

VOLUME II.



SYMPTOMS and SIGNS.

DIAGNOSIS.

SYMPTOMS and SIGNS
OF UTERINE and ADNEXAL TUBERCULOSIS.

It has been stressed in the preceding sections that lesions of the body of the uterus, the cervix and the ovaries, are usually secondary to disease affecting the Fallopian tubes. It is approximately correct to say that the tubes are affected twice as frequently as any other parts of the genital tract. Cases with involvement of more than one portion of the tract are not, however, infrequent and in these a combined clinical picture may be presented. In this series the individual organs affected were as follows:

Tubes only	..	..	33
Uterus only	..	..	10
Cervix only	..	..	<u>1</u>
Total			<u>44</u>

Tubes and ovaries	.	..	..	10
Tubes and uterus	..	..	..	9
Tubes, ovaries and uterus		..		4
Tubes, uterus and cervix		..		<u>2</u>
Total				<u>25</u>

These figures are only approximately correct because the whole of the genital tract was not examined in all the cases. For example, out of 58 tubal cases, the uterus was not completely examined in 23, and out of 25 uterine cases, the tubes were not removed or

examined in 8.

It must be emphasised at once that none of the signs and symptoms of tuberculosis in these situations is typical and characteristic. Other forms of inflammatory disease or neoplasm may be suggested by the clinical findings.

Age Incidence.-

The distribution of cases in age groups was:

TABLE V.

	Fallopian Tubes	Ovaries	Uterus	Cervix
Under 20	5	2	1	-
21 - 30	33	7	16	1
31 - 40	11	1	5	1
41 and over	9	4	3	1

These figures are in close accord with those given in other series of cases.

The Duration of Symptoms.

Symptoms may develop slowly and insidiously and a period of years may elapse before the patient is led to seek medical advice. In other cases the onset is acute and the history short, while in some, symptoms and signs are completely absent, the disease being

discovered when treatment is being carried out for a different and unrelated condition.

It is difficult to obtain from published accounts any more definite information. It is usually stated that marked chronicity of symptoms is characteristic, but Jameson (1935) considers that this has been over-emphasised to the detriment of the diagnostician. Smith (1928) found that the duration of symptoms in 63 cases was from two weeks to eighteen years.

An estimation of the time elapsing between what appears to have been the first manifestation of the disease and the date of admission to hospital for treatment has been attempted in this series. In eight cases this was not possible because of the vague nature or absence of symptoms. In the remainder, the average duration in all the cases was two years and three months, in the cases with tubal lesions two years, and in the cases where the tubes only were involved, six years and four months. More information, however, is gained if the cases are grouped according to the duration of symptoms. Cases where the history was of three weeks or less were placed in Group A, over three weeks and less than one year in Group B, over one year in Group C.

TABLE VI.

(Showing duration of symptoms.)

	No. of cases	%age	Duration	Average
A.				
All cases	10	14.5	3-21 days	13.2 days
Tubal lesions	10	17.2	3-21 days	13.2 days
Tubal lesions only	7	21.2	3-21 days	12.4 days
B.				
All cases	24	34.7	4-48 wks.	18 weeks
Tubal lesions	21	36.2	4-48 wks.	16.9 weeks
Tubal lesions only	12	36.4	4-48 wks.	16.6 weeks
C.				
All cases	27	39.1	1-16 yrs.	4 yrs. 9 mon.
Tubal lesions	21	36.2	1-16 yrs.	4 yrs. 8 mon.
Tubal lesions only	9	27.3	1-16 yrs.	6 yrs. 4 mon.

If pain alone had been considered as a symptom, or the acute exacerbation of a slight chronic pain, there would have been a very slight increase in the percentage of cases in groups A and B. In a series of cases of tubal tuberculosis of his own and from the literature, Jameson found that the pain, when present, was of less than four weeks duration in 23.6%, a figure which roughly corresponds to that for this series.

The percentages of cases with tubal lesions only in Groups A and C show that these tend to have a shorter history and this supports the contention that

this is the initial lesion in most cases. The most significant fact which emerges, however, is the number of cases with an acute onset and a short history. The tubes were involved in all these cases and in the majority an apparent cause for the acute pain was revealed at operation. There were actually fourteen cases, two of them in Group B, giving a history of the sudden onset of a severe pain. In five cases, pyosalpinges were present, surrounded by dense adhesions. In some of these cases, pus was found on separating the adhesions, or free fluid was present and it is probable that a localised rupture had taken place. In two cases there was torsion of a pyosalpinx. One case was only differentiated from an ectopic gestation after the tube removed had been examined microscopically. In only two cases did the acute nature of the onset appear to be due to the acute and rapidly spreading form of the tuberculous infection.

S Y M P T O M S.

The symptoms which may be present in cases of adnexal and uterine tuberculosis are pain, leucorrhoea, disturbances of menstruation, dysmenorrhoea, sterility, dyspareunia, a blood-stained discharge, urinary symptoms and swelling of the abdomen. Many of the cases appear to be in good general health but there may be complaint of general malaise and debility, while in some there is marked deterioration of the general condition.

The symptoms of tuberculosis of the Fallopian tubes, the uterus and the cervix will be described separately. This method involves some repetition but it has been adopted because the clinical picture may be dominated by the symptoms associated with one of these portions of the genital tract. It must not be interpreted as an attempt to regard disease of each organ as a separate entity.

The Symptoms of Tuberculosis of the Fallopian Tubes.

Pain: The most frequent symptom of tuberculosis of the Fallopian tubes is abdominal pain. This is usually felt in one or both iliac fossae or across the lower abdomen. Radiation of the pain is not typical

but may be present, across the abdomen, to the groin and down the leg or through to the back. Pain in the back is not uncommon, with or without abdominal pain, and may radiate from the back to one or other iliac fossa. A griping or bearing-down sensation in the perineum is an occasional complaint. The severity of the pain varies very widely. The onset is usually gradual but may be acute. Like all pains due to inflammation of the pelvic organs, it is usually worse with menstruation and exertion. The pain is, in fact, due to the inflammatory condition present and it has no outstanding features to distinguish it from that due to other forms of inflammation affecting the same organs.

In this series pain was mentioned as a complaint in 74.1% and was present as a symptom in 86.2% of the cases. Thus in 12% the pain must have been of a minor character. The situation of the pain is shown in Table VII.

TABLE VII.

	Greenberg (1921)	Smith (1928)	Jameson (1935)	This series	
				All tubal cases	(Tubes only)
Number of cases	200	63	37	58	(33)
Lower abdomen	80%	66.6%	86%	65.8%	(79.8%)
Abdomen	7%	-	-	15.5%	(21.2%)
Back	30%	36.5%	32.4%	15.5%	(21.2%)
Groins or Legs	-	-	5.1%	5.2%	(6.1%)
Showing situation of pain in this and other series of cases.					

There is a close similarity in the figures though backache seems to have been less frequent in this series than the others. The exact location of the pain was as follows:-

- Right Iliac Fossa, 24.1%. In one case the pain moved to the groin and in one radiated to the back. One was accompanied by a griping sensation in the perineum.
- Left Iliac Fossa, 20.7%. In one case radiating down the leg and in one to the back.
- Both Iliac Fossae, 13.8%. In two cases settling in the left iliac fossa.
- "Lower Abdomen", 5.2%.

The cases in which the pain was situated in one or both iliac fossae included practically all those cases in which the pain was described as severe or very severe, though the lesions present were not necessarily the most extensive. Pain in the groin and down the leg was present in three cases. In one of these a tubo-ovarian abscess, and in the other a dense tubo-ovarian mass, was found to be present on the corresponding side. There were nine cases of backache, six had accompanying iliac fossae pain and one was accompanied by a bearing down sensation in the lower abdomen and vagina. In five of the nine cases, pyosalpinges were present, and in three of these the pain in the

back was a recent symptom and of a character which suggests an association between it and the presence of the lesion. Comparatively severe pain in the back of fairly short duration may suggest the presence of a pyosalpinx but it cannot be considered a reliable indication.

Leucorrhoea. This is a common symptom in tuberculosis of the Fallopian tubes. Solomons (1923) considers it the most frequent symptom. Greenberg (1921) found it one of the most frequent in his cases, being present in 72%.

In this series it ranked next to pain in order of frequency, being present in 56.9% of the cases. In some cases it was described as a very slight white discharge and if these are excluded, the figure becomes 37.9%.

TABLE VIII.

	Leucorrhoea.		More than very slight, white discharge.	
	No.	%	No.	%
Whole series	41	59.4	26	37.7
Cases with tubes involved	33	56.9	22	37.9
Tubes involved only	17	51.5	11	33.3
Uterus involved	18	72.0	13	52.0
Showing frequency of leucorrhoea as a symptom.				

Without the slight cases the relationship between the percentages in the four groups is practically unaltered. On the whole, the discharge was less frequently described as profuse and foul in the cases where the uterus did not appear to be involved with the tubes. In cases where the endometrium and cervix are free from any form of infection, the discharge may be due to the hypertrophic changes which are associated with tuberculosis, or to a non-infective catarrh or to pelvic congestion.

Disturbances of Menstruation.

This group of symptoms is usually given greatest prominence in connection with tuberculosis of the uterus but in examining any series of cases it becomes obvious at once that such symptoms are by no means confined to lesions of that organ. In lesions of the tube, amenorrhoea is usually stressed as the commonest menstrual symptom, but this is also a misconception.

The following are the figures given by various authors for the frequency of menstrual symptoms:-

TABLE IX.

	Greenberg (1921)	Smith (1928)	Jameson (1935)	Lampria- nides
No. of cases	200	63	37	605
Total with Men- strual distur- bance	72%	24%	29.7%	-
Menorrhagia	41%	-	8.1%	-
Metrorrhagia	-	17.5%	2.7%	-
Menorrhagia and Metrorrhagia	-	3.2%	-	-
Amenorrhoea	6.5%	-	8.1%	20%
Hypomenorrhoea	-	-	5.4%	-
Oligomenorrhoea	24%	-	-	-
Irregular men- struation	-	-	5.4%	-
Showing frequency of disturbances of menstruation in other series of cases.				

Wetterdal gives these figures in a comparison between a group of cases of tuberculous salpingitis and one of non-tuberculous cases.-

	Amenorrhoea	Menorrhagia & Metrorrhagia
Tuberculous	5.3%	3.5%
Non-tuberculous	5.45%	5.45%

It is difficult to explain the wide discrepancies in the above figures and between them and those for this series, given in Table X.-

	Cases	Menstrual disturbances	Menorrhagia	Metrorrhagia	Menorrhagia & Metrorrhagia	Amenorrhoea	Hypomenorrhoea
1. Whole series	69	55.1%	20.3%	8.7%	5.8%	13.0%	7.3%
2. Tubes involved	58	51.7%	17.2%	8.6%	5.2%	13.8%	6.9%
3. Tubes only involved	33	48.5%	18.2%	9.1%	3.0%	9.1%	9.1%
4. Uterus involved	25	64.0%	24.0%	12.0%	12.0%	12.0%	8%
Showing frequency of various forms of menstrual disturbance in this series of cases.							

The frequency of various abnormalities of menstruation does not vary very widely with involvement of different organs. The cases of uterine tuberculosis (some of which are, of course, included in Series 2) show a higher percentage, the increase being mainly in forms of excessive bleeding. The cases in which the tubes only were involved show the smallest numbers but even in these cases the total frequency approaches 50%.

Menorrhagia and Metrorrhagia. The cases of menorrhagia include all those with a history of increase in the

menstrual flow. Several cases with what appears to have been a comparatively heavy loss have not been included because this appeared to be accepted as usual by the patient. In one case of menorrhagia several small fibroids were present but their relation to the uterine cavity was not stated and in another (case 68) there was a heavy, enlarged uterus in a position of complete retroflexion and retroversion. A fibrous polypus was present in the uterus in one case of metrorrhagia but there was only a short history of bleeding associated with pain (case 54).

Amenorrhoea was not complete in all the cases but none had missed less than two periods. In one case the amenorrhoea followed a pseudocycsis.

Four cases were not included above. One was past the menopause and another approaching the menopause. One was pregnant. In case 6, a normal period had come ten days early. It is almost certain that amenorrhoea would have followed had there been no operative interference.

Although amenorrhoea is not the commonest menstrual symptom in tuberculous salpingitis, it is probably more frequent than it is in cases of non-tuberculous salpingitis. Apart from this, the menstrual symptoms in these cases had no characteristic features.

Solomons (1923) mentions as a symptom, the interruption of menstruation during a period. Such an occurrence was not noted in this series. He states that he has only seen amenorrhoea in cases with large pyosalpinges accompanied by destruction of the ovaries or in cases with advanced pulmonary tuberculosis.

It was noted in this series that amenorrhoea was present in some but not all of the most severe cases.

Dysmenorrhoea. Acquired dysmenorrhoea is one of the symptoms of chronic salpingitis and as such it is present in some cases of tuberculous salpingitis. Greenberg (1921) found dysmenorrhoea as a symptom in 62% and 44.4% of Smith's (1928) cases had acquired dysmenorrhoea. Jameson's figure of 2.7% is surprisingly low.

If all cases of dysmenorrhoea are included, the figure for this series is 40.6%. If it is to be considered as a symptom the number must be restricted to those cases in which the dysmenorrhoea was acquired, or had become more severe, or was the principal complaint. In this form it was present in 24.1% of the tubal cases, 24.6% of all the cases and 24.0% of those in which the uterus was involved. These figures show no special relationship between lesions of the tubes and dysmenorrhoea.

Premenstrual pain is a characteristic of this form of dysmenorrhoea and all except three of the seventeen cases had pain commencing from one to seven days before the onset of the period. In some it was relieved by the flow, in others it continued throughout and even after menstruation.

Sterility. Although some authors consider that sterility has been over-emphasised as a symptom of tubal tuberculosis, there is no doubt that it is significant. It has been pointed out that pregnancy is sometimes found associated with tuberculosis, as in case 14 of this series, but in such cases it is very rare to find evidence of the existence of the tuberculosis prior to the pregnancy.

Solomons (1923) gives sterility as one of the most frequent symptoms of tuberculosis of the tubes. Mayer (1911) states that it is eight times more common in adnexal than peritoneal lesions. Of the married women in their respective series of cases, Greenberg (1921) found 60% sterile, Smith (1928) 64.8%, Bush (1933) 61% (over two years married), and Jameson (1935) 85.6%. Smith points out that the normal frequency of sterility is 10-16%.

In this whole series there were 53 married women and of these, 39 had never been pregnant.

TABLE XI.

	%age sterile over 4 years married	%age sterile over 2 years married
All cases	39.6	56.6
Tubes involved	40.5	67.2
Tubes only involved	50	72.7
Uterus involved with tubes	31.6	47.4
Showing frequency of sterility according to the number of years since marriage.		

Sterility was the complaint, or one of the main complaints which brought the patient for treatment in 14.5% of the cases. In three of these the abdomen was not opened and lesions of the tubes were not excluded, though in one - case 41 - insufflation showed them to be patent. This statement is of considerable importance because, if the sterility in this case was due to tuberculosis, as seems most probable, it was caused either by disease of the tubes without occlusion or to tuberculosis of the endometrium.

The figures show that sterility was more frequently present in cases where tubal lesions were known to be present. Three of the cases had been previously

treated by curettage for sterility. None of the cases which were followed up became pregnant after treatment.

Dyspareunia. This was a symptom in five, or 8.6%, of the cases and in three of these it was mentioned as a complaint. As a symptom of pelvic inflammatory disease, its presence would be expected.

Swelling of the Abdomen was a complaint in five, or 8.6%, of the cases, but in only one of these, in which there was generalised peritoneal tuberculosis, could it be attributed to the disease. In one, a pseudocyst had been present and in the others, a fibroid, a pregnancy and an ovarian cyst were the respective causes of the swelling. Jameson found that 17.5% of cases complained of swelling of the abdomen.

Urinary symptoms - frequency, dysuria and sometimes difficulty in micturition - were present in 32.8% of the cases (34.8 in whole series). One case had had a previous nephrectomy for tuberculosis, but in none of the cases was active tuberculosis of the urinary tract discovered. The symptoms were of a minor character in all except three cases in which they were mentioned as a complaint. In Greenberg's (1921) cases urinary symptoms were present in 50%.

The Symptoms of Tuberculosis of the Ovaries.

These cannot be distinguished from those of the accompanying lesion of the Fallopian tubes. The symptomatology of the fourteen cases in this series with ovarian tuberculosis did not differ from that in the remainder of the tubal cases. Six of these cases had menstrual symptoms and in four amenorrhoea was present. In all the cases with amenorrhoea, tubo-ovarian abscesses were present. In three other cases, however, tubo-ovarian abscesses were present without menstrual symptoms.

The Symptoms of Tuberculosis of the Uterus.

Pain. This is not a symptom of uterine tuberculosis. It is conceivable that some of the severe forms might give rise to pain but they are very rare and in such cases it is most unlikely that the disease should be confined to the uterus.

In this series pain was present in 17, or 68%, of the cases in which the uterus was involved. In 13 of these cases lesions of the tubes were present and the pain was of the same character and distribution as in other tubal cases. In the remaining four cases,

lower abdominal pain had been present for a varying period. In case 3 the uterus and appendages were involved in dense adhesions though a single section of the tube revealed no evidence of tuberculosis. In cases 26, 27 and 28 the abdomen was not opened but in case 28 there was tenderness and matting of the appendages on the side corresponding to the pain. There were no grounds in the other two cases for connecting the pain with the uterine lesion.

Disturbances of Menstruation. These were present in the majority of cases but their significance as a symptom of uterine tuberculosis has been questioned. Couriades and Jaulain (1935) give as the principal symptoms amenorrhoea, menorrhagia and metrorrhagia and draw a comparison between the last two and haemoptysis. Both Jameson and Norris (1931), however, point out the frequency of menstrual disturbances in other forms of tuberculosis, especially pulmonary lesions.

In this series, the frequency of menstrual symptoms was as follows:

TABLE XII.

	Whole series. 69 cases %age.	Uterus involved. 25 cases %age.	Uterus only known to be involved. 10 cases. %age.
Disturbance of Menstruation	55.1	64	70
Menorrhagia	20.3	24	30
Menorrhagia and Metrorrhagia	8.7	12	10
Metrorrhagia	5.8	12	10
Amenorrhoea	13	12	10
Hypomenorrhoea	7.3	8	10
Showing frequency of disturbances of menstruation in uterine tuberculosis.			

The following are figures from series of pulmonary tuberculosis without pelvic lesions:-

	Menorrhagia	Amenorrhoea & Hypomenorrhoea.
Norris (1931)	0.8%	15%
Macht	4.6%	27.3%
Jameson (1935)	20.5%	26%

These figures show a greater frequency of increased bleeding in uterine than in pulmonary

tuberculosis though amenorrhoea and hypomenorrhoea appear to be less frequent. Moreover, the same statement holds good when the frequency in cases with uterine lesions is compared to that for the whole of this series. It must be concluded, therefore, that in some cases menorrhagia and/or metrorrhagia is due to the presence of uterine tuberculosis per se. Though the absence of menstrual disturbances does not, by any means, rule out the existence of uterine lesions, their presence should give rise to suspicion. In this series, disturbances of menstruation were a complaint in 14 cases and the only complaint in two cases.

The corresponding changes in the endometrium have already been discussed (Pathology - uterus).

Leucorrhoea. The most frequent symptom in the cases in this series was leucorrhoea. It was present in 72% of the cases and 80% of those in which the uterus only was known to be involved. The frequency in the whole series was 59.4%. Taking into account only the cases with more than a slight discharge, the figures become 52%, 50% and 37.7% respectively.

A discharge which derives entirely from the body of the uterus is thin and watery. In only one case in this series was the discharge specially described as thin. In one case it was blood-stained. In four

cases it was stated to be foul and offensive. Various descriptions of the discharge in tuberculous endometritis have been given but a thin, clear, brownish or blood-stained discharge, sometimes foul, would be expected. In advanced caseation, particles of caseous material might be present. A discharge answering to this description appears, however, to be rare. The descriptions of the discharge in these cases did not reveal any special features though it was more frequently profuse in cases with uterine lesions. Where the discharge is thick and mucoid, it must come, at least partly, from the cervix. This may be due to hyperplasia, which frequently accompanies tuberculosis, to catarrh, or to an incidental infection of the cervix.

Sterility. This is a symptom of tuberculosis of the Fallopian tubes. Whether it is also a symptom of tuberculosis of the uterus depends on whether or not the endometrium is ever infected without a lesion in the tubes. In the presence of extensive disease of the endometrium there might be interference with the embedding and development of the fertilised ovum. This may have been the cause in case 41 of this series, where the tubes were shown by insufflation to be patent.

The numbers of married women who had never

been pregnant in this series is shown in Table XIII.

TABLE XIII.

	Uterus involved	Uterus only known to be involved	Whole Series
Married over 2 years	10 (47.4%)	6 (60%)	30 (56.6%)
Married over 4 years	7 (31.6%)	4 (40%)	21 (39.6%)
Showing frequency of sterility in uterine tuberculosis.			

The apparently high percentage of cases with tuberculosis discovered only in the uterus is not significant. When the records are examined it is found that in case 4 the tubes were closed to insufflation; in case 66 chronic inflammation in the pelvis was revealed at operation (histology of tubes not reported); in case 30 physical examination was suspicious; in case 27 there was pituitary dysfunction with amenorrhoea, and in case 26 a retroflexed uterus.

Jameson quotes Vogt, who found an incidence of 7.2% for uterine tuberculosis diagnosed by curettage in 212 patients complaining of sterility.

Dysmenorrhoea. Acquired or increasing dysmenorrhoea was present in 24% of the cases with uterine

tuberculosis and in 24.6% of all the cases. It is a manifestation of an inflammatory condition in the pelvis and it has no special connection with lesions of the uterus.

Dyspareunia was present in 16% of the cases.

The Symptoms of Tuberculosis of the Cervix.

As in lesions of the Fallopian tubes and the uterus, there may be no symptoms. If they are present, the nature of the symptoms depends entirely on the character of the lesion in the cervix. Since, in the majority of cases, disease of the cervix is a descending infection, its symptoms, if present, may be overshadowed by those of tubal and uterine involvement.

When there is no ulceration of the cervix, as in the miliary and interstitial forms, the symptoms, if present, are indefinite. At this stage, leucorrhoea is probably the only symptom which may be due wholly to the involvement of the cervix. There were two cases of the miliary form in this series - 11 and 16. In the first, the symptoms were pain in the lower abdomen and perineum, amenorrhoea, leucorrhoea and general ill-health, and in the second, menorrhagia, metrorrhagia

and pain in the lower abdomen. In both cases, the Fallopian tubes and uterus were involved. The leucorrhoea which was present in case 11 appears to be the only symptom of cervical tuberculosis in either of the cases. It is worthy of note that in this case examination revealed some fairly thick, nodular matter of stringy consistency protruding from the external os. Jameson (1935) mentions the emphasis placed by Italian authors on a thick tenacious muco-purulent discharge which can be expressed from the cervix in cases of endo-cervical tuberculosis. In case 8, which was an example of advanced miliary or interstitial tuberculosis of the cervix, the only symptom was menorrhagia. No evidence of tuberculosis was found in the uterus or tubes.

In the ulcerative and papillary forms the symptoms are usually more helpful. A blood-stained discharge, especially after coitus or examination is the characteristic symptom.

In 31 cases from the literature, in the majority of which some degree of ulceration was present, leucorrhoea was a symptom in 61.3%, a blood-stained discharge in 38.7%, pain in the lower abdomen in 22.6% (tubes stated to be involved in four out of seven), amenorrhoea in 16.1%, irregular and scanty menstruation

in 12.9% and menorrhagia and dysmenorrhoea each in 3.2%.

The main difficulty in assessing the value of the symptoms is the frequent presence of lesions higher in the genital tract. In many cases, tuberculosis of the cervix is a manifestation of a virulent infection and a lowered resistance with a generalised involvement of the upper genital tract. Amenorrhoea, which was present in 16% of the above cases and for which Douglass and Ridlon (1929) give the much higher frequency of 50%, is a symptom of this form of severe and spreading disease. The same explanation probably accounts for the occurrence of irregular and scanty menstruation and menorrhagia (Beyea, 1901).

In the early stages, the leucorrhoeal discharge is probably due to hyperplasia and stimulation of the cervical glands. Beyond the findings noted in case 11 it has no special characteristics.

Other forms of cervicitis can give rise to pain and it is possible that tuberculosis may also do so, especially in the presence of secondary infection and some degree of pelvic cellulitis. When present, however, the most probable cause of pain is a co-existent lesion of the tubes.

The General Symptoms and Signs of Tuberculosis of the Fallopian Tubes, Uterus and Cervix.

These have not been mentioned previously because they are not related to the involvement of any particular organ. Disturbances of the general health are most common in association with lesions of the tubes as these are more frequently severe.

Some degree of general debility, malaise, weakness, lassitude or a complaint of being easily tired or "anaemic" was noted in 21, or 30.4% of the cases in this series. The tubes were involved in all but two of these. Six cases, or 8.7%, were definitely known to have lost weight but the actual number was probably greater. In two cases the weight had increased. One complained of sweating and one, a severe case, of "night sweats". Headache was a symptom in four, or 5.8% of the cases. In one the bowels were stated to be loose and in fourteen, or 20.3%, constipation was present. In over 50% of Greenberg's (1921) cases, constipation was present and a like number had lost weight. As general symptoms, Norris (1931) mentions nausea, vomiting, loss of weight, anorexia and insomnia. Jameson (1935) found gastric disturbances in 24.5% of cases from the literature and in one of his own. He

notes that these symptoms were more common in acute cases and attributes them to peritoneal irritation rather than the systemic effects of tuberculosis. In this series vomiting was a symptom in fourteen (20.3%), two of which also had anorexia; one case had nausea without vomiting and one, dyspepsia. The cases with vomiting included almost all the acute cases and in one case with a longer history it was the first manifestation of ill health.

Jameson noted the presence of fever in 20% of cases but Greenberg (1921) found that 65.5% of his cases had a pre-operative temperature of over 99.2°F., and that this was twice as common in cases with involvement of the peritoneum. In this series, elevation of temperature to between 99°F. and 102°F. was present before operation in 17 or 24.6% of the cases. The peritoneum was involved in only four of these.

A leucocytosis may be present, but this is not a constant finding. In fifty of the cases reported by Greenberg, 34% had a white blood count of over 9,000, and 22% an absolute leucopenia. The remainder had a relative leucopenia because all had fever. In six cases in the literature, the white blood cells numbered between 5,600 and 9,700. Two of these had 65% of polymorph leucocytes and one had 77% lymphocytes. White blood

counts were recorded in seven cases of this series. They varied between 7,200 and 21,000, the average being 12,625. The tubes were involved in all the cases and all cases with a leucocytosis had fever.

Two cases in this series had a sedimentation rate of approximately 30 minutes and one of these had 16,600 W.B.C., the other 21,000 W.B.C. In three cases, the time was approximately 60 minutes and the corresponding white counts in two cases were 7,200 and 16,000.

Some degree of anaemia may be present. A haemoglobin of less than 70% in 50% of 62 cases was noted by Greenberg (1921).

Physical Signs.-

General examination: The patient is usually between the ages of 20 and 35 years. More rarely she may be a young girl or a woman approaching or past the menopause. The general appearance and examination of the patient may reveal no apparent abnormality. Rarely, the appearance may be suggestive - asthenic type, rather thin, fair hair, clear transparent-looking skin and long curling eyelashes. Very little reliance can be placed on this. There may be scars left by a cervical adenitis. There may be some evidence of

loss of weight but marked wasting and cachexia must not be expected except in the most severe cases. Slight elevation of the temperature may be present. In a few cases, general examination will reveal signs of tuberculosis elsewhere and the chest must be examined with especial care for signs of active or healed lesions.

In very acute cases the picture is that of any acute abdomen. In the more severe cases of longer duration, the patient may adopt the typical stooping attitude of chronic pelvic pain with cautious movements of the trunk and the facial expression may denote suffering.

Abdominal examination. In a few cases there may be visible swelling of the abdomen but this is not common in association with uncomplicated pelvic tuberculosis. A slight fullness of the lower abdomen is perhaps less uncommon. In acute cases, palpation will reveal tenderness and rigidity of the lower abdomen, or in one iliac fossa. In more chronic cases rigidity is usually absent but tenderness and some resistance may be present. Occasionally large pyosalpinges may be palpable as a mass rising up into the abdomen, dull on percussion and resonant in the flanks, as in case 50. In thin subjects a mass may be palpable in one

or both iliac fossae. When ascites can be detected, it is a valuable sign. In many cases examination of the abdomen is entirely negative.

Vaginal Examination will show the character of any discharge present. Gross lesions of the cervix will be revealed as an ulcerated or papillomatous condition of the cervix. (The gross characteristics of the lesions of the cervix are fully described in the section on Pathology.)

Bi-manual Examination will not reveal any marked abnormality of the uterus unless it is grossly diseased. In case 66 of this series, which was taken as an example of interstitial uterine tuberculosis, the uterus was enlarged half way to the umbilicus and the surface felt distinctly nodular. Such findings are extremely rare in uncomplicated lesions. As would be expected from the description of the lesions present in this series, there was no significant alteration in the size and shape of the uterus. In eight cases slight enlargement - $\frac{1}{2}$ " to $1\frac{1}{2}$ " - was noted.

Bi-manual examination may reveal no abnormality of the appendages if the lesion is an endosalpingitis only. In more advanced forms it may be possible to palpate the thickened tubes. The most frequent finding

is of a mass or masses in the pelvis, usually in the position of the uterine appendages on one or both sides, sometimes in the pouch of Douglas. Such masses are usually tender. A frequent description in these cases was of a hard irregular mass in one or both appendages. A feeling of hardness is not confined to tuberculous salpingitis but it appears to be found more often in this than in other forms of salpingitis.

The pelvic mass may bulge into one of the lateral fornices and the uterus may be displaced from the midline. If a pyosalpinx is present it may be felt as a doughy or fluctuating swelling. The nature and position of the adnexal mass may suggest involvement of the ovaries also, in a tubo-ovarian mass. In some cases of extensive disease, where dense adhesions are present, it may be impossible to distinguish the pelvic organs on bi-manual examination.

THE DIAGNOSIS OF
UTERINE AND ADNEXAL TUBERCULOSIS.

The Diagnosis of Tuberculosis of the Fallopian Tubes.

All accounts of this form of tuberculosis are unanimous in one respect. The diagnosis is a matter of extreme difficulty. The symptoms are seldom characteristic and physical examination is of little or no help. When operation is undertaken, very little further information may be obtained and even histological and bacteriological methods may fail. In some cases it is possible to make a definite diagnosis when tubercles can be seen with the naked eye, at operation, but in the majority a positive diagnosis is only made when tuberculous tissue is found in sections of the tube examined under the microscope. Some authors of wide experience maintain that diagnosis is impossible without laboratory aid, while others believe that it is possible to recognise the condition before operation.

Pre-operative diagnosis. In the case records of this series, a pre-operative diagnosis was not always recorded. Even where it was, one cannot know what possibilities were kept in mind without being noted in

the case. In two cases, 3.4%, tuberculosis was recorded as a possible diagnosis before operation and in four it was probably regarded as a possibility, a total of 10.3%. The other diagnoses which were made help to show the forms in which the cases present. Pelvic inflammation - salpingitis, salpingo-oöphoritis, pyosalpinx, etc. - was the provisional diagnosis in eight cases and appears to have been the diagnosis in a further 24, a total of 55.2%. Tubo-ovarian abscess or abscesses was the correct diagnosis in two cases but the nature of the condition was not suspected. In six cases an ovarian cyst was diagnosed, correctly in three. Torsion of an ovarian cyst, fibromyoma with degenerative change, broad ligament abscess or pyosalpinx were mentioned in three cases. Fibromyomata (or adenomyomata), with or without pelvic inflammation, appeared to be the diagnosis in five cases and were present in four. In two cases, a diagnosis of ectopic gestation was made.

A correct pre-operative diagnosis was made in 26 of the 200 cases reported by Greenberg (1921), but 15 of these had ascites. The majority were diagnosed as pelvic inflammatory disease and in 34 no diagnosis was made. A diagnosis of myomata in 29 cases was correct in 25.

The account of the pre-operative diagnoses gives an indication of the clinical picture which is usually presented. In this series eight of the cases were operated on because of the presence of either fibromyomata, adenomyomata or ovarian neoplasms and though complications may have been suspected, the presence of tuberculosis of the tubes was only discovered at operation or on histological examination. The symptomatology was mainly pelvic in 35 cases (60.3%) and pelvic with general symptoms of greater or less severity in 17 cases (29.3%). Sterility, with or without other symptoms, was the main reason for investigation and treatment in 10 (17.2%) and in one case, no symptoms were recorded.

Consideration of History and Symptoms. The age incidence has been mentioned, with its peak between the years of 20 and 30. The main symptoms have been described - pain, leucorrhoea, menorrhagia, amenorrhoea, metrorrhagia, with or without menorrhagia, hypomenorrhoea, dysmenorrhoea, sterility, dyspareunia and urinary symptoms. In the differential diagnosis from other forms of pelvic inflammation, gonorrhoeal and streptococcal, acute and chronic, these are not of great assistance. Other conditions which may be simulated are ovarian neoplasm, benign and malignant,

perhaps with complications such as torsion, par-ovarian or broad-ligament cysts and uterine neoplasms, fibromyomata and adenomyomata perhaps with degenerative changes.

The most significant of the symptoms which have been mentioned is sterility, especially of a number of years' duration, and for which there may have been previous treatment as in cases 1, 2 and 42. Amenorrhoea may be significant when it is considered with the whole clinical picture, but too much importance cannot be attached to it. The late occurrence of the menarche has been mentioned as being suggestive. The average age in this series was $14\frac{1}{2}$ years. Initial irregularity has also received notice, but this is much too common to arouse any suspicion.

The main value of a previous history of tuberculosis and, to a less extent, of a family history, is in calling to mind the possibility of a tuberculous infection. The presence of an active lesion elsewhere in the body is more suggestive. In this whole series there was a definite previous history of tuberculosis in three cases and a strongly suggestive history in eight, a total of 15.9%. There was a family history in three. Active lesions were present in two cases and lesions which appeared to be quiescent were

discovered in two. Greenberg (1921) found either a previous history of tuberculosis or active lesions elsewhere in the body in 25%, a family history of tuberculosis in 22.5% and a tuberculous husband in 2.5% of his cases. Wetterdal records that 11% of his cases with previous or active tuberculosis had non-tuberculous pelvic lesions but of those with genital tuberculosis, 36% had pulmonary tuberculosis.

Tuberculosis is the commonest cause of salpingitis in a virgin. This may be helpful in diagnosis if the disease is bi-lateral (McLean, 1926), thus avoiding confusion with lesions due to or derived from an inflamed appendix. A long history and a tendency for the condition to remain stationary is suggestive but, as has been seen, the onset is fairly acute in about 20% of cases.

General Examination. Opinions vary as to the comparative severity of general impairment of health in this and other forms of pelvic inflammation, but the degree of general disturbance accompanying tuberculosis varies so widely that it conveys very little information. The absence of fever may be significant but an elevation of temperature is to be expected in about a quarter of the cases. In a comparative study of 545 cases of salpingitis of which 4.7% were

tuberculous, Farr and Findlay (1929) found that the average temperature in the tuberculous cases was 100°F. and in the other forms, acute cases 101°F. and chronic cases 98°F.

A relative or absolute leucopenia with a relative lymphocytosis may be a valuable sign but in cases of an acute nature with an elevated temperature, a polymorphonuclear leucocytosis is usually present. In the comparison mentioned above, Farr and Findlay found, in the tuberculous cases, white blood counts of from 6,000 to 23,000, with an average of 12,580 and in the differential count, the polymorph leucocytes numbered 78.7%. In the other forms of salpingitis, the acute cases had an average of 16,800 W.B.C., with 83% polymorphs, the chronic cases 11,000 W.B.C. and 73.5% polymorphs. The difference is not marked. Greenberg (1921) found an absolute or relative leucopenia in 66% of his cases.

The sedimentation rate is of limited value in diagnosis since in general it follows what would be the expected course in other forms of inflammatory disease. It might conceivably be of service where a condition was suspected in which the sedimentation rate is not normally increased. On the other hand, as Jameson points out, pus is not usually found in the

pelvis when the sedimentation time is over one hour, and if pus is discovered under these circumstances it should arouse a strong suspicion of tuberculosis.

A history of gonorrhoea or the finding of gonococci in secretions examined does not exclude tuberculosis. Case 29 of this series was referred for treatment following what appears to have been an acute attack and the tubo-ovarian abscess present was found to be tuberculous.

In cases which present symptoms or signs of acute or sub-acute salpingitis, one of the most valuable points in diagnosis is the response to palliative treatment. Instead of the anticipated decrease in the size of the pelvic swelling and gradual fall in temperature, the condition in the pelvis remains unaltered or the mass increases in size and the elevation in temperature tends to continue. Wetterdal states that large, firm, non-tender masses which tend to increase in size when at rest in bed are all tuberculous. Case 17 in this series was treated with diathermy though complete rest did not appear to be enforced. The swelling in the appendages on one side increased in size while the other side decreased and later, operative treatment was necessary.

Local Examination. Physical examination can never establish the diagnosis but some findings may strengthen suspicion. The presence of ascites is probably the most helpful if other causes, such as malignant ovarian neoplasm, can be ruled out. According to Jameson, ascites is present in about 16% of cases. Hardness and irregularity of the pelvic mass may be present in non-tuberculous cases though it is perhaps less frequent in them. An indefinite tumour mass which is tympanitic instead of dull to percussion (due to the inclusion of loops of intestine) is stated to be diagnostic (Gál, 1937). It is, however, infrequently found and it is more characteristic of abdominal than pelvic tuberculosis.

In theory, the bacteriological examination of the vaginal discharge, if present, might be a means of making a diagnosis. According to Norris (1931), tubercle bacilli may be demonstrated only if an endometritis also is present. In practice, the method is of very doubtful value. In lesions of the tubes only, any tubercle bacilli present must be very scanty indeed and their demonstration by direct examination would be impossible. The presence of other acid-fast bacilli in this situation is an added difficulty. The only hope of success would be culture of a specimen of

discharge taken from the cervix, which would take four weeks (Green, 1938), or injection into a guinea-pig, which would take six weeks. These methods would only be used if the presence of tuberculosis was strongly suspected and their failure would convey no information.

Curettage of the uterine cavity and examination of the endometrium both directly and, if necessary, by cultural and animal injection methods, is a diagnostic procedure of much greater value. The endometrium is involved in at least 50% of the cases and the finding of tuberculous tissue in this situation would clinch the diagnosis. Even in the absence of obvious disease it might be possible to demonstrate the presence of tubercle bacilli. In a series of 79 cases Gál (1937) found that the percentage of those correctly diagnosed before laparotomy would have been raised from 25.3% to 41.5% if curettage had been carried out as a routine procedure. In six cases of this series curettage revealed tuberculosis of the endometrium and involvement of the tubes was subsequently proved.

The question of contra-indications and possible dangers is discussed fully when dealing with the diagnosis of uterine tuberculosis. Curettage, however, must be remembered as an important aid in the diagnosis of tuberculosis of the Fallopian tubes.

Weibel (1934) made a diagnosis in one case by colpotomy and palpation and inspection of the pouch of Douglas. Posterior colpotomy, or puncture through one of the vaginal fornices with a needle to obtain material for histological and bacteriological examination, has been recommended as a method of diagnosis. Aspiration of a fluctuating mass which is in close contact with a vaginal fornix is a recognised method of diagnosis and treatment. It was carried out in case 1 of this series but no tubercle bacilli were found in the pus, direct examination only being carried out. To employ exploration of the pouch of Douglas appears to be unjustifiably dangerous, as a method of diagnosis. Jameson mentions a case in which the rectum and caecum were damaged with a rapidly fatal result. A laparotomy would be as safe, if not safer, and is certain to give more information.

An X-ray examination of the abdomen is a simple procedure which may give very valuable information since calcification to some extent is so frequently present in the tubes. It established a provisional pre-operative diagnosis of tuberculosis in case 13 of this series. Stein (1934) recommends artificial oxygen pneumoperitoneum prior to radiological examination, with or without the simultaneous injection of

lipiodol into the uterine cavity and tubes. This method, in experienced hands, might give more information than a straightforward X-ray film but its advantage as a routine measure is open to question. The use of lipiodol alone will only show any distortion of the tubes and their patency or otherwise, as in case 39. Insufflation of the tubes is even less informative. A case reported by Mansfeld and Dudits (1934) indicates that insufflation may be dangerous in the presence of tuberculosis. A pressure of 110 mm. of mercury showed that one tube was patent and the other closed. At this point the woman became cyanosed and died, death being due to air embolism. Ulcero-caseous tuberculous endometritis, bilateral endosalpingitis and a myoma in the fundus of the uterus were present.

Special methods. The fact that the Zondek-Ascheim reaction may be positive in tuberculosis of the Fallopian tubes suggests a possible aid to diagnosis and one which merits further investigation. The first report on this appears to be that of Wilson (1934) and his findings have been confirmed by von Latzka (1937). Wilson records two cases with bilateral tuberculous salpingitis in which the Zondek-Ascheim reaction was positive. In one case it became negative after treatment (removal of appendages on one

side) but an excess of gonadotropic hormones was still present. Neither of the two cases had amenorrhoea. From these and other cases he concludes that a positive Zondek-Ascheim reaction may be associated with tuberculous salpingitis and that the occurrence of a modified reaction may indicate healing or retrogression. Von Latzka (1937) emphasizes the confusion with ectopic gestation which may arise. In both his cases the symptoms and signs suggested slight bleeding from an ectopic pregnancy and this was apparently confirmed by a positive Zondek-Ascheim reaction. In one case operation revealed tuberculosis of both tubes and one ovary, in the other of one tube and ovary. These cases show that the reaction does not depend on total destruction of the ovaries. Since Wilson (1934) mentions a case of pulmonary tuberculosis and amenorrhoea in which only a slightly modified reaction was obtained, it is possible that the situation of the lesion in the tubes influences the reaction. This point requires further elucidation. Unfortunately the only case of this series in which the test was performed was pregnant.

The usefulness of tuberculin in the diagnosis of pelvic tuberculosis is a matter of dispute. Jameson describes the method recommended by Birnbaum, using

injections of tuberculin and recording general, focal and local reactions. He cites Wetterdal, who carried it out in 96 cases of his series and concluded that it is often misleading, may give rise to much discomfort and is "absolutely useless" as an aid to diagnosis. Case 26 of this series (endometrium involved) gave no reaction to 50% Moro's ointment.

Douay and Jépuréano (1930) describe the technique of the Besredka reaction applied to the diagnosis of genital tuberculosis. They found it positive in ten out of fourteen cases proved histologically and conclude that the reaction is of value but that a negative reaction does not exclude tuberculosis. On the other hand, it must be remembered that the reaction is only positive when an active focus is actually present and that this may be situated in any part of the body.

Laparotomy. In the face of such formidable difficulties in diagnosis it is not surprising that laparotomy is carried out in the majority of cases before the diagnosis is made. Indeed, in many cases it is essential, without undue delay, to rule out other, more serious and more urgent conditions. In some cases it is indicated because of the co-existence of conditions such as fibromyomata and ovarian cysts. In case of doubt, when delay is inadvisable or where

other diagnostic methods have failed, laparotomy should be performed without hesitation. Beyond the comparatively slight immediate risks of the operation no harm will be done. If fibromyomata, etc., are present, the appropriate treatment can be carried out and, by opening the abdomen, definite information as to the presence or absence of such complications is obtained. If conservative treatment appears advisable for the tuberculous lesion, the abdomen can be closed. In cases with serious disease elsewhere, such as advanced pulmonary tuberculosis, operation would be contra-indicated but in such cases a pre-operative diagnosis is more likely to be made. Among others, Lima and Carlino (1935) hold that laparotomy is a safer diagnostic procedure than dilatation and curettage.

In spite of the advantages of laparotomy there still remains a very strong reason why every effort should be made to establish a pre-operative diagnosis. This is the unfortunate fact that in more than half the cases the nature of the condition cannot be recognised by inspection of the abdominal cavity. This is universally acknowledged. In this series, the abdomen was opened in 60 cases. Tuberculosis was recognised or suspected at operation in 28 cases (46.7%). In at least 16 of these cases, tubercles were visible

on the peritoneal surface and in six of the cases the presence of the disease was already suspected or had been diagnosed by curettage. Examination of the abdominal cavity can only give definite information if tubercles are present on the surface of the tube or the peritoneum. In other cases suspicion may be aroused by the size of pyosalpinges, the firmness of smaller masses, suggesting caseation rather than pus-formation, the presence of hard areas indicating calcification and the presence of free fluid or of an encysted peritonitis.

Histological and Bacteriological Diagnosis. To be certain, diagnosis must be verified in every case by examination of sections of the tube under the microscope. Even at this stage there may still be some difficulty. A single section showing no evidence of tuberculosis is not sufficient to disprove its existence. This applies to all types of salpingitis but especially to chronic attenuated forms and to those in which there is superadded or pre-existing infection with pyogenic organisms. If there is reason to suspect that the condition may be tuberculous, a number of sections must be examined or, as Jameson suggests, a sagittal section of the whole tube. In case 20 of this series, several sections were examined before definite evidence of tuberculosis was found. An

endeavour may be made to find tubercle bacilli in sections appropriately stained but it is unlikely to be of assistance. It was unsuccessfully attempted in several of these cases. If, at the time of operation, some special reason exists for making a definite diagnosis, an extract of the fresh tissue may be submitted to culture or injected into a guinea-pig.

The Diagnosis of Tuberculosis of the Ovaries.

This can only be made under the microscope by the finding of tuberculous tissue or tubercle bacilli in the substance of the ovary or in a tubo-ovarian abscess. Disease of the ovaries may be suspected on physical examination. At operation, a peri-oöphoritis may be recognised if tubercles are visible on the surface of the ovary.

The Diagnosis of Tuberculosis of the Uterus.

Much of what has already been said with regard to tuberculosis of the Fallopian tubes applies with equal force to the diagnosis of uterine tuberculosis. The age incidence is similar and the same general considerations apply.

There may be no symptoms. In most, if not all cases, the tubes are involved and the symptomatology may be influenced only slightly, if at all, by the presence of uterine lesions. In some cases, however, symptoms are present which should direct attention to the uterus.

Consideration of Symptoms. The symptoms which were present in the cases with uterine lesions in this series have been described. It has been pointed out that increased bleeding - menorrhagia and/or metrorrhagia - was more frequent in association with uterine than adnexal lesions. Leucorrhoea is also a symptom of uterine tuberculosis but it does not give much help in diagnosis. The true form of the discharge - thin and watery, perhaps blood-stained - would be significant if present but it appears to be rarely seen. The usual form of discharge which is present is that common to many other gynaecological disorders. The other symptoms which are present in cases with combined tubal and uterine disease are mainly due to the lesions of the tubes.

Cases which have no symptoms of tubal or tubo-ovarian disease are usually seen because of a complaint of sterility or menstrual disturbance. The latter is usually menorrhagia or metrorrhagia. There may be

some complaint of general ill-health but the general condition is frequently good. The theoretical problem as to whether sterility can be due to uterine disease alone is of minor importance. Whatever the state of the tubes, sterility is a symptom of a number of cases in which the uterus is involved, probably 30 to 40%. Vogt believes that all women complaining of sterility should have a curettage to rule out uterine tuberculosis.

Tuberculous lesions of the uterus were present in 25 cases of this series and in 15 of these involvement of the tubes also was proved. The symptomatology was mainly pelvic in ten cases (40%) and pelvic with general symptoms of greater or less severity in eleven cases (44%). This is a higher incidence of cases with general symptoms than was noted in the tubal cases. All cases with general symptoms had tubo-uterine lesions indicating that in such cases the disease tends to be more severe. Sterility, with or without other symptoms, caused the patient to come for treatment in four cases (16%). In twelve (48%) of the cases, increased or irregular bleeding was a prominent symptom.

Differential Diagnosis. There was no indication of a pre-operative diagnosis in eight cases. One of these was referred from a sanatorium because of profuse

menorrhagia. One case was under treatment for definite endocrine dysfunction, obesity, etc. In the others, the pre-operative diagnoses fall into the same groups as the cases with adnexal lesions. The conditions with which uterine tuberculosis is most likely to be confused are fibromyomata, including intra-uterine polypi, endocrine disturbances and carcinoma of the body of the uterus. The possibility of its existence must be remembered when tuberculosis is found in any part of the genital tract.

Examination. Physical examination may disclose abnormalities of the appendages but it will give no information with regard to the uterus. Slight enlargement is the only sign present in the usual forms of the disease. Cases with severe lesions, such as case 66, may exhibit gross alteration in the size and shape of the organ in which case a diagnosis of neoplastic change is almost certain to be made.

Curettage. Although the history and physical signs are of so little help, the diagnosis of tuberculosis of the uterus, or at least of the endometrium, can usually be made comparatively easily by curettage of the uterine cavity, and histological examination of the endometrium removed. The history and symptoms may

actually be of great value in so far as they point to the advisability of this procedure. In the majority of cases the histological examination of the tissue removed will establish the diagnosis. As Jameson points out, curettage should be carried out at the time when the endometrium is in the pre-menstrual phase. The specimens from this series show that although this is advisable, it is not essential. In 15 cases of this series, tuberculosis of the endometrium was revealed by curettage. Examination of a single section may not reveal any evidence of tuberculosis and if there is reason to suspect its presence, a number of sections must be examined. If doubt still remains recourse must be had to indirect methods of bacteriological examination, either culture or animal injection. Jameson mentions a case in which repeated examination revealed only a single isolated giant-cell and in which material injected into two guinea-pigs produced generalised tuberculosis.

Curettage will not reveal tuberculosis of the myometrium and disease in this situation can only be discovered when a section of the uterine wall is examined under the microscope.

Contra-indications and possible dangers of curettage. Curettage is one of the most valuable

measures which can be employed in the diagnosis of tuberculosis of the upper genital tract. Since its use is recommended here it must also be stated that its safety has been questioned. Among those who favour its routine employment are Jameson (1935), Bush (1933) and Gál (1937). The last of these considers that it is contra-indicated by the presence of a tumour, or an elevated temperature. Weibel (1934) states that he has seen the operation followed by military tuberculosis, while Spalding (1922), Brocq (1933) and Lima and Carlino (1935) are all of the opinion that curettage is dangerous because of the risk of dissemination of the disease.

Dilatation of the cervix and curettage of the cavity of the uterus was recorded in 19 cases of this series. In four cases it had been carried out prior to admission, in the remainder endometrial tuberculosis was known to be present. No case developed military tuberculosis. In cases 11, 12 and 22 abdominal operation was performed eight months to three and a half years after curettage. In all three, severe and extensive lesions of the upper genital tract were present and the peritoneum was involved in two. In case 66, where the uterus was grossly diseased, curettage had been carried out four years previously. In these

four cases the condition was found to be apparently more extensive at the second operation. There is no proof, however, that the progress of the disease was influenced by the curettage. In case 16, the uterus had been curetted six weeks prior to admission and this was followed by continuous metrorrhagia. Abdominal section revealed extensive disease of the tubes, uterus and cervix but this may have been present before the curette was used. As far as is known, all the cases were afebrile at the time of the curettage. The histology of the endometrium after the operation has already been discussed.

In this series there is no real evidence of any ill-effects following the operation. Nevertheless in view of the reports of dissemination of the disease after the operation, a certain caution must be exercised in carrying it out. It is contra-indicated in the presence of a low resistance and a severe, spreading infection with rapid deterioration of the general condition, and in any case with a significant elevation of temperature. The presence of fibro- and adeno-myomata is also a contra-indication as there may be abnormal vascularity which would allow a massive dose of infection to reach the general circulation. In such cases it might be possible to use some other

method to obtain a specimen of endometrium for biopsy without carrying out full dilatation and curettage.

If the above contra-indications are observed, there should be no hesitation in performing the usual operation.

The Diagnosis of Tuberculosis of the Cervix.

Tuberculosis of the cervix is so rare that it is unlikely even to be suspected unless the presence of tuberculosis is discovered elsewhere in the genital tract. Cases fall roughly into three groups - those which have no symptoms or signs, those which simulate the commoner forms of inflammation, and those which closely resemble malignant neoplastic change. In 56 cases Beyea (1901) found that none had been correctly diagnosed and that fourteen had been diagnosed as carcinoma.

The age incidence does not differ from that of tubal and uterine tuberculosis. The position with regard to tuberculosis elsewhere in the body is the same. Otherwise, the general examination discloses no special features. Where the cervix is involved in extensive disease affecting a large part of the genital tract, the general condition may be poor, and amenorrhoea

may be present. With lesions confined to or mainly affecting the cervix, the patient is frequently in good health.

It is not denied that tuberculosis of the cervix may be the only lesion present in the genital tract, but it is held that this is very rare. Examination of the upper genital tract may, therefore, be of material assistance in making a diagnosis. Lesions of the upper genital tract may, however, be present but without symptoms or signs.

Consideration of Symptoms and Signs. In early cases of the miliary and interstitial forms there will be no symptoms except, perhaps, leucorrhoea of a non-characteristic type, to draw attention to the cervix. Unless tubercles are visible on the surface, there are no signs except the enlargement of the cervix, which is present in the interstitial form. In these forms, a diagnosis will not be made unless the cervix is removed and sections examined under the microscope.

In the slightly more advanced, early ulcerative and papillary forms, the clinical picture is that of a cervicitis with erosion. As Jameson (1935) points out, tubercles present on the surface closely resemble tiny Nabothian follicles. Again, unless the cervix is removed or strong suspicion, engendered by lesions

elsewhere in the genital tract, leads to the employment of histological and bacteriological methods, a diagnosis cannot be made.

It is in the more advanced ulcerative and papillary forms that the main problem of diagnosis arises. Attention is drawn to the cervix partly by leucorrhoea but mainly by a blood-stained discharge. This latter may be constantly present but typically occurs only after coitus or any slight trauma such as digital examination. On examination, the cervix is found to be ulcerated or the seat of vegetations.

Differential Diagnosis. A great deal has been written in an attempt to find characteristics which will differentiate this condition from carcinoma, mostly on the basis of one or two personal cases. The discharge is said to be less watery and more purulent, the ulceration softer, tougher and less friable (Douglass and Ridlon, 1929). The bleeding is said to be later and less than carcinoma and the induration less hard (Beyea, 1901), the history of bleeding longer (Bonnet and Bulliard, 1931) and the condition to be more chronic and with a different age incidence (Moore, 1919). Other points which have been mentioned are the lighter colour, more red than carcinoma (Bonnet and Bulliard, 1931), the smoothness and regularity of the

vegetations (Jameson, 1935) and the velvety feel, like that of an erosion (Petit-Dutaillis, 1913). All these differences are only relative and their practical value must not be exaggerated. Also, cases have been reported, like that of Culbertson (1924), in which marked friability and extensive hard induration were present. Moreover, as Norris (1933) points out, carcinoma of the cervix is 180 times more common than tuberculosis and its diagnosis is a matter of very much greater urgency. No amount of suspicion should delay the immediate removal of tissue for examination or in any way influence treatment until the diagnosis is established.

Other conditions which may be suspected are traumatic ulcers, mucous polypi, adenomata, syphilitic lesions, chancre and condylomata, chancroid, gonorrhoea, actinomycosis and sarcoma.

Histological and Bacteriological Diagnosis. The diagnosis of tuberculosis of the cervix can only be made by histological and bacteriological examination. Examination under the microscope of a section of tissue removed from the cervix will usually show the presence of tuberculous tissue. If there is reason to suspect the presence of tuberculosis, a single negative section must not be accepted and repeated examinations must be

made. The same course must be pursued if the first section is indefinite, and the appearance perhaps suspicious of tuberculosis. The presence of severe secondary infection may result in an atypical histological picture. In his case, Bishop (1930) was only able to obtain a typical appearance after the secondary infection present had been cleared up. The hyperplastic changes which accompany tuberculosis of the cervix may cause confusion with carcinoma on histological examination, necessitating repetition before the two conditions can be distinguished.

If the diagnosis cannot be established histologically, recourse must be had to bacteriological methods. This is especially necessary in cases with a positive Wassermann reaction. Sections may be examined for tubercle bacilli but much more information will be gained if an extract of tissue from the cervix is submitted to culture or injected into one or more guinea-pigs. The same methods may be used for examination of the discharge but this is less likely to succeed and appears unnecessary when access to the cervix is so easy.

COURSE, PROGNOSIS and TREATMENT.

THE COURSE and PROGNOSIS.

In the majority of treated cases of uterine and adnexal tuberculosis, the disease appears to have pursued a slowly progressive course, often extending over a number of years. In a few, the clinical manifestations are those of a rapidly extending lesion. From the number of cases discovered accidentally it is clear that the disease can exist in a completely silent form. Since apparently complete healing or arrest may follow conservative treatment, it is very probable that spontaneous healing can take place in these silent cases. In some there may be slow progress to the level of clinical symptoms and signs, while in others some factor may bring about activation and in these cases treatment will ultimately become necessary.

The possibility of spontaneous healing, or at least complete arrest, cannot be denied. In a large experience of autopsies on tuberculous women Jameson (1935) states that he has never seen healed tuberculosis in the pelvis. On the other hand, such women are not those most likely to have healed lesions. The longest known period for apparent arrest in this series was 6 years, but cases have been reported in

which good health was maintained for much longer periods after tuberculosis had been discovered in the genital tract.

The prognosis depends on the patient's resistance to tuberculosis, the presence or absence of lesions elsewhere and the form and character of the local disease. Another factor is the ability or willingness of the patient to obtain and carry out the full treatment which may be necessary.

Tuberculosis of the pelvic organs is only a local manifestation of a general disease and the general resistance of the body is the main factor which influences the outcome. If resistance is low and cannot be raised by appropriate treatment, then local measures will be of no avail. In many cases with active tuberculosis elsewhere, the disease in the pelvis is of secondary importance. In all cases with active pulmonary lesions the outlook is bad. In this series both the cases known to have active pulmonary tuberculosis were dead within four years. In one of these the resistance was further lowered by a pregnancy. In the cases reported by Peterson (1922), 44% of those with pulmonary tuberculosis were known to be dead. The prognosis in cases with peritoneal tuberculosis is better because this is usually secondary to the pelvic

disease.

Apparently localised lesions in the pelvis cannot be regarded as innocuous. The risk of general dissemination, though it may be extremely remote, is never completely absent. If the disease progresses, the local effects may be severe, with extensive destruction of the pelvic organs and abscess and fistula formation.

Treatment is usually sought before such a stage is reached. Whatever treatment is adopted, however, a few cases progress to a fatal termination, though death is seldom directly due to the genital lesions alone. The usual causes of death are pulmonary or generalised tuberculosis or complications which arise in the course of treatment.

In this whole series the primary (operative) mortality was 4.3% or 5% of abdominal operations. The total known mortality was 7.2%. These figures are very favourable. From a number of publications, Jameson gives 7% as an average for primary operative mortality and 22.1% as an average for late mortality. It is more difficult to obtain figures relating to non-operative treatment. Conservative treatment may be adopted because of active disease elsewhere, but if the cases with pulmonary tuberculosis are excluded,

the known mortality in this series was nil. For X-ray treatment, Lenz and Corscaden (1936) give an average of 10.7% for cases later dying of tuberculosis.

Of the 59 cases in this series traced for periods varying between 3 months and 12 years, and averaging 3 years and 8 months, 91.5% were known to be alive and 62.7% were in good health.

The end results in this series showed practically no variation according to the parts of the genital tract involved. The cases in which the cervix was involved all made a good recovery.

Another aspect of prognosis which must be taken into account is the fact that treatment may be tedious and prolonged. This may be due to the nature of general and physiotherapeutic treatment adopted, while operation is not infrequently followed by a slow convalescence.

Finally, in patients who are restored to health without interference with reproductive function, the possibility of future pregnancy is slight.

In this series of cases the average stay in the hospital ward was 29 days. Twenty-one cases had further treatment for an average period of 7 months. No case subsequently became pregnant.

From what has been said it will be seen that the prognosis must be guarded until the full extent of the disease has been ascertained and the reaction to treatment has been gauged. Some cases with severe and extensive lesions of the genital tract will ultimately make an excellent recovery, while others in whom the involvement is relatively slight will fail to respond to treatment.

TREATMENT.

It is quite unnecessary to attempt to divide cases into those which are primary and those which are secondary. In practice, primary infection need not be considered and all should be regarded as secondary until proved otherwise. It is, however, very necessary to recognise cases which are accompanied by active lesions elsewhere.

When the diagnosis is established one of the first considerations must be to make a thorough general examination. In many cases some treatment will already have been carried out and this will imply a re-examination of the patient. Even in these circumstances it should never be neglected. Special attention must be paid to the chest. Radiological examination is desirable and the sputum should be examined for tubercle bacilli.

If active pulmonary tuberculosis is discovered it may be wiser to adopt conservative treatment for the pelvic condition. Where the patient's condition is good or where the disease of the genital tract is causing deterioration of the general condition by pain, profuse menorrhagia or the presence of a large pyosalpinx or inflammatory mass, immediate local

treatment may be indicated. As a rule, however, all forms of conservative treatment should be given a trial before operative treatment is undertaken. It is hardly necessary to add that the requisite treatment for the pulmonary lesion must also be applied.

When no other active focus is discovered on general examination, the treatment can be directed entirely to the disease in the genital tract. This does not mean that treatment is entirely local, because general measures are as strongly indicated in this as in any other form of tuberculosis.

General Treatment.

When fever is present, complete rest in bed is indicated until the temperature has settled and remains steady. In many cases a period of treatment in a sanatorium will be beneficial and all cases should adopt at least a modified sanatorium regime for some time. The patient should have adequate rest, plenty of fresh air and a sufficiency of good and nourishing food, including milk and fresh fruit and vegetables. If it is possible, a temporary change of climate may be helpful in some cases. Economic conditions may modify the extent to which general treatment can be carried out, but an effort

should be made to obtain it in every case. In patients who are underweight and whose diet is unsatisfactory, the administration of cod-liver oil may be of benefit.

Heliotherapy, natural or artificial, is a means of treatment, the effects of which are mainly general though it also has some influence on the local condition. It has received great praise from some authors who regard it as one of the most important forms of treatment. Weibel (1934) places it first of all methods, combined if necessary with X-rays. Gibert (1933) claims that, together with general treatment, it will effect a cure in 40 to 50% of cases and points out its great value in post operative treatment. Rochat (1933) and Rollier (1933) also state that it may be curative in some cases, and that it may render operation possible in cases which, at first sight, appear inoperable. All these authors agree that its effects are greatest on superficial lesions and that it is most beneficial when the peritoneum is involved.

The usefulness of natural sunlight or ultra-violet irradiation as the main treatment or preliminary treatment is limited by the difficulties of diagnosis. Also, the consensus of opinion does not fully support the enthusiastic claims made in its favour.

Nevertheless it may be of great service in some cases and its value in post-operative treatment cannot be questioned. Administration must be controlled, commencing with short exposures and gradually increasing the dose. Rochat indicates that it is wise to lessen the dose for two or three days before menstruation is due. There appears to be no contra-indication except the presence of pulmonary tuberculosis.

Ultra-violet irradiation formed part of the treatment in at least 9 cases in this series and always with apparent benefit. In two, it was given at a Tuberculosis Dispensary at a time when no other special treatment was being given, and both these patients themselves acknowledged the improvement which resulted. In her own words, one stated, six years later, that she had "never needed a doctor since".

The general treatment which was given in this series included, in thirteen cases, a period in the Astley Ainslie Institution attached to the Royal Infirmary. The treatment received there included such special measures as the patient's condition demanded and in some cases ultra-violet irradiation. The results in all these cases showed marked general and local improvement and an increase in weight. Eight cases had some form of sanatorium treatment and with

benefit in all except the two fatal cases with pulmonary tuberculosis.

The local treatment of adnexal and uterine tuberculosis may be:

1. Conservative
2. Operative
3. By X-rays or radium.

CONSERVATIVE TREATMENT.

This implies that there should be no removal of tissue except such portions as are required for diagnosis. It is perhaps wrong to discuss laparotomy as non-operative but in this condition it is so frequently a diagnostic necessity that this seems to be the most appropriate place.

The usual indication for conservative treatment is the presence of active extra-genital tuberculosis. The usual sites for such lesions are the lungs or the abdominal peritoneum. On the evidence of some of the cases in this series, a further indication would seem to be present in cases with mild and hitherto unsuspected involvement of the genital tract.

Cases 47 and 14 of this series had active pulmonary tuberculosis. In case 47 a curettage for

menorrhagia was the only treatment. The subsequent history is unknown but the patient died within four years. Case 14 also had general peritoneal tuberculosis. After a successful artificial pneumothorax abdominal hysterotomy and ligation of the tubes was carried out. The patient died two years later.

Three cases in which laparotomy disclosed generalised tuberculosis of the peritoneal cavity with obvious involvement of the pelvic organs had no further operative treatment. Cases 38 and 40 were in good health $4\frac{1}{2}$ to 5 years later, and case 49 was in fair health 7 years later. Cases 38 and 49 both had some sanatorium treatment; case 40 apparently had none. Peterson (1922) reported that, of twelve cases treated by laparotomy only, 50% were alive and well from 1 to 18 years later.

In ten cases curettage revealed tuberculosis of the endometrium and was not immediately followed by operation. Three of these cases later required operative treatment. In case 11 the curettage was followed by a period of sanatorium treatment. The benefit of this was shown at the subsequent operation, 16 months later. Although the disease of the genital tract was extensive, a healing tendency was manifest on histological examination. Though post-operative

recovery was slow, there were no complications and the patient was in good health 15 months later. In cases 12 and 22 the interval was 10 months and $3\frac{1}{2}$ years respectively and in the latter, symptoms did not recur for three years after the curettage.

The other seven cases had no further local treatment. In this group the symptoms were, on the whole, less severe at the time of diagnosis and in some the only complaint was sterility. Five were traced and four were found to be in good health, the periods being, case 4, 5 months, cases 26 and 30, 3 years, and case 41, 6 years. The last of these had five months' sanatorium treatment. Case 27 was in fairly good health after 3 years. Tuberculosis of the Fallopian tubes must be suspected to have been present in all these cases and under those circumstances, curettage has been shown to have only a temporary effect on disease of the endometrium. Conservative treatment appears therefore to have been successful, though the possibility of future recurrence cannot be definitely excluded.

Aspiration of a pelvic abscess or drainage by colpotomy was carried out in cases 1 and 29. After a period of general and local treatment, operative removal was carried out. A course of treatment by

diathermy was given in case 17. The mass on one side of the pelvis decreased in size while that on the other increased, and operation became necessary. Jameson reports a case treated by diathermy in which temporary improvement resulted, after which relapse occurred necessitating operation. No good results have been reported from the use of diathermy in pelvic tuberculosis, though it is possible that some cases may be treated successfully without the nature of the condition being recognised.

If all these cases are included, there were 18 patients treated conservatively. Of these, two subsequently died and 6, or 33.3%, eventually required operative treatment. Of the remainder, 8 were traced and found to be alive and 6 were in good health.

This group of cases has been discussed in detail because this aspect of treatment is one which is seldom mentioned. Curettage and its results have already been fully discussed. In some cases it does appear to have beneficial effects, but it is difficult to see how it can ever be curative even in cases with isolated disease of the endometrium and these are held to be extremely rare. Muret (1934) reported the occurrence of pregnancy in a case treated only by curettage. It is possible that the apparent good effects

may be due, in part, to other measures taken at the same time.

Laparotomy, although it is included here under conservative treatment, may be more than merely a diagnostic procedure. It is well known that the act of opening the abdomen appears to be beneficial in many cases of peritoneal tuberculosis and it may, therefore, itself play an active part in the treatment. The reasons for the good effects of laparotomy are unknown. Many theories have been advanced but none has been generally accepted. It can only be stated that the removal of fluid and the admission of light and air to the peritoneal cavity are the obvious results of the operation.

The cases in which good results are obtained are those in which there is generalised superficial tuberculosis of the peritoneum. Deep-seated lesions are probably not affected in any way directly but they benefit by the subsequent improvement in the general condition. This was illustrated by a case reported by Parcelier (1932). General peritoneal tuberculosis, the origin of which was suspected to be in the Fallopian tubes, was apparently cured by medical treatment and laparotomy. Six years later the patient was in good condition but operation was undertaken for

menstrual symptoms. The peritoneum was found to be healthy but tubercles were present in the Fallopian tubes.

Pneumoperitoneum. Attempts have been made to obtain the beneficial effects of laparotomy without carrying out the operation. The method is to withdraw fluid, if present, by paracentesis and to inject air or oxygen. Stein (1934) uses oxygen and claims that it has a specific effect. The quantities of gas which he uses are 500 cc. to 1,500 cc. and he reports two cases in which cure resulted from this method combined with general treatment. Other cases with abscess formation were improved but later required operation. While the reported results are striking there is one outstanding objection to this procedure. Unless a large quantity of fluid is present, the insertion of a needle into a tuberculous abdomen must be regarded as a dangerous undertaking. In case 67 of this series, there was great difficulty in opening the abdomen owing to the dense adhesions present and in such cases, which are not infrequent, blind puncture might have disastrous results. The possible good effects and advantages of pneumoperitoneum cannot be denied, but it is a method which must be employed with the greatest caution.

OPERATIVE TREATMENT.

This is indicated when tuberculosis of the genital tract is present in a form which is amenable to surgical removal. Operation is also indicated in cases which fail to respond to any other form of treatment.

In a certain number of cases, operative treatment is carried out before the diagnosis can be made. In these cases the extent of the operation will be guided by the usual principles in dealing with pelvic inflammation. When the diagnosis has been made previously, or becomes obvious at operation, certain special features must be taken into consideration.

As in any operative treatment for tuberculosis, there is no question of attempting to achieve complete excision of the disease. The guiding principle is to remove a gross focus of infection in order to facilitate healing and to render healing more complete. It is desirable also to remove any probable or possible future focus, that is, any tissue in which the disease is present and, if left, is unlikely to heal.

There has been some controversy between those who have advocated conservatism and those who favour radical methods in dealing with uterine and adnexal tuberculosis. Conservative surgery may have two

objects, firstly, to preserve the menstrual function by leaving the uterus and one or both ovaries, and secondly, to preserve the reproductive function by leaving, in addition, the whole or part of one tube. Radical surgery implies that the minimum procedure permissible is a hysterectomy and bilateral salpingectomy.

The question must be reviewed in the light of what is known of the etiology and pathology. It has been maintained in this thesis that the initial lesion is in the Fallopian tubes in most if not all cases, and that both tubes are almost always involved. Greenberg (1921) found bilateral involvement of the tubes in 99% of his cases. Further, it is absolutely impossible to ascertain the extent of the disease by inspection and palpation of the pelvic organs. Therefore, if one Fallopian tube is the seat of tuberculosis, involvement of the other must be suspected, whether evidence is present or not. Moreover, the removal of one tube will not influence healing on the other side to any great extent and if one tube is left it is a potential site for the recurrence of a gross focus similar to that which has just been removed. Finally, the operative interference of removing one tube may cause a quiescent lesion on the other side

to flare up.

The validity of the reason for leaving the tube can also be questioned. The possibility of a future pregnancy cannot be denied, but the chances of its occurring are remote. Against this must be balanced the risk of a second and possibly more serious operation. If conception should take place before the disease is completely healed, there is the more serious though more remote risk that pregnancy may cause activation and widespread dissemination.

Bush (1933) holds that conservation of a tube is practically never indicated. Solomons (1923) considers bilateral salpingectomy the ideal treatment, as partial removal usually leads to more trouble. He points out that it may be wise to resect a portion of the uterine cornu in order to complete the removal of the interstitial portion of the tube. This point is also emphasised by Muret (1934).

The position with regard to the uterus is different since uterine tuberculosis is held to be almost always secondary to lesions of the Fallopian tubes. The uterus is probably involved in at least 50% of cases of tubal tuberculosis. The usual form in this series was disease of the endometrium, sometimes accompanied by miliary tubercles in the myometrium.

There is good reason to believe that this form of uterine tuberculosis can undergo complete resolution and healing if the tubal focus is removed.

Where the uterus is obviously grossly diseased or closely involved in an extensive pelvic lesion, there is no question of the necessity of its removal. In women near the menopause and when both ovaries are removed, a hysterectomy is probably advisable since amenorrhoea is not conducive to healing in this situation. In other cases it should not be considered necessary in spite of the even chance of leaving a diseased organ. Removal of the uterus may entail an unnecessary increase in the severity of the operation.

In cases where tuberculosis of the endometrium had been present, Solomons found no evidence of tuberculosis on curettage three months after bilateral salpingectomy. Bush (1933) concluded from his own experience that there was no great danger in leaving the uterus, and Taylor(1915) saw no ill-effects from doing so.

The ovaries are sometimes involved in such dense adhesions to the Fallopian tubes that their removal is unavoidable. Actual involvement of the ovaries occurs in from 20 to 30% of cases of tubal tuberculosis. If an ovary is found to be comparatively free

from adhesions and apparently healthy it should be perfectly safe to leave it. No case appears to have been reported of recurrence in an ovary after removal of the tube. Jameson quotes a statement that the artificial menopause is accompanied by less severe symptoms in tuberculous women. Many of the patients in this series, however, appeared to suffer from symptoms of the usual severity.

It is possible that a few miliary tubercles are present in the cervix more frequently than is suspected. There appears to be no record of recurrence in this situation after bilateral salpingectomy with or without supra-vaginal hysterectomy, so healing must be presumed to occur.

Results.

The end results of operative treatment in this and other series of cases fully support all that has just been said. The following is a comparison of the results reported by Bush and those collected by Jameson from thirty published series, with those in these cases.

	A	B	C
<u>Bush.</u>			
53 cases. 35 traced.			
Cases cured or much improved	64%	89%	75%
<u>Jameson.</u>			
Cases alive and well	62%		72%
<u>This Series.</u>			
57 cases, 45 traced.			
Cases alive and well, with no recurrence	58%		77%

- A = conservation of tube, ovary and uterus.
 B = conservation of ovary and uterus.
 C = radical operation.

The cases which received operative treatment in this series have been divided into two groups. One consists of 22 cases in which the uterus, with or without one or both ovaries and the whole or part of one Fallopian tube, was left in situ. In the other group of 37 cases, hysterectomy was carried out, either total or sub-total, and the only tissue left was the cervix or one ovary. The following is a more detailed comparison of the results as far as they are known:-

	<u>Conservative</u> 22 Cases	<u>Radical</u> 35 Cases
Primary operative mortality	-	3 (8.6%)
Average stay in ward	24 days	35 days
Complications	2 (9.1%)	4 (11.4%)
Faecal fistula	1	3
Urinary fistula	1	-
Colostomy	-	1
No. who had additional treatment	7	12
Average duration of additional treatment	5½ months	9 months
Cases traced	19	26
No. alive and in good health	11 (57.9%)	20 (76.9%)
Under one year	1	6
1 to 2 years	2	3
2 to 5 "	3	5
5 to 12 "	5	6
No. alive and in fair health	4 (21.6%)	5 (19.2%)
No. requiring further operation	4 (18.2%)	1 (3.8%)
<u>Tuberculosis found to be present</u>	<u>2</u>	-
Do. not Do.	2	1

In twelve of the cases in the conservative group, one tube or part of a tube was not removed. To these must be added two cases in which one tube and ovary had been removed 3 to 5 years before admission. In

case 44 this was almost certainly for tuberculosis and in case 22 probably for the same reason. This makes a total of 14 cases in which both tubes were not completely removed and of these 4, or 28.6%, required a second operation for tuberculosis. Also, in case 64, the presence of a pyosalpinx was suspected in the remaining tube two months after operation, but this apparently subsided. There is no knowledge of subsequent pregnancy in any case.

In no case where both tubes were removed was tuberculosis found at a second operation. In case 2 curettage, and in case 42 hysterectomy, was carried out 15 months after bilateral salpingectomy and in neither was there any evidence of tuberculosis. In case 7 the cervix was removed two years after a radical operation and showed only inflammation of a common type.

Although the ultimate results are better, it can be seen that the immediate mortality and morbidity are greater with radical surgery. Jameson gives an average figure of 9% for the primary mortality in this type of operation. The great danger lies in the very dense adhesions which are frequently present and the resulting risk of injury to the bowel. In case 5, death was due to peritonitis from injury to the pelvic

colon and case 45 died 36 days after operation, cause not stated, a faecal fistula having formed. In case 36, the cause of death was given as septicaemia and old-standing ulcers were present in the intestine. (The post-mortem report does not mention tuberculosis.)

A serious and not infrequent post-operative complication is fistula formation, usually a faecal fistula. This may occur even in the absence of obvious injury to the bowel or bladder. In this series the incidence of faecal fistula was 7% and of urinary fistula 1.7%, while a colostomy was necessary in one case. In the cases reported by Greenberg (1921) faecal fistula occurred in 17.3% and urinary fistula in 2.5%. In this connection it is important to avoid drainage of the abdomen if possible. It should be remembered that the pus is usually sterile and that drainage may therefore be unnecessary. Greenberg found faecal fistula fourteen times more common when the abdomen had been drained.

It has frequently been pointed out that the results of operation are much worse in cases with pre-operative fever. In the seventeen cases febrile at the time of operation in this series, the primary operative mortality was 11.8% and fistula formation occurred in 23.5%. Only 43.7% of the cases followed

up were found to be in good health.

A successful operation by the vaginal route was carried out in case 16 of this series. It is obvious, however, that the abdominal route is to be preferred if the presence of tuberculosis is suspected. This approach allows a thorough inspection to be made and the operation can be more completely adapted to the conditions found. The probable presence of dense adhesions, with resulting distortion of the pelvic anatomy, must also be considered.

Of the cases in which the menstrual function was preserved, in six menstruation remained regular and not excessive, and in two, it became regular. In one, menstruation remained irregular and one developed amenorrhoea.

The Cervix.

The three cases of cervical tuberculosis in this series were successfully treated by pan-hysterectomy. When the cervix is found to be involved, the first step to be taken is an examination of the genital tract above. If no evidence of active disease is discovered, conservative treatment may be tried. Locally, the cervix may be cauterised or antiseptics applied, but the main reliance must be placed on

general treatment. Counseller and Collins (1935) report a case which healed with general treatment and cauterisation. A case which healed after iodine application was reported by Neuwirth (1923). If conservative treatment fails or active lesions are found in the genital tract above, operative treatment is indicated. Removal of the cervix itself is probably not absolutely necessary, but if it is grossly diseased a pan-hysterectomy should be carried out. Amputation of the cervix is frequently recommended, but unless the lesion is proved to be primary, it is not a rational form of treatment.

X-RAY TREATMENT.

It is only within the last fifteen years that X-rays have received extended trial in the treatment of genital tuberculosis. The results which have been reported show that this form of treatment may have a great value in certain cases.

The manner in which the beneficial effect is achieved is not fully understood. It is agreed that the X-rays have no bactericidal action. It is known that the cells involved in the inflammatory process will be killed, while the surrounding healthy cells will be only temporarily affected. As a result,

necrosis and liquefaction is to be expected in the diseased area. It has been suggested that this promotes absorption (Lenz and Corscaden, 1936) and may also exert a mild protein-shock effect (Gal, 1937). The raising of resistance by the production of immunogens has also been suggested (Gibert, 1933). In addition, it is held that there is a stimulation to fibrous tissue formation which tends to wall off the lesion.

Since the field through which the rays are applied includes the ovaries, the effects on ovarian function must be taken into consideration. Depending on the dose employed and the age of the patient, there may be no effect on menstruation or amenorrhoea may be produced, either temporarily or permanently.

There is considerable variation of opinion as to the indications for X-ray therapy. According to some it should be employed in all cases, completely replacing operative treatment. Others hold that it should be used instead of radical surgery in some cases and in other cases as pre-operative or post-operative treatment.

Weibel(1934) gives heliotherapy and X-rays the first place in treatment. Kermauner (1930) considers X-ray treatment the procedure of choice when the

diagnosis is certain. Both hold that any surgical interference should be diagnostic and never therapeutic. Lenz and Corscaden consider the results of X-ray treatment superior in those cases most amenable to operative treatment, i.e. localised pelvic lesions with no tendency to breaking down.

Irradiation is advocated if general measures and heliotherapy fail by Gibert (1933). Brocq (1933) advises strictly conservative surgery followed by treatment which includes X-rays. The desirability of preliminary general treatment and the drainage of ascites and cold abscesses with perhaps partial surgical removal is indicated by Gibert. All those who couple heliotherapy with X-rays point out that the former affects only superficial lesions while the latter exerts an action on deep-seated disease.

Violet (1930) states that spontaneous healing is greatly helped by X-rays in cases where operation is impossible. Couriades and Jaulain (1935) allude to the good effects of X-ray treatment but prefer radical surgery because cure is much more rapidly obtained.

The outstanding advantage of X-ray treatment is the avoidance of primary operative mortality and morbidity. Jameson, however, states that cases have been reported in which acute exacerbation of the

disease took place. Lenz and Corscaden found that the principal ill-effect which had been reported was the liquefaction of large caseous masses with abscess formation going on to spontaneous rupture or necessitating drainage, with the ultimate formation of sinuses.

In comparison with the results of operative treatment, the results reported show, on the average, a similar or slightly smaller number of complete cures, a slight increase in the number improved, a smaller mortality and a certain number of cases in which there was no improvement. For X-ray treatment alone Lenz and Corscaden found in the literature an average of 85.9% cured or improved and 14.1% bad results, including a mortality of 10.7%. Gauss (1934) obtained apparent cure or improvement in 88%, Cassidy (1927) in 70% and Gál (1937) found 81% well after periods of 1 to 12 years. Less results of purely post-operative treatment have been reported but Lenz and Corscaden found an average of 88.1% cured or improved and 11.9% bad results.

The method of application varies between small, frequently repeated doses at short intervals and larger castrating doses at longer intervals. It is difficult to obtain figures for comparison but, on the whole, the use of small doses receives greater favour.

An average appears to be 10% of an erythema dose at intervals of one to four weeks, but each operator employs a slightly different technique. Most agree that if amenorrhoea is produced in the course of treatment, it is beneficial.

The excellent results of X-ray treatment of sinuses and fistulae is almost universally recognised. Both Violet and Lenz and Corscaden report cases in which sinuses healed and apparent cure resulted. It is usually stated that the results are bad if large collections of purulent material are present and that these must first be drained. Cases have been reported in which large masses, which may have contained pus, have subsided under treatment. In the presence of pulmonary tuberculosis X-ray treatment is not contraindicated but must be used with caution.


After eight years' experience, Gauss (1934) gives an excellent summary of the position with regard to X-ray therapy. He concludes that apparently hopeless cases do equally badly with surgery and X-rays but the latter may be given a trial. Advanced cases give better results with X-ray treatment. Circumscribed lesions do equally well with surgery and X-rays. It is absolutely essential to establish an accurate diagnosis before treatment and to do so curettage or

laparotomy and biopsy may be necessary. As post-operative treatment X-rays are indicated in every case. Small, stimulating doses are best. The production of amenorrhoea and complete castration is not a disadvantage. (The reasons which he gives for this last statement are exactly the same as those given in this thesis when discussing the conservation of one tube.) Gál is in almost complete agreement with the above conclusions and he considers operation the treatment of choice when the pelvic disease is circumscribed and therefore amenable to surgical removal.

All the authors who have been quoted in this connection stress the great importance of general treatment and the majority also regard heliotherapy as a valuable adjuvant to treatment.

Radium is not usually given any place in the treatment of genital tuberculosis, though some authors recommend it for lesions of the cervix. Good results cannot be expected in secondary involvement of the uterus and cervix and harm may be done if there is extensive disease of the tubes.

Radium is not infrequently applied to lesions of the cervix or in cases with menorrhagia before the true diagnosis is established. The usual result is



a temporary improvement. No ill-effects need be anticipated since radium is unlikely to be applied in the presence of extensive tubo-ovarian disease. It is as well, however, to institute further treatment without delay in such cases.

Bottaro and Pavlovsky (1923) report a case of tuberculosis of the cervix treated with radium. Rapid progression of the disease in the upper genital tract took place and signs of pulmonary involvement appeared. Gal treated three cases of tuberculosis of the cervix successfully and all remained well for one to three years. In addition to the application of radium, however, he gave X-ray treatment.

Having considered each method in turn, it is desirable to review the question of treatment as a whole.

General treatment is advisable in all cases. The more severe the disease and the less active the measures carried out, the more strongly is it indicated. Whenever possible it should be supplemented by ultra-violet irradiation (or natural heliotherapy if it is available), especially when there are superficial peritoneal lesions.

If curettage reveals tuberculosis of the

endometrium, disease of the Fallopian tubes must be suspected. If, however, there are no urgent symptoms or signs and the patient is in good condition, conservative treatment may be adopted. The possibility of recurrence or exacerbation must be borne in mind and it might be wise to warn the patient of this risk. A course of X-ray treatment might diminish the risk but if the disease appears to be very mild, the possibility of its producing an artificial menopause may make it undesirable.

If the symptoms are more severe and there are signs of pelvic inflammation, the abdomen may be opened at once or the effect of a course of general and X-ray treatment may be tried. The decision must depend on individual considerations in each case. If operation is delayed, it may be rendered easier by preliminary treatment. If a pre-operative diagnosis is made and the patient's condition is poor, or fever is present, operation should be avoided if such a course appears permissible.

If laparotomy discloses severe generalised tuberculous peritonitis, no further operative treatment is indicated. A minor degree of peritoneal involvement does not contra-indicate surgical treatment.

Perhaps the greatest value of X-ray treatment will

prove to be in those cases where complete operative removal promises to be extremely difficult. It is in these that operative mortality and morbidity is highest, and complete conservatism or partial removal and evacuation of abscesses followed by X-ray treatment appears to be worthy of trial. An even stronger indication for conservative surgery is the presence of fever when the abdomen is opened, as the results under these conditions are uniformly poor.

If moderately circumscribed lesions are discovered, the best treatment appears to be surgical removal. Both tubes should always be completely removed. The question of removing the body of the uterus must depend on the circumstances in each case. Drainage of the abdomen must be avoided if possible.

It is inevitable that surgical treatment will be carried out in a large number of cases before the diagnosis is established. If a post-operative diagnosis is made and only one tube has been removed, especially vigorous after-treatment is called for.

X-rays may be used in the post-operative treatment of any case. They have been proved to be especially effective in the treatment of post-operative complications such as sinuses and fistulae.

SUMMARY and CONCLUSIONS.

1. Tuberculosis appears to represent approximately .75-1% of gynaecological pathology.
2. The possible routes of infection are discussed in the light of clinical and experimental evidence. In the majority of cases the tubercle bacillus reaches the genital tract in the blood stream and the resulting initial lesion is in the Fallopian tubes. Infection of the Fallopian tubes by the lymphatics or directly from the peritoneal cavity can take place but is much less common.
3. With rare exceptions, tuberculosis of the ovaries and the uterus is secondary to disease of the Fallopian tubes.
4. The possibility of ascending infection cannot be denied but its importance is negligible. Its main interest is in connection with the cervix but for practical purposes tuberculosis in this situation should always be regarded as a descending infection from the body of the uterus and the Fallopian tubes.
5. Contributory causes are considered. It is

emphasised that these may be activating rather than predisposing factors. The most important are pregnancy, marriage and any cause of general lowering of resistance. In many cases, none is obvious.

6. Tuberculosis accounts for 5-10% of inflammatory conditions of the Fallopian tubes. They are involved in at least 90-95% of cases of genital tuberculosis.
7. The various pathological forms assumed by progressive or retrogressive tubal tuberculosis are described.
8. The relationship between tuberculosis and the condition known as Salpingitis Isthmica Nodosa is discussed. The condition is not tuberculous in nature but tuberculosis may play a part in its causation or be superimposed on it.
9. The ovaries are involved in 20-30% of cases of tuberculous salpingitis. The pathological course of ovarian tuberculosis is described.
10. No evidence of a typical change in the ovaries associated with tuberculosis could be discovered.

11. The uterus is involved in at least 50% of cases of adnexal tuberculosis. The pathology is described and the effects of menstruation and curettage considered.
12. The case of tuberculous infection of adenomyomata in this series, which has been previously reported, is mentioned and the recent literature reviewed.
13. Tuberculosis of the cervix is a clinical rarity but some degree of involvement is probably present in about 5% of cases of uterine and adnexal tuberculosis.
14. The majority of cases of uterine and adnexal tuberculosis are seen between the ages of 20 and 30 years but cases are not uncommonly encountered in the next decade.
15. The onset is usually gradual and the history fairly long but this is by no means the rule and in about one fifth of the cases the symptoms commence acutely and the history is short.
16. The symptoms and signs are described and are seen to be lacking in any

marked characteristics. Almost the only symptom which has a special association with this condition is sterility. Tuberculosis must be remembered as a cause of sterility in a certain number of cases.

17. Involvement of the uterus may be indicated by abnormal vaginal bleeding and profuse leucorrhoea. In gross lesions of the cervix a blood-stained vaginal discharge is to be expected, occurring characteristically after slight trauma.
18. The difficult problem which diagnosis presents is discussed. It is frequently impossible to make even a tentative pre-operative diagnosis. Features which may be helpful in certain cases are - a previous history of tuberculosis, the presence of tubal disease in a virgin, sterility, amenorrhoea and the failure to respond to ordinary forms of palliative treatment.
19. The methods of examination are considered. Useful information may be gained from radiological examination of the abdomen. Some interesting reports on the Zondek-Ascheim

reaction in tuberculosis of the Fallopian tubes are mentioned.

20. Curettage of the uterine cavity and examination of the endometrium may be of the greatest service in making a diagnosis not only of uterine but also of tubal lesions. The contra-indications and the possible dangers of this procedure are indicated.
21. In most cases, laparotomy is necessary before the diagnosis can be made and even at operation the nature of the condition may not be clear.
22. When the presenting lesion is in the cervix, a biopsy is a necessity.
23. The final diagnosis must always rest on the examination of sections of tissue under the microscope. It is pointed out that this may, occasionally, be unsatisfactory, and may require to be supplemented by bacteriological methods.
24. What is known of the course of the disease is described and it is pointed out that the prognosis is not always favourable.

25. Finally, the methods which are employed in the treatment of uterine and adnexal tuberculosis are discussed. The conclusions which are drawn are embodied in the review at the end of the section.

A brief summary of the cases is given in the Appendix. These have been made as short as possible. The clinical and pathological features have been discussed in detail in the text and it is intended that these brief notes should convey a general impression of each case.

In conclusion, I wish to acknowledge my great indebtedness and thanks to Professor Johnstone, Dr Haultain and Dr Miller for so kindly giving me permission to make use of the case records from their Wards and to Professor Johnstone for his permission to obtain access to the specimens in the Laboratory. I am indebted to Mr Shearsby for technical assistance in connection with the specimens and I wish to express my thanks to Mr Dodds for the preparation of the photographs.

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These authors reported cases of tuberculosis of the cervix. They have not been mentioned by name in the text.

SUMMARY OF CASES.

CASE 1. Age 45. Married. Para. 0.

Complaint: Pain right side - 2 weeks.

History: Sharp pain R.I.F., sudden onset, moved to groin. Menorrhagia 6 months 7/14. Vomited once.

Previous History: D.& C. for sterility 9 years ago.

12.8.34: Tubo-ovarian abscess aspirated through vaginal fornix.

31.8.34: Still elevated temperature and pain.
Sent to A.A.I. (Astley Ainslie Institution)

9.11.34: Re-admitted from A.A.I. Improved. Firm mass right fornix.

Operation: Intestine and peritoneum studded tubercles. Intestine and pelvic organs densely adherent, adhesions resembled thick strings. Large cystic mass right side of pelvis adherent to rectum and intestine, contained pus - removed.

11.1.35: Good recovery. Discharged from A.A.I. Condition good, wound not quite healed.

18.5.36: Good health; weight +, wound healed, amenorrhoea since operation.

Tuberculous tubo-ovarian abscess.

CASE 2. Age 32. Married. Para. 0.

Complaint: Pain lower abdomen and back.

History: Backache since marriage, 10 yrs. Pain lower abdomen, 2 yrs. not relieved appendicectomy.

Previous History: D.& C. for sterility 6 years ago.

5.11.34: Left ovary and tube enlarged and irregular.

Operation: Bilateral Salpingectomy, Left Oöphorectomy. Both tubes thickened, hard, nodular; left contained firm swelling size of walnut. Appearance suggested tuberculous pyosalpinx.

24.11.34: Good recovery. Discharged.

27.12.35: Re-admitted. Pain right side, nausea, dysuria.

Operation: Sub-total Hysterectomy, Rt. Oöphorectomy.
Dense adhesions. No tubercles.

No evidence of tuberculosis.

At 1st operation Tuberculous pyosalpinx.

CASE 3. Age 29. Married. Para. 5, last
2 years ago.

Complaint: Pain lower abdomen - several years.

History: Profuse intermenstrual bleeding 2 months ago, succeeded by foul blood-stained discharge. Pain now worse.

Previous History: Appendicectomy 2-3 months ago.

17.9.34: D.& C. Uterus enlarged 4". Cervix catarrhal. Indefinite mass in pouch of Douglas.

24.9.34: Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy. Uterus and appendages involved in mass of dense adhesions.

Good recovery; 1 month in Convalescent Home.

Miliary tuberculosis of endometrium.
No other evidence of tuberculosis.

CASE 4. Age 25. Married. Para.0.

Complaint: Sterility.

History: Now feels well. Gradually increasing hypomenorrhoea since marriage - 4 years. Slight leucorrhoea 3-4 years ago.

Previous History: Tuberculous peritonitis aet.19 treated laparotomy.

4.9.34: D.& C. Tubal Insufflation. Tubes closed.
Left ovary enlarged.

-.3.35: Good health; no symptoms; weight +.

Miliary tuberculosis of endometrium.

CASE 5. Age 30. Single.

Complaint: Pain low on right side of abdomen - 6 months.

History: Onset of pain sudden, intermittent attacks since. Losing weight 3 months.
Menorrhagia - slight. Dysmenorrhoea +.
Febrile.
W.B.C. 1,600. Sedimentation time 1 hour.

3.6.34 - Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy. Free fluid. Numerous adhesions. Miliary tubercles on bowel. Bilateral ovarian cysts.

Died in 36 hours from peritonitis due to perforation of pelvic colon.

Ultero-caseous tuberculous salpingitis.

CASE 6. Age 25. Single.

Complaint: Abdominal pain - 3 weeks.

History: Sudden onset with vomiting. Localised to left lower abdomen. Night sweats, losing weight. A few days after onset of pain had apparently normal period, 10 days early.

R.B.C. 4,130,000. Hb. 78%. W.B.C. 16,600.
Sedimentation time, 27 minutes.

Hard tender swelling behind uterus. Febrile.
? twisted ovarian cyst. ? pyosalpinx.

3.5.34 - Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy. Free fluid. Bowel densely adherent to tubes. Both tubes

distended with pus, filling pelvis: Colostomy performed.

Discharged to City Hospital. In City Hospital and Western General Hospital for 3 years. Colostomy closed. Nephrectomy performed.

23.3.38: Still has faecal and urinary fistulae. Otherwise in fairly good health. Weight + +.

Tuberculous pyosalpinges.
Miliary tuberculosis of endometrium.

CASE 7. Age 52. Married. Para. 0.

Complaint: Pain in left groin and down left thigh - 8 weeks.

History: Sudden onset like influenza, followed by bronchitis. Some vomiting. Leucorrhoea at onset.

Previous History: Operation on hip many years ago. Menopause 8 years ago.

30.4.37: ? Ovarian cyst, left side.

Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy. Numerous dense adhesions. Widespread miliary tubercles. Dense ovarian mass left side. Great difficulty in peritonisation.

30.11.34: Discharged from A.A.I. Good recovery, wound healed, condition good. Had U.V.R.

10.3.36: Re-admitted. Pain and leucorrhoea. Cervical stump removed.

No evidence of tuberculosis.

Ultero-caseous tuberculous salpingitis.
Miliary tuberculosis of endometrium and myometrium.

CASE 8. Age 38. Married. Para. 1, 6 years ago.

Complaint: Menorrhagia - 6 months.

History: Menstruation $\frac{5-7}{28}$ until 6 months ago. Now $\frac{9-10}{14}$.

12.4.34 - Operation: Pan-hysterectomy and bilateral Salpingo-oöphorectomy. Uterus slightly enlarged. Large par-ovarian cyst near right ovary.

26.6.34: Discharged.

30.1.35: Good health. Much improved since operation. No symptoms. Weight +.

Interstitial tuberculosis of cervix.
No evidence of tuberculosis elsewhere.

CASE 9. Age 34. Married. Para. 0.

Complaint: Pain left side - 1 year.

History: Previously well. Pain worse with menstruation, constipation and exertion. Dyspareunia.

Previous History: Nephrectomy for tuberculous right kidney 10 years ago.

No evidence of tuberculosis of left renal tract.

16.4.34: Tender fixed swelling to left of uterus; smaller swelling on right side.

Operation: Bilateral Salpingectomy. Right Oöphorectomy. Fairly thick adhesions to pelvic organs. Right ovary enlarged. Chronic salpingitis both tubes, with nodular formation.

4.5.34: Good recovery. Discharged with instructions as to regime.

-.3.35: Fairly good health. Dysmenorrhoea; slight leucorrhoea. Pain region left kidney. Weight +.

Fibro-caseous tuberculous salpingitis.
Tuberculous peri-oophoritis.

CASE 10. Age 40. Married. Para. 0.

Complaint: Swelling of abdomen, 3 weeks. Pain R.I.F.
3 weeks.

History: Pain severe, accompanied by nausea and vomiting.

16.3.34: Firm, solid; rounded swelling up to umbilicus. Febrile.

Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy. Uterus site of numerous fibroids. Numerous adhesions in pelvis but not to bowel.

5.4.34: Discharged. Good recovery.

-.3.35: Good health. No symptoms. Weight normal.

Tuberculous endosalpingitis.

CASE 11. Age 23. Single.

Complaint and History: Amenorrhoea of sudden onset and 3 years' duration. Increasing general debility. Profuse leucorrhoea. Pain R.I.F. for 5 weeks, sudden onset, fairly severe.

Family History: Brother has pulmonary tuberculosis.

3.8.32: D. & C. Cervix cauterised.

Patulous os with erosion posteriorly. Some fairly thick matter of stringy consistency protruding from os. Enlargement of both appendages.

Discharged to City Hospital under care of Tuberculosis Authority.

20.12.33: Re-admitted. Still pain and leucorrhoea.

Operation: Pan-hysterectomy and bilateral Salpingo-oöphorectomy. Uterus covered with tubercles. Tubes enlarged and coiled round ovaries.

19.1.34: Sent to A.A.I. Discharged 7.12.34 very well. Had U.V.R.

1.2.35: In good health.

At 1st Operation - Miliary tuberculosis of endometrium.

" 2nd " - Tuberculous pyosalpinges.
Miliary tuberculosis of myometrium. Miliary tuberculosis of cervix. (No specimen of endometrium.)

CASE 12. Age 38. Single.

Complaint: Menorrhagia and polymenorrhoea - 1 year.

History: Menstruation $\frac{4-5}{14}$. Occasional abdominal pain.
Dysmenorrhoea.

Previous History: Has had treatment for ? abdominal tuberculosis.

Thin and poorly nourished.

15.2.33: D.& C. Hard round mass in right appendages.

7.12.33: Re-admitted. Same symptoms, more pain.

Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy. Peritoneum and intestine covered with small tubercles. Numerous adhesions in pelvis and to coils of ileum. Right tube thickened and nodular.

29.12.33: Sent to A.A.I.

31.5.34: Much improved. Discharged from A.A.I.
Had U.V.R. Refused sanatorium treatment.

1.2.35: Good health. Weight +. Slight leucorrhoea and pain. Pelvic examination satisfactory.

At 1st Operation - Miliary tuberculosis of endometrium.

" 2nd " - Nodular tuberculous salpingitis.
Tuberculous peri-oöphritis.
(No specimen of endometrium.)

CASE 13. Age 28. Single.

Complaint: Pain in right side - 5 weeks.

History: Pain in R.I.F., sudden onset, recurring attacks. Slight leucorrhoea.

X-ray showed indefinite calcareous masses.
Diagnosis of Ovarian Cyst. ? + tuberculosis.
Febrile.

9.11.33: Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy. Dense adhesions in pelvis. Evidence of tuberculosis. Right broad-ligament cyst.

17.11.33: Sent to A.A.I.

29.12.33: Discharged. Improved.

-.3.35: Good health, no symptoms, weight +.

Tuberculous endosalpingitis.

CASE 14. Age 30. Married. Para. 3, last
3 years.

Complaint: Swelling of abdomen - 2 months.

History: Amenorrhoea 5 months. Slight pain in back.

Left pleural effusion, tapped. Improved after artificial pneumothorax. Zondek-Ascheim + ve.

29.9.33: Operation: Abdominal Hysterotomy, and Ligation of tubes. Peritoneum $\frac{3}{4}$ " thick. Widespread tubercles. Free fluid. Both appendages enlarged to size of fist and adherent in pelvis.

11.10.33: Sent to City Hospital.

5.11.35: Died in " "

Tuberculous peritonitis.

CASE 15. Age 22. Single.

Complaint and History: Attacks of cutting pain across abdomen for 1 week, fairly severe. Swelling of abdomen.

Smooth swelling rising out of pelvis.
Tenderness R.I.F.

17.5.33 - Operation: Left Ovariectomy. (? Right salpingectomy.) Left pseudo-mucinous cystadenoma. Nodule at right cornu, right tube appeared mildly inflamed with stricture in ampullary portion.

6.6.33: Discharged.

31.1.35: Good health, no symptoms, weight normal.

Tuberculous endosalpingitis.

CASE 16. Age 41. Married. Para. 7, last
18 months.

Complaint: Vaginal bleeding.

History: Five months amenorrhoea after last baby, followed by bleeding every 2 weeks, with pain, vomiting and malaise.

D.& C. 6 weeks ago, continuous bleeding since.

Previous History: Tuberculous pleurisy Jan. 1932.

Pale, unhealthy, ill-nourished.
Uterus retroverted and retroflexed. Febrile.

10.5.33 - Operation: Vaginal Hysterectomy and P.F.R. Uterus 1" enlarged. Tubes suspicious of tuberculosis.

2.6.33: Sent to A.A.I.

3.11.33: Discharged from A.A.I. Improved. Weight
+. Had U.V.R.

-. 3.33: Good health. Only symptom, "bladder
trouble." Weight ++.

Ulcerο-caseous tuberculοus	salpingitis.
" " tuberculοsis of	endometrium.
Miliary " "	myometrium.
" " "	cervix.

CASE 17. Age 22. Married. Para. 0.

Complaint and History: Shortly after marriage 2 years ago, began to have attacks of vomiting, increasing pain in lower abdomen and leucorrhoea. Dyspareunia. Menstrual flow decreasing.

Salpingo-oophoritis. Given diathermy before admission.

General condition improved. Left side of pelvis improved; right tube became markedly swollen.

3.3.33: Operation: Sub-total hysterectomy and bilateral Salpingo-oöphorectomy. Dense mass of adhesions in pelvis. Chronic inflammation left appendages; right tube contained pus.

24.3.33: Discharged. Good recovery.

26.9.33: Reported. In good health.

Tuberculous pyosalpinx.
Miliary tuberculosis of endometrium.

CASE 18. Age 27. Married. Para. 0.

Complaint: Dysmenorrhoea since menarché, gradually increasing in severity. Premenstrual, formerly 36 hours, now several days.

Swelling lower abdomen size of 5 months' pregnancy. ? Ovarian cyst. ? Degenerated fibroid.

Febrile.

16.2.33: Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Fibroid size of foetal head. Tumour congested and omentum adherent. Appendages normal.

Fibroid showed hyaline change.

10.3.33: Good recovery. Discharged.

-3.35: Fair health. Pain in back. Weak and easily tired. Weight +++.

Ulcerocaseous tuberculous salpingitis.

CASE 19. Age 26. Married. Para. 0.

Complaint: Dysmenorrhoea. Menorrhagia.

History: Married 2 years, symptoms 18 months, severe for 6 months. Periods irregular 7/14, accompanied pain lower abdomen radiating to back. Has to remain in bed at the time. Leucorrhoea.

20.2.33: D.& C. No apparent abnormality.

25.2.33: Discharged. Instructed as to regime, etc.

Untraced.

Miliary tuberculosis of endometrium.

CASE 20. Age 26. Married. Para. 0.

Complaint: Pain L.I.F. radiating to back, for 9 months. Stabbing at first, now less severe.

Pale, poorly nourished. Tender cystic mass left tubo-ovarian region, fixed to uterus.

12.10.32: Operation: Left Salpingo-oöphorectomy. Left tuberculous pyosalpinx. Right tube also involved, conserved in view of age. A few discrete glands present.

31.10.32: Good recovery. Discharged to City Hospital, where she remained 3 months. Weight + 2 st.

5.2.35: Good health, no symptoms. Weight maintained. No pregnancies. Has continued regime since discharge.

Tuberculous pyosalpinx.

CASE 21. Age 28. Single.

Complaint: Pain lower abdomen 3 days.

History: Sudden onset, accompanied by some vaginal bleeding. Now more severe.

Marked tenderness and rigidity lower abdomen. Tenderness in left fornix, appendages seem enlarged.

? Ectopic gestation.

27.8.32 - Operation: Left Salpingo-oöphorectomy. Free blood in abdominal cavity. Left haematosalpinx.

17.9.32: Good recovery. Discharged. Some thickening in pouch of Douglas on right side.

-.3.35: Good health. Slight leucorrhoea. Weight normal.

Chronic hypertrophic tuberculous salpingitis.
No evidence of gestation.

CASE 22. Age 28. Married. Miscarriage at 6 weeks, 3 $\frac{1}{2}$ years ago.

Complaint: Profuse, irregular menstruation.

History: For 10 months never free from bleeding for more than 2 weeks. Feels weak.

Previous History: Appendix and right tube and ovary removed 5 years ago.

9.6.32: D.& C. Uterus retroverted, appendages normal.

4.2.35: Good health.

10.12.35: Re-admitted. Pain L.I.F. Irregular menstruation. Leucorrhoea.

Operation: Sub-total Hysterectomy and left Salpingo-oöphorectomy.

Right side of uterus densely adherent. Left tube site of small hydrosalpinx adherent to bowel.

At 1st Operation - Ulcero-caseous tuberculosis of endometrium.

" 2nd " - " " "
Miliary " "
myometrium.
Tuberculous hydrosalpinx.

CASE 23. Age 27. Married. Para. 0.

Complaint: Pain right side - 6 weeks.

History: Sudden onset, sharp and severe. Has remained dull, occasionally sharp. Occasional vomiting 3 weeks. Feels out of sorts. Dyspareunia 6 months.

Mass size of orange to right of uterus.

25.5.32: Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Large mass filling pelvis. No adhesions to bowel. Mass friable, abscess found containing pus. Uterus appeared to be involved in process. Sigmoid colon and bladder formed part of abscess wall. Packed.

Developed faecal fistula.

24.6.32: Sent to A.A.I.

23.10.32: Discharged from A.A.I. Had balcony bed, U.V.R., etc.

Developed Ischio-rectal abscess; opened, now healing.

-.3.35: Good health. No symptoms. Weight +.

Tuberculous tubo-ovarian abscess.
" peri-oöphoritis.

CASE 24. Age 28. Married. Para 0.

Complaint: Pain R.I.F. before and during periods.

History: In bed with periods. Operation for appendicitis 18 months ago; temporarily relieved pain.

16.2.31: Gilliam's Operation: Uterus retroverted, fixed slight adhesions. Both tubes tortuous and outer third showed nodular salpingitis.

27.4.32: Re-admitted. Well for 3 months, now has pain L.I.F. before and during periods. Nausea. Left appendages enlarged and tender.

Operation: Left Salpingo-oöphorectomy.

Pelvic organs adherent and adhesions to bowel and omentum. Left appendages fused into inflammatory mass.

17.5.32: Good recovery. Discharged.

-.3.35: Good health. Dysmenorrhoea still severe. Occasional slight pain. Weight + 1 st. No pregnancies.

Had 9 months' treatment with U.V.R. which improved her health considerably.

Ulcerocaseous tuberculous salpingitis.

CASE 25. Age 28. Single.

Complaint: Metrorrhagia.

History: Since appendicectomy 6 years ago, periods 3-4/21-28, with almost continuous metrorrhagia. Occasional pain lower abdomen.

9.5.31: D. & C. Cervix cauterised.

Cervix infected. Two masses size of golf ball in right fornix.

12.5.31 - Operation: Right Salpingo-oöphorectomy.
Left partial Salpingectomy.

Cystic mass in left tube. Right tube contained a few hard lumps. Dense adhesions to right ovary which was cystic.

5.6.31: Sent to A.A.I.

4.12.31: Discharged. Balcony bed, U.V.R., etc.
Much improved. Weight + 1 st.

-.3.35: Good health, but states that "original complaint" persists - presumably metrorrhagia.
Weight maintained. No pregnancies.

Tuberculous pyosalpinx.
Miliary tuberculosis of endometrium.

CASE 26. Age 23. Married. Para. 0.

Complaint: Severe pain in left side for one week,
10 days ago, now absent.

Leucorrhoea, profuse, yellow, foul, for 5 years.

History: Thinner since appendectomy 6 years ago.
Heavy loss at periods.

8.4.32: D.& C. and cervix cauterised. Cervix eroded. Uterus retroflexed. Right ovary enlarged and prolapsed. Right utero-sacral ligament thickened.

6.5.32: Sent to A.A.I.

3.6.32: Discharged. Improved. Had U.V.R., etc.

-.3.35: Good health. No symptoms. Weight +.
No pregnancies.

Ultero-caseous tuberculosis of endometrium.

CASE 29. Age 30. Married. Para. 1, 8 years ago.

14.1.30, History: Formerly had pain L.I.F. and irregular menstruation.

-.8.31: Transferred from V.D. Dept. Colpotomy performed and large quantity of foul pus evacuated. W.R. +++.

4.9.31: Sent to A.A.I.

8.1.32: Re-admitted from A.A.I. Improved. Weight +. Still discharge and pain R.I.F. Febrile.

Operation: Cystic tumour removed from left side of pelvis, contained pus. Adherent to intestine, side wall of pelvis, parietal peritoneum and bladder. Right appendages not found.

Developed urinary fistula.

25.2.32: Sent to A.A.I.

16.12.32: Discharged. Progress slow at first. Wound now healed.

-.3.35: Fair health. Pain at times, some discharge, periods irregular. Weight +. No pregnancies.

Tuberculous tubo-ovarian abscess.

CASE 30. Age 28. Married 9 years. Para. 0.

Complaint: Sterility.

History: Formerly had some abdominal pain, none now.

4.12.31: D. & C. Right ovary enlarged to size of golf ball. No other apparent abnormality.

9.12.31: Discharged. Sanatorium treatment recommended.

-.3.35: Good health. Occasional pain in right side. No pregnancies.

Did not have sanatorium treatment.

Miliary tuberculosis of endometrium.

CASE 31. Age 41. Married. Para. 0.

Complaint: Dysmenorrhoea - 7 years.

History: Pain R.I.F. before and during periods, and returns after period. Slight leucorrhoea.

Uterus enlarged - fibroid. Right appendages enlarged and tender.

13.11.31 - Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Small fibroid. Both appendages grossly diseased.

9.12.31: Good recovery. Discharged.

-.3.35: Good health. No symptoms.

Nodular tuberculous salpingitis.
Tubercles in hilum of ovary.

CASE 32. Age 29. Married. Para. 0.

Complaint: Pain in right side. Leucorrhoea.
Vomiting.

History: Occasional pain 5 years. Acute pain in last 10 days, accompanied by vomiting. Brownish, thick, offensive leucorrhoea, 1 year. Chronic cough.

Previous History: Pneumonia. Pleurisy.
? Salpingitis 1 year ago.

18.5.31: Tenderness R.I.F. Both appendages thickened.
Febrile.

Operation: Right Salpingo-oöphorectomy.

Adhesions between bowel and abdominal wall.
Dense adhesions in pelvis.

5.6.31: Discharged. Satisfactory.

9.9.33: Re-admitted. Same symptoms, general debility.

14.9.33: Laparotomy. General plastic peritonitis.

19.2.34: In bad health, apparently due to lack of food and exhaustion.

Pelvis satisfactory.

Nodular tuberculous salpingitis.

CASE 33. Age 45. Married. Para. 2, last 20 years ago.

Complaint: Difficulty in passing water. Bearing down sensation in lower abdomen.

History: Symptoms for 2 years, increasing in severity. Has lost weight.

Soft doughy swelling behind uterus.

17.9.30: Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Pelvis and omentum studded military tubercles. Both appendages matted, filling pelvis.

21.10.30: Good recovery apart from pyelitis. Discharged.

-.3.35: Good health. Weight +. No symptoms.

Interstitial tuberculous salpingitis.
Tuberculous peri-oöphoritis.

CASE 34. Age 37. Married. Para. 1, 4½ years ago.

Complaint: Irregular bleeding.

History: Periods too frequent and profuse since baby $\frac{9-10}{14}$, irregular. Backache radiating to L.I.F.

Profuse yellowish discharge. Worse since D.& C. 1 year ago.

10.10.29: D. & C. Uterus enlarged, fibrotic and hard. Right appendages matted.

16.10.29: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Both tubes enlarged and adherent.

5.11.29: Discharged.

-.3.35: Good health. No symptoms. Weight +.

Tuberculous pyosalpinx.
Miliary tuberculosis of endometrium.

CASE 35. Age 32. Married. Para. 0.

Complaint: Attacks of pain in right side for 3 years, since appendicectomy. Slight leucorrhoea. Weight increasing.

Tenderness and rigidity R.I.F. Mass behind uterus.

2.4.30: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Dense adhesions in pelvis. Hydrosalpinx of left tube 6" x 4". Operation very difficult.

22.4.30: Discharged. Good recovery.

26.1.32: Reporting. Some recurrence of pain, due to constipation. Condition satisfactory.

Tuberculous hydrosalpinx.

CASE 36. Age 32. Married 10 yrs. Para. 0.

Complaint: Sterility.

History: Dysmenorrhoea since menarché.

For 6 months periods 7/26, formerly 3/28.

" " " a few drops of blood after coitus.

Yellowish discharge.

W.B.C. 7,400. Sedimentation time 1 hr.
Soft mass behind and to left of cervix.

18.11.29: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Thin adhesions between small bowel, peritoneum and mesentery. Left broad ligament cyst. Numerous adhesions in pelvis. Right tube contained pus.

23.11.29: Died.

Post-mortem: Numerous ulcers in small intestine, evidently old standing. Enlargement of abdominal and mediastinal glands. Septicaemia.

Interstitial tuberculous salpingitis.
Miliary tuberculosis of endometrium.

CASE 37. Age 24. Married. Para. 0.

Complaint: Pain in back, radiating to L.I.F. Intermittent for 9 months, continuous for last three months. Yellowish foul leucorrhoea.

Appendages grossly enlarged, lying in pouch of Douglas.

19.8.29: Bilateral Salpingo-oöphorectomy.

Extensive adhesions. Both appendages tuberculous and firmly adherent. Appearance suggested Ileo-caecal junction as origin.

9.9.29: Good recovery. Discharged.

30.4.30: Recurrence of pain. Probably due to adhesions. Very adipose.

Ulcerocaseous tuberculous salpingitis.

CASE 40. Age 28. Single.

Complaint: Pain lower abdomen - 11 months.
 Amenorrhoea " "

History: Occasional pain R.I.F., 4 years.
 ? Pyelitis 11 months ago; stabbing pain R.I.F.
 since and recently also in L.I.F. Yellow un-
 pleasant discharge. Recent loss of weight.

Both appendages abnormal. Some small glands
in pelvis.

23.5.29: Laparotomy.

Tubercles all over viscera. Pelvic organs
matted together and covered with tubercles.

15.6.29: Discharged. As satisfactory as possible.

-.3.35: Good health. No symptoms. No pregnancies.
Weight maintained. Did not have any Sanatorium
treatment.

Tuberculous peritonitis.

CASE 41. Age 26. Married 18 months. Para.0.

Complaint: Sterility.

History: Occasional slight pain in epigastrium.
 Periods rather profuse.

Previous History: ? Abdominal tuberculosis aet.10.

22.4.29: D. & C. Insufflation of Tubes. Tubes
patent. No apparent abnormality.

27.4.29: Discharged.

Had 5 months' treatment in Royal Victoria
Hospital.

30.1.35: Good health. No symptoms. Weight +.
No pregnancies. Feels much better since Sana-
torium treatment.

Miliary tuberculosis of endometrium.

CASE 42. Age 29. Married. Para. 0.

Complaint: Pain in both sides of lower abdomen.
Thick yellow vaginal discharge.

History: Had D. & C. for same trouble 6 years ago.
Swelling in left appendages.

4.2.29: Operation: Left Salpingo-oöphorectomy.
Right Salpingectomy.

Pelvis filled with adhesions. Extensive adhesions both appendages. Both tubes thickened and dilated. Operation difficult, raw area left.

26.2.29: Discharged. Good recovery.

25.6.30: Re-admitted. Vaginal bleeding.
D. & C. - no evidence of tuberculosis.
X-rays for artificial menopause.

4.2.35: Good health. No symptoms. Still has irregular menstruation $\frac{3-4}{3}$ mos. Weight +.

Ultero-caseous tuberculous salpingitis.

CASE 43. Age 40. Single.

Complaint: Pain L.I.F.

History: Sudden onset 14 days ago. Continuous since. Vomiting. Frequency of micturition.

Visible swelling, tenderness, rigidity and palpable mass in L.I.F. Palpable mass in left fornix. Febrile.

W.B.C. 8,000.

12.11.28 - Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Right tube enormously enlarged and coiled round behind uterus, reaching to umbilicus. Left tube almost as large, with partial torsion and dense adhesions. Appearance suggested tuberculosis. Very difficult. Drained.

Very ill after operation.

26.4.29: Transferred to Pilton Hospital. Wound not healed.

18.5.36: Good health. No symptoms.

Had treatment with U.V.R. at a Tuberculosis Dispensary and has remained well since.

Cold Abscess.

CASE 44. Age 25. Married. Para. 2, last 4 years ago.

Complaint: Pain R.I.F. Brown vaginal discharge.

History: Six weeks after last birth, abscess opened. Faecal fistula developed. Ten months later left tube and ovary removed. Present symptoms for 6 months.

Cystic swelling in right appendages.

3.9.28: Operation: Sub-total Hysterectomy and Right Salpingo-oöphorectomy.

Bowel, omentum and pelvic organs covered with tubercles. Right appendages embedded in adhesions.

4.11.28: Sent to A.A.I.

5.6.29: Discharged. Most satisfactory.

1.2.35: Good health. No symptoms. Had dry pleurisy in 1934 but X-ray apparently showed no active tuberculosis.

Interstitial tuberculous salpingitis.
Tuberculous peri-oöphoritis.
Miliary tuberculosis of myometrium.

CASE 45. Age 19. Single.

Complaint: Occasional aching pain R.I.F. for 9 weeks.
Amenorrhoea - 2 months. Pains in legs and arms
- 3 weeks. Slight white leucorrhoea.

Temp. 102. W.B.C. 21,800. Sedimentation time
30 mins.

21.7.28: Mass in right side of pelvis, probably tubo-
ovarian abscess. Left appendages thickened.
Febrile.

Operation: Sub-total Hysterectomy and bilateral Sal-
pingo-oöphorectomy.

Marked infection of both appendages. Abscess
anterior to right appendages. Dense adhesions.
Uterus "eaten into" by septic process.

27.7.28: Developed faecal fistula.

20.8.28: Died.

Tuberculous tubo-ovarian abscess.

CASE 46. Age 22. Married. Para. 0.

Complaint: Leucorrhoea. Swelling of abdomen.

History: Symptoms date from pseudocyst 6 months
ago. Profuse, constant, offensive white dis-
charge. Severe dyspareunia. General debility.

Tense cystic mass in right appendages.
Thickening of left appendages.

9.7.28: Operation: Sub-total Hysterectomy and bi-
lateral Salpingo-oöphorectomy.

Pelvic organs matted, firm adhesions, involv-
ing omentum and bowel. Bilateral tubo-ovarian
cysts.

30.8.28: Good recovery. Discharged.

6.11.29: Cystic swelling in left side pelvis.

-.3.35: Not in good health. Severe gastro-enteritis.

Tuberculous endosalpingitis.
Miliary tuberculosis of endometrium.
" " " myometrium.

CASE 49. Age 18. Single.

Complaint: Pain in left side.

History: Pain for 2 weeks, began in chest, moved to abdomen. Menstruation irregular. Slight metrorrhagia recently.

Soft swelling in pouch of Douglas.
Febrile.

20.2.28: Laparotomy.

Parietal peritoneum enormously thickened, matted coils of intestine. Tuberculous peritonitis. Tubes thickened and studded with masses of tubercles. Blood-stained fluid present.

12.3.28: Discharged.

22.11.28: Ulcers on wound.

-.3.35: Not in good health. Occasional pain in left side. Leucorrhoea. Dysmenorrhoea. Has had some sanatorium treatment.

Tuberculous peritonitis.
Miliary serosal tuberculous salpingitis.

CASE 50. Age 26. Married. Para. 0.

Complaint: Acute pain left side, sudden onset 10 days ago, now less severe. Slight discharge.

Fairly large tumour arising from pelvis.
Dull mid-line, flanks tympanitic. Febrile.

Tumour separate from body of uterus.

1.2.28 - Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Small amount of free fluid. Pelvis filled mass of adhesions. Two very large pus tubes with associated encysted peritonitis. Removal very difficult. Uterus removed because blood-supply feared to be inadequate. Appearance suggested tuberculosis.

22.2.28: Very satisfactory. Discharged.

-.3.35: Good health. No symptoms. Weight maintained.

Tuberculous pyosalpinges.

CASE 51. Age 54. Married. Para. 1, 35 years ago.

Complaint: Pain lower abdomen - 2 weeks.

History: Sudden onset, severe, spasmodic. Blood-stained vaginal discharge 1 week ago; pain less since. Menstruation irregular for 2 years.

Hard uneven mass in pouch of Douglas.
? Sub-peritoneal fibroid. Febrile.

26.5.27: Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Mass of adhesions in pelvis between appendages, omentum and coils of intestine. One or two small fibroids.

3.6.27: Discharged. Firm round mass in pouch of Douglas.

Sanatorium treatment advised.

Untraced.

Chronic atrophic tuberculous salpingitis.

CASE 52. Age 28. Married. Para. 0.

Complaint: Sterility. Very occasional white discharge. General health very good.

31.3.26 - Operation: Removal of right broad ligament cyst and tube and ovary.

Cyst size of foetal head. Right tube thickened and felt partly calcified. A number of calcified glands felt.

Recovery slow. Discharge from wound.

6.5.26: Discharged.

3.2.35: Known to be alive and in good health.
Has no family.

Chronic atrophic tuberculous salpingitis.

CASE 53. Age 17. Single.

Complaint: Pain R.I.F.

History: Sudden severe attack 3 months ago, accompanied by vomiting. Another attack 6 weeks ago. Pain also in small of back. Menstruation $\frac{1}{21-35}$.

Family History: Sister has tuberculous spine.

12.1.26 - Operation: Left Salpingo-oöphorectomy,
Right Salpingectomy.

A few tubercles on bowel; numerous on both appendages. Ampullary portion of right tube much distended and tube twisted several times but torsion not acute. Left appendages densely adherent and tube contained caseous material.

16.2.26: Discharged. Good recovery. Thrombosis left femoral vein.

1.2.35: Good health. Well since operation. Only complaint dysmenorrhoea.

Tuberculous pyosalpinx.

CASE 54. Age 33. Married. Para. 0.

Complaint: Pain, 6 weeks. Blood-stained discharge,
5 weeks.

History: Onset of pain sudden, intermittent since,
all over abdomen; most on left side. Worse in
last week.

Tenderness and dulness L.I.F. Rounded and
elastic swelling in left fornix. Febrile.

29.9.25: Operation: Sub-total Hysterectomy and bi-
lateral Salpingo-oöphorectomy.

Mass in pelvis densely adherent to bladder,
bowel and omentum. Bilateral pyosalpinges.

17.10.25: Discharged. Satisfactory.

18.2.26: Some pain in back. Requires corset.

Tuberculous pyosalpinges.

CASE 55. Age 42. Married. Para. 1, 18 years
ago.

Complaint: Irregular vaginal bleeding - 6 weeks.

History: Four days' bleeding after last period.
Pain lower abdomen, with bleeding. Periods
normal. Has lost weight.

Cystic swelling in right side of pelvis.

24.8.25: Operation: Sub-total Hysterectomy and bi-
lateral Salpingo-oöphorectomy.

Adhesions in abdomen. Tubes dilated and
inflamed with numerous adhesions to bowel and
ovaries. Contained caseous material.

10.9.25: Sent to A.A.I.

29.10.25: Discharged. Good progress. Weight + 1
st.

30.1.35: Is known to be alive and presumed to be in
good health.

Ulcerocaseous tuberculous salpingitis.

CASE 56. Age 19. Single.

Complaint: Abnormal vaginal bleeding on two occasions recently. Otherwise in good health.

Swelling in both appendages.

12.3.25 - Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Numerous tubercles on bowel, peritoneum and mesentery. Numerous dense adhesions in abdomen and pelvis. Bilateral tuberculous pyosalpinges.

6.4.24: Discharged. To go to sanatorium.

Untraced.

Tuberculous pyosalpinges.
Tuberculosis of ovary.
Miliary tuberculosis of endometrium.

CASE 57. Age 25. Married. Para. 0.

Complaint: Dysmenorrhoea.

History: Pain across lower abdomen, before and during periods since menarché.

Mass of doughy consistency to right of uterus.

15.12.24 - Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Matted mass of adhesions in pelvis. Both tubes greatly enlarged and distended. Contained thin yellow pus.

3.1.25: Discharged.

Untraced.

Tuberculous pyosalpinges.

CASE 58. Age 24. Married 2 years. Para. 0.

Complaint: Pain right side. Sterility.

History: Pain spreads across abdomen. Worse with periods and exertion. Never well since marriage. Occasional slight white discharge.

Fixed retroversion. Small, firm, fixed mass in right lateral fornix. ? Salpingo-oöphoritis.

8.12.24 - Operation: Bilateral Salpingo-oöphorectomy.

Many dense adhesions in pelvis. Both tubes and ovaries extensively diseased.

29.12.24: Discharged.

Untraced.

Tuberculous tubo-ovarian abscess.

CASE 59. Age 28. Married 4 years. Para. 0.

Complaint: Has been told womb is displaced.
(? Sterility)

History: Operation $2\frac{1}{2}$ years ago for "peritonitis".
No symptoms since. Slight white discharge.

Appendages not easily palpable.

12.11.24 - Operation: Right Salpingo-oöphorectomy.

Many adhesions in abdomen. Uterus fixed in retroversion. Both appendages firmly bound down. Both tubes diseased and nodular.

8.12.24: Discharged.

Untraced.

Nodular tuberculous salpingitis.

CASE 60. Age 21. Single.

Complaint: Aching pain left side - 6 months.

History: Missed two periods before the last. Heavy work for 3-4 months before onset of present pain.

Previous History: Treated for ? abdominal tuberculosis 3 years ago.

Firm mass right lateral and posterior fornix.

16.7.24 - Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Pelvic organs very adherent and matted together. Tubes and ovaries full of pus.

Developed faecal fistula.

18.9.24: Sent A.A.I. Fresh air, U.V.R., etc.

2.12.26: Still faecal fistula. Weight + 5 st. Transferred to City Hospital.

-.5.27: Discharged from City Hospital.

-.3.35: Good health. Some discharge. Weight maintained. Wound still not healed.

Tuberculous tubo-ovarian abscess.
Miliary tuberculosis of endometrium.

CASE 61. Age 27. Married 3 years. Para. 0.

Complaint: Dragging pain L.I.F. - 2 years.
Sterility.

History: Pain comes in attacks and radiates across abdomen. Worse with periods. Dyspareunia. Periods becoming heavier. Vaginal orifice tender since marriage.

Vulva inflamed. Marked tenderness in pelvis.

17.6.24 - Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Pelvic organs red and congested. Tubercles

on posterior surface of uterus. Tubes enlarged, firm, as if filled with caseous material and twisted round behind uterus.

7.7.24: Discharged. Satisfactory.

14.5.25: Reported. Feels well and health much improved. Weight +.

Ultero-caseous tuberculous endosalpingitis.

CASE 62. Age 28. Married. Para. 0.

Complaint: Pain R.I.F. - 2 weeks.
 Leucorrhoea - 3 months.

History: Pain of sudden severe onset, with vomiting. Missed the period before the last. Yellow irritating discharge.

Firm diffuse mass in right fornix.

10.6.24 - Operation: Sub-total Hysterectomy and bilateral Salpingo-oöphorectomy.

Pelvic organs matted with adhesions, involving small intestine. On separation, pus escaped. Right tube distended with pus.

27.6.24: Discharged.

19.7.24: Re-admitted for wound breaking down.

19.2.25: Some thickening each side of cervix.

Tuberculous pyosalpinx.

CASE 63. Age 45. Married 21 years. Para. 0.

Complaint: Pain on right side, radiating round to back - 2 months.

History: Had abdominal pain and discharge 19 years ago, treated douching.

Family History: Father died from haemoptysis.

? Sub-peritoneal fibroid.

27.9.23 - Operation: Supra-vaginal Hysterectomy and bilateral Salpingo-oöphorectomy.

Two interstitial fibroids on posterior wall.
Left tube thickened and nodular at uterine end.

Post-operative bronchitis. ? Old tuberculous lesion right apex.

17.10.23: Discharged.

10.8.26: Reported complaining of abdominal pain.
To report again.

Nodular tuberculous salpingitis.
Miliary tuberculosis of endometrium.
Tuberculous adenomyomata of uterus.

CASE 64. Age 28. Married. Para. 0.

Complaint: Pain. Leucorrhoea.

History: Pain L.I.F.; thick yellowish vaginal discharge; frequency and dysuria; irritation of vagina since 1st marriage - 10 years; worse since 2nd - 3 years. Flooding 3 years ago.

Tenderness and rigidity lower abdomen.
Tenderness and thickening both lateral fornices.

1.8.23: Operation: Right Salpingo-oöphorectomy,
Left Salpingostomy.

Tubes thickened, dilated and adherent to ovaries, uterus and bowel.

25.8.23: Discharged.

2.10.23: Reported. Swelling to left of uterus.
? Tuberculous pyosalpinx.

Ultero-caseous tuberculous salpingitis.

CASE 65. Age 19½. Single.

Complaint: Pain left side - 14 days. Pain on
defaecation - 7 days.

History: Last period prolonged and followed by pain.
Vomited twice.

Tenderness L.I.F. Mass in left fornix.
? Pyosalpinx. Febrile.

4.6.23: Operation: Left Salpingo-oöphorectomy.
Numerous adhesions both tubes. Left side pus-
tube adherent to bowel and pelvic floor.

19.6.23: Tender fixed mass right fornix.

5.7.23: Discharged.

8.8.23: Re-admitted. Pain right side.

Operation: Right Salpingo-oöphorectomy.

Right tube and ovary fixed and adherent.

4.9.23: Satisfactory. Discharged.

Untraced.

Tuberculous pyosalpinx.

CASE 66. Age 39. Married. Para. 0.

Complaint: Vaginal bleeding.

History: For 4 months never free from bleeding for
more than a week. Slight white discharge.
Had D. & C. 4 years ago for pain, none since.

Uterus enlarged half way to umbilicus; feels
nodular.

4.6.23: Operation: Sub-total Hysterectomy and bi-
lateral Salpingo-oöphorectomy.

Uterus enlarged, hard and nodular. Both
tubes thickened and congested. Fimbriae
matted together.

25.6.27: Good recovery. Discharged.

Untraced.

? Interstitial tuberculosis of uterus.

No report on tubes.

CASE 67. Age 41. Married. Para. 0.

Complaint: Pain right lower abdomen and back.
Leucorrhoea. Frequency of micturition.

History: Pain for 16 years, worse for 2 years.
Menstruation irregular for 1 year. Abscess
on lip of front passage incised 20 years ago.

Mass to right of uterus.

25.4.23: Right Ovariectomy.

Peritoneum and bowel densely adherent, difficulty in entering cavity; bowel opened. Ovarian cyst right side, bound down dense adhesions. Salpingitis left tube; removal impossible.

10.5.23: Discharged.

4.2.35: Fairly good health. Some pain lower abdomen recently. Gall-stones. Now past menopause.

Ultero-caseous tuberculous salpingitis.

CASE 68. Age 28. Married 6 years. Para. 0.

Complaint: Sterility.

History: Some pain in back and L.I.F., especially with periods, which are excessive and irregular. Foul yellow discharge.

Heavy retroverted uterus.

