The avoidance of pregnancy is the most important primary consideration for patient and physician. No woman who has active tuberculosis should consider pregnancy for at least two years after complete arrest of her tuberculosis, or even longer if the treatment required to heal the lesion was difficult, or if there is even the slightest doubt in the mind of her physician. The diagnosis of arrest must be based on a very careful study of the entire progress of the case and not be arrived at casually. Also, every available diagnostic aid must be used, resolving any doubt against pregnancy. Many tuberculous patients appear to improve throughout pregnancy, only to show a decided tendency toward aggravation of a mild lesion or activation of a dormant tuberculosis the first few months after delivery. This type of case is especially hard to prognosticate and should be sufficient reason alone for forbidding pregnancy.

If pregnancy has taken place in a tuberculous woman, there are two courses that can be followed, requiring the closest study and keenest judgment for a decision as to the proper course treatment must pursue. One is to interrupt the pregnancy, then devote all and every modern method to cure her. When the cure of her tuberculosis is complete then, and then only, let her bear children. The other is to immediately place the patient in a tuberculosis sanatorium for observation, from six weeks to three months. (It is better to interfere too soon than too late). If improvement is satisfactory, the lesion is found to be minimal, and the sedimentation test satisfactory, the case may be allowed to go on, using collapse therapy and all other means indicated to control the tuberculosis. If the tuberculous condition grows worse, interruption of pregnancy is indicated immediately, preferably before the end of the second month, followed by active tuberculosis therapy.

The secondary question, then, to decide in the presence of tuberculosis and pregnancy can be stated thus: Is therapeutic abortion
justified in tuberculosis? After reading the voluminous articles and reports of innumerable investigators, the widely divergent views of the writers seem irreconcilable, but on careful study the general principles that apply become very simple—more simple than trying to reduce them to print.

In some cases, particularly advanced active cases, abortion acts as a stimulus to the chest lesion, and non-interference is preferable, if it is felt after careful observation that abortion will mean death for both mother and child, while allowing progress of the pregnancy may mean death of the mother, thus sacrificing everything for a live child. Early induction of labor and forceps delivery may be indicated. With collapse therapy, even these apparently hopeless cases can often be carried through a normal pregnancy and delivery, treatment being continued after delivery. By doing a phrenectomy or phrenic crushing and using greater than usual pressure by pneumothorax, and, in selected cases, holding the diaphragm by use of pneumoperitoneum after delivery the prognosis is materially improved. The efficacy of collapse therapy may limit the indications for therapeutic abortion in this type of case.

It may be stated as a general rule, however, that in most cases of tuberculosis, it is best to remove the pregnancy and let the woman have all her facilities for conquering the tuberculosis. Then, after the danger from tuberculosis is past, let her produce the offspring she desires. In other cases, as stated above, a rather large group, becoming larger as a result of early diagnosis and collapse therapy, and selected by careful observation, with the patient constantly under good sanatorium treatment, may preserve the fetus, and therapeutic abortion may be withheld. Artificial pneumothorax often brings an active lesion under control and pregnancy may proceed without complication. Moreover, if the lesion is well collapsed, it is not usually necessary to separate the mother and infant after delivery to prevent infection by tuberculosis of the infant from the mother.

The question of pregnancy and tuberculosis needs the closest cooperation and study, not only by those who practice the treatment of tuberculosis, but by obstetricians and internists, to the end that the lives of the mothers may be preserved, their health conserved, and the lives of a large number of infants saved.

With a better and more intelligent understanding of the problem on the part of the tuberculosis specialist and the obstetrician, the pregnant tuberculous patient may emerge from her pregnancy experience (once looked upon as a most dangerous and unjustifiable happening) almost, if not quite as safely as the non-tuberculous woman.

In none of these patients should lactation be permitted, as it increases the hazard for the mother by using her recuperative and healing powers for the production of milk. Where the case is open, there is great danger to the infant who is apt to acquire a tuberculous infection from the mother.

In the decision to interfere by abortion the social aspect must also be considered, because in many instances a woman would be unable to take care of her child and her home surroundings would not be proper for the welfare of the baby, which makes it necessary to terminate. The problem here, like the entire problem of tuberculosis, is not only medical but social. The religious aspect of the problem is purposely omitted from this discussion, but must be born in mind when outlining treatment for any given case.

Briefly, then, the principles to be followed can be stated about so:

First, no one has shown definitely that pregnancy is good for the health of a tuberculous woman in any stage or type of tuberculosis. A neutral effect of pregnancy on a tuberculous lesion is not asked—the risks are too great.

Second, most investigators, easily 75 per cent, believe that pregnancy aggravates tuberculosis, while no one has proved that abortion, properly performed, aggravates an early, quiescent or arrested lesion, if proper tuberculous therapy is followed afterwards.

Third, every one admits that pregnancy places a severe strain on a tuberculous woman's resources and strength, and that labor is fraught with immediate and remote perils.

Fourth, the fate of the patient does not depend on the fact that she is pregnant, but rather upon the character of the chest lesion and upon the care she receives during pregnancy and puerperium.

Fifth, after labor or abortion, treatment for
the chest condition should be carried on vigorously. Treatment must be continued over sufficient time to guarantee arrest and should not be discontinued too early—in any event—only after very careful observation and study by an experienced phthisiotherapist. Subsequent pregnancies should be allowed only after careful study of the case has shown the chest lesion completely arrested or under complete control.

Sixth, therapeutic abortion should be done as early as possible when decided upon, but after the fourth month of gestation the effect of intervention is comparable to a full term delivery. With proper collateral care in cases that have not shown an acute flare up earlier, the risk can be safely assumed, the physician being ready to interfere as soon as labor starts, so as to terminate it rapidly, as by forceps, sparing the patient the stress of inhalation anesthetics.

In closing, I should like to briefly discuss a new technique for therapeutic abortion that has a distinct value in pregnant tuberculous patients. Mayer, Harris, and Wimpfheimer recently published their experience with x-ray as the means of inducing abortion and this seems an ideal method to use in tuberculous cases. After a consultation between the gynecologist, the radiologist and the phthisiologist, in which the question of intervention and method are decided upon, the patient is informed of the possibility of a permanent amenorrhea, a condition not wholly undesirable in a tuberculous patient. After treatment, the patient usually aborts spontaneously, customarily in 19 to 35 days, with only slight bleeding. Convalescence is quite uniformly uneventful. On discharge, the patients are given contraceptive instructions, although the treatment can be repeated, if pregnancy ensues. If menopausal symptoms occur, they are usually mild and can be controlled by ovarian extract.

Extrapleural Pneumothorax
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OPERATIVE procedures in collapse therapy for cavernous pulmonary tuberculosis have received new impetus during the last decade. So much progress has been made in this period that it is doubtful whether our statistics in the survey of major collapse measures are of much value, if those results were carried out prior to the year 1930.

There have been too many surgical variations from too many sources to attempt to give any chronological history of selective collapse or, as some of the German workers have suggested “aimed collapse”. New experience has shown that as much normal or nearly normally functioning lung area should be preserved, as is possible.

With the definite increase in the treatment of early cases with artificial pneumothorax both in and out of sanatoria, adequate collapse has been defeated by dense adhesions between the apex and the chest wall. Temporary phrenic interruption and intrapleural pneumolysis were added to make the collapse more satisfactory, yet many cavities could not be compressed by the use of these additional measures. For such a group, in certain selected cases, extrapleural pneumothorax has been suggested.

This operation was first done for severe pulmonary hemorrhage by Tuffier, in 1893, in which no filling was attempted following the pneumolysis. Somewhat later, in 1910, he attempted to hold the apicolysis space with omental fat removed from another patient, and in 1911 inserted a fresh lipoma. Others used fat from the abdomen or gluteal region and Davies carried a pedicled section of the female breast to fill the extrapleural hole. Most of these were absorbed or the volume so reduced that little pressure was exerted on the desired area. Other substances such as muscle flaps, rubber dam, pieces of rib, fine meshed silver wire, and in 1913 wax, were used to maintain the apicolysis. Of all of these materials, the use of plomb became the most widely employed, yet the insertion of a for-