plaining its mode of action, we could not in future ignore the questions: What changes does it call forth in the texture of the skin? How does it modify the great thermolytic function of radiation?

Another subject connected with thermolysis deserved some mention, namely the connection of peripheral temperatures with central. The lecturer, in common with many others, had been perplexed and baffled by the apparent lawlessness of surface temperatures as taken by any of the ordinary methods. So doubtful were any results based on them that experts regarded with suspicion all observations but their own. Recent inquiries, also carried out at Zürich under Professor Eichhorst, showed that the difficulty lay chiefly in an erroneous method of procedure. When peripheral temperatures are taken continuously for some hours (eight or ten) instead of some minutes, it appears that in health as well as in disease the curves obtained consist of two distinct portions. The first corresponds to a stage of an hour or so, in which the temperature is highly irregular and different from the central temperature. This is the *ambiguous* stage. The second is marked by much greater uniformity and by nearness to the central temperature. Like the latter it tends to be constant and stable. This is the *continuous* stage, and it is so regular, so normal, that we are safe in drawing conclusions from its changes. Observers hitherto had seldom got beyond the ambiguous stage, and hence the irregularity and confusion already alluded to. The effects of antipyretic methods on the continuous stage of the peripheral temperature would form an interesting and trustworthy study later on.

Next, the anatomy and physiology of the thermogenic system had received valuable contributions. New points in the thermogenic tract had been made out (he would not call them *centres*) by Ott and others in America, using the methods and working under the inspiration of Professor Wood. In the rabbit four points in the cerebral axis were known, the stimulation of which gave rise to increased heat-production, not simply rise of temperature. Two were at the anterior and median borders of the corpus striatum, one between that body and the thalamus, and a fourth at the anterior end of the thalamus. Dr. Hale White had in part verified the localisation as regards the anterior striate centre and had made out that unilateral irritation gave rise to bilateral pyrexia. It thus appeared that in the rabbit the lateral differentiation of the thermal tracts, like that of the motor, was still incomplete.

The question of whether these points were on excitator or inhibitory tracts was next discussed, and the experiments of Girard in Geneva, and Baginsky and Lehmann in Berlin, were adduced as apparently bearing on the question in opposite senses. It was shown how they might be reconciled. Reasons were given for thinking that the so-called "striate heat-centre" might be a passing-place if not a meeting-place for both anabolic and catabolic fibres. Ott, the other day, had announced certain new discoveries which pointed to cortical areas being concerned in heat regulation. An area at the upper end of the Sylvian fissure appeared to control the striate region. Thus, when thermogenesis was induced by puncture of the striate "centre," and an abiding pyrexia resulted, stimulation of the cortical area lowered the temperature and diminished the thermogenesis. The bearing of such observations on the localisations and nature of the thermotaxic mechanism was alluded to, and the probability of further advance estimated. In Dr. Gaskell's pregnant hint, namely, that his explanation of inhibition as anabolism is applicable to nerve-centres as well as to peripheral organs, the lecturer saw the promise of much new light on the mechanism of thermotaxis.

ON THE MANAGEMENT OF FIBROMYOMATA COMPLICATING PREGNANCY AND LABOUR.

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THE subject under consideration is of such vital importance to the obstetrician that there is ample reason for an inquiry into the present means at our disposal to cope with what is too often a formidable complication of childbirth. I have as far as possible examined all pamphlets and papers written on it during the past ten years, and have endeavoured to compare the treatment suggested or adopted, and the results obtained, with those of past years.

Now, in what ways may a fibroid or fibroids modify the course of pregnancy, labour, and the puerperium?

1. During pregnancy their presence may induce a premature termination, for a tumour in the uterine wall materially interferes with the regular development of that organ.

2. They may set up localised peritonitis, which will produce adhesions with various organs—that is, intestines, liver, and rectum. In addition, they are the cause of such intense pain and distension as to necessitate operative interference during an early period of the pregnancy.

3. A tumour may mechanically obstruct the passage of the foetus through the pelvic canal, and may thus even occasion resort to Caesarean section or the Porro-Caesarean operation.

4. Frequency of foetal malposition is very common, and is a noteworthy fact as leading to increased infant mortality.

5. After birth of the child the placenta may be found adherent to the tumour, rendering manual delivery necessary, and consequent bruising of its substance. Placenta prævia is certainly more frequently found as a concomitant of fibroids.

6. Uterine contraction after expulsion of the placenta may be more or less inefficient, owing to the presence of the tumour, and hæmorrhage may result. Involution is also much delayed.

7. Morbid softening and disintegration may take place either before or after labour, leading to peritonitis and its concomitant evils. Torsion of the pedicle and subsequent gangrene of the tumour have been noted.

It will be found convenient, for the purposes of description, to divide the uterus into three divisions:

1. The superior or upper segment.
2. The inferior segment.
3. The cervix.

As a rule, fibroids of large size, or multiple in character, arising in the superior segment give trouble during pregnancy, while their presence in the two latter situations usually only becomes noticed from the pressure symptoms they may produce, or at labour, when they form a more or less serious obstacle to delivery. Although we can with some propriety call these latter "dangerous zones," the upper is very little less so during pregnancy, both to maternal and foetal life.

The line of demarcation between the upper and lower segments it is impossible to define clearly, for it must be remembered that a fibroid, which during the earlier months is high up, may descend as pregnancy advances, and not seldom it is found that true interstitial fibroids split the uterine tissue in their descent, and penetrate into the thickness of the anterior or posterior lip of the cervix. Moreover, pedunculated subserous fibroids, by lengthening or stretching of their pedicles, may descend into the true pelvis, form adhesions with adjacent organs, and practically act as if arising from the inferior segment or the cervix.

On the other hand, there is undoubted evidence to show that a fibroid in the inferior segment (provided it has not any cervical connections) may gradually ascend during pregnancy, probably from the contraction of the longitudinal uterine muscular fibres, while the phenomenon becomes most marked (in some fortunate cases) during labour, where, as the os uteri dilates, so the apparently irresistible obstacle gradually ascends, and the foetal presentation takes its place. Fibromyomata arising in the anterior or posterior cervical lip are, if they attain any size, most serious impediments to delivery. The difficulty is, however, to make an absolutely certain diagnosis that they are not pedunculated subserous fibroids which have descended. The surrounding parts are much distended and displaced, thus rendering a most important and vital point in the question of treatment in the highest degree uncertain. Unlike pelvic bony narrowing, it is difficult to fix with any precision the size of a fibrous body which can be called an obstruction to labour; in fact, it is entirely arbitrary. Fibroids in the posterior wall are much more likely to lead to obstruction than those in the anterior, owing to the powerful retraction which takes place in this latter situation.

Although fibroids undergo a peculiar softening, so that during labour they can be flattened out somewhat, still it is far from a condition that can be depended upon as likely to occur, and should it do so, the effects of the bruising may be disastrous in the extreme. As a consequence, no definite rules can be laid down, and each case must be, to a great extent, treated on its own merits.

The thesis by Lefour¹ supplies 307 cases as occurring up to 1879-80, but 7 of these I found had to be put aside from insufficient details, thus leaving 300. These include those mentioned

¹ *Des Fibromes Uterins*. Paris. 1880. With Bibliography.

TABLE 1.—*Porro-Cesarean Operations.*

No.	Author and Reference.	Age.	Parity.	Tumour.	Period of Pregnancy.	Previous Obstetrical Interference, Treatment of Stump, etc.	Result.		Condition of Patient at Time of Operation.	Remarks.
							M.	Ch.		
1	Storer; Journal of Gynecological Society Boston, 1869, i, p. 223	37	I-p.	Fibrocystic of anterior wall with intimate adhesions to pelvis	T	Cesarean section intended only at first; after cut into tumour, hemorrhage so great that Porro-Cesarean necessary. Double metallic ligature with clamp shield. Stump cauterised and fixed in lower angle of wound	D 68 hrs.	D*	Very unfavourable	Pelvic portion of tumour was left below the ligature; death from septicæmia. Available pelvic space $1\frac{1}{2}$ inch.
2	Tarnier; Annales de Gynecolog., 1879, xii, p. 81	33	"	Tumour posteriorly at cervico-corporeal junction and adherent in pelvis; softened centres full of putrid material <i>post mortem</i>	T	Müller-Rein modification; extra-peritoneal treatment of stump; Cintrat's serre-nœud and long pin	D 3rd day	D*	"	In labour 7 days; death from septicæmia.
3	Zweifel; Archiv. f. Gynäk., 1881, Bd. xvii, p. 371	37	"	Size of a coco-nut in cervix filling whole pelvis. Uterus consisting of tuberculous tumours as hard as cartilage.	T	Müller-Rein modification and elastic ligature; after removal of Kerberle's serre-nœud, found impossible to treat extra-peritoneally; pedicle broad 15×11 cm.; a cone-shaped piece excised; pedicle ligatured with silk and catgut, and dropped into cavity	D 6th day	A	"	Several hours in labour; death from septicæmia; available pelvic space $1\frac{1}{2}$ inch.
4	Cataliotti; Annali di Ostet. Ginecol. e Ped., 1882, p. 458	41	"	Interstitial in posterior uterine wall extending into vagina; upper portion strongly adherent to liver	7 mths.	Uterus opened <i>in situ</i> ; serre-nœud and catgut ligature in lower angle of wound. Transfixion by pin	R	A	Unfavourable	In labour a few hours; abundant ascitic fluid escaped during operation. Induction of labour impossible from blocking up of vagina. Tumour weighed 5 kilograms (about 11 lbs.)
5	Prochownick; Deutsche Med. Wochens., 1882, No. 40	40	"	Uterine myoma impacted in pelvis	"	Müller-Rein modification; Pean's constrictor with 2 long pins in stump; stitched into lower angle of wound	D 60 hrs.	A	"	Discharge of liquor amnii 24 hours; death from septicæmia; child lived a few minutes.
6	Denaré; Lyon Médicale, 1883, vol. xliii-xliv, No. 20, p. 69	42	XIV-p.	Tumour in left iliac region filling up almost entire pelvis and dipping into posterior cervical lip; interstitial	T	Twins diagnosed. Reposition failed. Six hours' railway journey. Cintrat's serre-nœud and metallic thread; 2 needles through stump and pedicle in lower angle of wound; tumour below ligature	R	D*	"	Placenta on posterior wall; bronchial catarrh and prolonged suppuration followed. Tympanitic distention of transverse colon necessitated puncture. 3 days in labour. Available pelvic space four-fifths of an inch.
7	Simpson; Elin. Med. Journ., 1884, xxx, p. 9	7	II-p.	Tumour extending from lower uterine segment and between layers of broad ligament to the left of pelvis	T	Müller-Rein modification; ligature above tumour; serre-nœud; stump in lower angle of wound	D 7th day	D*	Very unfavourable	Was 15 hours in labour. Discharge foetid. First child stillborn after 3 days' labour. Urine highly albuminous.
8	Handfield-Jones; Obstetrical Trans., 1885, xxvii, p. 4 (Assisted at operation)	38	I-p.	Tumour size of foetal head with broad pedicle from lower segment of posterior wall; peritonitic adhesions	T	Reposition attempted under ether, forceps and craniotomy. Uterine flaps clamped by hammer-head forceps to arrest hemorrhage. Stump in lower angle of wound	D 3rd day	D*	Most unfavourable	First seen at fifth month of pregnancy. Tumour then impacted. Attack of peritonitis.
9	Fibbi; Annali di Ostet. Gyn. e Ped. 1885, p. 430	32	"	Subserous multiple fibromata, one large one projecting into pelvis, left side and behind	T	Elastic ligature. One silk thread ligatured right broad ligament and 2 through left. Stump extra-peritoneally treated in lower angle of wound	D 24 hrs.	D*	Unfavourable	In labour 4 days; death from collapse. Blood found in peritoneal cavity; a ligature on left side had given way in consequence of movements of patient. Tumour weighed $3\frac{1}{2}$ lbs.
10	Sänger; Centralblatt für Gynäk., 1885, Bd. ix, p. 348	41	"	5 myomata, 2 very large, and in a state of degeneration	T	Müller-Rein modification; serre-nœud and stump in lower angle of wound	D 2½ days	D*	"	Sterile many years; death from septicæmia. One fibroid cleft by uterine incision.
11	Klotz; Centralblatt f. Gynäk., 1887, Bd. xi, p. 345	31	"	Pelvis filled by tumour, apparently in right broad ligament, impacted	T	Elastic ligature; stump with peritoneal flaps sewn over it, dropped into abdominal cavity; placenta at uterine incision	D	A	Favourable	Liquor amnii not escaped; sterile 15 years. Faecal vomiting after operation, secondary abdominal section, duodenum and intestine adherent to stump. Immediate relief to vomiting. Suicide. Available pelvic space $\frac{3}{4}$ inch.
12	Sir Spencer Wells; BRIT. MED. JOURN., 1887, vol. i, p. 1267	37	"	Tumour filling up entire pelvis, with several sub-peritoneal growths	T (-)	Uterus punctured and then torn. Steel wire constrictor, no elastic ligature; stump in lower angle of wound, and saturated with perchloride of iron. No drain-tube	R	A	"	A tumour found free in abdominal cavity, closely adherent to coccum and omentum. Head appeared at incision; fibroids known to exist before pregnancy. Weight of uterus and tumour 9 lbs.
13	Schröder in Hofmeier; Zeitschrift für Geburt. u. Gynäk., 1887, Bd. xiv, p. 99	45	II-p. 1 abort.	Uterus permeated by several tumours, one size of fist in right cervical wall	T	Elastic ligature, incision into uterus and cord tightened; appendages ligatured. Amputation at level of internal os uteri. Funnel shaped excision cervical canal, peritoneum sutured over it; deep silk ligatures; intra-peritoneal	R	A	"	Artificial abortion attempted third month. Liquor amnii escaped 2 hours before operation. Fibroids known to exist before pregnancy. Child asphyxiated, but recovered with Schultz's treatment.

* Fetus dead, or dead and putrid before operation.

by Puchelt, Susserott, Nauss, Dubar, and Chahbazian, and may be considered as a fairly comprehensive review of the subject up to the time stated. Since then I have collected 59 cases where some difficulty occurred during various periods of pregnancy and labour, but where the treatment by abdominal section was not required, and 47 cases in which one or other of the varieties of abdominal section was performed. These I have tabulated under separate heads.

(a) *Treatment During the Early Months of Pregnancy, that is, before the Fetus is Viable.*—Under this heading are included assumption of genu-pectoral position, enucleation *per vaginam*, induction of artificial abortion, and reposition of the tumour under an anæsthetic. These methods are well known, but I cannot pass them by without giving a word of warning before they are resorted to.

Artificial abortion was produced purposely 3 times, and once

TABLE II.—Cases of Müller's Ablation,
(i.e., Abdominal Section with removal of Tumour and Uterus containing Non-viable Fetus.)

No.	Author and Reference.	Age.	Parity.	Tumour.	Period of Pregnancy.	Operation and Treatment of Pedicle.	Result.	Reason for Interference.	Remarks, Condition at Time of Operation, &c.
1	Robert Barnes; St. George's Hospital Reports, 1874-6, vol. viii, p. 90, case xxii	—	I-p.	Uterine strangulation by 2 fibrous tumours; the anterior and smaller reaching 2 in. above umbilicus. The pelvic cavity almost obliterated by posterior and larger one	2 mths.	Attempts at reposition under ether failed; aspiration of pelvic tumour <i>per vaginam</i> . During operation great difficulty in dislodging pelvic tumour. Broad ligaments tied, severed by the cautery, whipcord ligature to stump and dropped into cavity	D 30 hrs.	Rapid increase during gravidity, enormous distension of abdomen, with vesical and rectal troubles	Peritonitis before operation, vomiting excessive. Condition most unfavourable.
2	Wasseige; Bulletin de l'Acad. Roy. de Méd. de Belgique, xiv. ser. 3, No. 4	35	1 abort.	Left antero-lateral cysto-fibroma of uterus filling pelvis, tumour reaching 3 inches above umbilicus	18 wks.	Ecraseur provisionally; stump ligatured, peritoneum sutured over it and dropped into cavity. No drain-tube	D 5th day	Violent abdominal pain. None but dorsal decubitus possible; dysuria, dyschezia. Excessive distension	Cause of death indefinite, no peritonitis, suppuration or hemorrhage, stump quite healthy. Condition unfavourable.
3	Kaltenbach; Centralbl. für Gynäk., 1880, Bd. iv, p. 345	32	I-p.	Multiple subserous fibroids. Large interstitial reaching to fundus uteri, with many softening centres	22 wks.	Mass everted; temporary elastic ligature. Stump ligatured and kept in abdominal wound by 2 long pins	R	Considerable antepartum hemorrhage, with dyspnoea vomiting, oedema of legs and vulva	Placenta over site of tumour which weighed 6½ lbs. Condition most unfavourable from hemorrhage.
4	Knowsley Thornton, (private communication)	38	1 abort.	Aggregation of fibroids at fundus filling false pelvis, weighing after excision 16 lbs.	4½ mths.	Koerber's serre-neud and stump kept out of cavity by 2 long pins	—	Rapid growth of tumour, emaciation and anemia	Some of tumours very soft and fluctuant. Condition unfavourable.
5	T. Savage; BRITISH MEDICAL JOURNAL, 1882, vol. ii, p. 423	25	I-p.	Tumour occupying right side of uterus, and reaching up to umbilicus	16 wks.	Pedicle ligatured, clamped and stitched to lower angle of wound. Glass drain-tube above stump	—	Excessive pain and emaciation with very rapid increase in size	Tumour, uterus, and contents weighed 10 lbs. Right Fallopian tube and ovary in front of tumour and almost black from compression. Condition fairly good.
6	Walter; BRITISH MEDICAL JOURNAL, 1883, vol. ii, p. 718	29	—	Right side of inferior uterine segment; another on posterior aspect low down, the two weighing 10 lbs. and 1½ lbs. respectively	4 mths.	Ablation after attempted enucleation and opening of uterine cavity. Pedicle clamped and 2 needles passed, then ligatured to lower angle of wound	D 9th day	Bedridden 12 weeks, suffering intensely from constant pain and pressure symptoms; repeated attacks of peritonitis	Peritonitis cause of death. The funis escaped through uterine aperture; several ounces of foetal fluid in pelvis, <i>post mortem</i> . Condition fairly favourable.
7	Hayes Agnew; BRITISH MEDICAL JOURNAL, 1884, vol. i, p. 158 (Godson's list)	44	—	Tumour filling entire pelvis	6 mths.	Stump ligatured and secured with large clamp	D 64 hrs.	In labour five days—fetus putrid	Death from vomiting and exhaustion. Condition very unfavourable.
8	Hofmeier; "Die Myotomie," 1884, Stuttgart, p. 77, and Fig. 27	41	—	Multiple sub-peritoneal with fundal tumour, size of adult head	3 mths.	Amputation at level of internal os uteri. Stump sutured and dropped into cavity	R	Very rapid growth of tumour after gravidity	Sterile three years, tumour slowly growing. Condition good.
9	Hofmeier; "Die Myotomie," 1884, Stuttgart, p. 78 and Fig. 28	40	—	Sub-peritoneal and interstitial chiefly at fundus of enormous size	2½ mths.	Amputation at level of internal os uteri. Stump sewn with catgut and silk. Intra-peritoneal	—	Rapid growth of tumour after gravidity	Bronchitis retained convalescence. Copious hemorrhage during operation. Condition good.
10	Etheridge; Jnl. Amer. Med. Assoc., 1886, vol. ii, p. 466	34	—	Multilocular fibroma, occupying whole anterior wall. Cervical canal 5½ inches long	3 mths.	Capsule of tumour button-holed and tumour partially enucleated to allow formation of pedicle. Serre-neud at first and vessel tied. Cone-shaped piece excised, stitches inserted, peritoneum drawn over it. Stump dropped into cavity	D 11 days.	Great pain and emaciation	Abortion had been attempted before operation, tumour had caused retroflexion before gravidity. <i>Post mortem</i> examination showed pelvis filled with pus and blood. Condition unfavourable.
11	Kaltenbach; Vogel's Diss. Giessen, 1886, and Centralbl. f. Gynäk., 1887, Bd. xi, p. 435	33	II-p.	Interstitial myoma in anterior wall, size of foetal head; softening centre	3 mths.	Amputation at level of internal os uteri. Stump in lower angle of wound	R	Enormous increase in size	At operation uterus of size of eight months gravidity. Condition favourable.
12	Granville Bantock; British Gyn. Trans., 1886-7, vol. ii, p. 65, (and private communication)	34	I-p.	Two pedunculated tumours, one 11 lbs., the other 1½ lb. The former with firm and extensive omental adhesions	3½ mths.	Pedicle fixed in angle of wound, Serre-neud and 2 pins	—	Enormous distension and rapid increase in size	Pregnancy unsuspected; she could not have gone to term owing to distension; tumours would not have interfered with labour. Condition good.
13	Granville Bantock; Amer. Gyn. Trans., 1887, vol. xii, p. 211, (and private communication)	40	VI-p.	General fibroid enlargement with hydramnios. Twins	4 mths.	Serre-neud with one pin. Pedicle in lower angle of wound	—	Dyspnoea from rapid increase in bulk, oedema of vulva and extremities	Between 12 and 13 pints of fluid in amniotic sac. Ovarian tumour with thin walls diagnosed with pregnancy. Condition unfavourable.
14	Granville Bantock; (private communication)	31	II-p.	Multiple fibroids with dead retained fetus	—	Serre-neud with two pins. Extra-peritoneal treatment of stump	—	Operation deemed safer than attempt to remove dead fetus, and to render repetition impossible	—
15	Dirner; Centralbl. für Gynäk., 1887, Bd. xi, p. 119	40	I-p.	Interstitial and subserous tumours generally distributed. Pelvis blocked; tumour reaching above umbilicus	2 mths.	Ablation. Enucleation of cervical tumour. Intra-peritoneal treatment of stump	—	Enormous increase in size during gravidity; incarceration symptoms well marked	Convalescence delayed by cystitis from catheterism and stitch abscess. Condition favourable.

TABLE II.—(Continued.)

No.	Author and Reference.	Age.	Parity.	Tumour.	Period of Pregnancy.	Operation and Treatment of Pedicle.	Result.	Reason for Interference.	Remarks. Condition at Time of Operation, &c.
16	Karström; Hygieia, 1887. Bd. xlix, pp. 215-34	36	II-p.	Sessile tumour, intra-ligamentous on left side. Weight 40 lbs	4½ mths.	Abdominal section. Attempted enucleation, severe hæmorrhage. Elastic ligature, Müller's ablation; peritoneum sewn over stump and dropped into cavity. Two drain tubes	R	Pressure symptoms. Ascites, which was tapped; wound continued discharging	At first pregnancy tumour necessitated podalic version. Phlegmasia dolens in left leg slightly 30th day. Condition favourable.
17	Meridith; (private communication)	38	I-p.	Tumour size of adult head, with thin pedicle attached to right uterine cornu	2 mths.	Tumour ligatured and removed. Then Müller's ablation. Stump in lower angle of wound with serre-nœud. Iodine to surface	D 8th day	Increasing pain and rapid emaciation cause of abdominal section	Ablation for fear ligature should give way, if miscarriage occurred. Pregnancy not diagnosed before operation. Stump of uterus healthy. 1st mortem. Death from double pulmonary congestion.
18	" "	47	II-p.	Interstitial fibromyoma, size of adult head, right side of uterus and lower segment. Twin pregnancy, and hydramnios	4½ mths.	Whole mass constricted before uterus was opened. Serre-nœud extra-peritoneal treatment of stump	D 3rd day	Severe abdominal pain with rapid increase in size	Uterine cavity contained six pints of hydamniotic fluid. Death from septicæmia. Delivery would have been impossible at term. Condition favourable.
19	Wehmer; Zeitschrift für Geburt. u. Gynäk., 1887. Bd. xiv, p. 116	32	I-p.	Sessile and interstitial at cervico-corporal junction	5 mths.	Serre-nœud, stump in lower angle of wound. Surface treated with Zn Cl ₂	R	Pressure symptoms urgent	Placenta inserted upon site of tumour. Abscess in abdominal wall delayed recovery. Condition favourable.

only by mistake in the 59 cases I have detailed, and all 4 recovered; but on referring to Table II, Case 10 (Etheridge), it will be seen that an unusual complication occurred which is worthy of note, namely, elongation of the cervical canal to five inches and a half; this was produced by the fibroid in the anterior wall. Abortion was attempted and was thought to have succeeded, but the subsequent operation showed that the three months' ovum was quite intact. The dangers of the other operations I shall allude to later.

Two other methods I must enter into in detail, as they are comparatively recent improvements in these cases; I allude to "myomotomy" and "Müller's ablation" (Table II).

By "myomotomy," is meant abdominal section and removal of one or more fibroids by ligature and closure of the incision, in the hope that pregnancy may go on to term. It is manifestly only permissible:—1. When the fibroid is attached in an accessible situation. 2. When its presence is causing either intolerable pain or discomfort from distension.

Mr. Knowsley Thornton first performed it in 1879³, but labour supervened, constant sickness and death followed, from intestinal obstruction; this also occurred in a case of Porro-Cæsarean operation by Klotz (Table I, No. 11), which he removed by secondary abdominal section. Landau⁴ and Schröder⁵ have published details of successful cases, labour occurring at term, while Martin's⁶ and Krukenberg's⁷ both terminated fatally, in consequence of the occurrence of abortion. So that we have as a result five cases with a favourable result in two, and a mortality of 60 per cent., almost 10 per cent. less than the statistics of Cæsarean and Porro-Cæsarean operations show.

I must now call your attention to Table II. Müller's ablation must not be confused with the Porro-Cæsarean operation, as is almost always the case. The latter is utero-ovarian amputation, as complete of the Cæsarean section, while the former may be defined as "abdominal section with removal of the tumour and the uterus containing the non-viable fetus." There is no question here of the life of the child, the maternal conditions being so grave as to preclude the pregnancy going to term.

The total number of cases on record is 19, with 7 deaths, or a mortality of 36.8 per cent. The reasons for the performance of such an operation are naturally of the greatest importance; fortunately I have been enabled to obtain them in every instance, and they are given in the last column but one in Table II. It

will be seen that the operation was performed for removal of a dead foetus twice, in one after a labour of five days (vii, xiv). Violent pain is mentioned as occurring in 6 cases, rapid increase in the size of the tumour in 10 was noticed, emaciation in 4, while pressure symptoms demanded interference in 5 cases. In Case iii severe *ante partum* hæmorrhage was the preponderating cause. Besides the above, in 4 cases other conditions were found during the operation, which not only showed its justifiability, but its absolute necessity for the saving of the mother's life. There was uterine strangulation with recent peritonitis in Case i; softening centres were found in the fibroids in Cases iii and xi, while in Case v, the right Fallopian tube and ovary were almost black from compression.

Of the 19 cases, 13 were treated by the extraperitoneal method, with 9 recoveries, and 6 by the intraperitoneal method with 3 recoveries. Into the relative value of the two proceedings I do not here desire to enter.

It will be seen that in all the cases given, the likelihood of the patient going to term was untenable, and the question arose, what was the best mode of treatment to be adopted. All those already given would have been useless or indeed impossible, excepting provocation of abortion, and the course to be adopted would therefore have been this with its accompanying dangers and chance of repetition, or the unsexing of the patient, removal of a useless and dangerous complication and leaving no chance (in the event of recovery taking place) of further impregnation. No one who looks at the two figures in Hofmeister's work (*Myomotomie*) will doubt for an instant the wisdom of the step he took, and he is to be congratulated on the brilliant results he obtained. The mortality is nearly half that obtained in the Porro-Cæsarean and improved Cæsarean operations during the past nine years; but, on the other hand, there is the counter-balance of saving of fetal life which must not be neglected. With the scanty records we have, I think it would be most unwise to lay down any rules concerning this operation; every case must be judged by itself, and it seems to be one which should not be undertaken without consultation.

(B) *Treatment of Fibromyomata during Fœtal Viability, including Labour.*—The question of the saving of the child's life will naturally somewhat modify the line of treatment. Labour was induced 6 times in Lefour's 300 cases, with the result of 1 maternal death and in the birth of 1 living child. Among the 59 collected cases this operation has been performed 3 times, with the discouraging result of 2 maternal deaths, and the survival of 1 child only. Two of them occurred in my own practice, both, unfortunately, ending fatally. The first is already described and figured in the *Obstetrical Transactions* for 1886, vol. xxviii, p. 138

³ *Obstetrical Trans.*, 1879, xxi, p. 163.

⁴ *Berlin. Med. Wochen.*, 1885, No. 13, p. 195.

⁵ *Zeitschrift f. Geburt. u. Gyn.* Bd. v, p. 397. Figs. 11 and 12.

⁶ *Berlin. Med. Wochen.*, 1885, No. 3, pp. 17, 39.

⁷ *Archiv für Gynäk.*, 1883, Bd. xxi, p. 166.

I saw her in consultation with her medical attendant in consequence of acute pain, rapid pulse, with a temperature of 101.4 F., with a dry brown tongue, and a purplish discoloration of the abdomen. The multiple fibroids were complicated by twins. This condition appears to add additional gravity to the case, for out of 7 cases I have met with no less than 5 were fatal. The second was unfortunately also fatal. I was asked to see her with regard to the question of interference at the seventh month, or the possibility of abdominal section at term. The obstacle to delivery was a kidney-shaped tumour at the junction of the cervix and lower uterine segment, and occupying nearly two-thirds of the pelvic inlet. There were, in addition, two large fundal abdominal tumours, which would have been serious complications in the Cæsarean section. Knowing the importance of handling tumours of this kind as little as possible, I attempted induction by the subcutaneous injection of pilocarpine four times, which, although productive of full constitutional effect, nevertheless failed to produce any labour pains. A bougie was passed, labour followed, and was very lingering in character. Death occurred on the eighth day from peritonitis, commencing over the larger abdominal tumour. My own experience, then, decidedly opposes this method, even when the alternative be the dreaded Cæsarean or Porro-Cæsarean section. By forcible reposition is meant the pushing up of the tumour during labour, and thus permitting the presenting part to occupy the inlet of the pelvis and delivery effected.

Dr. Playfair has strongly advocated this plan of treatment in two papers read before the Obstetrical Society.⁸ In three cases related by him the fibroid tumours occupied such a position in the pelvis, that had it not been possible to get them out of the way, the Cæsarean section would have been inevitable. In all three upward pressure succeeded in dislodging them, so that delivery was effected *per vias naturales*, twice by turning and once by the forceps. He concludes with these words: "These cases teach us the hopefulness of such a procedure, and the advisability of making a strong and persistent effort at reposition, in which an amount of force may be necessary which would be quite unjustifiable were there any less terrible alternative to be selected than the Cæsarean section." In opposition to these conclusions I have but few remarks to make.

Take for instance the case related by Knowsley Thornton already alluded to. After abdominal incision the tumour was forced up from the pelvis, and such furious bleeding occurred that for a moment the safety of the iliac vessels was feared. What a calamity would have been produced if this line of treatment had been adopted; uncontrollable hæmorrhage would have taken place within the abdomen, and the patient have died probably in a few minutes.

Again, take the case which I had the opportunity of seeing with Dr. M. Handfield-Jones (Table I, No. 8); there it was attempted with the greatest persistence but without success, and the *post-mortem* examination showed the tumour to be much bruised, and perhaps partly the cause of death. I think that with two cases like the above, forcible reposition should not be undertaken without considerable forethought, and should certainly not be too long continued.

In the *Transactions of the American Gynecological Society* for 1884, Dr. Mundé relates a very brilliant result from removal of an enormous cervical fibroid *per vaginam* during labour. Braxton Hicks⁹ and Lomer¹⁰ also have performed this operation successfully. It is, however, only possible when the tumour is connected with some portion of the cervix, and there is considerable difficulty in being absolutely certain that this is the case, as the parts are always distorted and much swollen. Doubtless in suitable cases it is infinitely safer and preferable to the dreaded alternative Cæsarean section; while, on the other hand, the great liability to septic infection and the likelihood of the attempt failing must be borne in mind.

A case requiring the Cæsarean section recently came under my notice, and details are fully given elsewhere (*Lancet*, 1888, vol. i, p. 919). The fibroid was firmly impacted in the pelvis, and the uterine body infiltrated with several smaller ones. Interference was necessary from serious pressure symptoms. The Porro-Cæsarean operation was impossible, and it appears to have been a case with which the resources we have at our disposal at present are unable to cope.

I have been able to collect twelve other cases as having occurred during the past eight years, and I have tabulated the results below. They have been selected from the papers by Baker,¹¹ Slavianski,¹² Sänger,¹³ and Parish.¹⁴

Up to the end of June, 1876, when Späth operated, every Cæsarean case for a hundred years had proved fatal in the Viennese Lying-in Hospital, and from 1787 to 1879 a similar result occurred in the Paris Maternité; nor were the results in England much better, as shown in Radford's¹⁵ laborious and accurate tables on the subject.

In Table I are collected all the cases of Porro-Cæsarean operation for this complication which have occurred since the introduction of the operation. They are, curiously enough, identical in number with those of Cæsarean section for the past eight years, and, what is more remarkable still, the maternal mortality is the same.

If we compare the dangers of the Porro-Cæsarean operation and Cæsarean section, we find six chief ones noticeable as the cause of death in the latter: (1) peritonitis, (2) metritis, (3) hæmorrhage, (4) septicæmia, (5) shock, and (6) intestinal obstruction occasionally; while in the former we have only peritonitis, septicæmia, shock, and intestinal obstruction. In addition to the elimination of metritis and hæmorrhage as dangers in the Porro-Cæsarean operation, the risk of septicæmia is much less. Moreover, the danger of peritonitis is much reduced also; for, depending as it does in a great measure on the presence of irritating fluid in the peritoneal cavity, it is less likely to result where the uterus is removed than where, with often a gaping wound, it is left behind. These facts point to the necessity where possible of performing the Porro-Cæsarean section for preference; but sometimes, as in the case already alluded to, the formation of a pedicle may be a matter of impossibility.

Statistics of Cæsarean Section.		Porro-Cæsarean.	Müller's Ablation.
Up to 1880.	From 1880—1888.	Total Number on Record.	Total Number on Record.
Total number = 33	13	13	19
Maternal deaths = 28 or 84.8 per cent.	9 or 69.22 per cent.	9 or 69.22 per cent.	7 or 36.8 per cent.
Children alive ... 13	8	6	—
Dead before operation ... 11	4	7	—
Doubtful ... 9	1	0	—

On referring to Table I it will be seen that in 10 cases the extraperitoneal method of treatment of the stump was adopted, with 3 recoveries; while in 3 the intraperitoneal was used, once from necessity (Case iii), and twice from choice, with one recovery only (xiii). In all the cases I have as far as possible taken note of the condition of the patient at the time of operation, and more especially as to whether there had been previous obstetrical interference or not; in other words, whether the operation was selective or complete. In only 3 cases (Spencer Wells, Klotz, and Schröder) was the condition of the woman favourable; 2 of these recovered, and the third committed suicide while doing well after secondary laparotomy for intestinal obstruction. By Müller-Rein modification is meant the eventration of the whole mass before incision into the uterus. As far as my tables show, no increase of foetal mortality was the result of the procedure. In the remaining 10 cases the woman's condition was more or less unfavourable, the patient being much exhausted by prolonged labour or repeated but futile attempts at delivery by vagina. I think nothing shows more decidedly the value of this operation being performed as a selective one. From the tables given it will be seen how extremely high the mortality is in these cases, but it is characteristic of fibromyomata to resent any interference.

¹¹ *Amer. Journ. Obstet.*, 1881, vol. xiv, p. 596.

¹² *Annales de Gynécologie*, 1884.

¹³ *Der Kaiserschnitt bei Uterus-Fibromen*. Leipzig, 1882.

¹⁴ *Amer. Gynecological Trans.*, 1886, vol. xi, p. 436.

¹⁵ *Observations on the Cæsarean Section, Craniotomy, etc.* 1880.

⁸ *Obstetrical Transactions*, vol. xix, 1877, p. 111; and vol. xxiii, 1881, p. 27.

⁹ *Obstet. Trans.*, 1871, vol. xii, p. 273.

¹⁰ *Zeitschrift für Geburt. und Gynäk.*, 1883, Bd. ix, p. 302.

On reviewing Lefour's cases we find that, of 66 which terminated unassisted, 32 ended fatally, or a mortality of 48.4 per cent. Of 35 cases of version, 21 died, or 60 per cent.; while the percentage mortality attached to forceps and embryotomy is 25.9 and 55.6 respectively. Foetal mortality is also particularly high, being 77.7 per cent. in version. These figures amply prove the fact that fibromyomata are a most dangerous complication of pregnancy and labour, whether operative treatment be adopted or not.

I have dwelt somewhat at length upon myotomy, Cæsarean section, the Porro-Cæsarean operation, and Müller's ablation, because they are, comparatively speaking, modern improvements, and it is in the perfection of them, I think, that our great prospect lies of reducing the hideous mortality which I have shown exists in cases where they are rendered necessary.

ERRATUM.—In Mr. Hurry Fenwick's paper on "The Value of Inspecting the Orifices of the Uterus by Electric Light, etc.," in the second sentence of the first paragraph (line 5), for "it" read "method."

TOXICOLOGICAL MEMORANDA.

ATTEMPTED SUICIDE BY SWALLOWING CARBOLIC ACID: RECOVERY.

E. W., female, aged 20, on the morning of May 12th, 1888, purchased a ten-ounce bottle of carbolic acid from a neighbouring chemist, and drank three ounces of it. Three-quarters of an hour after she had taken it I found her lying on the floor in great agony. Not having my stomach-pump with me, I gave her a hypodermic injection of one-tenth of a grain of apomorphine, and administered olive oil and lime water freely. This was followed almost immediately by copious vomiting. At the expiration of half an hour I gave another injection of one-twentieth of a grain of apomorphine, and continued to give small quantities of lime water. Shortly after she became insensible, and remained in a comatose state for eight hours. When consciousness returned I had her removed to hospital, from which she was discharged on May 19th.

R. H. A. HUNTER, M.R.C.S., etc.
Clifton House, Battersea Park, S.W.

CLINICAL MEMORANDA.

A CASE OF PERNICIOUS ANÆMIA TREATED BY REPEATED TRANSFUSION.

G. P., aged 58, came under care on July 23rd, suffering from intense anæmia; he was very thin, with an anxious careworn expression. The skin was uniformly of a tawny colour, without any intensification in any locality, the mucous membranes were free from pigmentation, the sclera was pearly white, the ears thin, pointed, white, almost transparent. There was no splenic, hepatic, or glandular enlargement; no pulmonary disease. A hæmic murmur was marked over the aortic and pulmonary orifices; the cardiac impulse was very feeble; there was no anasarca or chubbing of fingers or toes. Urine, specific gravity, 1010; no albumen. Microscopical examination of blood showed twenty or thirty white corpuscles in one-fifth field; one or two nucleated red ones. Retina almost white; here and there some yellowish spots; on right one or two linear extravasations of a recent date in the vicinity of the macula (the sight of this eye had been impaired for some time); over both retinæ there were some small extravasations in various stages of absorption. History: A butcher—an enormous worker—reducing sleep to meet his business requirements, eating largely, and abusing the use of stimulants; had never lived in a malarious district, and had not suffered from syphilis.

REMARKS.—This was considered to be a case of pernicious anæmia or Addison's disease. He was treated by a continual recumbent position because of his dyspnoea. Iron and arsenic in effervescent form were given for some months. Peptonised fluid aliment and brandy were given with strict regularity. At one time more than four quarts of peptonised milk were consumed in twenty-four hours. After a few months it was apparent that the treatment was of no avail, so I resolved to transfuse as often as it might be necessary. Mr. G. S. Watson kindly gave me his assistance, and on December 12th I injected about ten ounces of blood into his left median basilic by Aveling's apparatus, from a healthy strapping lad—his nephew. The immediate effect was brilliant; a slight colour came into his cheeks and ears, and he expressed

himself as "expanded" by the dose. For a few hours he breathed 30 per minute. Temperature rose to 103 about six hours afterwards, but no pulmonary trouble appeared, and the next day he was quite brisk. The improvement gradually waned, and by the 16th the operation was again necessary. The left arm could not again be utilized, because the use he had made of the veins had completely obliterated all the large ones on the surface, so the right median basilic was chosen, and ten ounces injected with the same train of symptoms as before. On the 22nd, the right median cephalic was used, and ten ounces injected. This last injection completely occluded the surface veins of the right arm, so that when on the 30th the transfusion was again necessary, the left external saphena was chosen, and ten ounces used. This was the last that was done, for, on January 11th, the attempt to open the lumen of veins in either leg was impossible from their extreme tenuity.

He lingered a few days and then sank, without any evidence of organic disease save pulmonary hypostasis. His existence simply abandoned him. No *post-mortem* was permitted.

Tunbridge Wells.

CLELAND LAMMIMAN, F.R.C.S.

SURGICAL MEMORANDA.

GUNSHOT WOUND OF THE FACE.

W. L., when leading a horse and cart along the road, heard two shots in quick succession; the second struck him in the face. When he applied, his right cheek and lower lip were swollen. There was a roundish wound, with scooped-out and rather lacerated edges, large enough to admit a finger, to the right of the middle line and just below the lower half of the orbicularis; also a small wound on the cheek, which might have been made by a single pellet of shot. The right canine and central incisor, with their sockets, were gone; the intervening tooth, with its socket, was still held by the periosteum and gums of the inner aspect of the maxilla. The gums on the outer surface were lacerated and separated from the bone, which was roughened and scored, down to its lower border. No shot could be felt—only some bone-grit. The jaw was broken, but the structures on its inner aspect were uninjured. Some days afterwards there was a sinus from the wound on the cheek to that over the chin, and a cavity formed below the chin on the right side. Here the probe detected some hard substance, which, after the sinus had been slit for some part of its length, was grasped by forceps, but crumbled under its grip. Withdrawal of the forceps was accompanied by a shower of shot falling to the floor. The blades held a lump of four pellets firmly stuck together, and much of what was then and subsequently removed consisted of pellets in twos and threes. The amount of shot recovered was one-third of an ounce. Recovery was rapid. The shot was fired from the raised bank of the Trent across a field, the distance to the road being 133 yards. It was fired at and killed a pheasant. The shooter saw the cart, but said it was out of the line of fire. He was not seen by the wounded man till after the accident, but a lad leading another cart behind saw the shot fired.

The points worthy of notice are: 1, the distance—133 yards; 2, the amount of shot recovered—one-third of an ounce; 3, the statement that the man was out of the line of fire. In regard to point 3, I have been told of two other cases of *stray* pellets hitting persons quite out of the line of fire. As to 2, the shot was carried in a lump, and this perhaps explains 1.

M. R. J. BEHRENDT, L.R.C.S. and P.E.D.

Burringham, Doncaster.

CASE OF FRACTURE OF THE BASE OF THE SKULL: PROLONGED INSENSIBILITY.

On December 30th, 1887, I was sent for early in the morning to see a gentleman who was thrown from his horse on the common. On reaching the spot I found Mr. F., aged 48, standing up talking incoherently, and not knowing of his accident; blood was flowing freely from his left ear, but there was no external wound. I got him home, and telegraphed for Mr. Edmund Owen. In the course of half an hour he vomited at least half a pint of blood; he was very excited, and at times violent. Mr. Owen confirmed my opinion that he had fracture of the base of the skull, applied blisters behind the ear, and gave calomel and bromide of potassium. At 8 p.m. he had an epileptic convulsion; evening temperature 101.2°. I passed the catheter, and emptied his bladder. The