 p.m. she was given Phenobarb, 1 grain, and Morphine $\frac{1}{4}$ grain and was then seen by a Consultant. Her hemoglobin level at this time was 6 grams percent. Her blood pressure was 200 plus over 120. The patient complained of severe headache and was very restless and apprehensive. The Consultant called the attending Doctor and informed him that he considered the patient to be very ill. A Caesarian Section was discussed but vaginal delivery, by forceps, was considered to be the procedure of choice.

The patient was deeply anaesthetized with Chloroform and an attempt to apply forceps was made. This was unsuccessful. The degree of anaesthesia became lighter and the patient vomited. Again she was deeply anaesthetized and the Consultant delivered the head but was unable to deliver the shoulders. Severe bleeding was noted at this point. The Physician changed places with the Consultant and delivered the posterior shoulder with some difficulty. The anterior shoulder followed, without difficulty as did the rest of the body.

Following delivery the bleeding was brisk. There was a deep tear extending into the rectum. The placenta came away easily. As all the tissues were damaged the Physicians were unable to find the source of the bleeding. The pelvis was packed with towels. The patient went into shock and was treated with oxytocics, vitamin K, etc. Intravenous fluids were started in both arms, but the only intravenous fluid given at that time was glucose and saline. She had 3000 to 4000 c.c.'s of this solution. Shortly after 11 p.m. a blood transfusion was started. The patient appeared to improve after several bottles of blood and an attempt was made to repair the laceration under local anaesthesia. This procedure was inadequate and the patient had to be re-packed with rolls of vaginal packing. The blood pressure fell again during the repair.

At around midnight the patient was transferred to her bed. Her condition was poor and she expired between 1 and 2 a.m. on August 2. No autopsy was performed.

When reviewed by the Committee of Maternal and Child Welfare several pertinent points arose from the discussion, since the cause of death was hemorrhage, associated with toxemia of pregnancy and questionable abruptio placenta. It was considered an obstetrical death and preventable. The preventable factors existed as follows:

1. Inadequate prenatal care.
2. Family at fault, in that proper facilities were not utilized.
3. Physician erred in judgment from the first handling of the case to its completion.
4. Physician erred in technique in delivering this baby. Also the same error in technique on the part of the Consultant.

5. Hospital personnel factor in that the care given for toxæmia of pregnancy was inadequate.
6. Inadequate hospital facilities.

There are several interesting points concerning this case. First of all, when the Consultant saw the patient she was catheterized and 80 ounces of urine were obtained. The cause of this, no doubt, was the result of the head being severely impacted in the pelvis with urethral obstruction. This is well substantiated by the size of this infant. It was estimated, by the Undertaker, that this macerated child weighed over 12 pounds. The patient should have been hospitalized much sooner than she was. There was a 6 week period when this woman remained at home. The Physician gave unsparingly of his time and effort but this was inadequate because proper sedation and care could not be carried out at home.

It was the feeling of the Committee that, once the initial improvement took place, a Caesarian Section should have been done. One point noted was that an adequate estimation of the size of this pelvis could not have been made with the films available. A flat film was taken at one point and an opinion was given as to the presence of pregnancy. On June 27 another film was taken which disclosed a very small pelvis with a large baby. Should an opinion be expressed on inadequate films? If proper films had been taken a different outcome might have been experienced.

The next point is that this woman was severely anemic. The hemoglobin level was checked and recorded at 70% when she was in hospital around July 16. This level should have caused concern and further investigation undertaken. If proper laboratory procedures had been carried out at that time this gross anemia could have been picked up and treated accordingly. The patient should not have been discharged from hospital in mid-July in this condition.

Once she was re-admitted to hospital, about 6 a.m. on August 1, it was not until around 4 o'clock that her blood pressure was recorded. There was no record of albuminuria or any other laboratory tests. Of further interest is the fact that a patient who was severely toxic received 2 full meals during this waiting period. As far as sedation was concerned it was considered inadequate.

Despite the fact that the patient was restless, etc., the attending Physician felt that delivery must be accomplished. They then proceeded to deliver a large child through an undilated cervix. This resulted in the severe lacerations described and the death of the patient, which was hastened by the ill-timed secondary repair.

If this patient had been more thoroughly sedated for the period of time until blood, etc. were available, a better outcome might have occurred. It is the feeling of the Committee that the nursing care and the recording of pertinent data were inadequate.

CASE NO. 3

The next case is that of a gravida 10, para 8, admitted to hospital at 4 p.m. with a diagnosis of a missed abortion. Four months after her last menstrual period she visited her doctor for confirmation of pregnancy. A week or so later she began to lose weight and no longer felt pregnant. Two and a half months later she had a slight reddish vaginal discharge which lasted approximately 1 week. At no time did she have any uterine cramps. Her obstetrical history, menstrual history, family history were all normal.

The day after admission to hospital blood was taken for a routine blood count and fibrinogen test was done and the patient's blood was grouped and cross-matched. She was also started on Stilbestrol, approximately 5 mgms., twice a day (the exact dosage was not indicated on her chart). At 3 p.m. on that day a Pitocin drip was started, $\frac{1}{2}$ c.c. Pitocin in 500 c.c.'s of glucose and water. Her blood pressure at this time was 110/70 mm and did not vary appreciably one way or the other with the Pitocin drip. Pitocin did not induce labour. On the next day at noon, she was taken to the operating room, and the cervix was dilated and the uterine segment packed with gauze. This again did not induce labour. On the 4th day she was started on Mysterlin and at 7.45 p.m., on that day, a second Pitocin drip was started but again without effect. At noon, on the 5th day, she was taken to the operating room and a dilatation and curettage was performed. At this time the operative note states that the cervix was dilated easily but also that a tear into the broad ligament was noted which could be felt with the finger just at the interval os and extending about 1 cm. in length. The uterus was cleaned out, and the tear into the broad ligament was packed with oxycel to control oozing. The blood pressure at the beginning of the operation was 110/70 mm. On transfer to the recovery room the blood pressure was 90/46 mm and the pulse varied between 78 and 64. This was at 1.40 p.m. A transfusion of 500 c.c.'s of blood was started. The nurse's notes stated that there was no excessive bleeding. She was transferred to her room at 2.45 p.m., her blood pressure being 92/60. The blood transfusion, by then, had been completed, and the patient was given 2 c.c.'s of Dicrysticin.

At 4.30 p.m. her pulse was 58 and thready. The blood pressure was imperceptible. Quite a large amount of bleeding p.v. was noted and another transfusion of 500 c.c.'s of whole blood was started.

At approximately 5 p.m. the Consultant visited the patient.

At 8 p.m. the pulse was 62 and strong.

At 10 p.m. the blood pressure was 98/50 mm. There was some bleeding per vagina. The family doctor visited at this time.

The following day, which was the 6th hospital day, from 2 a.m. until 6 p.m. the patient's condition was apparently stationary and considered good. Blood pressure was 110/70 mm. She had a small amount of bleeding per vagina.

On the 6th hospital day, at 2 p.m., she was given Heparin, 2 c.c.'s, intramuscularly, because of pain in her right side which the Consultant felt may have been due to a pelvic thrombophlebitis.

On the 7th day (hospital) at 2 a.m., the patient was given a second dose of Heparin, 2 c.c.'s.

At 3 a.m. she complained of nausea with pain in her right side.

At 4 a.m. she vomited a small amount of clear fluid and complained of feeling warm, but the skin was clammy and cold. The Interne was notified but he could not record blood pressure or pulse. Her colour was very poor and her respirations shallow.

At 4.30 a.m. Dextran, 500 c.c.'s, along with 500 c.c.'s of whole blood was started as well as oxygen therapy, but at 5.15 a.m. the patient expired.

At autopsy a laceration of the cervix with a massive retroperitoneal haemotoma was found.

The case was reviewed by the Committee with the following conclusions:

That the treatment of choice in missed abortion is conservative. It is best to leave the patients alone until spontaneous labour begins and then institute treatment. There is one caution to be observed. Bleeding tendencies, due to afibrinogenaemia, may result and necessitate immediate treatment. If afibrinogenaemia is present, this should be corrected by replacement with fibrinogen or whole blood. Operative delivery in the form of a vaginal or abdominal hysterotomy is then the procedure of choice. In this particular case, once the perforation of the uterus had occurred and the patient went into shock, an Exploratory Laparotomy should have been carried out.

There was a hospital personnel factor present here in that the records were not complete, particularly with regard to blood pressure and pulse and that the patient was transferred from the recovery room to her own room in a state of relative shock. The attending Physician was apparently not notified of this.

An error in judgment existed in that Heparin was used in a patient who was known to have a perforation of the uterus from which bleeding had occurred.

Again, it must be emphasized that it is easy to look back on the situation, and observe then that the right abdominal pain was due to a large retroperitoneal haematoma and not due to thrombophlebitis.

Unquestionably the use of Heparin was responsible for the eventual death of this patient.

CASE NO 4

This is the case of a gravida 6, para 5, admitted to hospital with a diagnosis of missed abortion. The patient had had no complaints with any of her previous pregnancies. Her previous history and physical examination were completely normal. She was in a good state of health at the beginning of this pregnancy. Some spotting was noticed during her third month, when the patient had sustained a severe emotional shock. Bleeding was also noted 1 week before admission to hospital, at the 6th month.

On examination after admission into hospital, the admission diagnosis of a missed abortion was confirmed and the decision made that pregnancy should be terminated by dilatation and curettage. The following morning, the patient was taken to the operating room and the D. & C. was carried out. During the dilatation the patient went into shock, precipitously, but following treatment her condition improved so that the uterus was evacuated and explored. A pack was inserted into the uterus and the patient was taken to the recovery room. In the recovery room, however, she went into shock again. She was seen in consultation and given blood transfusions. A needle was inserted into her abdominal cavity to explore the possibility of internal hemorrhage, but this was not found. She quickly went into collapse and died. The autopsy showed a rent into the lower uterine segment with a massive retroperitoneal hemorrhage and some intraperitoneal hemorrhage of about 500 c.c.'s. The cause of death was a traumatic rupture of the uterus with retroperitoneal hemorrhage, associated with a missed abortion.

This case was reviewed by the Obstetrical Committee who made the following remarks: "In our opinion this was a preventable death." The preventable factors again are:

1. A Physician erred in judgment in that he thought that the uterus should be emptied.

2. A Physician erred in technique: once shock occurs in a patient who is completely healthy the abdomen should have been opened immediately on the assumption that this is a possible uterine rupture.

It is interesting in both these cases that marked retroperitoneal hemorrhage had occurred. It is usual to expect an intraperitoneal hemorrhage, but rupture of the uterus occurs in the lower segment and hemorrhage, therefore, is extraperitoneal. The use of a needle, inserted into the abdomen to determine the presence of blood, is grossly inadequate. All other evidence, such as shifting dullness, etc. that one usually finds in intraperitoneal hemorrhage will be absent and reliance on it will, therefore, be no help in the diagnosis.

In reviewing these four cases I think that several obvious points can be made:

First of all the importance of hospital records must be emphasized. All these cases demonstrate the value of proper recording of fluid intake and output, blood pressures, pulse, other vital signs and procedures. By current hospital standards all of the records reviewed would probably be considered acceptable. However, more accurate recording would have helped to arrive at an accurate, complete diagnosis. They are also essential for adequate therapy.

The second important point is the care with which one must use Corticoids. If any stress reaction occurs these drugs must not only be continued but increased to compensate for the suppressed adrenals. This illustrates, again, the importance of adequate records.

Point Three: The question arises as to whether the Consultant's responsibility ends with the expression of an opinion or whether he should follow the case completely to its conclusion.

Point Four: Should an opinion be expressed on inadequate material, as demonstrated by the second case reviewed. Here an erroneous opinion was based on inadequate films.

Point Five: The value of prenatal care. This should be obvious, yet in all four cases the prenatal care was inadequate, most particularly in Case No. 2.

The sixth point emphasized the hazards of eclampsia along with the hazards of traumatic obstetrical procedures.

Finally, the seventh point, that the procedure of choice in missed abortions is conservative treatment.

Report of the President Mar. Med. Care Inc.

It is now ten years since a group of doctors, two of whom are still members of the Board of Directors, with courage and vision, introduced to Nova Scotia a voluntary non-profit prepaid plan of medical service, sponsored by The Medical Society of Nova Scotia and called M.M.C.I.

As its name indicated, it was originally hoped and planned to embrace the people and profession of the Maritime Provinces, but for various reasons, many of them now forgotten, this dream still remains unfulfilled.

Initially, too, it was conceived as an attempt to provide a "family doctor" service, at home and in the office, for that large group of average income and wage earning families on which the cost of medical care fell most heavily. With the recent rapid growth of medical specialization, advances in medical therapy and techniques, and the ever-increasing demand of the populace for "comprehensive" medical coverage, M.M.C.I. has broadened its original conception beyond all recognizable bounds to make available almost all services provided by general practitioners and specialists, to any subscriber irrespective of income.

It has, however, persistently maintained its non-profit motive! From its first year of service ending December 31st, 1949 with 9,000 subscribers, an income of \$37,000.00 and a deficit of \$9,900.00, it has grown by December 31st, 1958 to 120,000 subscribers, an income of over \$2,000,000. and a profit of \$50,000.00. This profit, unfortunately, was not quite sufficient to cover 1958's deficit of \$58,000.00, due largely to the famous 'flu epidemic of that year. So our non-profit objective is still maintained!

May I review briefly its 2 main, in my opinion, objects, as expressed at the time of its incorporation April 29th, 1948.

(a) To arrange for the provision of medical and surgical care, treatment and services by legally qualified medical practitioners with or without hospital care or treatment, or other ancillary services on a non-profit pre-payment basis, so as to best meet and serve the interests of those receiving and those rendering such services, and

(b) To establish and maintain effective collaboration with The Medical Society of Nova Scotia.

In 1956, as a result of considerable dissatisfaction among the profession regarding the Plan, a committee of The Medical Society of Nova Scotia under Dr. J. F. Woodbury, was appointed, to "study the relationship of M.M.C.I. with The Society and the practitioners of Medicine," and I am happy to be able to state that all the recommendations of that committee, with one exception, have now been carried out. The Report of that Committee is almost as lengthy as my own today so I shall not review it in detail, but among the more important recommendations are the following:

Under Section I

1. Combining the Functions of the House of Delegates and the Board of Directors and increasing the Board of Directors to 14, of whom 11 are medical and 3 non-medical. This has been done by abolishing the House of Delegates, and The Medical Society via the Branch Societies appointing the Directors who in turn elect 3 non-medical members.

NOTE:—We are today asking the Executive of The Medical Society of Nova Scotia to increase the number of delegates to 15 so that the Branch Society from whom the President is drawn may still be represented by a voting member.

2. The method of election by The Medical Society through the Branch Societies to the Board of Directors has been adopted.

3. Board of Directors' Meetings and meetings of Executive are held regularly.

Under Section II

1. Extra billing is to be the privilege of all participating physicians.

2. Payment for physicians services only.

3. Fee Schedule of Medical Society of 1958 has been accepted as of July 1st, 1959.

Under Section III

1. A firm of Actuarial Consultants spent last year reviewing the set-up and workings of M.M.C.I. and their recommendations have been given the greatest study and consideration by your Board of Directors. It has been decided, too, to engage a Consultant Actuary to assist us in the future and Mr. Denis R. George of Wm. Mercer & Co. has consented to act in that capacity.

2. Taxing committee: A Rota of doctors who are willing to act has been drawn up and they will receive notice of meetings in time to be present.

Section IV

The Board of Directors is not—repeat NOT—considering a new building to house the Corporation.

The one recommendation of the Committee **not** instituted reads as follows:

“By accepting the pro-rating of doctors accounts, the medical profession has subsidised M.M.C. since its inception. A new Schedule of subscriber premiums should be formulated so that the subscriber, who benefits from the convenience of pre-payment, pays the cost of administration.”

If this had been done at the end of 1949 when, with an income of \$37,000 there was a deficit of \$9,900 or even at the end of 1950 when with an income of \$335,000 the deficit was \$33,000, all might have been well by now. But in 1957 the subscribers rates were raised and the increase brought in an extra \$225,000. every penny of which was paid out to doctors by increased utilization of services, still at a pro-ration of 85 per cent by the end of the fiscal year!

At the annual meeting of your Board of Directors in April 1959, with the agreement of our consulting actuary, it was decided once again to increase subscribers rates.

In order to obtain a 90 per cent pro-ration based on an estimated 3 per cent increase in utilization over 1958, it was estimated that revenue would have to increase by \$675,000 (more than 25 per cent of last year's gross). This would necessitate raising subscribers' rates out of all proportion to other pre-paid plans in Canada, among whom we now rank among the highest; e.g., the family rate would have to go from \$7.30 to \$11.00, an increase of approximately 33 1/3 per cent. This was regarded by the majority of your directors as prohibitive and in due course an increase in all groups of 10-15 per cent, yielding, we hope, approximately \$350,000 was agreed upon. This raises rates in the comprehensive groups from single \$2.80-\$3.00 married \$5.30-\$6.50, family

\$7.30-\$9.00, which we hope will not result in too many resignations among our subscribers. The balance required to maintain an 85 per cent pro-ration must come from economies elsewhere. So I trust this explanation of our financial difficulties will explain why your corporation has not implemented the remaining item of the Woodbury recommendations.

At the Annual Meeting of April 27th, 1959 then to summarize the most important decision it was decided:

1. To adopt the 1958 Schedule of Fees of The Medical Society of Nova Scotia as from July 1st, 1959 and to attempt to maintain pro-ration at 85 per cent.
2. To increase subscribers rates by approximately 10-15 per cent.
3. To allow extra billing to all participating physicians, but to general practitioners only where the demand for service in the opinion of the doctor or the corporation was excessive.
4. To "experience rate" groups and communities.
5. To inaugurate a Reserve Fund by setting aside 2 per cent of the subscribers' dues for this purpose, with a view to building up a reserve equal to three months income of the Corporation—this reserve to be used only for the purpose of maintaining the pro-ration at a stable rate.

The term "reserve" has been used loosely for years in regards to the money the Corporation lists under "Investments." This money is **not** a reserve fund; it is money prepaid by subscribers for services either rendered or to be rendered and in the meantime it has been invested. We are always three months ahead with subscribers dues; one month before they are entitled to service, and, as you know, your own accounts are paid two months after rendering them. In future, to avoid any ambiguity, these funds will be designated as "Prepaid Funds".

6. To put a time limit of six months on the rendering of doctors' accounts.
7. The waiting time for obstetrics was reduced from 10-9 months and abortions, miscarriages and premature deliveries will be recognized if, had this misfortune not occurred, the nine months period would have been realized!
8. The onus for defining a specialist, when open to doubt, has been placed fully upon the Board of Directors of the Corporation.

There are other problems I would like to mention briefly. Year after year our statistical dept. shows us that the subscriber in Nova Scotia demands or gets anywhere from 10-15 per cent more service than his counterpart elsewhere in Canada. Whether the fault, if it be a fault, lies with the subscriber, or the doctor, or is a combination of both, has yet to be proven. Certainly it is a well known fact that the younger physician in order to start a practice and to increase it will sometimes provide service above the average, either through an effort to impress his patient, or through lack of self-confidence or because he has more time at his disposal than the established practitioner. Also we all know the patient who is determined to get his money's worth out of any scheme to which he belongs, as well as the conscientious but unnecessarily worried parents of small children—all of these costs the corporation relatively large sums of money.

Recently, unknown to the Board of Directors or Executive, a questionnaire was sent to subscribers of two or three large groups asking how many times during the month of May the doctor visited. A footnote said "Don't bother your doctor with this, he's a busy man!" You can imagine the reaction

—immediately every patient called his doctor to ask how many times he had visited him—adding “Don’t they trust you anymore?” At first I thought this was a decided example of poor judgment and poor public relations, now I am not so sure. We all recognize that in our profession, as in any other, there is an element of dishonesty, tho’ fortunately, it must be very small—but it exists. This questionnaire may have alerted many of our patients to this fact, and perhaps some will start keeping a record of their doctors visits, (I know some of mine already do!), in which case the man who may have “padded” a few extra in the past, will now hesitate to do so. He who considers a telephone consultation as an office visit and charges it accordingly, may have second thoughts; he who sees a member of a family who is not in M.M.C. and, to oblige, charges the care to a member of the family who is on M.M.C. may hesitate before doing so. I once had a very good patient inform me she had now joined M.M.C. and would I put the account which she owed for services previously rendered, in as a charge on the Corporation!! Asked it in all seriousness too. You will ask if these things are going on, why don’t you stop them. If they are not, why discuss them. My answer is that we do **not** know that they exist, but Medical Directors and Administrators of other plans have told us that they do exist in their plans, and, is human nature so different from place to place? I do not wish to emphasize these factors, for they must be indeed small in number, but if they do exist they are bleeding our plan and where discovered will be dealt with energetically. It may be necessary to introduce some form which the patient will fill out and return each month to the Corporation, verifying the visits of the doctor.

Now that we have adopted the 1958 Schedule of Fees for the Corporation we appeal to each one of you once more to use it as your own schedule; where services are rendered for less than the scheduled fee the patient should be clearly shown that it is a reduction for reasons stated. It is most important, as the Administrators of M.M.C. have so frequently pointed out, that when dealing with other medical plans, particularly of the commercial carrier type, that unless the payment represents the full scheduled fee, the patient be billed for the difference and told why, for unless this is done one of our strongest selling points; i.e., that Insurance Companies do not pay our schedule of fees in many instances, goes by the board.

Mr. Noble Foster of S. Cunard & Co. Halifax joined the Board of Directors during the year and will bring experienced and wise counsel to our deliberations.

Dr. D.R. Davies, Oxford, became a new member of the Board of Directors representing the Cumberland Medical Society. All other members were re-elected. The Executive was also re-elected for another year and comprises myself, Dr. Whitman, Westville, V.P.; Dr. Bob Ross, Truro and Dr. A. A. Giffin, Kentville. Mr. J. A. Walker is the non-medical member. I think you will agree in the light of this report, that your Board is taking a very active interest in the affairs of your corporation.

Throughout this report, the stress has been on money; what the doctor will receive; what the subscriber must pay for the services he demands. I need not, perhaps emphasize, that the Directors represent **you** and are vitally interested in your welfare. But as Directors of the Corporation they must also think of the subscriber, and when the two interests clash, must independently do what they think is best and fair for both parties. Sometimes you may think we move too slowly or in the wrong direction. The remedy is in **your** hands. If you insist upon your representative reporting on the activities of the

Corporation at your Branch meeting; if you indicate to him at that time your feelings and desires regarding the Corporation; if you take an interest, not only in the financial side, but in every other aspect of the Corporation, then, your representative will be a valuable asset to the Corporation and help to make it the useful instrument both to those who give and those who receive, which our founders wished it to be.

And what of the future—In my opinion,

1. We must establish the Corporation on a firm financial basis.
2. We must find ways and means of bringing our services to a great many, who at present are unable to afford it;
 - e.g., the old age group
 - the uninsurables and chronically ill
 - the low income group
3. We must realize that when employers are approached to buy prepaid medical care they look firstly at the cost, secondly at the service. We must be in a position to sell employers fundamentally what they want including what is commonly becoming known as "Major Medical" and including ancillary services, such as nursing, ambulance, drugs and appliances. To do this, and not involve the Plan in other than actual physicians' services, a national underwriting agency must be developed, but at present there is considerable opposition in many plans to this view.
4. We must consider the advisability of combining with other prepaid medical care plans in the Maritimes or of evolving a new Atlantic Provinces Medical Care Plan which will cover the Atlantic Provinces, A.P.E.C. has shown how cooperation can be carried out to everyone's advantage and I feel the time is rapidly coming when the medical profession might take a leaf out of their book and strive to unite our forces in the interests of all.

Finally, with regret, I tell you that our General Manager, Mr. D. C. Macneill is now under medical treatment in hospital, and has been granted three months leave of absence on the advice of his physician. I'm sure we all wish him a speedy return to health.

Meanwhile the duties and responsibilities of the Medical Director will be greatly increased, necessitating the greatest zeal, devotion to duty and diplomacy, and allowing ample scope for initiative and judgment. The same applies to the Asst. General Manager, Mr. Frank Glaven. I ask the cooperation of each one of you in making their tasks as easy as possible.

F. MURRAY FRASER, M.D.

Society Meetings

Valley Medical Society

The following is a summary of proceedings at the Valley Medical Society held at the Nova Scotia Sanatorium on March 25, 1959 at 3.30 p.m. Doctor J. A. Vaughan, President, in chair.

The Minutes of the last meeting held on September 24th were read and approved.

As business arising out of the minutes it was felt that the Polio Inoculation Clinics would probably be carried out in much the same way as last year. The Valley Society has always felt that more publicity might be given to the fact that these services are being supplied at reduced fees by members of The Medical Society of Nova Scotia.

Doctor McGrath stated that amendments to the Medical Act were now before the local legislature.

Correspondence: Doctor Vaughan then outlined the decisions that the executive of the Valley Medical Society had made in regard to the proposed times and places for Annual Meetings of The Medical Society of Nova Scotia. He explained that Executive action had been taken as a reply had to be returned to the Executive Secretary for the Nova Scotia Executive Meeting on March 23rd. It was moved by Doctor Giffin and seconded by Doctor Kryszek that the action of the Executive be ratified. Motion carried.

Doctor Vaughan had the Secretary read the proposed Bye-laws. It was moved by Doctor Cochrane and seconded by Doctor Morris that they be adopted. The motion carried.

Doctor McGrath gave a detailed report on the proceedings of the Nova Scotia Executive. He moved the adoption of his report which was seconded by Doctor Denton and carried.

Doctor Akin moved that a Political Action Committee be formed. This was seconded by Doctor Kryszek.

Doctor Giffin amended the motion that "the Society agrees in principle to the formation of a Political Action Committee." Seconded by Doctor McGrath. The amendment carried.

Doctor Denton stated that the Canadian Diabetic Association was desirous of forming a branch of the association in the Valley. It was felt by Doctor Denton and Doctor G. M. Smith that due to the geographical situation the suggestion was not feasible, but that any diabetic can apply for membership in the Canadian Diabetic Association as a member at large.

Doctor Giffin then gave a report on Maritime Medical Care Incorporated. A general discussion followed. The feeling of the meeting was that it was agreeable to have accounts made available to participating physicians and published with the annual report of Maritime Medical Care, Inc. This was moved by Doctor S. H. Kryszek, seconded by Doctor F. L. Akin and unanimously carried.

Doctor Akin moved that the list of recommendations as outlined in the letter from the Valley Executive be adopted and that our member to Maritime Medical Care Inc. submit these recommendations to the Board of Directors of Maritime Medical Care, Inc. This was seconded by Doctor Mahaney and the motion carried unanimously.

Doctor Vaughan suggested that there be one physical examination allowed per year by Maritime Medical Care, Inc. without having to give a pathological diagnosis in order to obtain a fee. This was put in the form of a motion by Doctor Mahaney, seconded by Doctor Davison and carried. Again the vote was unanimous.

Doctor J. H. Feindel of Annapolis was proposed as a new member of the Valley Medical Society.

The meeting then adjourned for a Buffet Supper at the Sanatorium. The group reconvened at 7.00 p.m. and the evening portion of the meeting was devoted to the third meeting of the Cancer Refresher Course with Doctor Louis Lowenstein of Montreal, who discussed lymphomas and the leukemias, and Doctor E. F. Ross of Halifax who discussed carcinoma of the colon. These were both interesting as well as informative papers and resulted in an excellent question and answer period before the meeting adjourned.

HAROLD R. ROBY, M.D.,
Secretary-Treasurer.

Antigonish-Guysborough Medical Society

The Annual Meeting of the Antigonish-Guysborough Medical Society was held on Sunday, May 10th at St. Martha's Hospital, Antigonish.

The President, Doctor C. N. MacIntosh, welcomed fifteen members and Doctors C. J. W. Beckwith, N. F. Macneill and S. D. Dunn as guests.

The Minutes of the previous meeting were read and adopted.

Doctor T. B. Murphy gave a full account of the recent meetings of the Board of Directors of Maritime Medical Care, Inc. Several problems of local practitioners had been satisfactorily settled. Various innovations proposed by the Board were described in detail and the feeling of the meeting appeared to be one of guarded optimism.

A short report of the proceedings of the Executive Committee of The Medical Society of Nova Scotia was given by Doctors MacCormick and Beckwith.

Officers were elected for 1959-60: President, Doctor A. Elmik, Canso; Vice-President, Doctor T. W. Gorman, Antigonish; Secretary-Treasurer, Doctor J. E. MacDonell, Antigonish; Nominee to Executive Committee, The Medical Society of Nova Scotia, Doctor A. J. M. Griffiths, Antigonish; alternate, Doctor T. W. Gorman, Antigonish.

Doctor Macneill addressed the meeting on ante-natal classes and there was considerable discussion from the floor. It was agreed that further investigation into the feasibility of instituting such classes in the area was warranted.

After a vote of thanks to Doctor MacCormick for his years of service as Executive Committee member, the meeting adjourned to enjoy an excellent dinner which was served by the Sisters of St. Martha's.

A. J. M. GRIFFITHS, M.D.,
Secretary-Treasurer.

Cape Breton Medical Society

The Annual Meeting of the Cape Breton Medical Society was held in St. Ritas Hospital, Sydney, N. S. on Thursday, May 21st, 1959, with the President, Doctor J. B. Tompkins, in the Chair. Forty members attended this annual meeting.

Minutes of the previous Annual Meeting adopted as read; minutes of the previous general meeting adopted as read.

Doctor Hugh Martin, who had recently returned from the Lahey Clinic where he underwent surgical treatment, tendered a verbal expression of thanks to the Society for the letter and flowers delivered while there.

Doctor J. A. McDonald reporting on behalf of the Post-graduate committee referred to the poor attendance (average attendance of fourteen for three meetings) and consideration should be given to the advisability of continuing the sessions in the future.

The nomination committee to bring in the new slate of officers was named by the President and consisted of Doctors Martin, D'Intino and Green.

The annual report of the Secretary was read and adopted. In the temporary absence of the Treasurer, his report was read by the Secretary and audited.

The President introduced one of the guests, Doctor Penman, who is carrying out survey work on behalf of the College of General Practice. Doctor Penman gave a short summarization of his activities.

Doctor Harvey Sutherland presented this resolution for forwarding to the Executive of The Medical Society of Nova Scotia and to be dealt with at the Annual Meeting in June. "The Cape Breton Medical Society wishes to present for consideration, relative to the Group Sickness and Accident Insurance Plan, that this plan be on a Dominion-wide basis through The Canadian Medical Association, rather than the present provincial inclusion of membership." Seconded by Doctor Arthur Ormiston.

The nominating committee announced the new slate of officers (see attached list).

The guest speaker, Doctor G. G. Simms, addressed the meeting on "Standards of Care and the Hospital Insurance Plan." This was very well received, several questions and considerable discussion took place concerning certain aspects of diagnostic service and nursing care.

Meeting adjourned for refreshments and lobster supper at 10.30 p.m.

H. R. CORBETT, M.D.,
Secretary

Officers Elected

President—Dr. G. W. Sodero, Sydney.

Vice-President—Dr. L. Kristal, New Waterford.

Secretary—Dr. H. R. Corbett, Sydney.

Treasurer—Dr. N. K. MacLennan, Sydney.

Members, Cape Breton Executive—Dr. J. O. McNeil, Glace Bay, Dr. P. H. Kirkpatrick, North Sydney, Dr. H. S. MacDonald, Sydney.

Nominees to Executive, The Medical Society of Nova Scotia, 1959-1960—Dr. L. S. Allen, Sydney, Dr. H. F. Sutherland, Sydney. Alternates—Dr. C. A. D'Intino, Sydney, Dr. J. R. Macneil, Glace Bay.

Public Relations—Dr. J. P. Macdonald, Sydney, Dr. A. W. Ormiston, Sydney, Dr. W. M. Nicholson, Reserve Mines.

Nominating Committee, The Medical Society of Nova Scotia—Dr. G. C. MacDonald, Sydney, Dr. J. A. McDonald, Glace Bay.

Hay For Hobby Horses

Hay for hobby horses for this month is cancer research. Your correspondent recently spent three weeks observing at the Memorial Center and its sister institutions Sloan-Kettering Institute and the James Ewing Hospital. These are but random observations made with some trepidation. The subjects I find new and worthy of comment may be "old hat" to experts in cancer. I concentrated on the activities of the medical Neoplasia Group under Drs. Craver, Diamond, Burchenal and Karnofsky but sampled other clinics in head and neck, breast, stomach and mixed tumor-hemangioma. The Memorial Center schedule lists some 35-40 clinics and the clinical material is highly concentrated. In the Head and Neck (Hemangioma) Clinic a panorama of some 30 years treatment can be seen. The infants of yester-year who had radiation therapy and resulting abnormal growth of underlying bony structures are still in attendance. The charts include photographs to cover each stage in the resolution of the lesion so that the observer has a complete review. Dr. Catlin was my host that day.

"Carcinology" is a special subject unto itself. As a student, I saw cancer as a mysterious entity treated in its terminal stages by the surgeon. The student of today sees it as a process rather than a static entity—(or should). It was stressed to me at Memorial that unless the physician has a reasonably accurate impression of the natural history of each new growth, he works without his most reliable guide. This principle is paid lip-service by most of us but how much more effective is he who has trained himself to apply it. In short—I had been thinking about cancer in much different terms than medical diseases generally. I had a rough idea how the "average case" of infectious hepatitis, influenza or duodenal ulcer would behave and how frequently "atypical" sub-groups were to be expected. A recent essay entitled "The Pathogenesis of Cancer" is worth your scrutiny. (Smithers, D. W. *Lancet* March 21, 1959 Page 589) "With broad philosophical questions such as 'What is freedom?' or 'What is consciousness?' definition help us little—even when we can get them. The same is true of broad biological questions such as 'What is life?' and even 'What is cancer?' We need what A. J. Ayer (1955) has called 'A detailed account of the work with which the concept has to do, a critical investigation of the territory which it is supposed to cover.' The territory with which we are concerned when we speak of cancer is contained within that of tissue malformation. The processes involved are those of disorganization of growth and differentiation. The degree of variation from the normal behaviour patterns changes continuously along a scale, with a tendency for independent progression of each characteristic towards complete escape from control. The word cancer vaguely covers the most disorganized of these tissue malformations, being applied according to the individual preference on the basis of a selection of those degrees of change in several characteristics which are expected to give rise to the greatest danger to the life of the organism."

These thoughts and many others were provoked during a discussion with Dr. C. on the philosophy of the treatment of malignant melanoma. Dr. C. has been working for seven years investigating the effect of cytotrophic viruses on cancer cells. He grows human cancer cells in tissue culture, then transplants them back to the human donor. The homografts on one thigh are treated with the virus while the sites on the opposite thigh act as a control. Only those patients beyond conventional forms of therapy are offered this treatment.

It is hard for a neophyte to absorb enough of the background and the special language of the investigation in one visit to understand what he is seeing. This study has great potential but most of us have not stretched our minds enough recently to entertain these possibilities. I asked the obvious question "What evidence is available on the viral etiology of cancer?" Briefly my host said that there was no inherent difficulty in the theory, no a priori reason why viruses could not be the cause of some cancers but it would be years before even the preliminary evidence would be in. I had a curb-stone consultation with Dr. C. on the treatment of malignant melanoma. The natural history of this cancer has some surprising side-lights—the conditions of our encounter, in the midst of a busy clinic, meant that I got more stimulation than enlightenment.

I had another stimulating encounter with Dr. John F. an internist who has been working for some years with vaginal cytology as an aid in estimating the response to treatment of patients with breast cancer. Approximately 50% of patients with breast cancer will respond to endocrine therapy, either by endocrine ablation or hormone therapy. The principal mechanism of both forms of treatment is that of estrogen deprivation. The vaginal smear technique gives a reliable estimate of the degree of endocrine activity. The cytology shows the endocrine environment of the mammary cancer but does not necessarily indicate response to endocrine deprivation. As I understand Dr. F.'s presentation, if the vaginal smear shows cell types indicating an estrogen level appropriate to the menstrual history, age, etc., no estimate of response can be made. However, if the estrogen level indicated by the smear is higher than the clinical history would suggest then treatment by endocrine ablation would be successful. If lower than this treatment, will not avail.

I was with one of the leading staff men in the Dept. of Medical Neoplasia when he saw an unfortunate lady with far advanced primary carcinoma of the liver. I was surprised to hear that of eight patients treated with the new agent FUDR (Desoxyribose fluoro-pyrimidine) six had had dramatic improvement. One patient known to my host, who had been near death 2½ years ago, is now carrying on as the National Chairman of one of the leading political parties in the United States working a 18-20 hour day. In the practice of the therapy of medical neoplasia I did not find their methods and techniques greatly different from that practiced by Hal Read and his colleagues here in Halifax. However, there are a great variety of experimental agents being tested in that center which are entirely new to me. The whole subject is dealt with in a recent symposium, sponsored by the New York Academy of Medicine, on an appraisal of the alkylating agents. Another subject of great interest in that Center is the matter of protection of bone marrow from radiation therapy and the replacement of marrow by homograft or other methods. I did not have an opportunity to see the laboratory, currently being set up there to study this problem.

On the lighter side I had the pleasure of hearing Dr. William B. Bean, the Professor of Medicine at Iowa College of Medicine speaking to the Association of American Physicians at Atlantic City. To open his remarks he recited a humorous resume of the papers previously presented that day in blank verse. This poetry was priceless and I regret I cannot reproduce it here. However, his first sentence brought down the house. He looked at the physicians gathered there and said that apparently the motto of the modern physician is 'Have Grant, Will Travel.'

Last week Halifax was host to the Canadian Tuberculosis Association and its medical section of The Canadian Thoracic Society. The latter organization had among its speakers several distinguished chest physicians from Great Britain. One of these, Dr. Peter Baldry of Middlesex told the following story of Professor Wolfenden who headed the study group on a sensitive social problem in Great Britain recently. Some years ago Professor Wolfenden was sitting on a panel meeting to discuss control measures in chronic bronchitis and other respiratory diseases. Very quickly the group came to grips with the problem of controlling atmospheric pollution among chronic bronchitics. With a twinkle in his eye Professor Wolfenden said he thought "Smoking should only be practiced between consenting adults in private." An appreciation of this witticism depends, of course, on some knowledge of the Wolfenden report. It may be a prophetic remark as we look toward a change in the attitude of the profession toward personal atmospheric pollution in the near future.

Sincerely yours,

BROTHER TIMOTHY.

CANADIAN LIFE INSURANCE OFFICERS ASSOCIATION GRANT

The Canadian Life Insurance Officers Association reports that, through its Public Health Committee, the life insurance companies doing business in Canada are making grants and awarding fellowships for public health projects and medical research amounting to more than \$100,000 this year. These grants are in addition to those made by individual companies for miscellaneous educational and charitable purposes.

In the public health field three of the eight grants are renewals from previous years and the other five are new this year.

One of the major grants is to Dalhousie University to support a cardiopulmonary unit at the University's Medical School. This apparatus takes the place of the heart and the lungs as circulators of the blood so that the surgeon can operate on the lungs without the presence of blood in these vital organs. The apparatus also keeps blood circulating through the body during heart operations while the heart is out of action. This is the second year that support has been given by the Association to this project.

Personal Interest Notes

On May 9th, 1959, a dinner was held at the Nova Scotian Hotel, Halifax by the Provincial Medical Board of Nova Scotia in honour of Dr. H. L. Scammell who last year retired as Registrar-Secretary-Treasurer of the Board, after serving for 25 years.

Dr. A. E. Doull, Jr., President of the Board welcomed the honoured guest, as well as three past presidents of the Board, Dr. P. E. Belliveau, Meteghan, Dr. J. C. Ballem, New Glasgow, and Dr. A. B. Campbell, Halifax. Another past president, Dr. M. G. Tompkins, Sr., was unable to attend, because of illness but sent his regrets at his absence and expressed his appreciation for Dr. Scammell's services to the Board.

Dr. Doull, on behalf of the Medical Board expressed to Dr. Scammell, the thanks of the Board, for the very valuable service he rendered during his 25 years in office.

Dr. A. B. Campbell, who was associated with Dr. Scammell for many years, both as a member and as a President of the Board, presented Dr. Scammell with a gift and reviewed many of the highlights of Dr. Scammell's tenure of office.

In his own inimitable manner Dr. Scammell thanked the members of the Board for their thoughtfulness in so honoring him, and in an interesting and amusing manner told of many of his experiences while serving the medical profession as Registrar.

In addition to those mentioned, others present were the following members of the Board: Dr. J. R. McCleave, Digby; Dr. J. C. Murray, Springhill; Dr. G. J. LeBrun, Bedford; Dr. J. R. Macneil, Glace Bay; Dr. F. J. Granville, Stellarton; Dr. C. G. Harries, New Glasgow; Dr. R. F. Ross, Truro; Dr. E. F. Ross, Halifax; Dr. A. G. MacLeod, Dartmouth; and Dr. M. R. Macdonald, present Registrar of the Board.

Doctor E. Garth Vaughan, Halifax, who has been a resident in surgery at the Victoria General Hospital for four years has received a scholarship for one year's post-graduate study in cancer surgery and research in London, England. This scholarship, awarded by the Canadian Cancer Society, provides for six months affiliation with Guy's Hospital in London, and a further six months at Mark's Hospital.

Doctor and Mrs. Vaughan, with their children, Sandy and Kathy, sailed for England on the RMS Nova Scotia, June 16th.

Doctor and Mrs. Maynard F. Taylor of Barrington Passage are leaving in June to take up residence in Miami, Florida. Doctor Taylor will be taking four years of post-graduate work in surgery.

Doctor Kenneth J. C. MacKinnon, a native of Antigonish, N. S. and a graduate of Dalhousie Medical School, has been appointed urologist-in-chief to the Royal Victoria Hospital, effective July 1, 1959. Doctor MacKinnon took his internship and resident training at the Halifax Infirmary, Queen

Mary's Veteran Hospital and the Royal Victoria Hospital, and joined the staff of the Royal Victoria Hospital in January, 1953. He is a Fellow of the Royal College of Physicians of Canada and is a Director of the Montreal Children's Hospital.

Doctor Cecil Edwin Kinley, Jr., son of Doctor and Mrs. Cecil Edwin Kinley of Halifax, N. S. was married on May 30th at Mentor, Ohio, to Miss Sara Jane Hawk, daughter of Mr. and Mrs. Hubert Edmund Hawk of Mentor, Ohio. Following a wedding trip to New England and Eastern Canada they will reside in Winnipeg, Manitoba.

Doctor John E. Bethune of Halifax and Berwick has been appointed a National Research Council medical research associate of Dalhousie University being financed by the National Research Council. Doctor Bethune is the second recipient of the associateship of Dalhousie, the other being Doctor S. C. Wainwright, associate professor of Biochemistry.

At the recent meeting of the Canadian Tuberculosis Association held in Halifax, Doctor C. J. W. Beckwith, Executive Secretary of The Medical Society of Nova Scotia, and Doctor Allan R. Morton, Commissioner of Health of the City of Halifax, were appointed honorary life members of the Canadian Tuberculosis Association.

Doctor H. L. Scammell of Halifax has been appointed Chairman of the Medical Committee of the International Association of Industrial Accident Boards and Commission. This is an important appointment which covers the whole of the North American continent.

The annual meeting of the Halifax Medical Society was held on April 26, and May 6, with the retiring President, Doctor A. M. Marshall in the chair.

The first session of the meeting was held at the Dalhousie Public Health Clinic. At this meeting, the Secretary Doctor Hereford C. Still, gave a brief report on the Society's activities during the past year. Doctor Still pointed out the poor attendance record of the members of the Society. Dr. Still pointed out the poor attendance record of the members of the Society. This was a very unsatisfactory state of affairs, and a committee has been appointed to study this situation.

At this meeting, Doctor F. Murray Fraser, President of the Board of Directors of Maritime Medical Care Inc., gave a lengthy report of the operation of Maritime Medical Care, Inc., since its inception ten years ago.

The nominating committee brought in the new slate of officers for 1959-60. They were—Doctor John W. Merritt, President; Doctor Donald M. MacRae, Vice-President; Doctor Hereford C. Still, Secretary and Doctor Ralph W. M. Ballem, Treasurer.

The second portion of this meeting was held at the Lord Nelson Hotel on May 6th. This was a mixed affair to which, as has been the custom for the past four years, the wives of the doctors were invited. Following the dinner, the retiring President, Doctor Marshall, gave an address on the happenings of the past year, both in the local and international fields. After his address, the new President, Doctor John Merritt, was installed in office and addressed us briefly. Following this, dancing was enjoyed until the hour of 1.00 a.m.

Sympathy is extended to Doctor R. M. Rowter of Bridgewater on the death of his father, Mr. Robert Rowter of Caledonia, which occurred suddenly the end of May, at the age of seventy-three.