inflammation at that time, was treated by the usual methods of elevation, applications of ice to the lower abdomen, and depletive saline catharsis. Under these palliative measures, the exudate in the right vault resolved, leaving the uterus freely movable. The temperature, however, continued irregular, rising often as high as 104°, and the white count rose to 27,200 and 31,200. Simultaneously the mass in the left pelvic vault became anteriorly adherent, with tenderness and induration extending into the left flank. There was no vaginal bulging or fluctuation. On July 23, 1916, under ether, a high inguinal incision was made in the left lower abdominal quadrant, and a dissection of the inguinal canal carefully carried down to the transversalis fascia. On breaking through this fascia an abscess cavity was entered, from which eight ounces of greenish pus were evacuated, and which was drained by a cigarette wick. Pathological report of a culture from this pus showed the presence of streptococcus and staphylococcus. The patient made a slow but uneventful convalescence with complete defervescence in three weeks, and on September 1 was discharged with a pelvis nearly free from exudate, slight thickening high in the left vaginal vault, and a small sinus in the left groin at the site of the operative wound.

A rare fourth type, which may be regarded as a variety of the third, is that in which the suppuration points through the linea alba, usually in the mid-hypogastrium. In this case a shirt-stud sort of abscess may be formed, the pus spreading out in two layers, above and below the fascia, with a small channel of communication between. The following case illustrates this type:

CASE 6 D. P., an Irish multipara of 40, who had had eight full-term labors and three miscarriages in 14 years, entered the Boston City Hospital (Gyn. 187-61) on Dec. 28, 1912, with complaint of pain in the lower abdomen. Her temperature was 100°, her white count 25,600. Physical examination was normal, except for the presence of tender induration in the median hypogastric region. By vagina this area was felt to be continuous with a tender mass, size of an orange, occupying the left vault. After several days of observation, with persistent fever under palliative treatment, deep fluctuation was felt in the hypogastrium; and a median incision opened a shirt-stud cavity, communicating with a left tubo-ovarian abscess containing 8 oz. of pus.

The patient's temperature fell almost immediately to normal and after a few days of fairly profuse drainage the abscess cavity closed by granulation and the patient was discharged symptomatically well on the 23rd day with a residual non-tender mass of exudate in the left vault.

CONCLUSIONS.

In conclusion it may be said, by way of summary of the personal opinions here illustrated, that

(1) Tubo-ovarian suppurations may be classified into definite clinical types, of which five have been illustrated, according to the infecting organism and the route of natural escape pursued by the accumulating pus.

(2) Treatment should be determined in accordance with the type of case, palliative depletion being always first employed.

(3) When such palliation fails within a few days to effect relief of symptoms and subsidence of fever, deep suppuration should be suspected, even in the absence of fluctuation; and, with reasonable assurance of its presence, should be explored through the appropriate route.

(4) The likelihood of rectal* or inguinal pointing should not be overlooked, when the more customary vaginal pointing fails to occur.

(5) Rectal or combined recto-vaginal examination is of value in determining by which route a given pus localization in the posterior pelvis may best be approached.

REFERENCES.

- ¹ Forgue and Massabau: *Gynecologie*, Vol. xxxiv, in Denter and Delbet's *Nouveau Traité de Chirurgie*, Paris, 1910, p. 579.
- ² Lockhart: *Jour. Obst. and Gyn.*, xxvi, 144, September, 1914.
- ³ Reder: *Am. Jour. Obst.*, Vol. lxxiv, p. 935.

* Since this was written, Reder³ has discussed the same subject in a paper on "Drainage for Pus Conditions in the Pelvis during Pregnancy," emphasizing the value of the rectal route of approach. Under these conditions he employs rubber tube drainage, which I have not believed necessary and have feared might favor ascending colon infection. It is my custom to drain colpotomy incisions for a few days with a gauze wick to prevent premature closure. Proctotomy incisions, in my experience, do not require any wick or tube to ensure adequate drainage.

AN EXTENSION FRACTURE FRAME.

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THE general use and the wide-spread popularity of the frame devised by Dr. Edward H. Bradford have clearly shown that this type of apparatus is apparently the best for the transportation and care of patients whose condition prevents any change in the position of the body or its parts.

The Bradford frame has thus become almost indispensable in the treatment of fractures of the femur, pelvis, and spine. Of the three, fractures of the femur are undoubtedly the most common, and it is for the treatment of fractured femurs that the following modification of the Bradford frame has been devised and used successfully at the Boston City Hospital.

The simplicity of the apparatus is perhaps the chief reason for its description here. It permits a complicated and awkward apparatus to resolve itself into a modification of the Bradford frame without sacrificing the advantages of the latter. The apparatus has been designed primarily for fractures of the femur requiring extension or traction.

In most hospitals such an apparatus consists of a Bradford frame, possibly a T-splint that is connected to the latter, and a Buck's extension which is fastened to the foot of the bed, with its rope, pulley, and weights. It requires no little

FIG. 1.

FIG. 2.

time to set the fracture up in this equipment. Its purpose is, of course, to secure the best alignment of the fragments of the fractured femur.

The patient is placed upon a Bradford frame in order that he may be raised from the bed to be bathed or to use the bed-pan, but in this very act of raising the frame, the alignment which has been secured by the extension now is destroyed. This occurs again every time that the bed is made, and in short, any condition which changes the relative position of the frame and the Buck's extension at the foot of the bed will change the position of the fractured ends of the bone and will cause delay or poor union.

In hospitals, it is often desirable to obtain x-ray pictures of fractured femurs in apparatus. To do this successfully the entire bed must be transported to the x-ray department, which in most cases is impossible. The alternative is to remove the extension and carry the patient on the Bradford to the x-ray department. A picture is then taken without the extension; or in rare cases futile attempts at traction are made with one hand while the operator or assistant takes the exposure with the other. Obviously, pictures taken in this way are of little value, since they do not tell the story that one wishes to know, *i.e.*, how the fracture looks when it is in its proper apparatus.

In attempting to overcome these faults of the Buck's extension apparatus as it is usually employed, we have devised a simple modification of the Bradford frame. As the photographs indicate, the modification consists of an upright frame attached to the bottom of the Bradford. To this upright is connected a sliding bar which supports an adjustable pulley carriage.

The frame is built essentially like a Bradford

of $\frac{7}{8}$ " galvanized iron pipe, 6 feet long and 2 feet wide. The bottom has two 3-way elbow joints which support the uprights. The latter are 18" high and are connected above by a transverse bar.

The sliding bar moves laterally, and is made of oak, measuring 20" x 4" x $1\frac{1}{4}$ ". It contains a 16" x $\frac{1}{2}$ " slot in which slides a pulley carriage adjustable at any height by a set screw. The sliding bar is fastened to the top and bottom of the upright with an adjustable brace. By this arrangement any point of traction can be secured within an area measuring 20" x 16".

With the extension apparatus thus applied directly to the Bradford frame, it becomes possible to move the patient in bed from place to place without the slightest possible change in the position of the fragments of the fractured bone. Good x-ray pictures can then be taken.

There are other lesser advantages in this apparatus. It does away with the 'hood' that is used to protect the feet of the patient from the weight of the bed clothes—the upright itself acts as a hood upon which the sheets can be fastened.

The apparatus can be used in the treatment of septic conditions of the leg or foot which require elevation and traction.

Counter-extension is easily obtained by placing suitable blocks under the bottom of the frame. The foot of the bed need not be raised.

In this paper we have attempted to describe a modification of the Bradford frame which, because of its simplicity, we believe will supplant the Buck's extension apparatus now in vogue. For his numerous helpful suggestions we owe many thanks to Dr. John Bapst Blake, Surgeon-in-Chief of the First Surgical Service, Boston City Hospital.