

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for scanning. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of scanning are checked below.

L'Institut a numérisé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de numérisation sont indiqués ci-dessous.

- Coloured covers /
Couverture de couleur
- Covers damaged /
Couverture endommagée
- Covers restored and/or laminated /
Couverture restaurée et/ou pelliculée
- Cover title missing /
Le titre de couverture manque
- Coloured maps /
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black) /
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations /
Planches et/ou illustrations en couleur
- Bound with other material /
Relié avec d'autres documents
- Only edition available /
Seule édition disponible
- Tight binding may cause shadows or distortion
along interior margin / La reliure serrée peut
causer de l'ombre ou de la distorsion le long de la
marge intérieure.
- Additional comments /
Commentaires supplémentaires:

Continuous pagination.

- Coloured pages / Pages de couleur
- Pages damaged / Pages endommagées
- Pages restored and/or laminated /
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached / Pages détachées
- Showthrough / Transparence
- Quality of print varies /
Qualité inégale de l'impression
- Includes supplementary materials /
Comprend du matériel supplémentaire
- Blank leaves added during restorations may
appear within the text. Whenever possible, these
have been omitted from scanning / Il se peut que
certaines pages blanches ajoutées lors d'une
restauration apparaissent dans le texte, mais,
lorsque cela était possible, ces pages n'ont pas
été numérisées.

THE
CANADIAN PRACTITIONER

EDITOR:

ADAM H. WRIGHT, B.A., M.D. Tor.

ASSOCIATE EDITORS:

JAMES F. W. ROSS, M.D. Tor. JOHN CAVEN, B.A., M.D. Tor.

EDMUND E. KING, M.D. Tor.

PUBLISHERS:

THE BRYANT PRESS, 20 BAY STREET.

VOL. XX.]

JUNE, 1895.

[No. 6

Original Communications.

DISPLACEMENTS OF THE LIVER.*

By J. E. GRAHAM, M.D., M.R.C.P. LOND.,

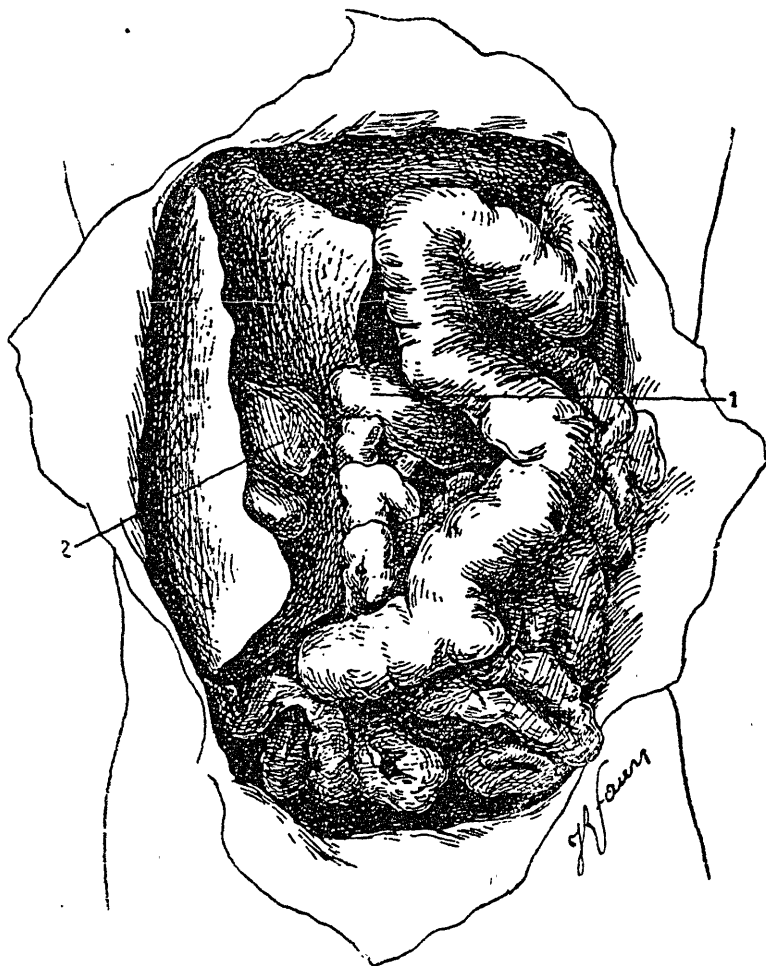
Professor of Medicine and Clinical Medicine, University of Toronto; Physician to the
Toronto General Hospital, and St. Michael's Hospital.

THE liver is freely movable within certain limits. Its position changes with each respiration, and with many of the movements of the body. It is quite probable, also, that in females with pendulous abdomen the liver may, on account of its own weight, descend an inch below its normal limit without producing any unpleasant symptoms, and that many such cases have not been noticed, nor recorded.

Cases of marked displacement, in which the normal hepatic dullness is absent, and the liver found low down in the abdominal cavity, are rare, and the number so far recorded is limited.

In 1754, Heister published a description of the post-mortem appearance of the abdominal organs in a case of hepatic displacement, and added a drawing, a representation of which I show you. This article seems to have been overlooked by almost every writer on the subject, until it was discovered by Faure, and published in his recent work at Paris in 1892.

*Read before the Association of American Physicians, Washington, May, 1895.



Facsimile of the cut which accompanies Heister's case.

1. Stomach. 2. Lobulus spigelii.

The subject is referred to by Gunzius, 1744; Bucholz, 1768; Sauvage, 1768; Portal, and one or two other writers of his time. In more recent times (1866), Cantani first published the history and description of a case.

Leopold, in 1875, collected nine cases and published them in tabulated form. In the list appended to this paper Leopold's method of classification has been, to a large extent, adopted.

Wickham Legg, in 1878, made a collection of twenty previously published cases. He expressed great doubt as to the correctness of diagnosis in these, for two apparently good reasons: (1) That in only two of the so-called cases had a post-mortem been made, and in both these the liver had been found in the normal position. (2) He stated that after a careful examination of anatomical literature, he had been unable to find the record of a single case of displaced liver. He had evidently overlooked Heister's case. Since 1878 the possibility of displacement has been proved, not only by post-mortems, but also by abdominal sections during life.

In 1885, Landau published a work, "Die Wanderleber und der Hangebauch der Frauen," in which he gave brief histories of sixteen cases which came under his own observation.

The last, and, perhaps, the most exhaustive work, was published in Paris, 1892, by Faure. In this a collection of fifty-four cases is given, as well as an account of a number of experiments made on the cadaver.

Some cases have been reported since, so that I have made a collection of seventy, which are herewith given in a tabulated form. In recording these cases I have taken into consideration only those in which the displacement was due to abnormal conditions below the diaphragm, excluding also such cases as are produced by tumor or abscess above the liver pressing it down. The slighter form due to pathological condition of the right chest, such as pleurisy, pneumothorax, and emphysema, are not rare, and are not here taken into consideration. Chvostek, Meissner, and Winkler have written long and able articles on this subject.

I am of opinion that the cases so far recorded might easily be divided into two classes. First, the wanderleber of the German, *fegato ambulante* of the Italian, floating liver, a condition almost always found in women with pendulous abdomen, usually after frequent childbearing; and a second class, made up of both males and females in whom the causes of displacement are varied. By far the larger proportion of cases belongs to the first class.

It is probable that the number recorded bears a small proportion to the number which really exists. This opinion is strengthened by the fact that so many have been published since the observations of Cantani in 1866. Previous to that time the subject was scarcely noticed, even in treatises on the liver, such as Budd, Frerichs, etc.

Floating liver, however, is very much less frequent than floating kidney, and one cannot be surprised at this when the number and strength of the ligaments which attach the liver to the abdominal walls are considered, as well as the intimate connection between that organ, the inferior vena cava, and the right heart. The distance between the wall of the right auricle and the junction of the hepatic veins with the inferior vena cava varies from one and a quarter to one and three-quarters inches, and it is difficult to conceive how, in any way, this distance could be very much increased.

It is probable that in the ordinary state of health the ligaments of the liver are sufficiently strong to carry the whole weight of the organ without the aid of the abdominal wall. This I have demonstrated in a majority of the few experiments I have made on the cadaver.

The normal position in the recumbent posture was marked by the insertion of pins through the abdominal wall. The subject was then placed on his feet and the lower margin again marked. The abdomen was then opened, the intestines allowed to fall down, and the subject was jarred and shaken. In some cases the anterior margin of the liver did not descend lower after the abdomen was opened than before. In some, however, the liver descended an inch to an inch and a half after the abdomen had been opened. In the latter case it appeared to me that when the atmospheric pressure was removed, the length of the suspensory ligament allowed the liver to drop to the extent noted. After section of the suspensory ligaments, the anterior border of liver descended about three inches, the right lobe more than the left. The posterior margin remained fixed.

In examining the ligamentous attachments, one is struck by the great difference in their strength and thickness in different cases. For instance, in some the lateral ligaments were thick and strong enough apparently to carry the whole weight by themselves, whereas in others they were thin, weak, and easily torn. The fact that in some cases the liver rotates on its axis may be due to the varying strength of these.

In the case of women with pendulous abdomen after childbearing, it is probable that the ligaments of the liver may not have their normal strength, and the heavy weight constantly dragging upon them may in time produce an elongation not only of the ligaments, but of the inferior vena cava.

My clinical observations have been limited to three cases. One, a female, with lax abdomen, belonging to the first class; one, a male, belonging to the second class; and the other a case of subphrenic abscess which really does not belong to either class, but which I include on account of the great displacement of the liver found on post-mortem examination.

CASE I. An old lady, æt. 62 years, mother of ten children, whom I was called to see in 1885, and found suffering from dyspnoea and cyanosis

on the slightest exertion. Upon examination I found a somewhat dilated right heart, bronchitis, and emphysema. The abdomen was very pendulous, the liver somewhat enlarged and very much displaced. The upper border of relative dullness was not higher than the margin of the seventh rib in the nipple line, and the lower margin could be distinctly felt two inches below the umbilicus. When the patient was in the horizontal position the liver could be partially replaced. With rest in bed and the administration of digitalis, the patient made considerable improvement. I found, however, that each time she attempted to get up and move around the room she complained of the weight in the abdomen and of difficulty in breathing. Cyanosis rapidly followed. This condition had existed for months, and had gradually become worse. It occurred to me that the displacement and weight of the liver might be an important factor. An abdominal bandage was fitted in such a way as to support the latter organ with a most satisfactory result. The patient was able to go about the house and walk a block or two on the street, an amount of exercise she had not taken for months. The dyspnoea and cyanosis were much improved, and the patient lived for about five years in comparative comfort. She found, however, that when the supporter was laid aside the old symptoms of weight, dyspnoea, etc., quickly returned.

In this case other important pathological conditions were present besides the liver displacement—emphysema, dilated right heart, and cardiac liver. Nor was the displacement so marked as in some of the cases recorded by Leopold, for instance, but the result of the treatment demonstrated the fact that the displacement was one of the most important factors, and that support was necessary to the existence of any degree of comfort. A point of interest in connection with the case was the relationship between the position of the liver and the right heart. There was no doubt that the weight of the former had a marked influence on the production of cyanosis, and that this was relieved when the abdomen was supported.

In some of my experiments, after severing all the ligaments and drawing the liver downwards, the right auricle was slightly changed in shape and position. It was not possible, however, with an amount of force short of rupturing the ligaments, to produce any effect on the right auricle.

Upon examination of the tabulated list of cases, it will be noticed that in four or five a similar condition of dyspnoea and cyanosis is described, and that those disagreeable symptoms were relieved by the use of an abdominal support.

CASE 2. J.R., æt. 35 years, whom I was called to see in consultation on the evening previous to his death. Patient was pale, emaciated, and so weak that a thorough examination could not be made. The history

given was that the patient, a builder, had for some months suffered from severe pain in the region of the liver, together with marked symptoms of indigestion, and that for the last three weeks he had been confined to bed. He had latterly developed symptoms of peritonitis.

Upon examination, we found an enormously dilated stomach and a displaced liver. Splashing could be produced almost as low down as the pubes. The liver could be easily felt through the abdominal walls, and both splashing and stomach resonance could be obtained above and below the liver.

The diagnosis made was pyloric stenosis, gastrectasis, and hepatic displacement.

The patient died on the following morning.

The post-mortem revealed an enormously dilated stomach. The greater curvature was found in close proximity to the pubes. The cardiac orifice was found in the normal position, and the pylorus displaced downwards about two inches. The liver was situated obliquely across the front of the stomach, having been displaced downwards and to the left, the right lobe partly under the anterior portion of the diaphragm, and so displaced that the right lateral border pointed upwards, and the normal anterior border pointed to the right. The left lobe, much hypertrophied, was displaced downwards, so that a portion of it was found immediately behind the umbilicus. A large subphrenic abscess was discovered behind the liver pushing up the posterior portion of the diaphragm. The pylorus and contiguous portion of the duodenum were sharply curved, and the lumen almost closed by external peritonitic bands.

In this case the abnormal condition was primarily due to the subphrenic abscess, which pressed the liver forward and downward, and at the same time caused it to turn on its axis. If a more determined effort had been made, the cause of the dislocation might have been found during life. The displacement of the liver here was not the primary condition, nor was it the most important feature, yet it illustrates one way in which that organ has been shown to assume an abnormal position.

CASE 3. M.T., æt. 17, admitted to Toronto General Hospital, November 20, 1894. The patient, a boy, was born in England, and lived some years in London, where he was employed as a messenger. Having suffered much from hardship and destitution, he applied to one of the orphanages, and was thus brought to Canada.

Nothing to be noted in the family history.

Patient stated that his health had always been good up to the commencement of the present trouble.

In the latter part of last July, while driving on a wagon loaded with stone, he fell off and the front wheel of the wagon passed over him. Ac-

ording to the account given, the wheel passed obliquely across the body from left to right, fracturing the seventh and eighth ribs on the left side. He was carried home in an unconscious condition and placed under medical care. Dr. Aikins, who attended him, informed me that the shock was not severe, but that he complained of great pain and tenderness over the region of the liver, and that the abdomen was not much swollen. In three weeks he was able to go about, and came to Toronto. He still complained of pain, tenderness, and great swelling of the abdomen, and, as these conditions persisted, he was sent to the hospital.

He was of a peculiar dwarfed appearance, his body being longer in proportion than his legs. Rickety nodules were discovered on the ribs, and the abdomen was enormously distended.

On physical examination, a considerable amount of fluid was found in the peritoneal cavity. A large hard tumor was also discovered in the epigastric and left hypochondriac region. Patient complained of great tenderness over the tumor, and of severe pain, which passed upwards and downwards along the spine.

Digestion normal, with the exception of eructation of gas after meals. Appetite fairly good. The area of cardiac dullness seemed lessened, and the apex beat was found in the fourth interspace.

Patient was ordered to remain in bed, and the usual medicinal treatment for ascites—saline purgatives and diuretics—was prescribed. The fluid gradually disappeared, so that in January scarcely a trace of it could be discovered. A careful examination of the abdomen was then made, when the following conditions were found :

Palpation. The solid mass on the left side, already mentioned, extended four inches below the costal margin in the nipple line, and one and a half inches below in the anterior axillary line. A distinct notch could be felt in the edge of this body almost opposite the nipple line, and from this point the margin sloped upwards and inwards, so as to come about to the ensiform cartilage in the median line. There seemed to be an ill-defined body to the left of this mass. On percussion over the area of normal liver dullness a distinct resonance was present, except over a space about one inch in diameter, which extended a little beyond the right nipple. Slight dullness was also noticed between the ninth and eleventh ribs in the posterior axillary line. The stomach appeared to be above and to the left of the tumor. The colon was inflated, and found to pass in front of the lower portion of the hard mass.

The latter was diagnosed as liver :

- (1) On account of the notch and lower sharp margin, which could be distinctly made out.
- (2) The absence of dullness in the normal liver area.
- (3) The smooth upper surface.

The tumor was fairly fixed in its place. Tenderness was still felt a little below the lower margin, but the general pain and sensitiveness had entirely disappeared. The blood was examined and found normal. Urine also normal.

As the case was one of some interest a large number of physicians examined the patient, and, although there seemed little doubt about the nature of the tumor, it was difficult to understand the way in which such a displacement could have been produced.

We had no means of ascertaining the position of the liver before the accident.

Could such a change in position be produced by the wheel passing over the body if the liver had previously been in its proper position? It is, in my opinion, almost impossible that such a displacement could take place suddenly without producing injuries which would have immediately proved fatal.

Upon careful examination of the literature of the subject, I was unable to find any similar case. Two cases are described in which such a change of position was found, but in neither was the displacement produced by accident.

In one case published, a somewhat similar displacement was noticed along with ascites. The question at once arises, Was a correct diagnosis made? Dr. Wickham Legg's case presented a somewhat similar condition.

I have thus given my notes on this case exactly as I had written them previous to my last examination of the patient.

In the month of March he left the hospital, and took a position in a tannery, about one hundred miles from the city, where his work consisted principally in lifting hides out of vats, and carrying them a distance. This required a good deal of stooping. He was sent for, and an examination was made on May 24. The boy had enjoyed fair health, and seemed quite able to do his work. He complained of pain in the lower part of the dorsal region. The following conditions were noted:

A tumor was distinctly felt in the left hypochondrium, and in the lower part of the epigastric region, which presented the form, size, and consistency of the liver. The smooth upper surface, the anterior sharp border pointing downwards, and the notch could be made out. This tumor was quite movable, and changed its position at least to the extent of three inches when the patient, in the recumbent posture, moved from his left to his right side. Dullness over the greater part of the mass was absolute, and extended back to the spine. The dullness above and behind changed with the change of position of the tumor, proving that the latter extended back to the spine.

It will thus be seen that the tumor, which was previously fixed, was now quite movable, and the natural conclusion was that it was a transposed and movable liver, and this was strengthened by the fact that deglutition sounds could be heard more distinctly over the right seventh costal cartilage than over the same position on the left side.

Another change had, however, taken place. Whereas, during the winter, dullness was absent over the normal liver area, it was now present in a relative degree over a surface extending from within an inch of the right side of the sternum back to the spine. The upper margin of the dullness was on a level with the fifth rib in the nipple line, seventh interspace in the anterior axillary line, and ninth interspace in the posterior axillary line. The lower margin of the dull area did not extend further down than within an inch of the border of the ribs.

The edge of the liver could not be felt under the ribs on the right side.

How can these changes be explained? I am of opinion that the tumor which was diagnosed last winter as displaced liver was really a mass, perhaps inflammatory, attached and surrounding the spleen, and that the liver on the right side was displaced upwards and backwards, and so covered by distended intestines that it could not be made out by physical examination. The intestines were probably at that time attached to the costal margin by inflammatory adhesions, and the latter have since disappeared, leaving the liver still attached to the back part of the diaphragm.

Another possible explanation would be the pressure of a movable transposed liver in the left side, and the return of dullness to the right side might be due to a thickened pleura. Opposed to this, however, were the facts that the respiratory sounds could be heard over the dull area, and there was nothing in the patient's history after he left the hospital which would indicate a pleuritic attack.

The latter theory would necessitate the presence of a transposition of the abdominal viscera, when those in the thorax were in the normal position.

The history of this case rather strengthens the scepticism, such as Wickham Legg indulged in, as to the correctness of diagnosis in some of the recorded cases of displaced liver.

Etiology. Winkler gives the following causes which act one in succession to the other :

(1) Pregnancy at full term.

(2) Pendulous abdomen.

(3) Hepar pendens.

(4) Stretching of the ligaments.

(5) Tearing and twisting of the suspensory ligaments.

Cantani was of opinion that in pregnancy the enlarged uterus pressed the liver backwards, thus forcibly elongating the ligaments, especially the suspensory. This has been disproved by Meissner. The effect of a pregnant uterus is to push the liver up to the diaphragm.

In order to more correctly appreciate the strength of the ligaments and the causes of displacement, Faure made a number of experiments, nineteen in all, upon the dead subject.

He found that it required from seventy to seventy-five pounds weight to produce rupture of the ligaments—twenty-five times the weight of the liver itself.

The conclusion that he arrived at was that there existed in some cases a morbid predisposition, a depraved state of the general nutrition, and that other agencies acted in a more direct way.

He also thinks that in some cases the ligaments may be morbidly lax, and that especially the inferior vena cava may be elongated.

It will be found by reference to the accompanying statistics that tight-lacing is put down as a probable cause in six out of fifty-five cases. Tight-lacing, as a general rule, when it affects the liver, produces a change in form rather than in position. It is easy to suppose, however, that in cases where there is a predisposition to displacement, tight-lacing might have a direct effect in pressing the viscus downwards.

In all displacements the importance of the integrity of the inferior vena cava must be considered. It is so fixed in the diaphragm that it is impossible to change its position suddenly.

One might suppose that in some cases, especially those of dilatation of the right ventricle, there is an unusual laxity of the inferior vena cava, and that the increased weight of the liver might produce some elongation.

This has, however, not been demonstrated on post-mortem examinations.

Among the active causes of displacement may be mentioned coughing, sneezing, vomiting, etc. One case is recorded in which the sneezing of hay asthma was supposed to be the cause. A sudden contraction of the diaphragm would tend to elongation of the ligaments, if the abdominal wall were lax.

Landau gives as a cause a rapid emaciation and disappearance of fat from the abdomen, and it is quite probable that the support thus given, when removed, might tend to falling of the liver. A lax, pendulous abdomen is mentioned in nineteen out of fifty-five females given in the appended list.

Glenard is of opinion that a slight displacement of the liver is present in the majority of women who have borne children. He found the lower margin as low down as the anterior superior spine of the ilium in three

out of forty such cases. The same author gives as a cause of hepatic displacement a general prolapse of the abdominal organs, especially the stomach and intestines. Although I do not attach so much importance to interoptosis as Glenard, I am still of opinion that the condition is frequently the cause of many obscure symptoms, and that it is often overlooked.

Violent efforts are given as the cause in four cases; all males. The remains of an old echinococcus cyst in the suspensory ligament is mentioned as a cause in one case. In one case, Richelot's, the adhesive bands resulting from an old hepatic inflammation drew the liver out of position. Carcinoma is given in one case.

Sex. Females, fifty-six. Males, fourteen. The proportion being about four to one.

Meissner's theory, supported by Leopold and Sutigen, supposed a congenitally abnormal length of the ligament meso-hepar. This has not been demonstrated.

Age.	Females.	Males.
1-10.....	0.....	2
10-20.....	1.....	2
20-30.....	7.....	1
30-40.....	16.....	2
40-50.....	14.....	4
50-60.....	9.....	1
60-70.....	5.....	1
Age not given.....	3.....	1

It will here be noticed that the condition came on later in life in females than in males. In only one female before the age of twenty. The relationship between frequent pregnancies and prolapsed liver is shown in the following table :

Patients.	Children at full term.	Premature deliveries.
2.....	0.....	0
1.....	0.....	1
2.....	1.....	1
3.....	2.....	0
1.....	2.....	2
1.....	2.....	4
4.....	3.....	0
4.....	4.....	0
2.....	5.....	0
2.....	6.....	and a number of abortions.
5.....	7.....	0
1.....	7.....	1
4.....	8.....	0
1.....	8.....	1
1.....	9.....	0
3.....	10.....	0
1.....	10.....	6
1.....	12.....	0
1.....	13.....	0

Thus twenty-one out of fifty-five had one hundred and sixty-eight children—an average of eight for each. In several cases the pregnancies followed very rapidly one upon the other.

Symptoms. A sudden onset was noticed in five of the recorded cases. The symptoms present were severe pain in abdomen, rapid and irregular pulse, and the usual symptoms of shock. These were followed by a feeling of weight and dragging in the abdomen, with more or less severe symptoms of dyspepsia.

In the great majority of cases the displacement came on gradually, and the symptoms noticed were a feeling of weight in the abdomen, and a dull pain, especially on exertion. In one of Chvostek's cases the pain was excessive. In several the general symptoms of neurasthenia were present, and in many those of dyspepsia. In some nausea and vomiting. Jaundice of a severe character occurred in five females and one male. Slight jaundice in four females and two males. In three or four cases dyspnoea and cyanosis were prominent symptoms.

The physical signs are as follows :

Presence in the abdomen of a tumor which can be readily felt, and which is of the size, shape, and consistence of the liver.

The tumor was found in the right abdominal region in forty-one females and eight males ; in the left abdominal region in one female and three males ; in the right and centre abdomen in three females and four males ; below the umbilicus in twenty-two females and four males. The lower margin extended below the umbilicus in twenty-two females and four males.

In Wickham Legg's case the tumor presented the form and shape of the liver, and on post-mortem examination it was found to be a matting together of the omentum.

Unless the walls of the abdomen are very thin, one might be mistaken by palpation alone.

The points in connection with the tumor are the smooth upper surface, sharp lower margin, and the presence of a notch.

One of the most important points is the possibility of replacing the liver. In the great majority of the cases given this could be done.

Tympanitic resonance over the normal area, which would change to dullness when the liver was replaced. The change of position of the liver upon change of posture of the patient ; in other words, mobility of the organ. This existed in a greater or less degree in many of the recorded cases.

Diagnosis. Floating liver has been mistaken for typhlitis, ovarian cyst, movable right kidney, and hydronephrosis. In two cases of supposed displacement, the tumor was the result of thickened omentum.

The principal points in diagnosis are : (1) The upper smooth surface, sharply defined anterior border and notch. (2) Tympanitic resonance over the normal area of liver dullness. (3) Possibility of partial or complete replacement when dullness is found in the normal area.

When all these conditions are present in the right abdomen, there is little difficulty in the diagnosis.

Cases of displacement have occurred where, owing to adhesions, it has been quite impossible to replace the liver.

The difficulty of diagnosis in some cases is well illustrated by the fact that in two laparotomies displaced liver was found when altogether different conditions were suspected—in one case a movable kidney with hydronephrosis, and in the other an ovarian cyst was thought to be present.

In the treatment of the cases recorded sixteen were relieved by abdominal support. In one case a bandage could not be worn, as it increased the pain and tenderness.

It is, of course, not possible to retain the liver in position, but it would appear that a support to the abdominal walls is in many cases sufficient to prevent further prolapse, and that the symptoms produced by the dragging of the liver on the diaphragm are thus relieved. Four operations are reported in the appended list.

Binnie's laparotomy. Recovery in three weeks.

Peters operated in a case of supposed hydronephrosis, when displaced liver was found.

Richelot fixed the liver to the abdominal walls. Recovery.

In three other cases of floating lobe of the liver fixation to the walls of the abdomen was successfully done by Billroth, Tscherning, and Gerard Marchant.

In the appended tabulated list of seventy cases all except ten or twelve cases have been taken from original papers. It will be noticed that in two or three instances the condition diagnosed was rather a change in form than in position, and they probably should be omitted. In three or four others the change of position was slight, and there were so few symptoms present that they should scarcely be placed in the list.

It is probable also that in some of the cases mistakes in diagnosis were made.

LIST OF RECORDED CASES OF DISPLACEMENT OF THE LIVER—MALES.

AUTHOR.	AGE	FORMER HEALTH.	HISTORY AND PRESENT CONDITION.	TUMOR.	CAUSE.	THERAPEUTICS.	FUTURE COURSE.
Browne, Brit. Med. Journal, 1860, vi., p. 209.	Yth	Had a fall 16 months before.	Parents say they noticed a tumor after the fall. Resonance in the liver region. No symptoms of hepatic trouble at time of fall.	Liver found in the epigastric region extending from 1½ inches below the ensiform cartilage to within 1¼ inches of umbilicus, 6 inches horizontally, 4¾ vertically, and 5 diagonally.			
Wassiljeff, St. Petersburg Med. Woche n, 1876, xxx., p. 1. "Fauré."	31	Measles in infancy; at 6 winters after severe exertion, violent pain in right hypochondriac region, and then noticed a tumor.	Complained of fullness in both hypochondriac regions. Moderate height, well developed, slight anemia. Nothing noticed in the chest. Abdomen much dilated.	Body resembling the liver occupying the abdomen below the diaphragm on both sides.			
Wassiljeff, St. Petersburg Med. Woche n, 1876, xxx., p. 1. "Fauré."	47	28 years before had some abdominal pain; at 11 years, now brownish yellow skin. Heart and lungs healthy. Marked swelling in right hypochondrium. Infection in abdomen, which grew larger.	Came to hospital complaining of weight and pain in the abdomen; jaundice, which has existed for 2 years, now brownish yellow skin. Heart and lungs healthy. Marked swelling in right hypochondrium. Abdomen distended. Upper margin of liver in mammary line at sixth rib; axillary, seventh lower margin easily felt.	Liver lower border extends beyond the median line, is lost beneath the inferior border of the ribs. The liver can be pressed towards normal position; spleen displaced.			
Chvostek, Wiener Med. Blatt.		No history of accident or violence; was a cent. below the xiphoid. physician.	Left end of liver, anterior border, felt arching down to the right, being in the middle line, 15 cent. below the xiphoid.	Tumor did not markedly descend on respiration; could be replaced when he was in the horizontal position. In right parasternal line the anterior border is 6½ cent. below the tip of the xiphoid. In left parasternal line 1 cent. below.			
Dobrzycki, Warsaw Journal.	28	Complains of pain in liver region for 3 years.	Tumor in lower part of abdomen. Could not remove on account of weight and pain.	Replaceable when the patient was in recumbent posture with head lowered.			

AUTHOR.	AGE	FORMER HEALTH.	HISTORY AND PRESENT CONDITION.	TUMOR.	CAUSE.	THERAPEUTICS.	FUTURE COURSE.
Rubinowitch, Voerno Med. J., St. Petersburg, 1884, 37:56. "Fauré."	42		Soldier; three years before admitted to hospital felt a pain in abdomen, and noticed a tumor. Tumor first size of an egg, grew larger; pain in abdomen increased. Well-developed bony and muscular systems. Cyanosis of face; respiration thoracic. Abdomen distended, especially on the right side, where one perceives a solid body, the size and shape of the liver. Surface round, not painful. Superior limit of liver dullness commences in the mammary line at the eighth rib, and at the axillary line at tenth rib. This is lowered by deep inspiration. Apex beat of heart in fifth intercostal space felt with difficulty. Difficult respiration, vertigo, engorgement of hands and feet when he began work.	Liver does not occupy its normal position; not in apposition with diaphragm, but displaced and turned upon its transverse and longitudinal axes. Right lobe is in immediate contact with abdominal wall by its superior surface. Posterior convex border is turned upwards. Left lobe is felt easily in the umbilical region.		Patient relieved from military service.	
Parker, N. Y. Inf. Med. Jour., 1889, p. 656.	42	Severe vomiting.	Child lost flesh rapidly. Cancer was diagnosed by some. First seen in 1886, at age of 3 months. Pain and loss of sleep.	Lower edge of the tumor a little above the pubes. Right side extends from ilium to nearly the axillary line. Left to middle line of abdomen; could be pressed upwards. Upper border reaches to the umbilicus. Absence of normal liver dullness.		Dietetic and bandaging.	No evidence of liver on left side. Child in same condition in 1888.
Szigethy, Pesth. Med. Chir. Press. Budva Pesth, 1889, xxv, p. 1013. "Fauré."	42	Hard drinker and ascites.	Peasant. Dyspnea, and increase in size of abdomen. Well nourished; slight jaundice; respiration difficult. Lung sounds, clear and full. Heart sounds normal, slightly accentuated. Maximum circumference of abdomen, 110 cent. Tympanitic resonance in normal liver region. Ascites.	Tumor felt more to the left supra-umbilical region than on the right. After laxatives the liver changed its position. Inferior margin can be felt from the umbilicus to the left posterior axillary line. Above that the rounded surface is felt.	Perihepatitis.	Laxatives and treatment for ascites.	Improvement.
Einhorn, Med. Monatsch., 1889, vol. I, 351, 353. "Fauré."	57	Yellow fever in 1857. In 1889 patient was seized with rigors and vertigo, commenced to vomit, and had pain in abdomen and back.	In the epigastric region is an oval prominence, the lower border of which crosses the abdomen at finger-breadth below the umbilicus. When pressed ure is made on right upper abdomen respiratory movements are not noticed. Digestion, heart, and urine normal.	Tumor moves up and down with respiration. Dullness on percussion over the whole tumor, and extending upwards to within a finger-breadth of the thoracic wall. Tumor can be replaced. Doubtful as to whether the displaced liver is congenital or acquired.		Bandage.	Improvement marked; can work and walk easily.

AUTHOR	AGE	FORMER HEALTH.	HISTORY AND PRESENT CONDITION.	TUMOR.	CAUSE.	THERAPEUTICS.	FUTURE COURSE.
Ma x. Mann, Deutsche Med. Wochen., 1890, xvi., 104.	43	Measles, scar- let fever; gen- eral health good; typhus in last campaign.	Soldier; 1886 had scurvy. In 1886 came to hos- pital again in the following condition: Tendency to hemorrhage; thoracic viscera healthy; liver descends three finger-breadths below the margin of the false ribs. Was in hospital some months. 1887 had hemorrhages under the skin and from kidneys. In next August he noticed a tumor and sense of fullness and constriction in his abdomen, pains radiating to the thorax. In this month he comes to hospital again, emaciated. Skin has a lead-colored color. Superior abdominal region presents tympanitic resonance. Dullness corresponding with the in- ferior border of the liver. In 1888 left kidney is out of position. In 1889 fluid between the base of lung and diaphragm pushes the liver down. In September, 1889, spleen became movable. Died in April, 1890. Pulmonary oedema and failure of heart's action.	Palpation. The inferior border of the tumor is made out to be the anterior border of the liver. At first dig- nosis of hypertrophied liver was made. Liver could be partially replaced. In one month left improved, and re- turned again in 1888. Dis- placement of liver more marked.			Post-mortem verified the results of physical examination.
Seluk, Russ. Medicina, St. Petersburg, 1890, vol. xvi., p. 474.	30		Small, anæmic, emaciated abdominal walls, Cardiac dullness increased. Accentuated aortic second sound. Liver displaced vertically and laterally. Left lobe was turned upwards. It oc- cupied the left and inferior portion of the abdomen; could not be made to change its position in any way. Tympanitic resonance over normal liver re- gion. Error in diagnosis could not be made, be- cause of thinness of abdominal walls.	Displacement of liver ex- isted, in all probability, since birth, and did not cause di- gestive trouble.			

AUTHOR.	AGE	FORMER HEALTH.	HISTORY AND PRESENT CONDITION.	TUMOR.	CAUSE.	THERAPEUTICS.	FUTURE COURSE.
Kreider, Phila. Med. News, 1893, lxii., 436.	62	Heavy drinker until 18 years ago. Had sufficient health; good appetite; no cough, pain, or dyspnea; no jaundice; spleen normal; left side of abdomen flaccid. No evidence of syphilis; no evidence of the latter present now. Some years ago the patient thought the liver had been loosened by lifting heavy casks of liquor. His health does not suffer.	A year ago noticed lump in his side. It had given rise to no symptoms. Heart, lungs, and pleura healthy; good appetite; no cough, pain, or dyspnea; spleen normal; left side of abdomen flaccid. No evidence of syphilis now. No interference with circulation.	Large tumor found when patient stood erect; more distinct when lying down on his back. The superior and anterior surfaces were smooth, and convex lower edge plainly felt, and notch easily made out. The hepatic dullness began $4\frac{1}{2}$ inches below the nipple line and extended towards the ilium for 7 inches, and from the umbilicus for 11 inches towards the right side. The tumor (liver) moved slightly on change of posture. Moving the liver caused no pain. By lowering the head and raising the hips the organ could be partially restored to its normal position, but not entirely. The organ is turned forwards upon its transverse axis, the superior surface is in contact with the anterior abdominal walls.	Accident and relaxation of suspensory ligament.	Bandage.	No symptoms up to date.
Leube, München. Med. Wochen., Jan. 23, 1894.	17	At 12 had rheumatism; 18yr. dropsy of abdomen; tapped 3 or 4 times.	Abdomen distended; stomach tympanitic; spleen not enlarged.	Upper surface smooth; pulsation outwards; portion between liver and diaphragm occupied by fluids.			Post-mortem. Liver not attached to abdominal walls; suspensory ligament $7\frac{1}{2}$ cent. long; left lateral ligament 4 cent. long.

FEMALES.

AUTHOR.	AGE	CHILDREN.	FORMER HEALTH.	HISTORY AND PRESENT CONDITION.	TUMOR.	CAUSE.	THERAPEUTICS.	FUTURE COURSE.
Laurent Heister, Acta Physico-Medica, Naturæ Curiosorum, Nuremberg, 1754, x., p. 14. Faure.					Liver displaced, the right lobe being downwards. Right lateral border extending as far as the anterior superior spinous process of the ileum. The left lobe in the right hypochondriac region.			Post-mortem appearances: The colon was found distended; the stomach small and hid den behind the convolu tions of the colon; the liver in position already described.
Cantani, An nali Univ. di Med. e. Chir. Ann. Univers. de Med. Milan, 1866, p. 373-382.	54	Two. 1st at 27. 2nd at 43.	Puerperal peri tonitis. Men struation regular up to 50.	Mother died of drop-sy, sister of carcinoma. Noticed a movable tumor in the abdomen since the birth of the last child. Hepatic dullness not present.	Replaceable to liver re gion, under surface of liver, and notch felt when replaced.	Tight lacing.	Bandage.	When seen 11 years later had enjoyed good health continuously.
Piatelli, Ri vista Clinica di Bologna, 1868, vii., p. 239. Schmidt's, Jahrb., 107-114.	56	Married at 19. Abortion in 3 months. 1 pregnancy normal.	Rheumatism at 23; chronic bronchitis at 45. Regular men struation from 15 to 49 years.	Parents healthy. After onset of chronic peritonitis at 45 years of age, noticed a tumor in abdo men. Circumference of abdomen, 90 c.m.; between navel and sym physis, circumference 97 c.m.	Not completely replace able.	Tight lacing.	Neither pad nor cold douche were tolerated for any length of time.	Death from dropsy 13 years after the tumor was first noticed. No posi tive length of mor tem.
Meissner, Schmidt's, Jahrb., Leipzig, 1869, p. 107-114.	39½	1st at 28. 2nd at 30. 3rd at 39.		Sensation of weight and fullness three months after last confinement. No liver dullness.	Replaceable tumor with sharp anterior border. Infernal lobular growth.	Tight lacing.	Wore a sup port of elastic cloth.	Good health for the next 8 years.
Barbarotta Il Morgagni, xi., 1870, Schmidt's, Jahrb., 149-170.	37	Six.		Pain in right side. No liver dullness.	Replaceable. Upper margin four finger widths from the margin of the ribs.	Last preg nancy and tight lacing.		No jaundice.
Vogelsang, Memorbilien Heilbr., 1872, xvii., 2.	50	Three.	Menstruation ceased in the 10th year the tumor appeared.	Woman thought she was preg nant. No pain in the right side. No hepatic dullness.	Tumor had a smooth sur face.	Tight lac ing. Very small waist.		

AUTHOR.	AGE	CHILDREN.	FORMER HEALTH.	HISTORY AND PRESENT CONDITION.	TUMOR.	CAUSE.	THERAPEUTICS.	FUTURE COURSE.
Winckler, Arch. f. Gyn., 1872, iv., 145-156.	29	st at 23. 2nd at 29.	Always healthy.	Four weeks after last child was born felt a pain in the right side in carrying or lifting heavy weights or in standing. Very lax abdomen. No liver dullness.	Fully replaceable. Can feel the margin, which extends as low as the crest and very anterior spine of the ilium.	Pendulous abdomen with both children.	After second child was born a support was worn. Two years later there was pain and jaundice. Bandaged for this.	Well up to 33 years.
Salomone Marino, Rivista Clin. di Bologna, 1874, In Th. Blat.	20			Tumor in lower half of abdomen, and spleen on the right side. Liver hypertrophied and pro-lapsed to left side.				
Leopold, Arch. f. Gynaecologie, Berlin, 1874-1875, vii., 152-163.	54	Seven. 4th at 29. 7th at 47.	Always good. Menstruation normal up to 50 years.	For last half-year pain in the right side. Abdomen very lax. One can scarcely palpate. No normal liver dullness. Mother died of dropsy.	Replaceable. Margin very distinct.	Pendulous abdomen and tightening.	Support.	Good health.
Chvostek, France Médicale, 1875, p. 837; Med. Times and Gazette, 1876, 101; Militararzt, Dec., 1876.		Twelve.	Good.	Diagnosis of carcinoma had been made before coming to the notice of Chvostek. Pains in abdomen from stretching of nerves. Cachexia, icterus. Resonance over the normal liver region.	Replaceable; lower border reaches the pubes, and presents a notch. Movable to through freethe extent of one or twoquent inches without change of position of patient.	Weakened ligaments		
Tempini, Gaz. Medica, I tal., 1875, 'i Faure,'	60	Eight children and one abortion.	In 1862 had acute rheumatism, followed by cardiac lesions.	Lately noticed a tumor in the lobes. On examination increased precordial dullness and tympanitic resonance in normal liver region was discovered.	Tumor made up of two lobes. Movable under the skin, partly in the epigastric and partly in the umbilical region. The right is the larger, and separated from the left by a notch. Right margin rounded; the left sharp and elongated. In the right lateral decubitus tumor is easily moved from right to left. In left decubitus no displacement.			
Sutugin, Arch. f. Gynak., Berlin, 1875, viii., 531-533.	41	1st, normal. 2nd, abortion at three months.	Rheumatism in the feet three years before.	Six months before pain in the abdomen began, suspensory ligament easily felt. Pain in walking. Pale, fat, and anemic.	Partially replaceable. Absence of liver dullness.	Weakness of abdominal walls.		

AUTHOR.	AGE	CHILDREN.	FORMER HEALTH.	HISTORY AND PRESENT CONDITION.	TUMOR.	CAUSE.	THERAPEUTICS.	FUTURE COURSE.
Wassiloff, St. Petersburg, Med. Woch., 1876, No. xxx., p. 5, 4; Faure.	39	16 preg- nancies; six were aborti- ons.	After first two children were born patient had menorrhagia, which weakened her very much. In infancy had measles; at 15, a fever; 23, diph- theria; at 37 some severe febr- ile disease.	Badly nourished; appears older than she is; bones and muscles poorly developed; abdomen pen- dulous; uterus movable in all directions; polyypus as large as an almond, is found outside the os. Patient's weight is 40 kilos. S. G. of urine is 1016; no abnormality.	On the right side of the abdomen below the false ribs a tumor resembling the liver is found. This can easily be pushed upwards to normal position of the liver.			
Wm. Pepper, M.D., Med. and Surg. Reporter, Phila., 1877, t. xxxvii., p. 350.	41	Seven.	Health good until birth of 3rd child; appetite good; bowels constipated.	General health of the patient good. After birth of 3rd child she resumed her work five days after confinement. One hour afterwards she had pain in lumbar region radiating to the epigastric region. Flatulence; eructation; distension with gas; slight jaundice; walls of abdomen lax; rest eases the pain.	Liver situated across the abdomen, the lower margin on a level with the anterior superior spine of the ilium. Liver is not increased in size; resonance in the normal liver region.	Stretching		
Henri Rodewitch, St. Petersburg Med. Woch., t. iv., 1879, p. 324.	18	One child.	Heart and lungs sound; some vagina. catarrh; menstruation began at 13.	Says she felt something give way on stooping. Pain across abdomen and chest, difficult respiration, sense of suffocation, fullness and sense of distension on right side of the abdomen. Nausea, pain, and faintness on walking.	A tumor extending across the umbilicus on a level with the umbilicus, difficult to define on account of the direction of the abdominal walls.	Pendulous abdomen.	Bandage.	Improvement.
Garnett, Am. Journ. Med. Sciences, Jan., 1881, xxxi., 110-115.	50	Several.	Always good.	Says she felt something give way on stooping. Pain across abdomen and chest, difficult respiration, sense of suffocation, fullness and sense of distension on right side of the abdomen. Nausea, pain, and faintness on walking.	Normal liver dullness absent, but dullness was marked from right crest of the ilium to the umbilicus. Tumor not easily made out.	No vio- lation of hot flange. Was too ping when the ac- ammonia solu- tion. Enemata.	Local applica- tion of hot flange. Was saturated with muriate of iron.	Reduction and return of liver to normal position in three days. Re- covery.
Trush, Obst. Gazette, Cincinnati, 1882, v. 337-343.	68	Several.		Seven months previously she noticed a hard tumor in her abdominal cavity, and extends only to the right side of the median line. It is oval in shape, and presents one extremity much	The tumor is situated on the right side of the abdominal cavity, and extends only to the right side of the median line. It is oval in shape, and presents one extremity much			Post-mortem. On section the liver presented itself, situated mostly beneath the ribs. In its descent it made a quarter

of a turn on its transverse axis. Its upper convex surface was in apposition with the anterior wall of the abdomen. The liver was larger than normal, firm in consistence, and absolutely hard in region of gall-bladder. There were in a group two or three peripheral nodules of a whitish yellow color. The gall-bladder is distended, not much enlarged. Its contents are thick and whitish. In the cystic duct and common bile duct were three great biliary calculi. The pylorus and head of the pancreas were surrounded by an abnormal tissue, hard, and of fibrous appearance. A similar mass extends across the abdomen on a level with the umbilicus. The smaller portion is covered by the left lobe of the liver. The splenic portion is merely visible, and was the part made out on palpation. The diaphragm is drawn down and the suspensory ligament elongated. It proved to be carcinoma.

smaller than the other. Greater diameter is nearly transverse, a little oblique from right to left and from top to bottom. The lower margin is clearly defined, raised, and seems void of pelvic attachments. On the outer side of the lower margin is a slightly curved portion with convexity downwards and to the left. A small pyriform body, which seems implanted in the principal tumor, shows itself at the inferior border. In left hypochondriac region there is a second tumor, smaller, hard, and nodular, sensitive to the touch. The larger tumor is movable, especially in the right hypochondriac region.

Surface of tumor is smooth and convex. At inferior border of thorax liver is not felt. Tumor not movable during respiration. Over tumor completely dull. Tympanitic resonance in all other abdominal regions.

In eleventh year was treated with cod-liver oil for threatened phthisis. Confinement easy, except two, when there were transverse present affections. At 28 noticed a sharp pain on turning a heavy substance. Since last pregnancy, in 1872, has had oedema and jaundice. Menstruation regular after years of age, every 3 weeks.

Patient is small and moderately well nourished. Vertebral column deformity deviates to the left. In front thorax is normal. Lungs normal, except modifications, result of deformity. Heart normal. Abdomen very prominent. Walls thin and relaxed. Marked prominence exists below the umbilicus.

Seven .
Last seven
years ago.

50
Carl Jacob
Müller, Berlin
Klin. Wochens,
1882, xix., p. 230.

AUTHOR.	AGE	CHILDREN.	FORMER HEALTH.	HISTORY AND PRESENT CONDITION.	TUMOR.	CAUSE.	THERAPEUTICS.	FUTURE COURSE.
Symanowsky, Elened, Klin Gaz., St. Petersburg, 1882, t. ii., p. 65-81. Fa re.	53	Thirteen.	10 years ago she had a slight hæmoptysis Coughs often.	Pale. Complained of pain and a tumor in the abdomen six months ago. She dates her sickness from that time. Tumor was noticed under the false ribs. It became painful at times, mostly after meals. Heart's action was interfered with. She noticed site was becoming yellow. No appetite, constipation and emaciation. Muscles flabby. The right hypochondriac region is full and tense above. The pulse regular, small in volume, 68 to the minute. Respiration, thoracic. Temperature, 37°C. Cavity in right lung.	A hard tumor is found in the upper part of the abdomen. Movable. In an upright position, two finger-breadths above the pubes, a clear fluctuation is found. The tumor above extends from the false ribs on the right, side to the line of the umbilicus. The anterior border is hard and even. The notch easily felt, also the gall-bladder is felt hard to the touch. It is on a level with the umbilicus, and a little to the right.	Lax and long ligaments. Contraction of cicatrices.		The post-mortem. The liver is small and displaced, the inferior border reaches the umbilicus. Length is 23.5 cent., breadth 14 cent., depth 7 cent. Ligaments are long. Large cicatrices on superior surface. Gall-bladder is larger than a goose-egg. Near the cystic duct is a calculus as big as a hazel nut. The gall-bladder is filled with an aqueous liquid. Cystic duct obstructed.
Symanowsky, Loc. cit. Faure.	40	None.	At age of 14 had jaundice, the cause not known. At 21, after mother's death, had pains in her right side and heart trouble. This did not last long. Menstruation normal.	For some time has complained of frequent pain in right side, more intense on walking or in stooping at her work, being relieved by lying down. Two years ago noticed abdomen larger, and a hard tumor. Appetite good. No constipation nor oedema of the legs. Sclerotics yellow.	Tumor noticed as a prominence in the right upper part of the abdomen. Extends as low as the umbilical line. It is a hard, and terminates by a free border. Slightly movable to right and left below, and immovable above, as if prevented by something. The inferior part of abdomen is distended. No liquid nor tumor in this locality. Splenic region tympanitic. On lying down the projection is less, but the borders more prominent. Liver dullness absent in normal position. The organ is displaced downwards.	Repeated inflammation followed by cicatricial contraction.		
Theodore Schott, Deutsche Med. Zeitg., Berlin, 1882, ii., 247; 259. Faure.	39	Seven normal, pendulous abdomen during pregnancy.	Jaundice at 5 or 6 years. Menstruation began during pregnancy.	During last two months of last pregnancy the abdomen was so pendulous that a bandage had to be used. Edema of the legs at times. Constipation. After last confinement became fleshy. Had vomiting from time to time, but this did not affect her general health. In 1879, when child was	Tumor in right hypochondriac region hard and inferior border on a level with the umbilicus. The tumor can be traced from 5 centimetres to the left of the median line to the right iliac crest. Superior surface not clearly made out. Inferior	Bandage.	Bandage.	Has worn it for 20 months and has become stronger. Gained 14 lbs. in weight.

G. A. Peters, 27 Med. Gazette, 1882, p. 412.	Good. Married 43 years.	nearly two years old, she came with symptoms of chronic catarrh of stomach. Abdominal walls thin. Pyloric region sensitive to pressure. Tenderness in right hypochondriac region.	Pregnant six months after marriage. Fell four feet, striking the right side of abdomen against a prominent object. Nausea and vomiting. Blood from the vagina. Attacks of pain.	Movable from side to side. Tympanites over part of the tumor. Lateral diameter, $6\frac{1}{2}$ inches; perpendicular, $4\frac{1}{2}$ inches.	Long diameter of liver extended from above downwards, right lobe lowest down on a level with the anterior superior spinous process. Stomach vertical.
Maach, Gen- tralblatt, Chirg., 1885.	Unmarried. 35	Eleven years before had suffered from echinococcus.	Pain in the right side coming on for eleven years. General nervous symptoms.	Two in the right iliac fossa. Sharp in contour, and about the size of the liver. Replacable. Hepatic dullness absent.	Operation for supposed hydro-nephrosis; found to be displaced with the anterior superior liver.
Kispert, Berlin, Klin. Wocher- 1884, xxi., 372- 375. Faure.	Two children; four abortions, from 1st child, 9 years ago; situation 2nd child, 6 years ago; to 20th last abortion 2 years ago. Scanty.	Seven years ago suffered from pains in gastric region and in the lower part of the abdomen. Com-plaint of a sensation of weight in right side. Could not lie on the left. For two years has noticed a tumor, painful and constant. Eructations, stools normal, skin and sclerotics slightly yellow. Anæmic heart murmur. No normal liver dullness.	Tumor found in epigastric region. Roundish or oval. A large tumor is found in the hypogastric region of an elliptical form. These two are continuous as an hour glass in form. Consistence, compact. Transverse diameter of spheroidal is 6 cent., that of the other is 14 cent. In median line the length of both is 21 ct. Inferior margin 12 cent. below umbilicus. Movable in the right hypochondriac region, but not at the lower part, also easily movable from right to left. To the right of the tumor the ascending colon is made out. Transverse colon runs below the tumor.	Echinococcus cyst in Re-suspensory ligament.	Bandage. Comfortable.
Seager, Brit. Med. Journal, 1888, Vol. 2, p. 599.	Had been under treatment for some time for flatulency, as a consequence of chronic bronchitis.	She was a very free drinker. Two or three days previously noticed a hard swelling in the abdomen. This was diagnosed to be a large nodular liver. No pain nor tenderness except about the lower right ribs. Normal liver dullness absent. Dr. S. does not know when displacement occurred.	Anterior border of the liver is in the right inguinal region. Upper surface of right lobe in the right lumbar and umbilical regions, left lobe projected below the ribs. Could be replaced by hands.	Retching and vomiting, also diminution of ascites and flatulence.	Tenderness over the gall bladder and jaundice. Bad appetite and wasting.

AUTHOR.	AGE	CHILDREN.	FORMER HEALTH.	HISTORY AND PRESENT CONDITION.	TUMOR.	CAUSE.	THERAPEUTICS.	FUTURE COURSE.
Landau, Die Wanderleber und de Hange- baucher Frauen, Berlin, 1885.	35	Four chil- dren in 7 years.	11 since last confinement, 3½ years ago. Ke- section of cervix right side in front. uteri 2 years ago.	If strong pressure is made on the liver, pain is felt in the 3rd and 4th intercostal spaces in the right side in front.	Liver is felt in the median line of abdomen, very sensi- tive to pressure. In dorsal decubitus liver dullness reaches as high as the upper margin of seventh rib in the parasternal line; in mammary line at inferior bor- der of seventh rib, and in axillary line at upper border of eighth rib.	Displacement of the liver is much diminished during the latter months.	Several weeks' rest and nourish- ment.	Displacement of the liver is much diminished during the latter months.
Landau, Loc. cit.	24	7th months' foetus seven years ago.	Pendulous ab- domen since mis- carriage. In sym- ptoms resembling peritonitis, 1880 she had ca- tarrhal endome- tritis. Lumbar pains relieved by rest.	Suddenly after lifting a heavy weight the patient had severe peritonitis, as to nature of the tumor. After the attack, and in 1883, there were more conclusive evidences of displaced liver.	At time of attack, 1880, difference of opinion expressed as to nature of the tumor. After the attack, and in 1883, there were more conclusive evidences of displaced liver.			
Landau, Loc. cit.	28	4 pregnan- cies in 3 yrs., 2 at term, and 2 before term.	For last three months menses not regular. Strong and mus- cular woman. Healthy appear- ance.	Uterus prolapsed and retro- verted.	Tumor felt in the right half of the abdomen with smooth surface, not easily movable, extending from above down- wards and from right to left. Inferior surface and hilus of liver easily palpated. The latter looks more to the right than downwards. In the hori- zontal position the abdomen is flattened and the liver moves upwards.			
Landau, Loc. cit.	30	None.	Ordinary health without organic disease; suffered from hay asthma each year for last 3 years.	In 1884, complained of violent pain in right side of abdomen; these had been present for six months; abdomen wall distended.	Liver fills right half of the abdomen, extending 3 cent. below anterior superior iliac spine of the right side; pal- pation easy; tympanitic note in normal liver region.	Obscure Possibly vio- lent sneezing during at- tacks of hay asthma.		

Landau, Die Wanderleber und de Hangebauch der Frauen, Berlin, 1885.	33	Eight.	Shortly after birth of 5th child was subject to great fatigue and weight in the abdomen. Had pain in epigastric region, became asthmatic. Moderate walking or work would cause fatigue. After 6th child physician attending noticed a tumor. Three births during Dr. Landau's observations.	Large abdominal hernia on the right side, which renders palpation of the abdomen frequent. Tumor distinctly felt in right abdomen, the shape and size of which indicate to be a hernia.	Excessive fatigue from child bearing and umbilical hernia.	
Landau, Loc. cit.	36	5 children during 11 years.	In August, 1883, during pregnancy the trouble began. In fetus was easily made out, child born dead in April, complained of lassitude, cramps in the stomach and profuse hemorrhages during menstruation. Displacement of liver could then be easily made out and could be replaced. Pain in right side of chest and abdomen.	In August, 1883, during pregnancy the trouble began. In fetus was easily made out, child born dead in April, complained of lassitude, cramps in the stomach and profuse hemorrhages during menstruation. Displacement of liver could then be easily made out and could be replaced. Pain in right side of chest and abdomen.	Very remarkable amelioration.	Pessary and bandage.
Landau, Loc. cit.	39	In 11 years 7 children born at term.	For many years suffered from a movable liver. When patient stands erect its inferior border nearly reaches the ilium.	Abdominal hernia which allows the contents of the abdomen to be distinctly felt.	Liver freely movable with change in patient's position.	
Landau, Loc. cit.	26	Two—both at term.	Last 3 years had uterine hemorrhage and pains in right side of abdomen. Never wore corsets.	Liver entirely on right side. On percussion slightly tympanitic note in the parasternal line up to the median line, and then the note is strongly tympanitic.	Thinks that a false step or fall caused the trouble.	Pessary and elastic bandage.
Landau, Loc. cit.	43	8 children at term.	Violent pains in abdomen, spasmodic pains in epigastrium, profuse hemorrhage and lumbar pains. Abdomen tendulous. In dorsal position. Right half of abdomen more prominent than left. Respiration costal.	Tumor, which is the liver of normal size, surface smooth, descends as low as crest of the ilium, and is easily reduced.	Great improvement, especially of uterine hemorrhages.	Banded a metallic plate in front.

AUTHOR.	AGE.	CHILDREN.	FORMER HEALTH.	HISTORY AND PRESENT CONDITION.	TUMOR.	CAUSE.	THERAPEUTICS.	FUTURE COURSE.
Landau, Loc. cit.	60	4 children.	Prolapse of uterus. Total inversion of the vagina.	Pains in right superior abdomen. Liver is movable, and not hypertrophied.	In recumbent position, absolute liver dullness commences in the parasternal line at inferior border of 7th rib, in mammary line at same point in axillary line inferior border of 8th rib. The notch looks towards the right.		Round pessary for prolapse.	Improvement marked.
Landau, Loc. cit.	34	Ten pregnancies, 7 at term.			Liver displaced downwards, not hypertrophied. Tympanites in right sternal and parasternal lines. This is due to intestines. Diaphragm lowered. Liver displaced backwards, and felt in the right iliac region.			
Landau, Loc. cit.	30	Six, born at term.	For last year had prolapse of the uterus.	Pains in lumbar region. Lassitude and vaginal pains in the abdomen.	Liver displaced, but not to a great extent.			
Landau, Loc. cit.	36	Four.						
Landau, Loc. cit.	56	Four.						
Landau, Loc. cit.	30	Five.						
Landau, Loc. cit.	32	Ten.						
Von Hacker, Billroth's Clinic, Centralblatt f. Chir., 1886, 493.				Noticed a tumor in the upper abdomen on the right side for five months. Fever, vomiting, weakness, emaciation, and severe pain in the back and sternum.				
P. Müller, Deutsch. Arch. f. Clin. Med., xiv. 1, 46.	57		As a child, good. Menstruation ceased at 52. Commenced late.	Since cessation of menses, gradual emaciation and swelling of abdomen. No liver dullness. Two tumors noticeable.	Upper tumor large, and has a sharp anterior border. Notch distinctly felt. Liver replaceable. Tumor below springs from the pelvis.		Several tapings.	Liver in normal position; felt with difficulty; atrophied and covered by the stomach and duodenum. Tumor, thickened omentum.

Resenkranz, 48 Zur Casuistik der Wanderleber, Berliner Klinisch Wochen., Sept. 19, 1887, Faure.	Eight nor- mal confine- ments.	In middle of February seized with violent vomiting; pain in epigastric region; developed in- tense ascites and anasarca of in- ferior extremities and abdominal walls without cardiac lesions or albuminuria. Edema disappeared under treatment with diuretics and purgatives. Five weeks later re- currence of ascites.	Liver was found displaced in the abdominal cavity, and movable in all directions.	Recovered.	Operated on May 8th. Tu- mor was found to be a lobe of the liver much en- larged, which de- scended to the umbilicus and right iliac fossa, hard and scler- osized, no irregu- larities or cysts on the surface. Enormous calcu- lus found in the gall-bladder. Gall-bladder stitched to the abdominal wall.	Very comfortable.
Robden, Deut- sche. Med. Wo- chen., 1887, p. 106. Faure.	3 at term.	Nine and a half years ago noticed a sensation of weight in the abdomen; says she noticed a tumor which she could push up- wards; complains of pain, which is greater in the dorsal decubitus than in standing; diminished when patient lies on the abdomen; no jaundice.	Liver easily felt when pa- tient is in the upright posi- tion. Anterior border thin. Notch and suspensory liga- ment could be felt. Tympani- tic note in normal liver re- gion. In dorsal decubitus liver easily restored to its normal position.	Recovered.	Operated on May 8th. Tu- mor was found to be a lobe of the liver much en- larged, which de- scended to the umbilicus and right iliac fossa, hard and scler- osized, no irregu- larities or cysts on the surface. Enormous calcu- lus found in the gall-bladder. Gall-bladder stitched to the abdominal wall.	Very comfortable.
Terrier et. Bau- doun, Progres Médicale, Paris, 1888, pp. 121-3. Faure.	3 at term.	Has had di- gestive trouble and constipation. Menstruation regular; com- menced at 17; has severe pains during the pe- riod.	In the right hypochondriac region, and near the umbili- cus, there is a tumor. It commences a finger breadth below the right false ribs, and descends to the right iliac region; extremely movable; no ascites.	Recovered.	Operated on May 8th. Tu- mor was found to be a lobe of the liver much en- larged, which de- scended to the umbilicus and right iliac fossa, hard and scler- osized, no irregu- larities or cysts on the surface. Enormous calcu- lus found in the gall-bladder. Gall-bladder stitched to the abdominal wall.	Very comfortable.
Hughes, Univ. Med. Mag., Vol. ii., 1889-90.	Nine.	Tumor noticed at time of last confinement, and afterwards. He- patic dullness partially reappeared when liver was replaced.	Tumor on right side of ab- domen, reaching from the crest of the ilium to margin of the ribs; surface smooth and notch felt. Replaceable partly. Hepatic dullness ab- sent.	Recovered.	Operated on May 8th. Tu- mor was found to be a lobe of the liver much en- larged, which de- scended to the umbilicus and right iliac fossa, hard and scler- osized, no irregu- larities or cysts on the surface. Enormous calcu- lus found in the gall-bladder. Gall-bladder stitched to the abdominal wall.	Very comfortable.

AUTHOR.	AGE	CHILDREN.	FORMER HEALTH.	HISTORY AND PRESENT CONDITION.	TUMOR.	CAUSE.	THERAPEUTICS.	FUTURE COURSE.
Curtius, Halle 1869.	41		Never ill, except frequent eructations and some dyspepsia. For seven years not able to wear corsets, but had an abdominal support.	Present disease commenced gradually—lassitude, and rapid beating of the heart. In 1887 patient was occupied putting out clothes on a line; was seized with abdominal pains so intense that she had to lie down; disappeared on resting. No jaundice. Pains were sometimes subdued. In 1888, small, poorly nourished; weight, 43 kilos. Muscular system relaxed.	In 1887 patient noticed a hard tumor in right side, not causing pain, but a disagreeable sensation from pressure. In May, 1888, standing or walking brought on pain and dyspnoea. On palpation a tumor is found extending from false rib to pelvis; surface smooth, consistence solid. Tumor very movable; pushed to normal liver region easily. More difficult to displace it towards the left.			Patient afterwards suffered from ascites and dyspnoea.
R. Pichevin, Progres Medical cale, 1888, p. 253.	50			Liver not increased in size below the ribs in the axillary line (resonance in normal liver region) A tumor occupying right side of the abdomen was found.	The tumor was convex, smooth; longer from above downwards than transversely. Mobility increased.			Died of tuberculosis. Post-mortem shows a floating liver lobe in the right iliac flank. It was 20 centimetres long by 10 centimetres. On raising the lobe there is a movable kidney seen, the extremity of which extended lower than the floating lobe.
Louis Frank, Am. Pract. and News, 1891, 3. Gerhardt's Clin- ic.	58		Inflammation of lungs and attack of jaundice.	Liver displaced downwards and sideways; six years in this position. Blood flow never interrupted.	Large, uneven tumor. Moves with respiration.			
Binnie, Intern. Journ. Surgery, 1894, p. 232.	47	Unmarried.	Fell on right side many years before. Never lacerated thigh. Dyspepsia. Tumor noticed three years and jaundice six months before.	Pain in right side of abdomen and right shoulder. Countenance pale, with yellow tinge.	Tumor at level of the umbilicus, in the mammary line. Dullness over the tumor.		Laparotomy. Liver freely movable and displaced. Right extremity inferior. Upper surface to the right and anterior; suspensory ligament elongated. Carcinomatous nodules discovered.	Recovery from operation in two or three weeks.

				Bandage.	Comfortable.
J. Buchholz, Norsk. Mag. f. Lægevidenskaben, Oct., 1893.	54	Ten.	Farmer's widow. Had influenza, bronchitis, and asthma.	Feeling of weight in abdomen, and normal liver dullness absent.	
Munde, International Clinics, 2nd series, Vol. iv., 1893, p. 330.	45	Eight. Last 8 years ago.	Empysemata. Moderate for one or two years. Bronchitis. Menstruation ceased at 50.	Movable kidney was diagnosed. Tumor on right side has a sharp, well-defined edge. Both palpation and percussion indicated it to be liver.	Bandage and pad.
Richelot, Med. Times and Circular, July 26, 1893.	28			Patient had frequent attacks of vomiting. Had to give up work.	Recovery
Graham, 1895.	60	Ten.		Complained of increasing distension, especially on exertion. Attacks of bronchitis, dilated right heart, dyspnoea and cyanosis on exertion, œdema of limbs at times. Feeling of weight in abdomen.	Health much improved by bandage. Dyspnoea and cyanosis very much lessened.

REPORT OF ONE HUNDRED AND FORTY-FIVE OPERATIONS DONE FOR REMOVAL OF OVARIAN TUMORS AND PATHOLOGICAL CONDITIONS ASSOCIATED WITH THE OVARIES AND UTERINE APPENDAGES ONLY.*

BY A. VANDER VEER, M.D.,

Professor of Didactic, Abdominal, and Clinical Surgery,
ALBANY, N.Y.

(Concluded).

CASE 117. Mrs. R.C. Family history of dropsy, phthisis, and paralysis. Patient always healthy. Menstruated at fourteen; regular until 1888. Married twenty-five years. Six children, youngest sixteen years of age; no miscarriages. First noticed abdominal enlargement September 1, 1893; not attended with pain until four or five weeks previous to operation.

Cœliotomy, before class, November 2, 1893. Twelve quarts yellowish fluid removed from abdominal cavity, which was found studded with tubercles. Glass drainage. Good recovery. Discharged nineteenth day.

CASE 118. Mrs. E. McC. Patient healthy, with the exception of having what she says was progressive muscular atrophy when 17. Menstruated at fourteen; always regular. Married at fourteen; never had any children, but miscarriage when fifteen. In February, 1892, first noticed feeling of weight and oppression in left side abdomen and back. Sewed a good deal with sewing-machine; always worse afterwards. April, 1892, fell off stoop, struck on left side, and felt worse since. November, 1892, began to flow every two or three weeks. Since April, 1893, has been regular. August, 1892, confined to bed for a time, and occasionally since. Cœliotomy, November 16, 1893. Both ovaries adherent, left one especially; removed first. Right cystic also removed. Firm adhesions. Glass drainage introduced. Drainage removed after twenty-four hours. Recovery. Discharged December 30, 1893.

CASE 119. Miss K. Diagnosis, old general and pelvic peritonitis-dysmenorrhœa-hystero-epilepsy. Diagnosis confirmed at operation, November 29, 1893, private house. Left ovary and tube could not be found. Removal of ovary and tube right side like small intestine. Very much better for six months after operation. Since then occasional convulsions. Not so severe, however. Has had an occasional flow. Many and very firm adhesions. Recovery.

CASE 120. Mrs. H.W., family history good. Eight children; one miscarriage, July, 1892. Patient always healthy, with exception of serious illness at thirteen. Menstruated at that time, always regular. Since miscarriage pain in left side abdomen. May, 1893, had inflammation of kidneys. Œdema in ankles at times. Cœliotomy, November 30, 1893. Left ovary cystic, removed first. Right cirrhotic, also removed. No drainage. Good recovery. Discharged twenty-second day. Excellent health eight months later.

CASE 121. Miss E.L.H., family history good. Patient always delicate. Menstruated at fifteen; regular. In 1890 noticed enlargement of abdomen, thinks first apparent right side. Enlarged slowly but steadily since—no pain—sore when she walked far, and feeling of being tired. Cœliotomy, December 7, 1893. Large ovarian cyst attached left ovary, contained twenty pints fluid; cyst, when removed, weighed fifteen ounces. Right ovary atrophied, also removed. No drainage. Good recovery. Discharged January 23, 1894.

CASE 122. Miss S., invalid for past three years, unable to get about her household duties, confined to room a good share of time. Menstruation at times very painful, quite free, much leucorrhœal trouble, and bladder irritation. Diagnosis, double pyosalpinx. Cœliotomy, December 7, 1893. Tubes very much thickened, full of pus, ovarian abscess on left side (right-side tube double), ovary adherent to small fibroid situated in posterior wall of uterus. Latter not disturbed. Excellent recovery.

CASE 123. Mrs. E.M.C., family history good. Patient in fairly good health, though suffering much from pelvic pains at different times. Two months previous to operation suffered severe pelvic peritonitis, with undoubted salpingitis. Diagnosis, double pyosalpinx, with adhesions. Patient emaciated and weakened. Cœliotomy, December 15, 1893, 11 a.m. Left ovary very adherent to surrounding structures; liberated with great difficulty. Trendelenberg position. Considerable hæmorrhage. Right ovary very adherent. Appendages thoroughly removed. Bleeding points controlled with one exception, down on right side, where it seemed impossible to place ligature. Long artery forceps placed and left in position. Cavity abdomen thoroughly flushed with saline solution. Glass drainage; tampons of iodoform gauze inserted around tube and forceps. Operation

eighty minutes. Took anæsthetics nicely, but none for last half-hour. Did not rally, dying from shock at 10.50. Post-mortem on day of operation. Impossible to have lessened this operation in any way. It was either to have abandoned it in beginning, or to go on and complete, and result proved it too much for her strength.

CASE 124. Mrs. M.S., æt. 71. Family history, tuberculosis, paralysis, and cancer. Menstruation not painful, but irregular; passed menopause safely at 51. January, 1893, had a severe attack of grippe; November, 1893, first noticed abdominal enlargement and pain, particularly in left side. Increased somewhat rapidly. Œdema of lower extremities during summer of 1893. Tapped four times by family physician, Dr. A. W. Van Slyke, and once, in consultation with myself, about December 1, 1893. Diagnosis of multilocular ovarian cyst, an operation advised, although patient was emaciated and weak. Cœliotomy on December 18, 1893. Large multilocular cyst, right ovary. Thirty-two pints fluid removed. Obligated to break down one cyst within another before removal of sac. Adhesions not numerous. Weight of cyst trifle over three pounds. Glass drainage. Patient did not rally from operation, and died suddenly at 4.15 a.m., December 19, 1893, from symptoms of pulmonary infarction. This case would have stood a very much better chance for recovery had the operation been done immediately after first tapping.

CASE 125. Mrs. P.S. Family history phthisis. Patient well as a girl. Menstruated at thirteen, never regular, often twice a month; 1891 suffered from pain in right side of abdomen. Attacks lasted half an hour. Physician diagnosed biliary colic. March, 1893, after attack, noticed enlargement of abdomen; never painful. No history of being jaundiced. Operation, December 21, 1893. Small ovarian cyst in right ovary; tapped and removed; few adhesions. Left ovary cystic and removed. Small cyst in left ovary ruptured when attempting removal of ovary. No drainage. Rallied nicely; some nausea. Bowels moved second day. Recovery uneventful.

CASE 126. Miss H.V., æt. 19. Family history good. First noticed enlargement on left side of abdomen, August, 1893, accompanied with much pain. Tumor increased rapidly. Cœliotomy, January 2, 1894. Large multilocular cyst in left ovary, containing eleven quarts fluid, thick, viscid, dark-colored. Firm adhesions, from left side of abdomen, with some coils on small intestines. Right ovary in condition cystic enlargement; removed with tube. Glass drainage; removed second day. Recovery very rapid. Patient very home-sick, and allowed to return on tenth day. Returned to hospital, May 15, 1894, with marked growth on left side of pelvis, probably nature sarcoma. Patient very much emaciated. No further operation advised.

CASE 127. Mrs. E.F.S. Family history good. Mother of two children. After birth of second child, 1886, patient had severe pain in lower part of abdomen; greatly increased when nursing child. Ulceration of uterus treated daily, but never cured. Irregular flow; bearing-down pains; could not walk; lacerated cervix repaired on February 10, 1893; improved. This operation was followed six weeks later by a pelvic abscess, which discharged through rectum. Pain in right ovary continued. Coeliotomy, February 22, 1894. Removal of uterine appendages; many firm adhesions. Glass drainage. Uneventful recovery; discharged on twenty-sixth day.

CASE 128. Miss J. D. Had given many symptoms of pelvic disturbance, but no especial organic change to be observed. Had been vomiting more or less for six months, quite continuously for past three months. No line of treatment apparently any good. Finally, at the earnest solicitation of herself and friends it was decided to do a coeliotomy, believing there was some diseased condition of the tubes and ovaries impossible to make out. Operation, February 23, 1894. Uterus not fully developed, yet tubes and ovaries presented a normal, healthy condition. There were some few adhesions giving evidence of past pelvic peritonitis. These adhesions loosened up, tubes straightened, but appendages not removed. The case went on to complete recovery. Stomach behaved very much better after the operation, patient able to retain more nourishment. Morphine given for short time after operation. Slow, but excellent recovery.

CASE 129. Miss A. E. Pelvic peritonitis-dysmenorrhœa. Coeliotomy, February 24, 1894. Removal of uterine appendages. Many firm adhesions. Excellent recovery.

CASE 130. Miss M. D.; family history very good. Never sick, with exception of two attacks of diphtheria, the last occurring in 1889, and dates all trouble from this. Menstruated at 16, never regular, painful. Latter part of 1892 noticed pain in right hypogastric region, associated with enlargement in that locality. Pain increased, but tumor decreased. Coeliotomy, February 27, 1894. Double ovariectomy. Right ovary cystic, removed, cyst wall breaking down and fluid not measured. Left ovary in like condition. No drainage. Recovery uneventful. Discharged thirtieth day.

CASE 131. Mrs. W. J. O. Diagnosis doubtful as to nature of tumor. No children; three miscarriages. Coeliotomy, March 1, 1894. Removal of ovarian cyst, left side. Enlarged ovary on right side with pyosalpinx. Many adhesions. Recovery.

CASE 132. Miss S. N., family history negative. Patient well until six months prior to operation, when languid, not inclined to work, and excitable. Menstruated at fourteen; regular, scanty, and painful. Sharp

pain in lower part of abdomen. Cœliotomy, March 19, 1894. Left ovary cystic, tube much enlarged and corrugated—removed first. Right ovary showed similar condition and removed. Many adhesions. Wound closed without drainage. Recovery uneventful. Discharged nineteenth day.

CASE 133. Mrs. L. D., married, one child. For past two years has suffered greatly from repeated attacks of pelvic peritonitis. An operation was finally advised by her family physician, and in which I fully concurred. Cœliotomy, March 23, 1894. Many adhesions; tubes thickened; excellent specimens pus tubes. Uterine appendages thoroughly removed. One hypodermic morphine given after operation. Patient developed on third day an attack of bronchitis; temperature, 101° ; pulse, 100; respiration, 22; but from this she made a good recovery. Wound did nicely, and she made an excellent recovery.

CASE 134. Miss J. McC., family history good. Menstruated at fourteen; irregular first few years, then regular, but scanty and painful. Patient complained of pains in back in lumbar region; persistent headache, more severe during menstrual periods. Never noticed enlargement of abdomen. Scarlet fever in childhood, followed by inflammatory rheumatism. Diagnosis, pyosalpinx. Cœliotomy, March 30, 1894. Ovaries and tubes low down in pelvis and hard to reach. Diagnosis is confirmed; uterine appendages removed. Iodoform dressing used. Many adhesions. Patient made uneventful recovery. Discharged twenty-fifth day.

CASE 135. Mrs. H. A. L., æt. 43; widow; no children. During married life constantly under treatment for uterine troubles, wearing all manners of pessaries; confined to bed frequently for a year at a time; had severe leucorrhœal trouble, at times dysmenorrhœal trouble. I saw her, five years previous to operation, with family physician; found her suffering severely from retroversion, enlarged tubes, and every evidence of pyosalpinx. Advised an operation, but patient would not consent. During five years following, under variety of treatment, most of the time making use of tampons herself; would recover for a month or so, but most of time confined to bed; great irritation of bladder frequently; constipated; very careless in every respect in care of person; had little love for medical profession, and no kind word for any one. February, 1894, consented to an operation, it requiring nearly a week's work on part of nurse to get surface of patient's body and vagina in any kind of aseptic condition. She was absolutely rebellious to taking of a bath, and proper evacuation of bowels. Made an effort to quarrel with nurse on morning of operation because an additional scrubbing was insisted upon. Cœliotomy in my private sanitarium, March 30, 1894. Diagnosis confirmed. Operation

difficult, though adhesions gave rise to little hæmorrhage. Patient recovered from ether quickly, but rebellious in every respect as to carrying out line of treatment. Insisted upon sitting up in bed; objected to use of bed-pan. Little vomiting; little tenderness over abdomen, but difficult to keep dressings on, she was so restless. Bowels moved second day thoroughly well. At this time noticed abscess developing in left labia; opened and discharged pus very freely. Stitch-hole abscess at lower end of incision. Began to vomit at this time, which continued more or less. She wore out the strength and patience of two nurses, and at last hypodermic injection of morphia was necessary, learning then she had been using it for a long time. Wound, in every respect, aside from stitch-hole abscess, presented a healthy appearance, healing quickly, but patient died, evidently of septic peritonitis, April 5, 1894. No autopsy. I think I voice the sentiment of every operator when expressing the desire to be delivered from such a patient.

CASE 136. Miss J. K. Family history, consumption and diabetes. Menstruated at fourteen; regular, with exception of first few periods, then having seizures resembling epilepsy. Flow normal in amount. Diagnosis, hystero-epilepsy. Cœliotomy, April 16, 1894. Removal of uterine appendages not difficult. Recovery. Discharged twenty-fourth day. Had one convulsion, six months after operation.

CASE 137. Mrs. M. S. Family history, consumption on paternal side; good otherwise. Menstruated at fourteen; regular; dysmenorrhœa. No children; no miscarriages. Typhoid fever in 1886; two years later, pain in ovaries and back. Bloating in extremities and abdomen, disappearing after a time. Fell from hammock at beginning of menstruation, injuring back; later, strained herself leaning over a manger, followed by tumor in abdomen, not perceptible exteriorly, but noticed moving around. Cœliotomy, April 17, 1894. Ovaries found undergoing cystic degeneration; tubes corrugated and distended. Removal of uterine appendages. Many adhesions; good recovery. Bowels moved third day. Discharged May 23, 1894.

CASE 138. Miss L. S. Never strong. Family history, several members died of phthisis. During fall of 1893 patient suffered a prolonged, serious attack of pelvic peritonitis, giving evidence, at times, of trouble with appendix, probably tubercular peritonitis. From this attack she made a fairly good recovery, and improved somewhat during the winter, although at times there presented occasional symptoms of appendicitis. Cœliotomy, April 28, 1894. Ovaries much enlarged, much thickened; pelvic peritonitis; perinæum studded and giving evidence of old tubercular trouble. Appendix had many adhesions, as well as being thickened. This, together with the uterine appendages, was removed. Patient made a good recovery, and discharged May 20, 1894, from private hospital.

CASE 139. Mrs. F.F.; well as a girl. No menstrual trouble. Married at eighteen. Two children. In 1886 began to have pains in back; menstruation irregular since. Diagnosis, cystic ovaries. Coeliotomy, April 30, 1894. Diagnosis confirmed. Removal of appendages; few adhesions; wound closed by silkworm gut sutures. Good recovery; discharged on twenty-second day.

CASE 140. Mrs. E.V. Family history: father died of Bright's disease, mother died of cerebral hæmorrhage, otherwise good. Patient menstruated at seventeen; married at nineteen. First pregnancy normal. At second pregnancy run over with a wagon twice. Three children; two miscarriages; last October 10, 1893, dating illness from this. Severe pain all the time in both sides of the uterus, aggravated during micturition. No movements without the use of cathartics. Never noticed tumor in abdomen. Diagnosis, fibroid uterus; dysmenorrhœa. Coeliotomy, May 12, 1894. Removal of appendages; recovery. Discharged twenty-second day.

CASE 141. Miss E.M.K. Diagnosis is ovarian cyst, confirmed at operation, May 24, 1894. Removal of double ovarian dermoid cysts. Few adhesions. Drainage; recovery; well, June 16, 1894.

CASE 142. Mrs. L.D. Family history, consumption, tumor, and kidney trouble. Patient menstruated at fourteen; regular, painful, and profuse. Two children; no miscarriages. In 1889 was troubled with faintness, pains in abdomen, inguinal region, and back; severe headaches, dizziness, catarrh bladder. Diagnosis, cystic degeneration of both ovaries. Chronic peritonitis. Diagnosis confirmed. Operation May 29, 1894; removal of uterine appendages; no drainage; good recovery. Discharged on twenty-sixth day.

CASE 143. Mrs. A.G.W., married; one child. Five years previous to '88 she had given history of some pelvic lesion, being confined to bed almost continuously. At this time she was much emaciated, waxy, pale-looking. On examination then by Dr. Church, there was found complete retroflexion with pelvic cellulitis, position of uterus and all giving a very distressing condition of constipation and pain in securing a movement of the bowels. She had taken a great quantity of medicine, powerful laxatives having very little effect. There was much distress on pressure over the vertebræ in dorsal and lumbar region, sensitive throughout the whole extent of the spine, with some lateral curvature. In the doctor's attempt to restore the uterus to its normal condition, she suffered a sharp, acute attack of pelvic peritonitis. This was followed by a bloody discharge from the rectum, giving indications of chronic dysentery. Spinal trouble was treated successfully by the application of a plaster of Paris jacket. After the uterus had been restored to its more normal position, the doctor

dilated the cervical canal for relief of the stenosis, which was followed by her only pregnancy. After fully recovering she was attacked with grippe, which was followed by another long siege of dysentery, with evidence of some trouble about the left hip, thought at one time to be a case of hip disease. Finally, all symptoms external to the pelvis improved, and she could walk about quite well, when taken with severe cystitis, which continued in a very tedious manner for some time, accompanied with paroxysms of pain of a most excruciating and lancinating character in right iliac region, resulting in a discharge from the vagina of an exceedingly copious disagreeable-smelling pus. Her general health was now very feeble, complete loss of appetite, free perspiration. At the same time a swelling could be observed in the right lumbar region, also below Poupert's ligament, and at one time there was quite a definite prominence in Scarpa's triangle, making one feel quite positive that it was a case of psoas abscess. All these conditions subsided immediately after free discharge from the plevis. When the case came under my observation in the beginning of the winter of 1894, I felt that it was one of true double pyosalpinx, and advised an operation. This was done on May 30, 1894. Many adhesions present. Diagnosis fully confirmed. Removal of uterine appendages was followed by recovery. Patient doing exceedingly well in every respect. Discharged from private hospital on the twenty-sixth day.

CASE 144. Miss M.C.F., family history fairly good. One case phthisis on mother's side. Noticed enlargement left side of abdomen about nine months previous; all symptoms of unilocular ovarian cyst. Cœliotomy, June 6, 1894. Removal of left ovary and single cyst. Diagnosis confirmed. Simple operation in every respect. Uninterrupted recovery. Patient left private hospital June 20, 1894.

CASE 145. Mrs. A. McN. Probable history of phthisis on father's side. Patient healthy and robust as a girl. Menstruated at fourteen; caught cold, flow ceased, not re-establishing itself for over a year. Regular up to present trouble, which commenced in 1887. Last noticed slight flow in May, 1894. Married twenty-two years. One child stillborn, sixteen years ago. Supposed miscarriage about six years ago, at which time she suffered a great deal of bearing-down sensation and pain in lower portion of abdomen and back. Œdema of ankles at times. Thinks enlargement of abdomen increased slowly. More rapid for three or four months previous to operation, occurring in right side first. Cœliotomy at her own home, June 16, 1894. Multilocular ovarian cyst in right side; short, broad pedicle; hæmorrhage. Recovery. Ligature came away latter part of July. Patient developed symptoms of phlebitis, but in August, 1894, was around the house and doing well.

No.	Name, age, and civil condition.	Physician and residence.	Diagnosis of disease.	Date of operation.	Nature of operation. Removal.	Result.	Remarks.
1	Mrs. C. C. M. 3a	Dr. Weidman, Medusa, N.Y.	Multilocular ovarian cyst.	Feb. 20 1888	Multilocular cyst, right ovary. Papillomatous; many adhesions; short, broad pedicle.	D.	Patient died on fourth day from intestinal obstruction. Autopsy: obstruction due to loop small intestine attaching itself to stump pedicle. Uninterrupted recovery.
2	Mrs. S. B. M. 37 C.	Dr. Glidden, Little Falls, N.Y.	Unilocular ovarian cyst.	Feb. 24	Diagnosis confirmed; weight 20 lbs.	R.	Uninterrupted recovery.
3	Mrs. F. C. M. 68	Dr. Houston, Cohoes, N. Y.	Multilocular ovarian cyst; sarcoma of mesentery.	April 9	Multilocular cyst and uterine appendages; drainage.	R.	Patient in good health six months after operation.
4	Miss C. D. S. 24	Dr. Rush, Springfield, N.Y.	Double pyosalpinx, cystic degeneration of ovaries.	May 1	Uterine appendages.	R.	Stitch-hole abscess sixth day; finally good union and excellent recovery.
5	Mrs. L. W. M. 43	Dr. Wright, Canaan, N. Y.	Unilocular ovarian cyst.	May 15	Unilocular cyst, right ovary.	R.	Uninterrupted recovery.
6	Mrs. A. M. M. 46	Dr. Hotelling, W. Township, N. Y.	Unilocular cyst, left side.	May 31	Unilocular cyst, left ovary, also right ovary; many adhesions; weight 35 lbs.	R.	Hypodermic injection morphia every six hours for twenty-four hours, then discontinued.
7	Mrs. A. O'C. M. 46	Dr. Grover, Fort Henry, N.Y.	Multilocular ovarian cyst, left side.	May 31	Multilocular cyst, left ovary, also right ovary; many adhesions to intestines and bladder; weight 20 lbs.	R.	Temperature rose on eighth day to 102-104 4-5° returning to normal on twelfth day after tarry/acid discharge from vagina; no suppuration.
8	Mrs. P. A. R. M. 55	Dr. Wheeler, Pittsfield, Mass.	Double multilocular ovarian cyst.	July 5	Diagnosis confirmed; some intestinal adhesions giving rise to considerable hemorrhage requiring several ligatures; weight 40 lbs.	R.	Uninterrupted recovery.
9	Miss E. B. S. 26	Dr. Montgomery, Luzerne, N. Y.	Many attacks pelvic peritonitis; salpingitis.	Oct. 1	Uterine appendages; operation difficult.	R.	Good recovery. Two years later patient died from what at time supposed to be sarcoma of cavity of pelvis.
10	Miss M. W. S. 20	Dr. Melick, Fort Edward, N. Y.	Multilocular ovarian cyst, left side.	Oct. 4	Diagnosis confirmed.	D.	Death on fourteenth day from general peritonitis. Autopsy revealed evidence of pelvic hemorrhage, probably caused by ligature becoming loosened in some way.
11	Mrs. C. W. M. 34	Dr. Noble, Cairo, N. Y.	Multilocular ovarian cyst.	Nov. 19	Multilocular cyst, left ovary; right healthy; drainage not removed for 48 hours.	R.	Uninterrupted recovery. Patient in good health June, 1894.
12	Mrs. H. T. S. M. 37	Dr. Johnson, Bellefayre, N. Y.	Multilocular ovarian cyst.	Dec. 21	Diagnosis confirmed, 12 quarts fluid.	R.	Good recovery. Patient had metrorrhagia for six months after operation; finally complete recovery
13	Mrs. H. M. R. M. 29	Dr. Reiley, Fair Haven, Vt.	Salpingitis.	Dec. 22	Uterine appendages.	R.	Drainage continued for over two weeks,
14	Mrs. E. B. M. 39	Dr. Vander Veer, Albany, N. Y.	Pelvic or psoas abscess.	Jan. 4 1879	Pyosalpinx; one ovary and tube; drainage.	R.	

15	Mrs. N. M. M. 26	Dr. Lapp, Fair Haven, Vt.	Tubercular peritonitis.	Jan. 5	Right ovary and tube; drained.	R.	Mass removed proved on examination to be tubercular. Glass drainage gave much discomfort, and on fourth day replaced by rubber tube; this removed on twelfth day. Death from peritonitis on eleventh day. Possibly obstruction. Uninterrupted recovery.
16	Miss L. R. S. 26	Dr. Du Bois, Albany, N. Y.	Salpingitis; pelvic peritonitis.	April 5	Uterine appendages.	D.	
17	Mrs. M. E. H. M. 45	Dr. Wheeler, Chatham, N. Y.	Multilocular ovarian cyst.	April 13	Cyst and ovaries.	R.	
18	Mrs. E. C. M. 26	.....	Multilocular cyst, left ovary.	May 21	Diagnosis confirmed; right ovary in state of cystic degeneration and removed; drainage.	R.	Uninterrupted recovery.
19	Mrs. F. W. M. 49	Dr. Van Yranken, W. Troy, N. Y.	Unilocular cyst, left ovary.	June 15	Multilocular cyst, left ovary; drainage.	R.	Good recovery, but patient suffered from hernia six months after operation. Death from shock.
20	Miss B. A. S. 22	Dr. Maxon, Chatham, N. Y.	Unilocular ovarian cyst.	Aug. 29	Unilocular cyst, left ovary, also right ovary; very adherent.	D.	
21	Mrs. E. B. M. 47	Dr. Fuller, Huntsville, N. Y.	Multilocular cyst, left ovary.	Sep. 23	Cyst and uterine appendages; colloid degeneration; drainage.	R.	Uninterrupted recovery.
22	Mrs. C. L. M. 63	Dr. A. Boyce, E. Schodack, N. Y.	Multilocular ovarian cyst.	Oct. 14	Diagnosis confirmed; many adhesions; drainage.	R.	Severe vomiting for forty-eight hours after operation. Drainage quite free. Excellent recovery.
23	Mrs C. C. M. 59	Dr. Johnson, Champton, N. Y.	Unilocular cyst, right ovary.	Oct. 15	Diagnosis confirmed.	R.	Uninterrupted recovery.
24	Mrs M. B. M. 47	Dr. Layman, Middleburg, N. Y.	Unilocular cyst, left ovary.	Oct. 29	Diagnosis confirmed.	R.	Uninterrupted recovery.
25	Mrs R. H. M. 36	Dr. Babbitt, Cooperstown, N. Y.	Pelvic peritonitis; salpingitis.	Nov. 4	Adhesions loosened, but too severe for removal of appendages.	R.	Good recovery. Patient very much improved in health one year after operation.
26	Mrs. R. A. M. 35	Dr. Best, Middleburg, N. Y.	Unilocular cyst, left ovary.	Nov. 11	Unilocular cyst, left ovary, also right ovary.	R.	Uneventful recovery.
27	Mrs. D. S. M. 37	Dr. Allen, Greenbush, N. Y.	Supposed large ovarian cyst.	Nov. 13	Incision; right ovary removed; tubercular peritonitis.	R.	Error in diagnosis. Patient died later on of return of peritoneal dropsy.
28	Mrs. S. N. M. 32	Dr. St. J. Middle, Brunywyck, N. Y.	Large unilocular cyst, right ovary.	Dec. 5	Unilocular cyst, right ovary; also left ovary; cyst 22 lbs.	R.	Chill on fourth day controlled by quinine. Uninterrupted recovery followed.
29	Mrs. H. N. M. 34	Dr. Hall, W. Hartford, N. Y.	Chronic ovaritis; pelvic peritonitis.	Jan. 27 1890	Uterine appendages.	R.	Uneventful recovery.
30	Mrs. A. McK. M. 20	Dr. Turner, Mineville, N. Y.	Chronic ovaritis.	Feb. 23	Uterine appendages; cystic degeneration of ovaries; many adhesions.	R.	Good recovery.
31	Mrs. E. H. M. 55	Dr. Dunlop, Waterford, N. Y.	Multilocular cyst, left ovary.	April 20	Diagnosis confirmed; hard mass on right side not disturbed.	R.	Good recovery. Hernia observed one year after operation, not troublesome. Hard mass still observed two years and six months after operation, not enlarging. Ligature came away July, 1890.
32	Mrs. J. V. M. 30	Dr. Traver, Troy, N. Y.	Multilocular cyst, left ovary.	April 30	Diagnosis confirmed; drainage removed on seventh day.	R.	Excellent recovery, although long search had to be made for sponge lost in cavity.
33	Miss A. O. S. 30	Dr. Pearson, Schenectady, N. Y.	Chronic ovaritis; dysmenorrhoea.	June 16	Uterine appendages.	R.	Uninterrupted recovery.

No	Name, age, and civil condition.	Physician and residence.	Diagnosis of disease.	Date of operation.	Nature of operation. Removal.	Re-sult.	Remarks.
34	Mrs. E. C. M. 34 Miss L. McC. S. 23	Dr. Gray, New York. Dr. Young, Greenville, N.Y.	Unilocular ovarian cyst. Chronic salpingitis; left ovary cystic; retrover- sion.	Sept. 20 1890 Oct. 7	Multilocular cyst, right ovary; parovarian cyst, left side. Right ovary and tube, March, 1889; had been to Seney Hospital, N. Y., and Alexander's operation done by Dr. Plicher.	R. R.	Uneventful recovery. Recovery uninterrupted.
36	Miss M. G. S. 18	N. Easton, N.Y.	Multilocular cyst right ovary	Oct. 10	Diagnosis confirmed; left ovary healthy, not removed.	R.	Good recovery. Apposition lower angle, wound not perfect, silkworm gut. Exuberant granulations.
37	Mrs. E. W. M. 24	.....	Chronic salpingitis; pelvic peritonitis.	Oct. 21	Right ovary and tube; left healthy.	R.	
38	Mrs. S. K. M. 33	Dr. Bissell, Troy, N.Y.	Pyosalpinx double.	Oct. 30	Uterine appendages and small fibroid; fundus of uterus; drainage.	R.	Free hemorrhage from fundus uterus when fibroid removed, controlled by thermocautery. Ligature came away eight weeks after operation. Recovery uneventful.
39	Mrs. F. M. M. 35	Dr. Matte, N. Adams, Mass.	Ovaritis salpingitis.	Nov. 29	Uterine appendages.	R.	Quick recovery. Two years after patient became pregnant, passed through successfully, delivered of living child. Excellent health since.
40	Mrs. J. E. M. 26	Dr. Kazhan, Schenectady, N.Y.	Ovaritis right side.	Dec. 18	Right ovary size turkey egg, and tube.	R.	Tenth day lower end incision opened and from four to five ounces of foetid pus discharged. Irrigation tract of drainage tube. Good recovery.
41	Miss E. K. S. 34	Dr. Vander Veer, Albany, N.Y.	Unilocular ovarian cyst, probably left.	Jan. 3 1891	Left ovary and tube; drainage.	R.	Good recovery. Patient in excellent health June, 1894.
42	Miss M. G. S. 20	Valley Falls, N.Y.	Tubercular peritonitis; left ovary enlarged.	Jan. 14	Diagnosis confirmed; right ovary, cyst, and incised.	D.	Immediate hemorrhage due to slipping of ligature, abdomen reopened, pedicle re-ligated. Two pints saline solution poured into peritoneal cavity.
43	Miss J. S. S. 19	Dr. Vander Veer, Seward, N.Y.	Unilocular cyst left ovary.	Feb. 28	Mass from left side sarcoma; cyst from right ovary; drainage.	R.	Patient did well. Able to do her work for more than a year. Second operation; removal part of new growth. Living June, 1894, with fistulous tract from which protruded sarcomatous mass.
44	Mrs. A. E. M. 20	Albany, N.Y.	Multilocular ovarian tumor	Mar. 3	Uterine appendages; right side extra-uterine pregnancy.	R.	Patient had regular menstrual flow for more than a year; then thoroughly curetted cavity; uterus packed with iodoform gauze, when flow ceased, and she has remained well ever since.
45	Mrs. N. A. M. 30	Dr. Stickles, Philmont, N.Y.	Hæmatosalpinx.	Mar. 18	Multilocular cyst, left ovary; right ovary undisturbed.	R.	Ligature came away nearly six months after operation; sinus readily healed. In good health August, 1894.
46	Mrs. M. S. M. 44	Dr. Rushton, Amsterdam, N.Y.	Multilocular ovarian cyst.	April 23	Uterine appendages; extensive adhesions; drainage.	R.	Good recovery. Hernia one year after operation
47	Mrs. E. C. M. 33	Dr. Babcock, Albany, N.Y.	Chronic ovaritis.	May 4		R.	

43	Mrs. A. McC. M. 32	Dr. Webster, Schuylerville, N. Y.	Chronic ovariitis and pyosalpinx; specific.	May 22	Uterine appendages.	R.	Good recovery from operation, but complained for over two years of old feeling; weakness about pelvis and pain in back.
49	Mrs. E. C. M. 33	Dr. Neher, Nassau, N. Y.	Chronic ovariitis and pyosalpinx.	May 27	Uterine appendages; drainage.	R.	Good recovery. Patient had undergone opera- tion for lacerated cervix three months previously. Excellent health, August, 1894.
50	Mrs. E. B. M. 28	Dr. McHarg, Albany, N. Y.	Multilocular ovarian cyst.	May 30	Multilocular cyst and both ovaries; drainage.	R.	Excellent recovery.
51	Miss L. M. S. 26	Dr. Church, Oneonta, N. Y.	Cystic degeneration ovaries and salpingitis.	July 13	Uterine appendages.	R.	Good recovery, somewhat slow. In excellent health, August, 1894.
52	Mrs. A. E. B. M. 42	Dr. Bigelow, Albany, N. Y.	Multilocular ovarian cyst; peritonitis.	Sept. 1	Multilocular cyst, left ovary and right ovary, cyst suppurating; drainage.	R.	Excellent recovery and in good health, June, 1894.
53	Mrs. M. M. M. 32	Dr. Felter, Troy, N. Y.	Unilocular cyst, left ovary.	Oct. 1	Left ovary, also hydrosalpinx, right side.	R.	Good recovery. Patient in good health (n: year afterward.
54	Mrs. V. S. M. 53	Dr. Nichols, Worcester, N. Y.	Ovarian cyst, right side.	Oct. 6	Unilocular cyst, right ovary; six quarts fluid.	R.	Excellent recovery, and in good health two years after operation.
55	Mrs. A. R. M. 55	Dr. Mambert, Roundout, N. Y.	Multilocular ovarian cyst.	Oct. 6	Suppurating cyst and both ovaries; drainage.	R.	Excellent recovery.
56	Mrs. N. P. M. 31	Dr. Lamont, Catskill, N. Y.	Supposed suppurating ovary, right side.	Oct. 8	Incision; great adhesions of intestines; large abscess; drainage.	R.	One year after operation developed second abscess, producing septicæmia, from which she died.
57	Mrs. E. J. L. M. 30	Dr. Magee, Lansburg, N. Y.	Unilocular ovarian cyst with peritonitis.	Oct. 15	Cyst and both ovaries.	R.	Good recovery. In excellent health two years after operation.
58	Miss I. R. S. 19	Dr. Salmon, Lansburg, N. Y.	Chronic ovariitis; dys- menorrhæa.	Oct. 19	Uterine appendages; atrophy of both ovaries.	R.	Very good recovery, but died one year after from cancer in stomach, vomiting almost continually for three months previous to death.
59	Miss L. McC. S. 24	E. Glenville, N. Y.	Cyst of left ovary.	Nov. 9	Cyst left ovary like small orange.	R.	Second operation (see Case 35). Patient in excellent health, August, 1894.
60	Miss K. E. M. S. 23	Dr. Bigelow, Albany, N. Y.	Unilocular ovarian cyst.	Nov. 24	Unilocular cyst, left ovary; right ovary cystic and removed.	R.	Excellent recovery.
61	Mrs. M. J. V. M. 40	Dr. Gray, Cambridge, N. Y.	Unilocular ovarian cyst.	Dec. 7	Unilocular cyst, left ovary.	R.	Excellent recovery.
62	Mrs. L. McC. M.	Dr. Vanderveer, Albany, N. Y.	Cystic degeneration ovaries; pelvic peri- tonitis; salpingitis.	Dec. 7	Uterine appendages.	R.	Excellent recovery.
63	Mrs. M. B. M. M. 33	Dr. Pond, Proctor, Vt.	Pelvic peritonitis; hydrosalpinx.	Dec. 14	Uterine appendages; many ad- hesions; atrophy both ovaries; drainage.	R.	Excellent recovery. Patient relieved promptly from all sufferings. November and December, 1893, quite a flow each month. Excellent health since; last seen, May, 1894.
64	Mrs. F. E. D. M. 27	Dr. Sheffield, Masonville, N. Y.	Pyosalpinx.	Jan. 2 1892	Uterine appendages; tubes large and filled with pus; drainage.	R.	Good recovery.
65	Mrs. D. B. M. 30	Dr. Edwards, Gloversville, N. Y.	Unilocular ovarian cyst, possibly tubercular peritonitis.	Jan. 26	Right tube and ovary; tubercular peritonitis; drainage.	R.	Excellent recovery.

No.	Name, age, and civil condition.	Physician and residence.	Diagnosis of disease.	Date of operation.	Nature of operation Removal.	Result.	Remarks.
66	Mrs. M. K. M. 27.	Dr. Simons, Consoharie, N.Y.	Unilocular ovarian cyst.	Feb. 2 1892	Unilocular cyst, left ovary; also right ovary; dermoid; drainage.	D.	Broad pedicle. Immediate hemorrhage from retraction vessels before abdominal incision closed. Vessels tied separately. At end 45 hours, from condition, pulse, symptoms—possible internal hemorrhage. Wound reopened; only 1 ounce of blood in pelvic cavity; drainage. Death sixth day from exhaustion. Good recovery. In excellent health May, 1894.
67	Mrs. I. H. M. 57	Dr. Infield, Sandy Hill, N.Y.	Multifocal ovarian cyst.	Feb. 12	Cyst, right ovary; slight adhesions.	R.	Menstruated nearly every month since operation. Better for some time of epileptic seizures, but September, 1894, quite as bad as ever.
68	Mrs. M. A. D. M. 25	Dr. Still, Johnstown, N.Y.	Salpingitis; hysteropy.	March 5	Uterine appendages.	R.	Patient in excellent health May, 1894.
69	Mrs. F. S. M. 35	Dr. Gray, Greenwich, N.Y.	Tubercular peritonitis.	March 9	Uterine appendages; drainage.	R.	Patient: died three months after operation; from all symptoms general tuberculosis.
70	Miss H. C. S. 16	Dr. Holdridge, Niskayuna, N.Y.	Tubercular peritonitis.	April 8	Uterine appendages; drainage.	R.	Patient in excellent health May, 1894.
71	Mrs. A. B. M. 32	Dr. Millbank, Greenhush, N.Y.	Tubercular peritonitis.	May 2	Incision, cocaine; ovaries studied with tubercies, also peritoneum; drainage.	R.	Good recovery. Patient in good health one year after operation.
72	Mrs. A. H. M. 28	Dr. Nichols, Sand Lake, N.Y.	Ovarian cyst, peritonitis.	May 26	Cyst, right ovary; numerous adhesions; ligated; drainage.	R.	Suffered from diabetes for two years. At time of operation, passed urine containing nine grains sugar to the ounce. Died comatose third day.
73	Mrs. J. G. M. 42	Dr. Papan, Albany, N.Y.	Multifocal ovarian cyst.	May 29	Cyst of right ovary and tube; many adhesions; hydrosalpinx; left tube and ovary removed; drainage second day.	D.	Excellent recovery and in good health June, 1894.
74	Mrs. I. L. M. 35	Dr. Haynes, Cohoes, N.Y.	Unilocular ovarian cyst.	June 15	Cyst, left side; right ovary healthy; two gals. fluid; drainage.	R.	Uninterrupted recovery.
75	Mrs. M. D. M. 48	Dr. Hannan.	Ovarian cyst.	Aug. 30	Diagnosis confirmed.	R.	Good recovery. Patient alive June, 1894.
76	Mrs. L. C. B. M. 71	Dr. Wilson, Schodack, N.Y.	Multifocal ovarian cyst.	Sept. 30	Cyst, right ovary; left ovary not disturbed; some adhesions; 8 qts. fluid; drainage.	R.	Death on sixth day from exhaustion.
77	Mrs. H. G. W. 40	Dr. Geel, Berlin, N.Y.	Double pyosalpinx, specific.	Oct. 10	Uterine appendages; very tedious operation; many adhesions; drainage.	D.	Good recovery. Patient writes, May, 1893, seldom had such good health as then enjoying. Good recovery. Much improved in health December, 1893.
78	Mrs. M. A. A. M. 27	Dr. Klapp, Forest City, Pa.	Double pyosalpinx and tubercular peritonitis.	Oct. 14	Uterine appendages; drainage.	R.	Death on fifth day, due to intestinal obstruction.
79	Miss A. S. 39	Dr. Kellogg, Plattsburg, N.Y.	Double pyosalpinx, circumscribed ovaries.	Oct. 30	Diagnosis confirmed; uterine appendages.	R.	
80	Miss E. W. S. 44	Dr. Scully, Rome, N.Y.	Multifocal ovarian cyst, peritonitis.	Nov. 1	Cyst, right ovary; some adhesions.	D.	

81	Miss E. W. S. 16	Dr. Taylor, Bainbridge, N.Y.	Multilocular ovarian cyst.	Nov. 3	Diagnosis confirmed.	R.	Recovery on about sixteenth day.
82	Miss C. L. L. S. 40	Drs. Kinskern and Stover, Amsterdam, N.Y.	Double pyosalpinx.	Nov. 29	Diagnosis confirmed; uterine appendages.	R.	Excellent recovery.
83	Mrs. K. O. M. 27	Dr. Johnson.	Unilocular ovarian cyst.	Dec. 1	Diagnosis confirmed.	R.	Good recovery.
84	Mrs. E. G. M. 37	Dr. Carty, N.Y.	Ovarian cyst and pyosalpinx.	Jan. 16, 1893	Cyst and uterine appendages.	R.	Excellent recovery.
85	Miss F. W. S. 19	Dr. Lough, Edmeston, N.Y.	Unilocular cyst right ovary.	Jan. 18	Diagnosis confirmed; left ovary healthy; not disturbed.	R.	Excellent recovery. In good health, September, 1894.
86	Mrs. M. B. M. 40	Dr. Papeu, Albany, N.Y.	Multilocular ovarian cyst and suspected pregnancy.	Jan. 18	Multilocular cyst, right ovary; pregnancy 4 months; 27 pints fluid.	D.	Patient's history very interesting. Lapped twice. Aborted forty-eight hours after operation. Death from exhaustion on fifth day.
87	Mrs. F. K. M. 30	Dr. Phillips, Gloversville, N.Y.	Cyst, left ovary.	Jan. 23	Unilocular cyst each ovary; 9 pints fluid.	R.	Excellent recovery. Good health June, 1894.
88	Mrs. A. W. K. M. 57	Dr. Gorham, Albany, N.Y.	Multilocular ovarian cyst; recent peritonitis.	Feb. 2	Cyst, right ovary; left ovary and tube normal, slight adhesions; 25 pints fluid; drainage.	R.	Excellent recovery. In good health September, 1894. Looks ten years younger than before operation.
89	Mrs. D. S. M. 34	Dr. Brownell, Oneonta, N.Y.	Double pyosalpinx; probably specific; several attacks pelvic periton.	Feb. 11	Uterine appendages very serious adhesions.	D.	Operation long and tedious. Death from exhaustion on third day.
90	Mrs. E. D. M. 23	Dr. Brownell, Oneonta, N.Y.	Double pyosalpinx.	Feb. 13	Uterine appendages.	R.	Good recovery, though at times suffered from pelvic pain, and had some flow for few months following operation.
91	Mrs. A. W. M. 24	Dr. Hall, Adamsville, N.Y.	Left ovary diseased; dysmenorrhœa, etc.	Feb. 16	Uterine appendages; left ovary prolapsed and developing cyst; right cirrhotic stenosis of tube.	R.	Good recovery. In excellent health, June, 1894.
92	Mrs. K. W. M. 25	Dr. Magee, Lansingburg, N.Y.	Pelvic peritonitis; pyosalpinx double.	Mar. 18	Uterine appendages; cystic degeneration of ovaries; firm adhesions.	R.	Not a rapid recovery, but ultimately improved and presents the best appearance of health, June, 1894.
93	Mrs. S. M. 27	Drs. Lincoln and Hodgman, Wilton, N.Y.	Pyosalpinx puerperal.	April 19	Right ovary.	D.	Operation following confinement twelve days previously. Septic condition; uterus curetted twice; chills, etc., not controlled. Death fourth day.
94	Miss J. K. S. 15	Dr. Ross, Whiting, Vt.	Tubercular peritonitis.	May 2	Incision; drainage.	R.	Excellent recovery.
95	Mrs. P. D. M. 40	Dr. Johnson, Ashland, N.Y.	Ovarian cyst.	May 4	Unilocular cyst, left ovary.	R.	Uninterrupted recovery.
96	Mrs. E. P. M. 50	Dr. Fritts, Hudson, N.Y.	Cyst right ovary.	May 16	Unilocular cyst, right ovary.	R.	Quick recovery. Second operation; Dr. T. G. Thomas removed cyst, left ovary, 1879.
97	Mrs. I. P.	Dr. Rider, Huskirk's Bridge, N.Y.	Multilocular ovarian cyst; peritonitis; possible suppuration and pregnancy.	July 24	Multilocular cyst, right ovary; slight adhesions scant; three months pregnant.	R.	Good recovery followed by normal confinement at full time. In excellent health June, 1894.
98	Mrs. M. F. M. 32	Drs. Archambeault and Morrow, Coboes, N.Y.	Tubercular peritonitis.	Sept. 7	Diagnosis confirmed; drainage.	R.	Good recovery. In excellent health six months later.

No.	Name, age, and civil condition.	Physician and residence.	Diagnosis of disease.	Date of operation.	Nature of operation. Removal.	Result.	Remarks.
99	Miss M. S. S. 38	.....	Multilocular cyst, right ovary.	Sept. 8 1893	Diag. confirmed; pyosalpinx; left tube removed with ovary.	R.	Excellent recovery.
100	Mrs. E. G. D. M. 27	Dr. Pond, Rutland, Vt.	Extra-uterine pregnancy, right side.	Sept. 17	Diag. confirmed; pyosalpinx; right side, with tube, and ovary; pyosalpinx, left ovary and tube removed; drainage.	R.	Rapid recovery.
101	Mrs. E. W. M. 29	Dr. Stover, Albany, N. Y.	Double pyosalpinx, extra-uterine pregnancy.	Sept. 21	Uterine appendages.	R.	Good recovery. Patient doing well June, 1894
102	Mrs. J. C. D. M. 28	Drs. Keegan and Hennesy, Albany, N. Y.	Extra-uterine pregnancy.	Sept. 21	Four months' fetus and placenta; many clots right side.	D.	Death from shock in twelve hours.
103	Miss G. T. S. 48	Dr. Smith, Foultney, Vt.	Tubercular peritonitis.	Sept. 22	Uterine appendages; ovaries and tubes studded with tubercular masses; tubes thickened; drainage.	R.	Excellent recovery.
104	Mrs. M. V. W. 52	Dr. Easton Van Hornersville, N. Y.	Multilocular cyst, right ovary.	Sept. 23	Diagnosis confirmed; some adhesions; left ovary healthy; not removed; 7 quarts fluid.	R.	Splendid recovery.
105	Mrs. E. E. M. 54	Dr. Ullman, Albany, N. Y.	Multilocular cyst, right ovary; peritonitis.	Sept. 25	Diagnosis confirmed; firm adhesions one spot; left ovary normal, not disturbed; 10 quarts fluid.	R.	Excellent recovery. In good health August, 1894.
106	Mrs. I. A. M. 27	Dr. Riley, Adams, N. Y.	Multilocular ovarian cyst.	Sept. 28	Multilocular cyst, left ovary, also right ovary and tube; 14 quarts fluid.	R.	Rapid and excellent recovery.
107	Miss E. S. 20	Dr. Gray, Greenwich, N. Y.	Ovarian abscess; pyosalpinx double.	Oct. 4	Uterine appendages.	R.	Good recovery; fairly encouraging result. Private hospital.
108	Mrs. M. S. M. 27	Dr. Knickerbocker, Amsterdam, N. Y.	Double pyosalpinx.	Oct. 7	Uterine appendages; tubes very much thickened and filled with pus; drainage.	R.	Good recovery. Patient obliged to go to work at once, September, 1894, presented with threatened hernia.
109	Miss M. R. S. 60	Dr. Bigelow, Albany, N. Y.	Multilocular cyst, right ovary.	Oct. 12	Diagnosis confirmed; no adhesions; left ovary senile, not disturbed.	R.	Excellent recovery.
110	Mrs. J. M. M. 49	Dr. Mead, Jerusalem, N. Y.	Double pyosalpinx; abscess.	Oct. 12	Uterine appendages.	R.	Slow but gradual recovery. Patient very neurasthenic.
111	Mrs. L. de L. M. 45	Dr. Willard, Watertown, N. Y.	Diseased left ovary; very painful; double pyosalpinx.	Oct. 15	Diagnosis confirmed; uterine appendages.	R.	Recovery retarded. September, 1894, relieved of all pelvic pain, but still confined to bed more or less.
112	Mrs. H. M. M. 36	Dr. Rossmann, Ancram, N. Y.	Double ovarian cyst and uterine fibroid.	Oct. 21	Diagnosis confirmed; supravaginal hysterectomy; ligatures; drainage.	R.	Excellent recovery.

No.	Name	Physician	Diagnosis	Date	Operation	Result
113	Mrs. J. S. M. 37	.....	Cyst, left ovary.	Oct. 21	Large cyst, right ovary, also left ovary for cystic degeneration.	R. Good recovery.
114	Miss M. N. S. 31	Dr. Vander Veer, Troy, N.Y.	Multilocular ovarian cyst.	Oct. 30	Double multilocular ovarian cyst; uterine fibroid supra-vaginal hysterectomy; Tait clamp; 5 quarts fluid.	R. Good recovery.
115	Mrs. N. C. P. M. 23	Dr. Wheeler, Chatham, N.Y.	Probably sarcoma, left broad ligament.	Nov. 2	Multilocular cyst, left ovary; right ovary cirrhotic and removed with tube.	R. Good recovery. In good health June, 1894.
116	Mrs. S. H. M. 20	Dr. Niver, Hillsdale, N.Y.	Double pyosalpinx.	Nov. 2	Diagnosis confirmed; uterine appendages.	D. Patient did nicely; wound healed; began to sit up on twenty-first day; twenty second day symptoms of obstruction presented. Unable to relieve, and died on twenty-seventh day.
117	Mrs. R. C. M. 46	Dr. H. H. Smith, Hudson, N.Y.	Tubercular peritonitis.	Nov. 2	Incision, drainage; diagnosis confirmed, 12 quarts liquid.	R. Excellent recovery.
118	Mrs. E. M. C. M. 34	Dr. Reynolds, Saratoga, N.Y.	Pelvic peritonitis; dysmenorrhoea.	Nov. 16	Uterine appendages; firm adhesions.	R. Good recovery.
119	Miss K. S. 30	Dr. Chambers, Kingston, N.Y.	Old general and pelvic peritonitis; dysmenorrhoea; hysterio-epilepsy.	Nov. 29	Right ovary and tube like intestine; many and very firm adhesions; left ovary and tube could not be found.	R. Good recovery. Patient very much better until May, 1894, when severe convulsive seizures, flowing coming on two months in succession at this time.
120	Mrs. H. W. M. 28	Dr. Knapp, Forest City, Pa.	Pelvic peritonitis	Nov. 30	Uterine appendages; cystic degeneration of ovaries; firm adhesions.	R. Good recovery. In excellent health eight months later.
121	Miss E. L. H. S. 32	Dr. Vander Veer, Troy, N.Y.	Unilocular ovarian cyst.	Dec. 7	Multilocular cyst, left ovary; right ovary for atrophy; 10 quarts fluid; cyst 15 ounces.	R. Excellent recovery.
122	Miss S. S. 28	Dr. Cook, Albany, N.Y.	Double pyosalpinx; Uterine fibroid.	Dec. 7	Diagnosis confirmed; uterine appendages.	R. Excellent recovery. Patient in good health June, 1894.
123	Mrs. E. M. C. M. 27	Dr. Ross, Poultney, Vt.	Pelvic peritonitis; double pyosalpinx.	Dec. 15	Uterine appendages; very firm adhesions.	D. Death from shock.
124	Mrs. M. S. M. 71	Dr. Van Slyke, Covsackie, N.Y.	Multilocular ovarian cyst.	Dec. 18	Multilocular cyst, right ovary; 26 quarts fluid, cyst 3 lbs.	D. Patient recently suffered from grippe. Death from pulmonary f. farctioin.
125	Mrs. P. S. M. 27	Dr. Crosbie, E. Nassau, N.Y.	Unilocular ovarian cyst.	Dec. 21	Unilocular cyst, right ovary; also left ovary cystic enlargement.	R. Good recovery.
126	Miss H. V. S. 19	Dr. Papen, Oneonta, N.Y.	Multilocular ovarian cyst; acute peritonitis.	Jan. 2, 1894	Cystic papillomatous mult. cyst, left ovary; right ovary cystic; firm adhesions; drainage; removed second day, 11 quarts fluid.	R. Patient made good recovery. Returned in August with marked growth left side pelvis, probably nature of true sarcoma. No further operation done.
127	Mrs. E. F. S. M. 42	Dr. Sabin, W. Troy, N.Y.	Pelvic peritonitis; double pyosalpinx.	Feb. 22	Uterine appendages; many and firm adhesions; drainage.	R. Good recovery.
128	Miss J. D. S. 26	Dr. Johnston, Amsterdam, N.Y.	Supposed disease of ovaries, causing sympathetic vomiting.	Feb. 23	Section ovaries and tubes, healthy; not removed; some adhesions loosened and tubes straightened.	R. Slow but excellent recovery.

No.	Name, age, and civil condition.	Physician and residence.	Diagnosis of disease.	Date of operation.	Nature of operation. Removal.	Result.	Remarks.
129	Miss A. E. S. 28	Dr. Millington, Argyle, N. Y.	Pelvic peritonitis; dysmenorrhœa.	Feb. 24 1894	Uterine appendages; many adhesions.	R.	Excellent recovery.
130	Miss M. D. S. 22	Drs. Stover and Kniskern, Amsterdam, N. Y.	Pelvic peritonitis and enlarged ovaries.	Feb. 27	Uterine appendages; cystic enlargement both ovaries.	R.	Good recovery.
131	Mrs. W. J. O. M. 23	Drs. Babcock and Fomeroy, Springfield, N. Y.	Diagnosis doubtful as to nature of cyst.	Mar. 1	Multilocular cyst, left ovary; many enlarged with pyosalpinx; many adhesions.	R.	Good recovery. Patient on returning home had much pain, relapsing into former morphine habit.
132	Miss S. N. S. 29	Dr. McCulloch, Gloversville, N. Y.	Pelvic peritonitis; chronic disease left ovary; severe dysmenorrhœa.	Mar. 19	Uterine appendages; many adhesions.	R.	Excellent recovery.
133	Mrs. L. D. M. 29	Dr. Johnston, Amsterdam, N. Y.	Double pyosalpinx.	Mar. 23	Uterine appendages.	R.	Excellent recovery.
134	Miss J. McC. S. 27	Dr. Mosher, Greenville, N. Y.	Double pyosalpinx.	Mar. 30	Uterine appendages; many adhesions.	R.	Excellent recovery.
135	Mrs. H. A. L. W. 43	Dr. Nichols, Sand Lake, N. Y.	Pelvic peritonitis; retroversion; diseased ovaries.	Mar. 30	Uterine appendages; many very firm adhesions.	D.	Death from peritonitis. Patient very stubborn and hard to manage.
136	Miss J. K. S. 33	Dr. Lee, Canaan, Con.	Hystero-epilepsy; chronic ovaritis.	April 16	Uterine appendages; not difficult.	R.	Speedy recovery. At end of third month no return of epileptic seizures.
137	Mrs. M. S. M. 25	Dr. Shaw, Hoosick Falls, N. Y.	Double pyosalpinx; enlarged ovaries.	April 17	Uterine appendages; many adhesions; 7 quarts fluid.	R.	Excellent recovery.
138	Miss L. S. S. 31	Dr. Garnsey, Kinderhook, N. Y.	Double pyosalpinx; enlarged ovaries; possibly tubercular appendicitis	April 28	Uterine appendages and appendix; few adhesions.	R.	Excellent recovery.
139	Mrs. F. F. M. 36	Dr. Melick, Sandy Hill, N. Y.	Double pyosalpinx; pelvic peritonitis.	April 30	Uterine appendages; few adhesions.	R.	Good result. Patient improved very markedly three months after operation.
140	Mrs. E. V. M. 20	Dr. Starks, Chatham, N. Y.	Small interstitial fibroid uterus; dysmenorrhœa.	May 12	Uterine appendages.	R.	Good recovery. No return of flow. August 24, 1894, patient improved very decidedly.
141	Miss E. M. K. S. 34	Dr. Seynour, Troy, N. Y.	Ovarian cyst.	May 24	Double ovarian dermoid cysts; few adhesions.	R.	Splendid recovery.
142	Mrs. L. D. M. 30	Dr. Faust, Schenectady, N. Y.	Double pyosalpinx; chronic peritonitis.	May 29	Uterine appendages.	R.	Excellent recovery.
143	Mrs. A. G. W. M. 29	Drs. Reed and Church, Oneonta, N. Y.	Double pyosalpinx.	May 30	Uterine appendages.	R.	Good recovery. Patient doing finely when leaving private hospital.
144	Miss M. C. F. S. 27	Dr. Henan, Albany, N. Y.	Unilocular ovarian cyst.	June 6	Unilocular cyst, left ovary.	R.	Excellent result. Patient had improved in health September 10, 1894, looking very much better.
145	Mrs. A. Mc N. M. 40	Dr. Bissell, Troy, N. Y.	Unilocular ovarian cyst.	June 16	Unilocular cyst, left ovary; short, broad pedicle; hæmorrhage.	R.	First ligature slipped, requiring three additional ones. Pedicle then brought up and attached to lower end incision. Second week portion sloughed, pedicle came away. Some phlebitis of left leg; otherwise excellent recovery.

In presenting somewhat brief, yet quite as full, histories of these cases as space would permit, and, perhaps, taking much more time to read them than many will care to do, it will be observed that occasionally one is omitted, and this is in consequence of notes having been mislaid, or the history not being sufficiently completed in my record book. It will be observed, however, that in the table a sufficient history is given to enable one to classify the cases without difficulty.

I am not unmindful that it would have been much more comforting to myself to have commenced this paper by reporting to you first my successful cases—cases that have brought to me much encouragement in my work, meeting patients in improved health, and receiving letters filled with gratitude and acknowledgment of recovery.

Regarding the preparation of patients, it seems to me quite difficult to establish a fixed line of action. I believe that, so far as possible, it is wise to carry out the preparations at home, before the patient enters upon hospital life. It is true there are some cases very calm and not affected by the thought of entering the hospital, and yet there are many who are made somewhat nervous by being kept under observation too long away from home. I would like to emphasize somewhat the importance of regulating the bowels, and proper attention to such diet as does not constipate previous to the time of operation. I also wish to say that I place much stress upon the importance of a careful examination of the urine.

Now that we understand so well the evil effects of the bacillus coli communis, we should see that the intestinal tract is put in a good, sanitary condition. The previous habit of the patient as to the use of morphine or opium should be carefully observed, and is not a contraindication to operation, but the same will necessarily be needed after, and without fear in giving as full doses as may be required to control pain.

As to the preparation of the room, I have long since done away with the use of the carbolic spray, having had a tiresome experience in that direction, and rely upon thorough cleanliness, washing all wood work, walls and floors, with the bichloride solution.

A large proportion of these cases reported were operated upon in the amphitheatre of the Albany Hospital, and some in the presence of 150 or more students. As to the length of the incision I can only say that my experience endorses all that Dr. Joseph Price has said in his admirable paper upon this subject. I have endeavored to make it as short as possible with safety.

As to the use of the drainage tube, usually glass, it may be said that I have used it with greater freedom than most of the operators at the present time. I must be excused somewhat by reason of the anxiety I have experienced in immediate hæmorrhage, in the two cases reported,

and, therefore, have felt that the tube, wherever there was any possible fear of this occurring, or where the oozing was likely to be greater than the peritoneum could care for, was the safest procedure. I have employed it in thirty-nine cases, exclusive of the cases of tubercular peritonitis proper, and have not hesitated to leave it in as long as the gauze tent introduced through the calibre of the tube gave no disagreeable staining, removing it sometimes within six hours after the operation, and sometimes leaving it in from eight to ten days. Where left in this length of time, I have followed it with the rubber tube. I have invariably made use of the rubber dam, and then employed the gauze packing instead of the syringe for removal of the accumulating fluid, and have found this procedure quite as comfortable to the patient, and to myself it has seemed better than the employment of the syringe. I may be mistaken, but I believe that this table of cases exhibits quite as many and as severe adhesions as present in the average run of coeliotomies. Of the whole number, twelve cases gave a record of previous tappings, and only two or three had escaped adhesive inflammations.

Regarding the closure of the wound in the use of silk, however well prepared, I have had occasionally a stitch-hole abscess. For the past four years I have used silkworm-gut exclusively, and have very seldom met with this condition, as the table will show. I desire to emphasize here that I know of no kind of operative surgery that requires such careful apposition of wound surfaces, bringing like tissue in connection with like, as in the abdominal incision. I have not made use of the different rows of sutures, still I am not unmindful of the valuable arguments presented in favor of this procedure.

As to the time of removing the stitches, it is well if the superficial ones are removed at the end of the second day, or during the first dressing of the wound, and then the deep ones I believe it is wise to leave until about the eighth or tenth day. They do no harm, and certainly help to keep the abdominal incision in more perfect apposition.

In conditions of continued oozing from adhesions, and where the abdominal walls have been greatly stretched by the size of the tumor, I must say that I have seen, in two of my cases, a most happy result from folding the abdominal wall over on itself, having previously put in through-and-through sutures of silkworm-gut, taking them out at the end of forty-eight hours.

As to hernias resulting, as far as I have been able to learn, I know of but three cases, and in one instance this was plainly due to the carelessness of the patient in attempting too much heavy lifting within so short a time after the operation.

As to the dressing of the wound, I have uniformly employed the powdered iodoform, one part to three of starch, then the iodoform gauze, with the Gamgee pads and flannel bandage, doing the first dressing at the end of forty-eight hours, removing what is usually but soiled iodoform gauze, reapplying the second dressing and letting it remain until the wound is healed, except in cases where the drainage tube may have produced some soiling.

Out of this number of cases I can report only one where the Fallopian tubes were freed from adhesions, straightened—not removing the ovaries—and a good result followed.

It will be observed that my mortality list contains three cases in which a fatal intestinal obstruction was due to a coil of intestine becoming fastened to the stump of the pedicle. For the past two years, in such cases, where the stump seemed to flatten out over the ligature, I have brought the peritoneal surfaces together with one, two, or three interrupted sutures of very fine silk, and comfort myself with the belief that it has, perhaps, had some effect in obviating this unfortunate post-operative complication.

The annoying cases I have found, and somewhat disastrous, are those brought to me by the family physician desiring an immediate operation that day or the next morning, in order that he might return home, but anxious to see the operation. These cases are fortunately growing less and less, as the members of the profession realize more and more the importance of preparatory treatment, and of the operator seeing the case long enough in advance to feel sure of his diagnosis and operative procedure. I wish to make an observation, and that is in reference to the serious cases that are likely to come from one particular practitioner, one who procrastinates and keeps the patient, either by medication or tapping, under his treatment as long as possible, and then suggests operative interference when all the chances are against the surgeon. My mortality list contains three of these cases from one practitioner. I do not wish to criticize, but would enter a plea that wherever an abdominal tumor presents, in the practice of any physician, it becomes almost his duty to call in the aid of a surgical assistant, that the line of treatment may be agreed upon as early as possible. In the study of these cases I have been impressed in two or three by the very marked history given by the patient of the tumor having appeared on one side, and yet when the operation was reached the pedicle and attachment were found on the other side.

As to the pulse and temperature, I am satisfied that the former is of far more importance than the taking of the latter. The heart's action plainly tells of serious trouble going on in the way of intestinal obstruction, or of either form of peritonitis. There are many conditions really

non-essential as to the recovery of our patient that will cause an increase in temperature apparently alarming. Any nerve strain, a visit from a friend, the discharge of blood that occurs from the vagina after an operation, and which appears in quite a number of cases, will sometimes prostrate the patient mentally, in itself producing an increase of temperature, but is of no serious import as regards recovery.

In getting the histories of patients I have been much impressed with the number of cases having a family history of phthisis, or malignancy. Thirty-nine cases of this table gave a distinct history of phthisis, fifteen of cancer in some form, while fifty-seven gave a history of marked irregularity of menstruation, with dysmenorrhœa, many of them from the beginning of the menstrual act.

Making a closer analysis of the table there were thirty-nine cases of ovarian cyst, multilocular, with five deaths; twenty-five cases of ovarian cyst, unilocular, with two deaths; three cases of double ovarian cyst, multilocular, with one death; two cases of multilocular cyst complicated with pregnancy, with one death; two cases of double multilocular ovarian cyst, complicated with fibroid tumors; there were twenty-seven cases of double pyosalpinx, unilateral, with one death; tubercular peritonitis, six cases; tubercular peritonitis, with removal of one or both ovaries, five cases; chronic ovaritis, six cases; extra-uterine pregnancy, three cases, with one death; exploratory incision-relieving adhesions and straightening tube, one case; one case double pyosalpinx and removal of appendix; removal of uterine appendages for uterine fibroid, one case, making a total percentage of mortality in 145 cases of 11 per cent. In making a closer analysis we find that there were three deaths from peritonitis, two deaths from hæmorrhage, three deaths from shock, three deaths from intestinal obstruction, one death from diabetes, three deaths from exhaustion, one death from puerperal septicæmia, and one death from pulmonary infarction.

Among the cases of recovery there are a few thoroughly instructive. Cases 35 and 59 constitute the same patient. The others are Cases 38, 41, 44, 49, 58, 63, 96, 107, 112, 114, and 140.

A word as to the time of patient's returning home after an operation. I do not believe that it is always the greatest wisdom to hurry a patient home with encouragement to go on with her household and other duties, and particularly is this true in cases of removal of uterine appendages, for pyosalpinx, and such like conditions. They must be made to understand that all their unpleasant symptoms will not disappear at once. It takes months for them to recover, and they are sometimes greatly disappointed in their hopes not being promptly realized.

I have but one case to report of keen anxiety in the loss of a foreign substance in the peritoneal cavity, and that is Case 32, Mrs. J.V., where a small sponge became entangled in mesentery of the small intestine, and gave great trouble in the search for it. I am now exceedingly careful about having any very small sponges handed me.

I regret that more careful attention was not paid to the weight of tumors in the table, but part of this work was confided too much to advanced students and house surgeons, and not done thoroughly well.

Three cases give an interesting history of ligatures escaping through the sinus left by the drainage tube, the ligature in one case being of coarser silk than ought to have been used. No ill-effect followed, the sinus being closed as soon as the ligature was recovered. Possibly in one patient, Case 31, Mrs. E.H., it may have assisted in causing the hernia.

As to the after-treatment, I am most rigid in not allowing the patient the use of the hypodermic injection of morphia any more than is absolutely necessary, but prefer to give it where there is restlessness due to a weak heart's action, and where the pain is so great as to be intolerable.

For treatment of persistent vomiting I have seen excellent results from the combined administration of cocaine, calomel, and oxalate of cerium, and then I can only endorse the use of calomel and salines for moving the bowels. A movement should be secured, if necessary, by the aid of injections, as early as the second and third day, not later than the fourth day, after the operation. As to diet, my patients have been greatly benefited by the carrying out of the hot-water treatment, and the use of matzoon, particularly if the stomach is at all nauseated; also, for relief of thirst, rectal injections of hot water, slightly saline.

A RAPID METHOD OF STAINING FRESH TISSUES BY THE AID OF FORMALIN.*

BY THOMAS S. CULLEN, M.D.,

Assistant Resident Gynæcologist, Johns Hopkins Hospital,
BALTIMORE, MD.

FORMALIN, formaldehyde, and formal are looked upon as synonymous terms. Formalin was first used by Blum, of Frankfurt, aM., in 1893, as a preservative for gold fish, frogs, mice, etc. The animals were not only well preserved, but the colors were retained. Since then Hermann, Hoyer, and others have employed it for histological purposes. The tissues hardened in this fluid are little, if at all, contracted. Accordingly the cells are in no way distorted, but stand out with great distinctness.

While working with formalin specimens, it occurred to me that it might be of use in the preparation of frozen sections. The outcome was that we were able to make permanent specimens from the frozen sections in fifteen minutes, and that these specimens were fully as good as those hardened in alcohol for several weeks and then imbedded in celloidin. Frozen sections, after being treated with formalin, are rapidly passed through 50 per cent. and absolute alcohol; they may then be stained in the same manner as any other hardened section would be. If, for example, we use hæmatoxylin, the process is as follows:

(a) Make frozen sections of the fresh tissue, freezing either with carbonic acid (as used by Professors Welch and Flexner) or with ether.

(b) Place in 5 per cent. aqueous solution of formalin for five minutes.

(c) Fifty per cent. alcohol two minutes.

(d) Absolute alcohol one minute.

(e) Pass through water.

(f) Stain in hæmatoxylin two minutes.

(g) Decolorize in acid alcohol.

(h) Wash in water.

(i) Counterstain in eosin twenty seconds.

(j) Pass through 95 per cent. alcohol, absolute alcohol, and then clear up in creosote or oil of cloves. Mount in Canada balsam.

*Being a Preliminary Note.

We found that the blood was not preserved by this process ; Dr. Welch accordingly suggested that pieces of the tissue be first hardened and then cut on the freezing microtome. I tried this method and found that the blood was preserved. It, however, stained very poorly. This latter method may be called Method No. II., and is as follows :

(a) A piece of the flesh tissue, say, 1x5x2 c.m., is placed in 10 per cent. aqueous solution of formalin for two hours.

(b) It is then frozen and sections cut.

(c) The sections are placed in 50 per cent. alcohol for three minutes.

(d) In absolute alcohol one minute.

(e) Passed through water.

(f) Stained in hæmatoxylin two minutes.

(g) Decolorized in acid alcohol (1.5 per cent.).

(h) Counterstained in eosin, twenty seconds.

(i) Passed through 95 per cent. alcohol and absolute alcohol ; cleared either in creosote or oil of cloves, and mounted in Canada balsam.

From Method I. it will be seen that, given a piece of tumor from the operating room, one is able to render as accurate a diagnosis at the expiration of fifteen minutes as he would be able to do after examining a specimen which had been hardened for two or three weeks either in alcohol or Müller's fluid. Method II. is of especial value in the examination of uterine scrapings. At the operation the pieces of mucosa are to be put in a small bottle containing a 10 per cent. aqueous solution of formalin. The pathologist will probably receive them in a couple of hours, and can immediately freeze, cut, stain, and examine them.

When examining epithelioma some of the cell nests may drop out, as they have nothing to hold them in place, as is the case when celloidin is used. We have, however, hardened and stained epithelioma of the cervix uteri by this method without the slightest difficulty.

MEDICAL EVIDENCE IN THE HYAMS TRIAL.

DR. EDMUNDE. KING : Have practised since 1886. Have known the prisoners, and have been and am now their medical adviser. Saw Harry Hyams on the 16th of January, when Wells was killed, at my office, and again at Colborne street.

Why did he come to your office ?

To get me to go to Colborne street, where, he said, an accident had occurred. He told me that a young man had happened with an accident, and for God's sake to hurry up, as he thought that he had been killed. I hurried down. He preceded me. Dallas and Harry Hyams were in the building when I arrived. I asked where the accident was. Harry said down in the basement. Dallas, Harry, and I went downstairs. We went down the steps at the northeast corner of the building. On the west side was the hoist, and the body lay on the ground twelve or eighteen inches from the hoist. The body lay east and west, with the feet more to the south. The head was about eighteen inches from the weight slide. The body was lying with the face up. The legs were straight, the arms at the side, slightly bent, the hands touching the clothes. The head was lying partly to one side, the right cheek uppermost. It was twisted to the left, but the left cheek did not touch the floor.

Was there anything on the eyes ? No spectacles ?

No.

Was there anything on the hands ?

I think not.

In what condition was the head ?

Badly crushed.

Describe the injuries.

There was a clearly defined line in a slanting direction from behind the ear on the right side above the ear and across the forehead. The skull was crushed into the form of a cone or wedge, about the thickness of and shape of my two hands placed together. The line was like a mark made by the edge of the weight.

Was there a break in the skin over the eye ?

Yes, over the right eye, and the eyelids protruded, as if they had been pushed out by the great force inside the skull. I did not see the eyeballs, because the eyes were swollen and closed.

What account of the accident was given to you by either of the prisoners?

I asked how it happened, and they said that the weight had fallen on him. I was led to believe that they had taken the weight off. I understood them to say, "We took the weight off."

Tell us what they told you about the accident.

They explained to me that the hoist was out of order, and that the weight had fallen down and struck Wells on the head. They said the hoist had been frequently out of order.

Did you see anything wrong with any of the Hyams?

Harry's fingers were abraded. I thought nothing about this.

Well, did you do anything with the body?

No. The man was dead, and I telephoned to Coroner Aikins.

How did they tell you it occurred?

They said the weight had caught in the box. They said that it had caught before.

Where was the weight?

West of the head, about six inches away from the head, about ten inches from the weight slide, nearer Colborne street. I think it was standing on its end.

Cross-examined by Mr. Johnston, Dr. King said his office was on the ground floor, and well lit by two large windows, sufficiently to allow of his noticing anything remarkable about any one entering. He noticed that Harry's hands were bleeding, but did not remember observing blood-stains on his clothes. He hurried to the scene of the accident, Harry having preceded him. Dallas expressed his satisfaction at his arrival.

From conversation with the prisoners, he understood that the accident had happened as previously stated. He was quite clear that the body was not in the same position as when first struck. There was a considerable spatter of blood on and about twelve inches above the buffer. Witness then described the appearance of the skull of deceased. The wound over the eye was from the inside outwardly. It had no appearance of being inflicted by a chisel or hammer. The edge of the wound was not clean cut. The body was still warm when he arrived, shortly after nine o'clock, and death must have taken place very shortly before his arrival, not more than fifteen or twenty minutes. The lifting of the weight, in his opinion, would cause just such wounds as appeared on Harry's fingers. The appearance of the cage gave him the impression that it had come down rather violently. There was no evidence

of a struggle in the clothes of prisoners or deceased, or in the surroundings, nor was there any evidence of an external wound, excepting those caused by the weight. He saw no scratch or blood upon Dallas when they went upstairs after viewing the body. The office was light enough for him to have noticed a scratch on Dallas' face. In the opinion of the witness, a man, to have sustained such wounds as the deceased, could not have been standing up or lying down. He thought that the probability was that he was looking up the shaft at the time the weight fell. He certainly would not be surprised to find that the trousers of any one lifting the weight from the head of deceased, ten minutes after the accident, would be spattered with blood.

Mr. Osler was proceeding to re-examine the witness relative to his evidence in the police court, when Mr. Lount objected. The judge ruled that Mr. Osler could proceed. The first point was as to whether deceased had gloves on when the body was seen by the doctor. In the police court witness said he did not think gloves were on the hands. He still thought so. He would not be positive. The wrist was bare, for witness took hold of it to feel for the pulse.

Mr. Osler desired to ask questions about the position deceased might have been in when the weight fell, when Mr. Lount objected. Again the court ruled in favor of Mr. Osler, who then proceeded to closely question the witness as to the opinions he had formed relative to the accident. Dr. King said he was still of the opinion that the death was caused by the weight falling on the head of the deceased.

Mr. Osler then went to the door of the judge's room, and, with his hand, outlined the comparative position of the elevator, and weight, shaft, and where deceased might have stood. The witness accepted the shaft outline, but not the suggested position deceased might have been standing in when the weight fell.

Mr. Osler : Come down here, then, doctor, and show the jury.

Dr. King stepped down and showed that, in his opinion, young Wells was standing at the door of the elevator shaft, right below the weight, with his head thrown back, and looking obliquely up in such a way that the weight, in descending, struck him on the right temple, forward towards the eye.

DR. JOHN CAVEN.

Dr. Caven, Professor of Pathology in Toronto University, was the first of the medical experts called. He was instructed on Feb. 13 to examine a body, said to be that of the late William C. Wells. Coroner Johnson was associated with witness in making the post-mortem examination. Dr. Spencer and Dr. Teskey were also present. Crown Attorney Curry and Mr. W. G. Murdoch were also in the morgue when the post-mortem was

made. The body was in an advanced state of decomposition. The only broken bones were in the head. The head fell off the body. He then removed the skin and flesh from the head, and produced the base of the skull, the teeth, the cheek bones, and several loose pieces of bone. Witness fitted the skull together as well as the broken bones would admit.

Dr. Caven proceeded to give a description of the injuries to the head of deceased, as shown from the post-mortem examination. The parts of the skull were on the desk in front of witness. He divided the injuries into two sections, the first dealing with the upper half of the skull, and the second part with the injuries to the lower half. Death was due to the injuries to the head.

Mr. Osler: What instrument would produce the results we see, and what force would it be necessary to apply?

Witness: To produce the injuries in the back of the skull the head must have been resting on something solid, and the force applied to the right side. To produce the injuries to the base, force must have been applied to force the base of the skull into the vertebræ. Force must have been applied from the side and from the front. That means two separate forces.

Mr. Osler: Then how do you say the frontal injuries were caused?

Witness: I think such injuries were caused by force applied from the front, although the injuries are consistent with an additional force from the side.

Mr. Osler: How do you think the injuries were inflicted?

Witness: The blow or force on the right side must have been distributed broadly over the side of the face, that is, with an instrument covering the surface of the side of the head.

Mr. Johnston conducted the cross-examination. He began by a series of questions intended to show that Dr. Caven had not been a practising physician for any length of time. The witness, however, showed that he had several years' actual practice, that he had been on the hospital staff, and had for years devoted his labors to the study of disease, examination of broken bones, and to all of the necessary medical examination of the various parts of the human body. The next series of questions were directed to show that serious differences of opinion existed among the Crown medical witnesses as to whether one or more blows were necessary to cause the injuries. The witness, however, contended that no actual difference arose between the experts. The only question discussed was the probable result of a certain kind of blow.

Then Mr. Johnston took up the theories as to the force which caused the injuries, and he read the evidence given by witness in the police court. Mr. Johnston endeavored to make it appear that the evidence

before the police magistrate differed from that given yesterday. A long duel ensued between counsel and witness, the former strongly arguing in favor of his contention to the effect that a grave difference existed between the two statements, whilst the witness argued with equal force that the two statements were perfectly consistent.

Mr. Johnston : Now, then, after all this discussion, do you say such a weight as that standing there (pointing to the fatal weight) would not cause all the injuries?

Witness : I think, if the head was resting on a solid substance, all the injuries might have been done by the weight, but it is not probable.

Mr. Johnston then asked the witness whether it was not possible that the weight tipping over might have caused all the injuries.

Witness : I would not like to say what is possible.

Mr. Johnston : Well, is it not likely to have caused these injuries ?

Witness : No. Taking into account all the injuries, they could not have been caused by one blow.

DR. A. J. JOHNSON.

Coroner Johnson was the next witness called by the Crown. He was of opinion that the frontal injuries were caused by a blow struck on the right side of the face, the blow having an upward tendency. Another blow must have been struck with great force on the right side of the head whilst the head was lying with the left side on the ground, or on some hard substance. He was of opinion that probably a third blow was struck, but of that he was not quite sure.

In answer to Mr. Johnston, witness said he had not been to Washington, D.C., to examine the skulls in the School of Anatomy there. He visited Washington for private reasons. He did look at a number of the skulls there. The government did not pay his expenses. He had not been retained in a dozen cases for the Crown within the past two years. He had been called in one case last year, and in two cases this. The Crown did not always call him after learning his opinion on cases of suspicious death. There was a case this year in which the government did not call him after he had inquired into the case. He did not always consult with the Crown as to the opinions he formed. The Crown did not know all the evidence he was going to give to-day. The medical experts for the Crown did not have several conferences relative to the force which caused the injuries. Two meetings only had been held. No differences of opinion existed as to the main point of the number of blows necessary to have inflicted the injuries shown by an examination of the skull. He had heard Dr. Caven's evidence, and agreed with it in the main. Dr. Caven's theory of how the injuries might have been caused

was a feasible one. He thought Mr. Johnston had misunderstood Dr. Caven's reference to one blow having done all the injuries. What Dr. Caven said, according to Dr. Johnson's understanding of it, was that the injuries, other than that to the malar, or cheek bone, and frontal bones generally, might have been caused by one blow.

To Mr. Osler, witness said if the weight fell on the head after the malar or cheek-bone injuries had been inflicted, then the weight might inflict the other injuries. This answer was conclusive as to the opinion of the witness that two forces or blows had been used to cause all the injuries.

DR. JAMES H. RICHARDSON.

Dr. Richardson has been in practice since 1847, and is professor of anatomy. He could not think that one blow did the injuries. Taking into account Undertaker Humphrey's statement to the effect that the left eye bulged out and that the right eye was driven in out of sight, the witness was positive two blows were struck. The injuries to the skull as revealed at the post-mortem examination could not, under any conceivable circumstance, be caused by one blow. Proceeding, Dr. Richardson gave a brief and clear account of the injuries as shown on the skull.

His evidence caused the defence to hold a hurried consultation with Dr. Cameron and some of the other medical men, after which Mr. Johnston said he did not desire to cross-examine the witness.

DR. F. LE M. GRASETT.

Dr. Grasett said he had examined the skull, and he thought there was no question that a strong lateral force had been applied to the right side of the head with some firm rest beneath the head. Also, taking into consideration the evidence of the undertaker, that of Dr. Caven in the post-mortem report, and the evidence of the skull itself, he thought there was no question but that a blow had been given from the front. He thought that the instrument producing the lateral force was a broad, heavy one.

Mr Johnston said that in the interests of the defence they did not deem it necessary to cross-examine Dr. Grasett.

Mr. Osler : I notify my learned friends that if any theory should be set up by the defence I claim the right to recall my medical witnesses.

Mr. Lount : We do not admit the claim.

DR. L. MACFARLANE.

Dr. McFarlane said he had examined the skull, and had come to the conclusion that the fractures in the dome and at the base had been caused by a diffusive force applied to the right side of the head while the left was resting on a solid base. That would account for all the fractures except probably that on the forehead. That he should suppose due to a blow from the right and front going backwards, slightly upwards and inwards.

DR. L. M. SWEETNAM.

Dr. Leslie M. Sweetnam testified that he had examined the skull, and, taking into consideration the evidence of the undertaker and Dr. Caven, he was of opinion that two lines of force had been applied, one on the right side and one on the front. The blow on the right side had been applied while the head was on some hard substance. He had heard Dr. Caven's evidence and agreed with it.

DR. B. E. M'KENZIE.

Dr. B. E. McKenzie gave evidence identical with that given by Dr. John Caven, and, in examination by Mr. Johnston, described the same methods and offered the same reasons for arriving at his conclusions that Dr. Caven had. In reply to Mr. Osler, he said that there was evidence of force applied in more than one direction. The general direction of most of the fractures would indicate a force from the right side, which was opposed from the left side by resistance. He based his conclusions that there were two lines of force on the evidence given by Dr. Caven, and obtained by the post-mortem examination, regarding the bony parts of the face, and the fact that the superior maxilla had been driven backward; also on the testimony of Undertaker Humphrey as to the condition of the face, and, lastly, from that of Dr. King, that he could not see the eye, together with the facts which were borne out by the condition of the skull, namely, the fracture of the internal angular process of the right side, which bore evidence of the application of force other than that on the right side.

Mr. Johnston sought but failed to get Dr. McKenzie to admit that he coincided with Dr. McFarlane's statement that if the skull were crushed across the front part of the head he would not be surprised to find the skull in its present condition; that was, that the fracture on the forehead might have been thus produced. Mr. Johnston, in order to explain how the inner angular processes might have been fractured without the nasal bones having been broken, tried to make the witness admit that thinner bones lying between the point of application of force and thicker bones might escape fracture while the thicker ones were broken, owing to the fact that the thinner bones were better transmitters of vibrations than thick ones. Dr. McFarlane gave admission to the theory regarding thinner bones being better transmitters, but said that in the present case the distance from the point of application of the force was so great that the vibrations would be very much extended.

DR. J. M. COTTON.

Dr. J. M. Cotton testified that, in his opinion, a lateral force and one from the front had been given to produce the condition of the skull. To the lateral blow, too, resistance had been offered from the left side.

DR. A. PRIMROSE.

Dr. Alex. Primrose, Assistant Professor of Anatomy in the University of Toronto, had examined the skull, and had gone over each line of fracture, and described it minutely in a report he had made. There were evidences of a lateral force applied to the right side of the head, and of resistance offered on the left side. The fracture of the internal angular process, he said, might, in his opinion, be made by a great, crushing blow delivered laterally, but the evidence given by Undertaker Humphrey, Dr. King, and Dr. Caven pointed to a blow delivered in front.

To Mr. Johnston, Dr. Primrose said he did not agree with Dr. King in saying that the wound, as Dr. King had described it, indicated that it was the result of the crushing together of the frontal portion of the head, and not of a blow from the outside. He thought that it indicated a wound delivered from the outside.

Mr. Johnston: Suppose the surface struck was extensive enough to cover the parietal bone and the cheek bone, and that the force applied was very crushing, might it not produce all the fractures in the skull?

Dr. Primrose: Yes, it might.

THE DEFENCE.

Mr. Johnston expressed surprise that the Crown had not called Coroner Aikins.

Mr. Osler said the coroner had been consulted by the defence about giving expert evidence, and that made it impossible for the Crown to call him.

DR. W. H. B. AIKINS.

Coroner Aikins was then called by the defence. He said to Mr. Johnston that he asked the Deputy Attorney-General if he (the witness) should give expert evidence for the defence. The Deputy Attorney-General thought witness should not give expert evidence. As a result of this conversation, the witness was not going to give expert testimony. He remembered the morning of January 16th, 1893. He got on that day, about ten o'clock in the morning, a telephone message from Dr. E. E. King, to the effect that an accident had occurred in the warehouse at 28 Colborne street. He took the necessary papers for an inquest, and proceeded with all possible haste to the scene of the accident. He saw the body in the basement. It lay with the head about a foot or eighteen inches away from the shaft. The body was stretched from north to south. He saw one of the prisoners, but did not know which. He did not notice any injury to the hand of the prisoner he saw. There were two pools of blood, and the appearance of the blood led the witness to suppose that the body had been dragged back from the elevator. In a figurative sense, the head felt like a bag of bones. He telephoned Dr. King and told him,

that he could not take the necessary oath of a coroner to the effect that an inquest was necessary. As a result no inquest was held. He did not know the prisoners, and was in the premises about half an hour. He believed the weight was lying on the floor on its narrow side when he saw it, and not leaning against the weight shaft casing, as several of the previous witnesses had said it was.

He did not see glasses on the face, and was sure there were none. He did not observe gloves on the hands. The sides of the head were pressed together as if by a terrific blow.

Witness was cross-examined by Mr. Osler. Did not know of a motive for this crime, or of the large amount of insurance.

Mr. Osler : You formed your opinions as to the cause of death by what you were told by the prisoners ?

Witness : And by all the surrounding circumstances as I saw them.

Mr. Osler : You have been in consultation with the defence, have you not ? Did you not see a man from New York in Mr. Horn's office ?

Witness : Yes, I was asked to give expert evidence for the defence, but after my consultation with the Deputy Attorney-General I decided not to do so.

Mr. Osler : You have been consulted by medical men on this case, and consulting with them ?

Witness : Only in a general way.

Mr. Osler : You wanted to hold an inquest on the body two years after the death, did you not ? Now, was that because of any new light on the subject ?

Witness : I heard of the exhumation, and the law allows the Crown Attorney to order an inquest, so I saw Mr. Dewart on the matter.

DR. LUKE TESKEY.

The first witness was Dr. Teskey, Professor of Anatomy in Trinity Medical College, and one of the staff of the Toronto General Hospital. He said he had been in practice since 1877. He saw the body of Wells in the city morgue, and was present at the post-mortem examination made by Drs. Caven and Johnson. When the post-mortem took place the bones of the skull were loose, and had to be picked out of the soft matter of the head. Looking at the face, there appeared to be marks of severe injuries to the skull, and the nose was turned slightly to the left side. He had seen the weight now in court in the police court, and he was of opinion that the injuries to the skull might have been caused by the weight striking the face of deceased in a certain manner. Referring to the evidence of the Crown witnesses, Dr. Teskey said the injuries to the skull might have been caused by one or other of two blows. The malar or cheek bone being one of the strongest in the skull, the bones inside of it are frequently

fractured, whilst the malar or cheek bone itself may not be fractured at all.

Mr. Johnston : Now, it is said the cellar, where the accident occurred, is from seven to eight feet in height. Young Wells was about five feet six inches. He was looking up when the weight struck him. It is said he stood in the door of the weight shaft looking up to see what obstructed the operating of the elevator. Whilst he was in that position, the defence say, the weight struck him, falling from a height of from one to one and a half feet from the head of deceased. It struck him, knocked him down, resting on his head, and causing those injuries which proved fatal. Of course no one saw the accident. Now, what do you say to this explanation of the cause of death ?

Dr. Teskey : I think that would exactly account for the great injuries to the skull. The weight falling in such a manner as described would account for the great shattering, such as I find here, pointing to the skull of deceased.

In answer to further questions, witness took up a complete skull, and proceeded to describe in technical terms the injuries the first contact of the weight with the face might cause, and illustrated how the weight would strike the head the second time, using a book to represent the weight. The injuries this second blow would cause were also described.

Mr. Johnston at this point stood in front of the dock where the prisoners sat, and, taking hold of the rail, showed witness the position in which the defence say young Wells was standing at the time of the accident. According to Mr. Johnston's theory, the weight caught on an obstruction as it reached the first floor. Young Wells looked up the shaft to see what caused the obstruction, and was standing in that position, with the right side of his face upwards, when the weight descended.

Witness thought the theory of the defence a reasonable one. He believed all the injuries were caused in the manner described by Mr. Johnston.

The cross-examination by Mr. Osler was conducted with a view to show the impossibility of the death having been caused in the manner stated by the defence. Witness said it was impossible to locate the first blow or its results. In his opinion, the bulk of the injuries were caused by the second blow.

Mr. Osler : So you have the man knocked down by one blow, and injured by the second blow. Now, might the blow have been struck with an axe or a sandbag ?

Witness : Not with an axe, but it might with a sandbag.

Mr. Osler : You are positive it could not be with an axe ?

Witness : Well, it might ; but I do not think so. An axe would leave a mark.

Mr. Osler : So we have a man knocked down by one blow, probably rendered insensible, and then struck by some other blow and killed ?

Witness : Yes.

Mr. Osler produced a plan of the basement, showing that the height of the cellar was 9 feet $7\frac{1}{4}$ inches. He turned to witness, and said : Now, with the momentum a fall of more than four feet would give such a weight, which would you expect to reach the ground first, the body or the weight ?

Witness : There is no evidence that the weight came down direct.

Mr. Osler : Oh, then the weight hung in the air to allow the body to fall first ?

Witness : Well, if you mean to the floor, the weight would reach the floor first.

Mr. Osler : So, then, the body ought to have fallen on the weight, and not the weight on the body ?

The witness then proceeded to show the relative distance of the head of deceased from the weight when the weight toppled over on the skull ; to do this he placed a skull on the floor and showed how the weight might have struck the head as the deceased lay stunned on the floor. It was not possible to tell how the legs and arms of deceased might be.

To Mr. Lount, witness said the arms and legs of deceased would be probably stretched out, owing to the muscular action which follows certain injuries to the brain. If deceased had been struck by an axe, witness would expect to see some external marks on the face. In this case, there were none compatible with a blow from an axe or a hammer.

DR. I. H. CAMERON.

Dr. I. H. Cameron said the skull of deceased had been terribly injured. He did not differ in his opinion on any material point from the evidence given by Drs. Johnson and Caven. If the weight struck the face in the angle the defence say the deceased's head was in at the time of the accident, it would stun the man, probably crack the skull, and throw the body to the ground. If the weight then fell on the head, and the head rested on a solid substance, all the injuries shown on the skull could have been produced. The injuries showed no sign that deceased had been struck by a small hammer. The flat of an axe might break the cheek bone, but it would leave a mark somewhere. He could conceive the weight striking the head and forcing the body to the ground before it, and thus leaving the weight on the top of the head. The law governing the falling of weights through the air would, if no other obstacle intervened, indicate that the weight would reach the ground first. An obstruction to one of the falling bodies, the weight for instance, if only of

a momentary nature, might allow the body to reach the floor the same time as the weight. If the first blow stunned deceased, he would practically fall where he stood, and the muscular action in death would account for the legs being stretched out. An instrument with a flat surface about six inches by three inches might, if used with sufficient force, cause the injuries to the malar bone.

Mr. Johnston: If the weight, carrying the head with it, struck the buffer, what do you say about the injuries?

Witness: That is the most reasonable thing I have heard.

In answer to further questions, the witness said there were no indications of a blow from a hammer. Such a blow would drive in a piece of the skull. If no obstruction took place to delay the descent, the weight would reach the ground before the body, but something might interfere with the general law on such subjects. If struck and stunned, as suggested by Mr. Johnston, the body of Wells would fall in a heap, the legs stretching out owing to the muscular action caused by injury to the brain.

To Mr. Osler, witness said that a flat-surfaced instrument six inches by a little less than three inches would cause the malar bone injuries. The injuries to the skull would be caused if done when the head of the deceased lay on the floor, the left side being on a hard surface. The blow in the air would not cause all the injuries.

DR. BERTRAM SPENCER.

Dr. Bertram Spencer agreed generally with the evidence given by Drs. Teskey and Cameron. It took exactly two hours to pick out all the bones of the skull from the putrid mass. He was of opinion that the theory of the defence, to the effect that deceased was first struck by the weight and stunned, and that the weight then fell on deceased's head, crushing it into the mass it was found to be in, was the most reasonable explanation of the cause of death. He thought if the weight struck the deceased in the way described deceased would fall as if shot through the heart. It was reasonable to suppose that the muscular action in death would tend to stiffen and straighten the limbs.

To Mr. Osler, the witness said the head must have been resting on a solid substance when the force was applied. In his opinion, there was no positive evidence of two blows. In fact, there was no evidence of a second blow.

DR. LYND.

Coroner Lynd was called on and corroborated the evidence given by the preceding-medical witnesses. If the weight in descending caught for a moment even on an obstruction, the body might reach the ground first. If the second blow was as severe as described, it would so crush the skull that it would not be possible to distinguish the injuries caused by the first blow from those caused by the second.

DR. A. B. ATHERTON.

Dr. A. B. Atherton was of opinion that the injuries had been caused by a blow delivered with great force on the right side of the head, whilst the left side lay on some hard substance. A broad-surfaced instrument, such as the end of the weight in court, might possibly strike the side of the head, and glance off, leaving scarcely any mark.

In cross-examination, the witness said there was no evidence of two blows having been struck.

DR. F. W. STRANGE.

Dr. F. W. Strange agreed with the previous witnesses as to the cause of the injuries shown to have been inflicted on the skull of deceased.

Mr. Johnston, standing in front of the prisoners' dock, and placing himself in the position Wells is supposed to have been in when the weight first struck him, asked the doctor if the result would be as the defence suggested.

Witness : That would be a reasonable result.

Mr. Johnston : If there were two blows, one of them delivered with the force evidently used in one instance, could the injuries by each separate blow be easily distinguished ?

Witness : No. They would run into each other.

DR. N. A. POWELL.

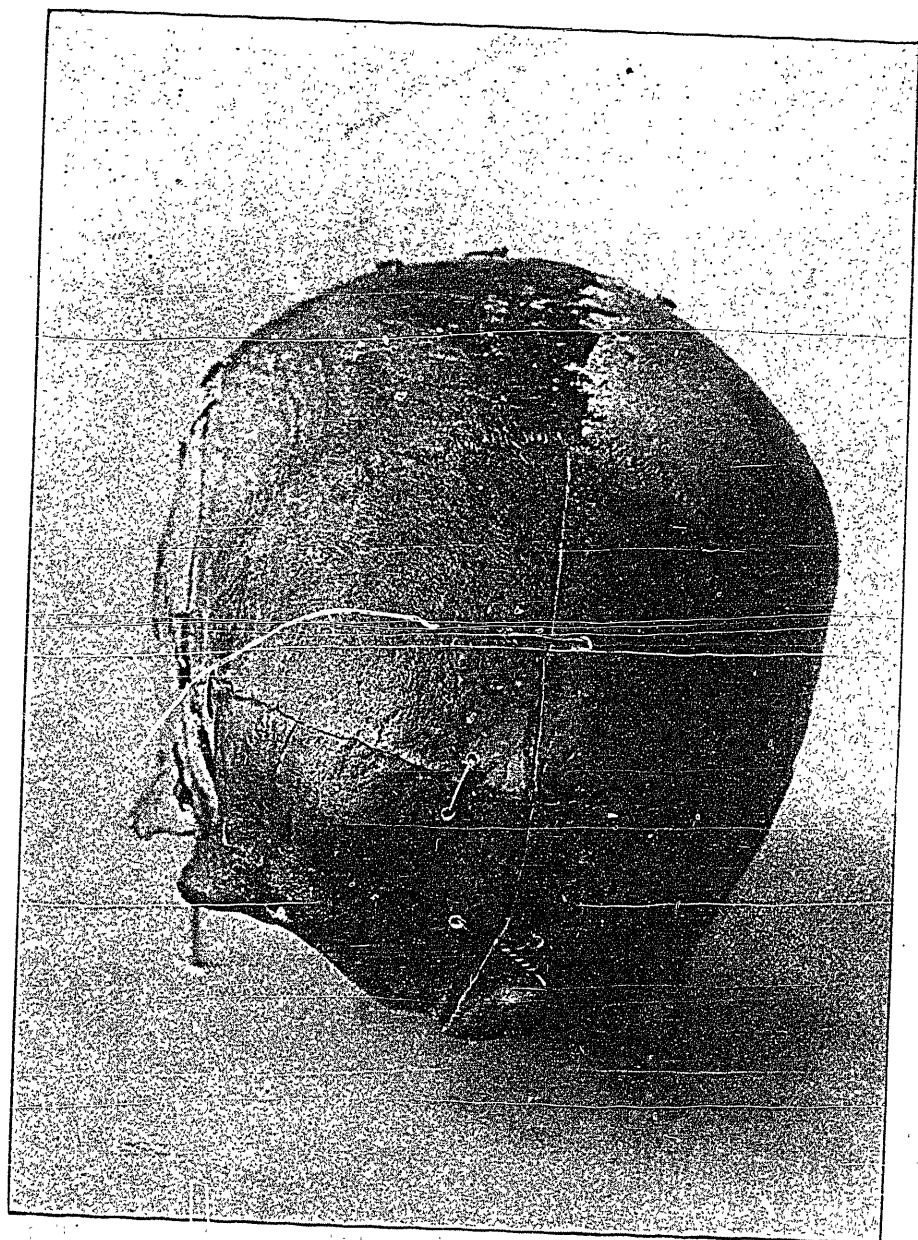
Dr. N. A. Powell, Coroner, was of opinion that if the deceased stood as Mr. Johnston suggested, and the weight fell from a height of one or two feet the man struck would be knocked down, away a little from the weight, and rendered insensible. The delivery of a crushing blow on the right side of the head would cause all the injuries visible. It would be impossible to distinguish the injuries received from the first blow from those given by the blow delivered whilst the head lay on the floor.

DESCRIPTION OF THE FRACTURES IN THE WELLS SKULL.

The following minute description of the skull shows how completely it was crushed. This work was done by Prof. A. Primrose, associate Professor of Anatomy in the Medical Faculty of the University of Toronto. The cuts are from photographs, which will aid the reader in following the description :

A sagittal fracture beginning at a point $2\frac{3}{4}$ inches in front of the highest part of the occipital bone in the middle line. The fracture extends forwards, consisting at first of a separation of the parietal bones (in front of the above point) at the sagittal suture, thence from the bregma it extends forwards, with a slight inclination to the left, to a point one inch above the root of nose. At this point the fracture changes its direction, passing towards the middle line again, and terminating just at the foot of the nose. The whole

THE WELLS SKULL.



VAULT, FROM THE FRONT.

length of the fracture is eight inches. This sagittal fracture throughout extends through the entire thickness of both the bones, both inner and outer tables, and anteriorly opens up the frontal sinus, fracturing the anterior and posterior walls of the sinus. The line of fracture through the inner wall of the sinus is slightly to the right of the fracture in the outer wall.

From the parietal eminence of the right side four fractures radiate as follows :

The *first radiating* fracture :

Passing upwards with a slight deviation backwards for three inches, and terminating in the sagittal suture at the posterior extremity of the sagittal fracture.

(a) A fracture which is almost a direct continuation of this one begins half an inch in front of the termination of the above fracture and proceeds through the left parietal bone from the sagittal fracture in a direction downwards, with a slight deviation backwards, to terminate at a point three-quarters of an inch below and one inch behind the parietal eminence.

This fracture is joined by the fracture which I am about to describe as the second radiating from the above point (that is, from the parietal eminence of the right side), and these two fractures uniting here are continued on as a single fracture.

(b) This single fracture we shall call (b), passing four inches downwards and forwards through the parietal bone and the squamous part of the left temporal, to terminate in a fracture which has entirely separated the left petrous part of the temporal bone from the skull. The fracture actually terminates by splitting the roof of the bony external auditory meatus, and then passes into the petrous part of the temporal bone in the manner indicated.

(c) From a point $1\frac{1}{2}$ inches from the termination of (b) in the external auditory meatus a fracture extends forwards, with a slight curve upwards, through the squamous part of the temporal bone and the great wing of the sphenoid, and terminates at the external angular process of the frontal bone on the left side.

(d) From the left external angular process of the frontal the fracture (c) is joined by a fracture which passes upwards and backwards, to terminate at a point directly below the parietal eminence of the left side.

The *second radiating* fracture :

A second fracture radiating from the parietal eminence of the right side passes first a direct course to the lambda, four inches ; then, changing its direction, passes forwards and somewhat upwards, to terminate at the point described above, where (a) terminates three-quarters of an inch below and one inch behind the left parietal eminence.

(e) A fracture closely related to the first and second radiating fractures may be described here. It begins at a point in the first radiating fracture, three-quarters of an inch from the vertex, and passes backwards and slightly outwards to the lambdoid suture ; it crosses the lambdoid suture and changes its direction, passing downwards and inwards through the occipital bone, and terminates in a fracture in the base one-quarter of an inch behind the right occipital condyle. This fracture is almost in the sagittal direction, but is to the right of the middle line.

(*f*) At the point where (*e*) joins the lambdoid suture a fracture extends to the right through the lambdoid suture itself until the mastoid portion of the right temporal bone is reached. It then extends through the tip of the mastoid process, and terminates in the jugular foramen.

The *third radiating fracture* :

From the right parietal eminence this fracture passes downwards, with a slight curve backwards, to a point $1\frac{3}{4}$ inches directly above the tip of the mastoid process. At this point it joins at right angles a fracture passing horizontally which we shall describe as (*g*).

(*g*) Begins at a point where the fracture (*f*) joins the lambdoid suture and extends upwards and forwards for three-quarters of an inch ; it then changes its direction and passes forwards, parallel with and one-half inch above the zygoma, and terminates in a fracture which separates the bones at the squamous suture.

The *fourth radiating fracture* :

This fracture radiates from the right parietal eminence ; it passes horizontally forwards, with a slight inclination downwards, to a point $2\frac{1}{2}$ inches directly above the root of the zygoma. Here it changes its direction, and passes downwards and forwards to the pterion. From this point it continues along the squamous suture, and meets (*g*) at the point where (*g*) terminates. It then continues on, passing downwards and backwards through the temporo-sphenoidal suture, which it separates completely to a point one-half inch above the zygoma.

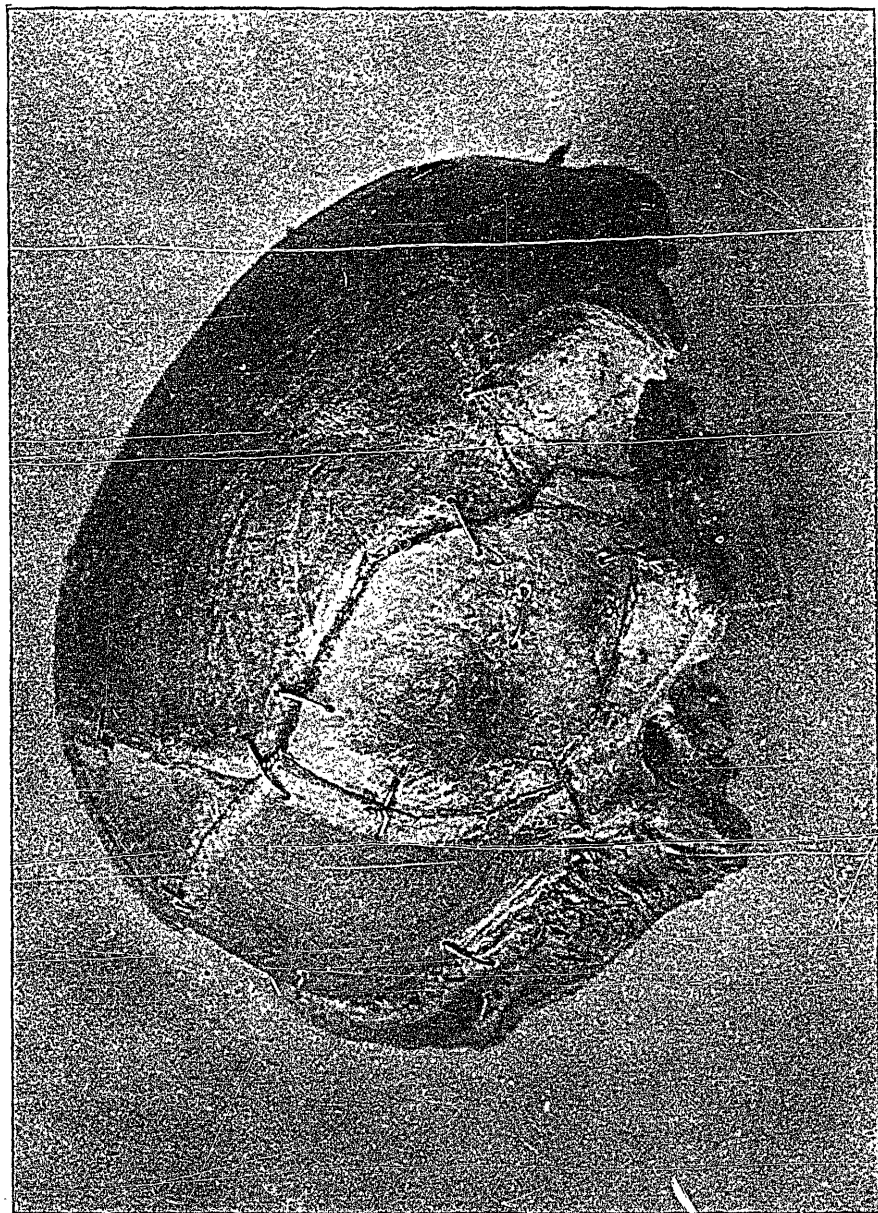
(*h*) At a point in the fourth radiating fracture, $1\frac{1}{2}$ inches behind the right external angular process of the frontal bone and $1\frac{1}{2}$ inches above the zygoma, a fracture starts and runs horizontally forwards and slightly upwards, through the anterior inferior angle of the right parietal bone and the frontal bone, crossing at right angles the sagittal fracture at a point two and one-quarter inches above the root of the nose, passing through the left side of the frontal bone, and terminates in the coronal suture, two and one-half inches from the external angular process of the left frontal bone.

(*i*) The posterior and upper part of the great wing of the sphenoid of the right side, representing a piece of bone one inch in vertical diameter and one-quarter inch wide, is broken out, the posterior separation being through the fracture described as (*h*). Immediately above this a small triangular piece of bone (one-half inch from base to apex, and three-eighths of an inch wide at the base) is cracked, but not completely separated.

The *fractures at the base* :

(*j*) At the left external angular process of the frontal bone, at a point where fractures (*c*) and (*d*) meet, a fracture is continued backwards (by separation of the suture between the orbital surface of the great wing of the sphenoid and the orbital plate of the frontal in the roof of the orbit). This fracture is continued on through the base of the skull, through the spheno-maxillary fissure, and then, passing backwards, the great wing of the sphenoid is broken away from the body of the sphenoid immediately external to the roots of the pterygoid processes. The fracture extends through the foramen ovale and the foramen spinosum to the spine of the sphenoid ; it is there joined by the extremity of the fracture which is described as (*b*), which extends through the external auditory meatus and the glenoid fossa to the spine of the sphenoid as indicated. The

THE WELLS SKULL.



RIGHT SIDE.

fracture is thus through the roof (posteriorly) of the external auditory meatus and its anterior wall and fractures the glenoid fossa along the line of the glasserian fissure. These fractures through the external auditory meatus pass inwards and terminate in the fracture which separates entirely the petrous portion of the left temporal bone.

NOTE.—The fractures described as (*b*), (*c*), and (*f*) cause a separation of a piece of bone composed of portion of the squamous part of the temporal bone carrying the zygoma (which was merely separated at the suture between it and the malar), the great wing of the sphenoid, the articular portion of the glenoid fossa, and the roof and part of the anterior wall of the external auditory meatus. This piece of bone was thus entirely separated from its connections.

(*k*) In connection with the above piece of bone carrying the articular fossa for the lower jaw, note that the lower jaw itself was fractured in the following manner: the condyle was completely separated, and the fracture extended upwards to separate the posterior portion of the coronoid process; the sigmoid notch was in this way separated in the detached fragment. This fracture in the lower jaw was on the left side.

The teeth of the lower jaw:

The two central incisors are in place, the two lateral incisors absent, the two canines present, the four bicuspid present, the four molars present. A gap on each side between the last bicuspid and the first molar evidently indicates that he had lost the first molar; the wisdom tooth is in place.

(*l*) The petrous portion of the left temporal bone was completely broken out; it was separated externally along the line indicated in (*j*), and was also separated at its base. The line of separation superiorly is somewhat internal to the line of the petro-squamosal suture; the detached piece of bone carries the internal auditory meatus, the inner wall of the tympanum, portion of the jugular fossa, and the carotid canal.

(*m*) The left occipital condyle is completely broken out by a line of fracture which extends through the body of the occipital bone anteriorly immediately in front of the condyle, and runs between the foramen magnum and the jugular foramen; from the jugular foramen it extends through the occipito-mastoid suture for one-half an inch, then changes its direction and passes backwards and inwards behind the occipital condyle, to terminate in the foramen magnum within one-sixteenth of an inch from the mid-point of the posterior margin of the foramen.

(*n*) On the right side of the skull, the right occipital condyle is fractured almost directly transversely by a fracture which extends from the foramen magnum to the jugular foramen.

(*o*) A fracture (very much in the same direction as (*m*)) but on the right side extends from the posterior margin of the foramen magnum (at a point one-half an inch from the mid-point of its posterior margin) outwards and forwards to the base of the styloid process (to the occipito-mastoid suture); here it changes its direction and passes forwards to the jugular foramen, opening up the occipito-mastoid suture. Thus a piece of bone is here completely separated carrying the posterior half of the occipital condyle and the jugular process of occipital bone.

(*ϕ*) At the junction of (*f*) and (*g*) a fracture continues forwards and inwards through the posterior wall of the external auditory meatus, and has separated also the portions of the glenoid fossa along the line of the glasserian fissure; the zygoma was fractured one-half an inch from (anterior to) the tubercle for the external lateral ligament of the lower jaw.

(*q*) The body of the sphenoid was broken through by a vertical transverse fracture separating the anterior portion of the body and opening up the sphenoidal cells. The lesser wings were broken off on both sides. On the left side the fracture passed through the sphenoidal fissure; on the right side the fracture was more posterior, and passed through the great wing of the sphenoid.

(*r*) The facial bones were entirely separated from the skull, leaving a large gap in the skull. The lines of fracture separating this portion of the skull (that is, the boundaries of the gap) are as follows:

In the first place, the fracture described as *q* (*i.e.*, a vertical-transverse fracture through the body of the sphenoid) forms its posterior boundary; on the left side the fracture extends forwards through the sphenomaxillary and sphenoidal fissures, then along the line of union of the lesser wings of the sphenoid and the posterior margin of the orbital plate of the frontal on the left side. Then complete separation of the ethmoid bone, leaving the gap between the orbital plates of the frontal; then complete separation of the nasal bones from the frontal bone. On the right side a separation has taken place (like that on the left) between the orbital plate and the sphenoidal lesser wing; this continues through the temporal portion of the greater wing, to join the transverse fracture with which we commenced.

(*s*) A short fracture of seven-eighths an inch long passes inwards horizontally from (*a*); it begins in (*a*) three-quarters of an inch from the sagittal fracture. This fracture is more complete on the inner table, and reaches the sagittal suture completely on that surface of the bone.

Studying *the fractures at the base as a whole*, we find that there are five pieces of bone separated:

(1) The facial bones (leaving the gap described). This separated portion is again fractured into several pieces, which will be described separately.

(2) A piece of bone the integrity of which is preserved, including the greater portion of the body of the sphenoid and of its right greater wing; the lower portion of the right temporal carrying the root of the zygoma; the glenoid fossa; the external auditory meatus, and the anterior portion of the mastoid process—this fracture is crossed by fracture (*ϕ*), but (*ϕ*) is cracked, and the fragments do not seem to be completely separated; at all events, are not movable upon one another.

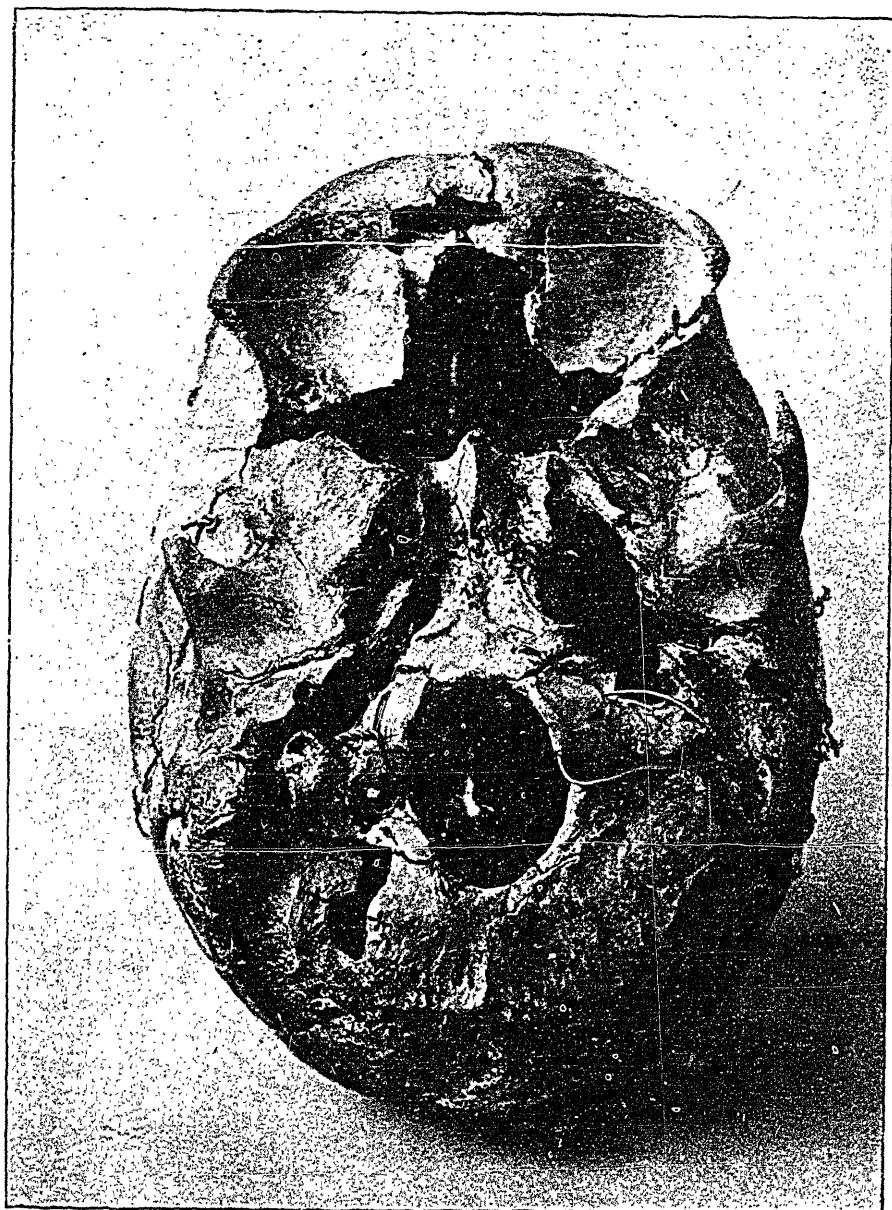
(3) The posterior portion of the right occipital condyle, plus the occipital jugular process.

(4) The left occipital condyle, the fracture bounding this having been described as (*m*).

(5) The petrous portion of the left temporal bone, the fracture bounding this having been described as (*l*).

NOTE.—The second piece of bone described above is bounded by the following fractures:

THE WELLS SKULL.



BASE.

(1) The complete separation of the left greater wing of the sphenoid as described in (j).

(2) The fracture through the body of the sphenoid (vertical-transverse) described in (g).

(3) Fracture (g).

(4) Fracture (f).

(5) Fracture (n) passing through the right occipital condyle.

The Facial Fragments.

The right malar bone: This is separated at the sutures from the external angular process of the frontal bone, and from the zygomatic process of the temporal bone. The anterior part of the right zygoma, three-fourths of an inch long, is missing. The malar process of the superior maxilla is fractured through, the superior maxilla maintains its connection with the malar at the suture; therefore, a piece of bone is completely broken off comprised of the malar plus the malar process of the superior maxillary bone.

About one-quarter of an inch of the right internal angular process of the frontal bone is completely broken off, and is missing.

The superior maxilla:

(1) A fracture from the right malar at the point indicated above.

(2) The right nasal process is broken off at its base, the line of fracture extending down through the margin of the orbit, through the infraorbital foramen, and inwards from that point to the nasal fossa in a horizontal direction.

The detached piece carries the maxillary portion of the lachrymal canal and portion of the inner wall of the antrum.

(3) The left nasal process is broken off by a very similar fracture. The line through the orbital ridge, however, is slightly internal to the infraorbital canal.

(4) The left malar has been separated at the line of suture of the superior maxilla with the malar.

(5) A fracture directly through the alveolus in the middle line in front, completely separating the bone through its entire thickness into the nasal fossa. This fracture is exactly in the middle line between the central incisors.

(6) A fracture through the palate process from the anterior palatine canal (continuance of fracture 5), passing backwards and to the right for about one inch.

(7) A portion of the palate process of the superior maxilla and the horizontal process of the palate bone is entirely knocked out immediately internal to the alveolar process of the right side posteriorly.

There are no further fractures of the palate process.

(8) The pterygoid processes of the sphenoid and the palate bone are completely separated on the right side from the superior maxilla, the separation taking place at the line of suture. The two superior maxillary bones and the palate bones remain intact along the line of suture in the hard palate.

(9) The lower parts of the pterygoid processes remain in contact with the superior maxilla and the palate on the left side. The only portion of the left palate bone which remains connected with the superior maxilla are the horizontal plate and three-eighths of an inch of the vertical plate.

(10) The inner, superior, posterior, and the greater part of the outer walls

of the left antrum are completely broken out, the fractures being along the corresponding surfaces of the bone.

(11) On the right side still more of the antrum and surfaces are broken off.

(12) The nasal bones are completely separated from the superior maxillæ. The teeth had been all present save the first molars, as evidenced by the fully developed sockets; and the atrophy in the alveolar process, with an indication of a socket at the site of the first molar, indicates that it had been present, but had been extracted.

The remaining facial bones are completely broken out, so that the lines of fracture cannot possibly be traced. The following bits of bone can be recognized:

(1) Nasal process of the right superior maxilla.

(2) The same of the left side.

(3) Portions of the great wing of the sphenoid of the right side carrying the orbital and part of the temporal surfaces, and part of the cerebral surface.

(4) A portion of bone carrying the lesser wing of the sphenoid of the left side, part of the orbital process of the frontal, some sphenoidal cells, and the optic foramen.

(5) A similar portion of bone of the right side.

(6) The portion of bone of the left side comprising a part of the orbital and zygomatic surfaces of the superior maxilla, plus the orbital plate of the ethmoid, and the maxillary and sphenoidal process of the palate.

(7) The petrous portion of the left temporal bone.

(8) The posterior and upper portion of the vomer, to which is attached a portion of the rostrum of the sphenoid.

(9) A portion comprising a part of the orbital surface of the ethmoid of the right side and of the orbital surface of the superior maxilla.

(10) A fragment comprising both nasal bones, which have not been separated from one another.

(11) Inferior turbinated bone of the left side, with some points broken off.

(12) Hamular process of the right internal pterygoid plate.

(13) A portion of bone with the alæ of the vomer.

(14) A portion of the spongy portion of the ethmoid.

(15) One styloid process.

(16) The lachrymal bone of the right side.

(17) Five portions of spongy bone unrecognizable, probably portions of the turbinated bones.

(18) The body of the hyoid bone.

(19) The right greater cornu of the hyoid bone.

(20) The lower and anterior portions of the vomer.

(21) Five separate teeth including the two canines, one incisor, and two bicuspsids.

Viewed from the inner surface of the cranium, certain of the fractures run further on the inner table than on the outer. Thus fracture described as (*h*) instead of terminating at the same point on the inner side as on the outer, extends right across the coronal suture to join (*d*), when examined on the inner surface. Another indication of the greater extent of fracture on the inner side than on the outer side is in the fracture described as (*s*).

VERTEBRÆ.

The atlas, axis, the third, fourth, and fifth cervical vertebræ are all intact, no fracture nor abnormality detected.

Editorials.

THE ONTARIO MEDICAL ASSOCIATION.

THE hopes of the many who expected a highly successful meeting of the Ontario Medical Association were fully realized. The President and the various committees who had the work of organization in hand left nothing undone ; and the excellent programme was carried out without any accidents of any sort. A few who had promised papers, and whose names appeared on the programme, were prevented from putting in an appearance, but the supply on hand for every section was always more than equal to the demand.

Before the meeting we had much pleasure in referring to the energetic and judicious work of certain committees. The results of their efforts were very satisfactory in all respects. Drs. J. F. W. Ross and N. A. Powell are especially entitled to much credit for their labors in connection with the two committees over which they presided. The luncheon on the second day passed off very pleasantly, and the trip on the *Cleopatra* with Dr. Ross was very enjoyable.

We regret that our plethora of original matter for this issue prevents us from publishing the admirable address of the President, Dr. Bruce Smith, or the proceedings of the meeting ; but we are glad to be able to promise it in our next number. We desire to congratulate Dr. Smith, not only on account of the ability displayed by him in this address, but also on his dignified and judicious methods as a presiding officer. The meetings in the various general sessions ran their courses evenly and smoothly, without the appearance of the slightest ripple of unpleasantness.

NEXT YEAR'S MEETING.

THE meeting for 1896 will be held in the city of Windsor. This decision was not reached without very careful consideration. Since the organization of the society, in the autumn of 1880, the meetings have been held in Toronto, with two exceptions, in 1884 and 1885, when the meetings were held in Hamilton and London, respectively. For various

reasons it was generally considered, especially by those living outside of Toronto, that it was the best thing in the interest of the association to make Toronto the permanent place of meeting.

When the Committee on Nominations met, its members found a very kind invitation from the medical profession of Windsor, asking the association to hold its next meeting in that city. Accompanying this were two other warm invitations, one from the mayor, on behalf of the city council, and another from the president of the Board of Trade, on behalf of that body. The association had never been so highly honored before. The unusually kind and cordial invitations were repeated by Drs. Hoare and Coventry, of Windsor, who appeared before the committee. The members of the committee unanimously appreciated the kindness of the Windsor people, both professional and lay, but did not agree as to the desirability of accepting the invitation. Being nearly equally divided on the subject, however, it was decided, practically, to leave the matter till the general session in the evening, when the whole society might vote on it.

Many thought that as the 1896 meeting of the Dominion Medical Association was likely to be held in Toronto, it would be better to have the Ontario meeting in some other place. After a brief discussion, Windsor was chosen by a large majority. The minority cheerfully accepted the situation, and, we have every reason to suppose, will gladly unite with the majority in a great effort to make the meeting in Windsor a pronounced success.

THE INDEFINITE MEDICAL NOTE.

THE practitioner, to gain knowledge from the experience of others, should be possessed of accurate and clear information. To accomplish similar results—by following any one man's practice—one must first learn thoroughly his details of technique, etc. Medical journals frequently contain a department of "Notes," which is often a source of embarrassment to their readers and annoyance to the authority referred to. They speak in general, where definite terms should be employed. The following clipping from "In the Clinics" department of *The Philadelphia Poly-clinic*, May 25, p. 221, must be exceedingly useful to those in need of help:

"For a patient with *chronic urethral discharge*, Dr. Lindsay prescribed boric acid, ten grains three times a day, and an injection containing zinc sulphate, mercuric chloride, and boric acid in distilled water, to be employed two or three times daily. The patient was instructed to return in a few days, when a thorough urethral examination would be made so that the cause of his condition could be determined."

Surely in Dr. Lindsay's clinic they do not take a handful of several drugs and a pailful of *distilled* water!

CANADIAN MEDICAL ASSOCIATION.

MEDICAL conventions are exceedingly popular. They are, or should be, great educators, and the only way to make these meetings eminently successful is to attend and give the members the benefit of your experience. Physicians owe it to themselves and to their patients to keep abreast of the times, and in no way can they reap so much benefit at so little outlay as by attending these medical conventions.

The Canadian Medical Association will meet this year in Kingston, on August 28th, 29th, and 30th, and the reports received from the energetic secretary, Dr. F. N. G. Starr, lead us to believe that this will be one of the most successful of this association's meetings.

The president, Dr. Bayard, of St. John, N.B., will deliver his address on the first day. The address in Medicine is to be delivered by Dr. James Stewart, of Montreal; in Surgery, by Dr. I. H. Cameron, of Toronto. Eminent men from across the line—Drs. McCosh, New York; A. H. Ferguson, Chicago; and J. J. Price, Philadelphia—have promised to be present and assist in making this meeting a success.

Amongst others, the following have promised papers: Dr. W. S. Muir, Truro, N.S.; Wesley Mills, and F. Buller, Montreal; Edmund E. King, J. E. Graham, and A. McPhedran, Toronto.

The secretary will be glad to hear from any one who will contribute to the success of the meeting.

 THE HYAMS CASE.

PERHAPS no previous criminal case has excited so great and intense interest in Canada as the Hyams case, recently brought to an unsatisfactory termination for the time being. The interest excited has been, if one may so speak, of various kinds. Life insurance men, elevator experts, and medical men have *special* reasons for giving the case their attention, in addition to those general considerations which attract them as part of the community. It is of the points that are of peculiar interest to the medical profession that we wish to speak shortly. The case may be stated in a word. A young man is found dead at the foot of an elevator shaft, and examination apparently shows that the head alone has been injured. No special examination having been made at the time the body was found, two years pass before suspicions of foul play were strong enough to call for further investigation. The body is then exhumed, and examined with as much minuteness as possible under the circumstances. The head alone is damaged, but the injuries to it are of such a character

as to completely destroy its continuity. A series of fractures is found which involve not only the vault, but the base and face also. Even the lower jaw has suffered. We publish with this number a complete technical description of the various lines of fracture, as also photographs of the skull; but it has been thought not unadvisable to state in a more general and rough way what damage was actually found. The case is still *sub judice*, but a bare statement of facts is allowable.

The damages to the head may be put into three divisions: (1) Damage to the vault of the skull; (2) damage to the base of the skull; (3) damage to the face. It must be understood that the bones only will be referred to. The difficulty of treating of injuries to soft parts at such a length of time after infliction is great, and so much uncertainty as to their location and appearance has been proven to exist that we dismiss them altogether, and look only to those injuries of which the record is before us.

(1) *Damage to the vault of the skull.* For purposes of description, we speak of lines of fracture as *starting at* certain points and *running to* certain other points, not intending to assert that these are really the points of origin, etc., or that the order followed in description is that actually followed in production.

The vault of the skull is divided into two lateral portions by a line of fracture which, starting at the root of the nose and separating the frontal bone nearly evenly in the midline, then opens up the sagittal suture for about three inches, then jogs to the right side at right angles for about one inch, and finally runs backwards, outwards, and downwards through the occiput, and terminates in the foramen magnum to the right of the midline. (Unless otherwise specified, all lines of fracture spoken of pass completely through the thickness of bones.) Another line of fracture, which is a very striking one, runs through the frontal bone from side to side, parallel to the supraorbital ridges, and crossing that already spoken of at right angles. It begins in the right temporal fossa, and terminates in the coronary suture of the left side, an attempt, as it were, to divide the skull into an upper and lower half. The chief remaining fractures of the vault appear to radiate from the parietal protuberance on the right side, and, if certain of them be followed through their course, we make a third line of division of the skull as a whole into an anterior and posterior part. This line runs from ear to ear over the top just behind the vertex, passing through the right parietal protuberance on its way. Behind and below this transverse line of fracture we find another line, which runs from the right parietal protuberance straight to the tip of the occipital bone, and then upwards and outwards, to terminate in the transverse line spoken of above. Thus we have broken out from the back of the head a

fairly regular, lozenge-shaped piece of bone, composed of two triangles, base to base, in the sagittal suture, and taken entirely from the parietals.

(2) *Damage to the base.* The damage to the base was as widespread as to the vault. A feature that strikes one instantly is the fact that both occipital condyles are damaged, the left being broken completely out and the right fractured transversely across in the centre. On the left side a gap is seen in the base, running from behind forwards, and representing the situation of the petrous portion of the left temporal bone. This is one of the most noteworthy fractures of all, the dense piece of bone being cut completely out, almost as by an instrument. The greater part of the temporal bone of the left side—minus the petrous portion spoken of—has been separated from the other bones by lines of fracture running through the squamous part parallel to the suture, with parietal by-lines running down into the base and lines running fore and aft in the base. The zygoma on this side has been disarticulated from the malar, and remains attached to the temporal.

(3) *Damage to the face.* Both zygomatic arches are destroyed, the right by fracture and disarticulation, the left by disarticulation only. The malar bone of the right side is separated from the superior maxilla by fracture through the maxilla, just below the suture between the two. The superior maxilla of the right side is badly comminuted, the nasal process being completely separated and the antrum destroyed. The superior maxillæ are separated in the midline in front, and the fracture runs back through the palate on the right side. The left superior maxilla is also damaged, but not to so great an extent as the right. The nose is completely disorganized, all the bones being separated and more or less comminuted.

The internal angular process of the frontal bone on the right side has been broken off. (Great stress was laid upon this by some medical witnesses, as showing that a front blow had been struck, it being held that this fracture could not have been otherwise produced, looking to the condition of the skull as a whole.)

One very curious injury is a green-stick fracture through the left ascending ramus of the lower jaw. The break is from without inward, just across the neck of the articular condyle. There is no other injury to the lower jaw.

The ground taken by the Crown was that more than one blow was necessary to cause all the injuries found. The defence held that one crushing blow might have produced them, and that, if more had been inflicted, the record was destroyed by the crushing force.

Correspondence.

MEDICAL EVIDENCE.

To the Editor of THE CANADIAN PRACTITIONER :

DEAR SIR,—I have long been unfavorably impressed with the reports of medical evidence given in the daily press in connection with the various murder cases which from time to time come before our notice, and in speaking of the matter to other medical men I find I am not alone in the views I hold.

In the recent Hendershott case the expert evidence would have been of untold value to medical men, from a medico-legal point of view, had it been published in full ; but the meagre reports of the evidence of the various physicians called by the prosecution and defence were, to put it very mildly, scarcely satisfactory.

At the present time we have the Hyams case engaging the attention of the public, and in this case also the question of the guilt or innocence of the accused will largely turn on the expert medical evidence, and I feel safe in saying that the published reports of this evidence in the daily press will be quite as unsatisfactory as in previous cases.

A possible way out of the difficulty which has occurred to me would be for the medical journals to publish the medical evidence in full, and I feel satisfied that this would meet with the approval of a great number of physicians, readers of the journals, throughout the country.

I thought I could not do better than write to you, as editor of the most widely read medical journal in Ontario, asking if it would be possible for you to comply with my request, wholly or in part ; and I am sure, if you can see your way clear to do so, that your action will be hailed with satisfaction by every reader of THE CANADIAN PRACTITIONER, interested as he or she must be in such matters, from a purely scientific standpoint.

HERBERT W. ARMSTRONG.

Fergus, May 14, 1895.

Medical Items.

DR. WILLIAM PEPLER, of Toronto, was married June 12th.

DR. CHARLES A. TEMPLE was married in Toronto, June 12th.

DR. C. A. MCBRIDE, of Oakville, sailed for England, June 6th.

DR. CHOWN, of Winnipeg, recently spent a few days in Toronto.

DR. JOHN AMYOT, of St. Joseph Street, was married this month.

DR. B. T. MILNER, of Toronto, was married in Brampton, June 8th.

DR. CRAWFORD SCADDING, of Toronto, was married in England, June 6th.

DR. HARRIS has removed from West Toronto Junction to McCaul street, Toronto.

DR. BERTRAM SPENCER has been appointed an associate coroner for the city of Toronto.

DR. JOHN R. STONE has been appointed an associate coroner for the district of Parry Sound.

DR. MAX KLOTZ, of Ottawa, and Mr. J. H. Ferguson, of Aylmer, have been appointed resident physicians of the Hospital for Sick Children for the ensuing year.

DR. ERNEST M. HALL, of Vancouver, B.C., has been elected a Fellow of the British Gynæcological Society, and has returned home after a protracted visit to Germany.

DR. EDMUND E. KING attended the annual meeting of the American Association of Genito-Urinary Surgeons, held May 25-27, at Clifton House, Niagara Falls, Ont.

DRS. J. E. GRAHAM and A. McPhedran, of Toronto, attended the meeting of the Association of American Physicians held in Washington during the last week of May.

DR. J. C. WARBRICK left Toronto, June 10th, for England, where he expects to remain one year. He will probably spend an additional year on the continent before returning to Canada.

DR. G. STERLING RYERSON has been appointed the representative of Trinity Medical College in the Senate of the University of Toronto, in the place of Dr. John L. Davison, resigned.

DRS. ALBERT MACDONALD and Allen Baines, of Toronto, and Dr. Welford of Woodstock, attended the meeting of the American Pædiatric Society at Hot Springs, Virginia, during the last week of May.

DR. D. A. DOBIE, who left Toronto last fall to practise in New Orleans, remained in the latter city five months ; but, finding that the climate was likely to disagree with him, he recently returned to this city, and resumed practice at his former residence, McCaul street.

THE Nominating Committee of the Medical Faculty of Queen's University met and made the following appointments : Dr. Wood, to be assistant to Dr. Fowler, professor of medicine, and to be professor of sanitary science ; Dr. Anglin, to be assistant to Dr. Sullivan, surgery, and to be professor of medical jurisprudence.

MESSRS. WM. R. WARNER & CO. have removed their New York branch to the more commodious and convenient quarters, No. 52 Maiden Lane. This change became imperative, the space at their former salesrooms having at last become inadequate to admit of the proper conduct of their largely increased business

THE CENTENARY OF THE DISCOVERY OF VACCINATION.—The directors of the German Vaccine Institute are arranging a festal celebration, to be held in 1896, in commemoration of Jenner's discovery of vaccination. It will take place on the occasion of one of the annual meetings of medical men. In connection therewith there is to be an exhibition of old and new vaccine instruments, of apparatus for the preservation of lymph, etc., original manuscripts on smallpox and vaccination, on the inoculation of sheep-pox and cattle plague in pre-Jennerian days, of squibs on vaccination, medals, portraits, and autographs of prominent inoculators, vaccinators, anti-vaccinators, etc. Persons willing to lend objects for exhibition are requested to communicate with *Geh. Med. Rath.*, Dr. L. Pfeifer, President of the Vaccine Institute of the Grand Duchy of Saxony, at Weimar.

THE PATRONS.

"Nemo," Lucknow, sends me the following communication :

Dear Flaneur,—I have been studying poetry and the position of the Patrons of Industry ; so I compose the following verses, which, to enlighten the world of Canada, you might perhaps print, as it would be a pity to lose the beautiful effusion :

The gallant Mowat leads his party on,
 And Patrons nothing from him yet have won !
 Lately they met, in battle's bloody shock,
 The Patrons led by thundering, fierce Haycock.
 They joined in battle o'er that doctor's bill,
 Patrons determined doctors all to kill.
 The conquering Mowat raised his sword on high,
 And smote this Patron phalanx, hip and thigh.

MORAL.

All flesh is grass ! So doth the Scripture say,
 And grass, when cut and dried, is turned to hay.
 If Death, to Patrons all, his scythe should take,
 Oh, thunder ! what a " Haycock " they would make.

—*Mail and Empire.*