

A CONTRIBUTION TO THE STUDY OF CHRONIC INTESTINAL
STASIS AND ITS SURGICAL TREATMENT SPECIALLY WHEN
ASSOCIATED WITH TYPHLATONY, & PERITYPHILITIS,

By

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Introduction.

The first part of this essay covers well known ground and one which perhaps has already been discussed "ad nauseam" by many writers. My only excuse for once more bringing forward the subject of Chronic Intestinal Stasis - is the necessity to come to some clear understanding as to what the disease really stands for - whether it is at times a surgical affection and if so, what are the best means at our disposal to relieve safely and rapidly the condition.

Whatever may be said to the contrary - Medical treatment is in a fair proportion of cases quite hopeless - Can surgery do more without creating an infirmity as great if not greater than the disease it professes to cure? The answer will be found in the following pages.

Once bereft of academic discussions on side issues, or technical points, the subject of chronic stasis is really quite simple and its surgical treatment when advisable is equally easily grasped.

One thing however appears necessary to make it fully clear and it is to drop the complicated terminology with which it is still at present sur-

rounded - Another is to understand that Chronic Intestinal Stasis does not necessarily mean Chronic Constipation - nor Constipation, Stasis. The mixing up of these two terms has at times considerably confused the issue at stake.

We are convinced once the general practitioner fully understands what are the ^{true} causes of Chronic Intestinal Stasis and the safe surgical measures proposed to cure the disease - he will more readily advise an operation which when every other form of treatment has failed - would in a large majority of cases considerably relieve if not always cure a distressing and sometimes a dangerous condition.

With the great progress now made in radioscopy and radiography specially when Barium injections with manipulations under the flubrescent screen are carried out by well trained X-ray operators - it is possible to form a correct and concrete idea whether an operation is necessary and if so, which is the best one to advise.

G. A. CASALIS de PURY

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CHRONIC APPENDICITIS AND THE MEGACOLON,

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PART I.

General Remarks.

The treatment of chronic intestinal stasis whether medical or surgical is yet highly unsatisfactory.

Medically speaking in spite of an overwhelming literature and still more weighty therapeutical armamentarium, we appear to be hardly more advanced than in the days of the "Malade Imaginaire" when Molière's satirical formula of "Purgare and Clysterium donare" held sway.

Certainly so far as modern therapeutics are concerned, the purgative pill, is yet much in evid-

dence. It governs youth and old age. Invades private and public life and even the sacred precincts of art itself. Yet never has it so signally failed to relieve much less to cure. The reason is not far to seek.

Chronic constipation a fact, so many are only too keen to forget, is not only a symptom, but also a disease.

The latter is a complicated condition, due to many a cause, of which the graver variety, that correctly described as giving rise to chronic stasis of the bowel, may always be traced to the occurrence of some mechanical obstruction ^{spasmodic or otherwise} preventing the proper egress outside the body of the products of digestion. For a mechanical cause a mechanical remedy, hence the inroad of surgery in a field medicine had up, to lately, considered to be her very own. Success has, certainly, to a fair extent, justified the use of the knife. Marvellous results have been published, so marvellous indeed, that many carried away by their enthusiasm spoke of rejuvenation and of eternal youth! But as the French say "Nous avons du déchanter". The days of miracles are not yet! At present there is clearly a set back. Surgery is at a discount. To not a few the short

circuiting operations proposed are as anathema! It is claimed ~~that~~ they leave the patient in a worse condition to what he was before. Assertions are freely made that if chronic constipation is an infirmity, doubtless at times a serious one, it rarely kills. Hence the inadvisability to run risks, which are so very often unjustified by results.

The fact must be admitted, that of late years, intestinal surgery appears to have somewhat run amock. Indeed there has been a good deal of haphazard experimenting, and very much as in the days when uterine fixations were to the fore, we see revived all manner of surgical procedures, as ill advised as they are unsound.

Thus one hears of cæco-fixations, of colopexies, of transversotomies, of partial colectomies and last but not least of total colectomies performed certainly on the continent, by some of the younger school of surgeons with a levity to our mind quite out of proportion to the gravity of the subject.

In reviewing the latter, let us at the very outset be candid and confess our sins. Many a patient has certainly been shortcircuited, or operated upon by some other method who should not have been so. The alpha and omega of the successful

treatment of chronic intestinal stasis is centred on two words "proper drainage". Any operation which does not attain this aim is a failure however brilliantly conceived.

That adequate bowel drainage is little understood by all, is evidenced by the colopexies mentioned above, where the big bowel festooned like a garland is fixed to the sides or the upper part of the abdomen, in the vain hope that it may thus remain in situ: as if such an extensible, dilatable and frail organ as the transverse colon specially when degenerated and attenuated as is so often the case in the class of patients suffering from enteroptosis, could thus be hung up in an unnatural position and be expected to empty itself properly?

It has probably never dawned on the minds of these operators "à outrance" that the very nature the very essence of bowel activity is its "mobility" and that its fixation at any given point of its course defeats the very aim looked for.

Of course, what always looms large in the eyes of certain surgeons and radiographists as well is the "ptosis". Because the colon is detected below the umbilicus, at times resting coiled up and inoffensive on the dome of the bladder, it must of

necessity be hooked up to the height of the ensiform cartilage. So were the wombs of women stitched up to all manner of structures, until we discovered a little late in the day, that many of them went about with their uteri upside down and yet gave no pain, unless they became either congested or inflamed. In a like manner it matters little, where the big bowel finds itself neither the stomach for that part of the matter, both may be found at the pelvic brim, or in the case of the former as low down as Douglas pouch, yet there is no stasis. * Symptomatically, *xVid. radiographs. H 10-12-14-15.* speaking Enteroptosis means nothing as long as the function of the intestinal outlet is fully preserved

In fact we have come to the conclusion after examining under the screen, a very large number of cases most of them young soldiers in active service, that the transverse colon is often as not found in the erect position below the umbilicus, and is more particularly so when empty, i.e. when peristaltism is at its lowest. So is the larger curvature of the stomach, found in not an inconsiderable number of cases within a couple of inches of the true pelvic inlet. The level of these organs strictly depends on the contraction or the relaxation of their walls, the posture of the patient and above

all the tonicity of their intra-abdominal supports.

When therefore stasis sets in, it is because something has happened which has altered the natural relationship of one segment of the bowel to another. Something has in fact impaired the mobility of one portion, however small, of the intestinal canal. That something is an obstruction, partial most of the times, complete at rare intervals, but always due to some mechanical cause.

The problem being thus stated, it would appear that the easiest course to effect a cure, is to find the obstruction and remove it. Unfortunately it is more easily said than done. Not that the seat of the trouble, or to use the consecrated term, the kink is difficult to find? Thanks to the assistance and the illuminating effects of radioscopies, it is now easily detected, but because "the nature of the obstructions are varied and complicated and the causes that have led to their production are equally difficult to define and their origin still more difficult to trace."

I am aware I am now treading upon debatable ground, nor do I intend to discuss at length how it comes about, that when opening the abdomen, we find

outside of inflammatory deposits

the bowels fixed at some given points to the general abdominal wall and others not. The fact remains that such fixations do exist, that they appear permanent and some of them certainly are of an evolutionary nature.

Sir A. Lane's pioneer work has in his line done much to explain matters. Whether his anchoring bands always play the leading rôle in favouring the production later on in life of the kinks, he has so ably described, or whether they do not, is another question. Personally I agree with him they do.

(1) Lane's contention that his anchoring bands evolved out of man's newly acquired attitude from that of a pronate to an erect animal in order to meet the general tendency to ptosis of his internal abdominal organs is certainly based upon biological factors, the most important being as, he pointed out himself, not so much the changed attitude of the "Pithecoïd erectus" as his altered intra-abdominal pressure. The latter as is well known, is a conservative force as long as it acts within a self-contained, perfectly tight and resilient cavity and is held in check and equalised by the resistance of a firm muscular, connective tissue,

and aponeurotic parietal wall. But should, for one reason or another, the tonicity of the abdominal wall lose its firmness should it give way in any particular spot and by bulging outwards lead to the formation of a hernia or to what is called a pendulous abdomen, then at once the evenly balanced condition of the intra-abdominal force becomes destructive. Being unopposed in a given direction, it centralizes its whole energy on the weak spot and by so doing naturally forces by gravitation all the other organs in the abdomen to descend. The latter instead of being both suspended and supported structures, only retain the first qualification and their greatest support having disappeared they naturally become a victim to all the deleterious forces of descent that may be brought against them.

It is to meet this contingency that nature develops supernumerary fibrous attachments, at some fixed spot to retain the intestinal mass in position, the most marked being those found along the whole course of the large bowel. That this is a physiological, *as well as a pathological* fact is well known. Surgeons are fully aware that it is in the nature of the peritoneum to produce adhesions or anchoring bands wherever an organ or some new growth becomes within the

peritoneal cavity by its inordinate laxity or again by its disorderly movements an object of danger to its host or its immediate neighbours.

Thus it is that we find large intra-peritoneal fibroids with an excessive range of action, covered up by lamellar bands, at times limiting their movements, at others only smoothing their roughened surfaces. Thus it is also, that dilated, prolapsed, and bulbous cæcums may be found specially at their superior outlet surrounded by a mass of adhesions which binds them firmly to the lateral abdominal wall or to the under surface of the liver. Nature uses for this purpose whatever material she finds readily accessible. It may be entirely manufactured anew, or it may be a simple re-inforcement of structures already existing, such as for example when Jackson's veil certainly a vestigial structure becomes thickened and adherent and limits thus further within its reticulated meshes, the movements of the prolapsed and dilated bowel.

But this very re-inforcement of newly evolved or pre-existing structures carries with it consequences which may, in the long run, defeat the very object, nature at first intended to achieve.

By fixing the bowel to any given surface, whether small or large, it is by the very fact of its fixation, limited in its movements. Should the anchoring bands, for more reasons than one, enclose a yet larger surface of the bowel circumference, should they reduce further by contraction, spasmodic or otherwise, its lumen, a condition very near obstruction, is at once induced, at any rate a temporary paresis of the proximal and distal portions of this adherent intestinal segment takes place.

Now paresis of any portion of the digestive canal always means arrest of peristaltism, congestion, inflammation and later obstruction. With inflammation intervening, more adhesive bands, or adventitious fibres are produced because the latter are not only props to falling or wandering organs, but they are also in the case of inflamed or other infected cavities (pyosalpinxes-acute appendix) a defensive wall which prevents the egress outside of the enemy inside. They are a bar to microbic infection.

They are therefore nowhere so well marked as where some such infection is to be feared. In old pyosalpinxes they may be seen as a solid matting almost inches thick surrounding a small or a large

abscess cavity as the case may be. On the intestinal canal they are found more marked just at those spots indicated by Lane as being the point of election of his anchoring bands. They are from above downwards easily demonstrated, 1. at the pyloro-duodenal flexure, 2. at the height of the ilio-cæcal valve and round about the cæcum, 3. at the hepatic and splenic flexures and last but not least 4. at the sigmoid loop.

The number and thickness of the adhesions found in these well defined areas vary. Generally speaking they may be said to occur in the inverse ratio of the degree of ptosis they have to counteract, or the virulence of the mass of infected material they have to control.

Some microbic invasions induce the peritoneum to throw out larger protective buttresses than others. Some on the contrary will lead to a hypertrophy of the intestinal wall and its dilatation, and may give rise to that curious and abnormal condition baptized in the adult "acquired mega-colon" a variety of Hirschsprung disease in childhood.

The flora of the big bowel is a complicated one; its study is still in infancy and our knowledge of its variety very limited. It would appear

however as if the ubiquitous streptococcus and its co-partner in nefarious deeds the coli bacilli were responsible for much of the pathological changes we see in this organ. Acute appendicitis is certainly in a fair number of cases a pure streptococcic infection. Chronic appendicitis, typhlitis and perityphlitis a combination of streptococci and colibacilli acting conjointly in symbiotic association or with other microbes.

In any case the lesions produced on the bowel and the nature of the adhesions vary according to the type of infection prevalent at the time. There is also some evidence to show that the latter may be cyclical, indeed is climacteric in the true sense of the word. Whatever the infection may be, it is always a mixed one and further never acts alone in producing the extraordinary variety of lesions discovered in chronic stasis all along the course of the bowel. Surgically speaking we shall always find that a big bowel which drains badly is prolapsed, unless it is extensively adherent somewhere. It is dilated, bulbous at times or inordinately mobile. It may be hypertrophied, covered with large velamentous adhesions, or may be formed of a series of diverticuli which communicate with

each other through a narrow neck. So narrow indeed may it be that the least hardening of the faeces would appear sufficient to lead to its occlusion. Always however we shall find this extraordinary combination of intestinal ptosis and inflammatory deposits firmly adherent somewhere along its course to the general frame work of the abdominal cavity. It matters not whether the anchoring bands which thus bind the bowels are purely of an evolutionary nature are inflammatory or of mixed origin. Such as they are, as we shall see later, they are par excellence the immediate cause of chronic intestinal stasis. They overshadow by their presence the whole subject, they mar with a persistence at times appalling all attempts to relieve ineffective bowel drainage. They are hidden rocks upon which are wrecked many a well-devised and properly carried out operation.

They should always be reckoned with and no man who dealing with an opened abdomen for this specified purpose does not keep foremost in his mind, the contingency of their presence and possible recurrence is worth the trust placed in him.

PART II.General Pathology of the Large Bowel
in Chronic Stasis.

It is perhaps advisable in order to fully understand later the surgical methods advocated to cure chronic intestinal stasis, that we should now throw a cursory glance at some of the changes brought about by chronic constipation and the diseases from which it arises. Among these the condition known as "ptosis" covers a multitude of sins. It is possibly responsible for many more; for if ptosis, so far as chronic intestinal stasis is concerned, is the beginning of all things, it is also the end of all things. It is a vicious circle from which there appears to be no escape.

Whatever may be originally the causes of ptosis, and there are many, the first to feel the depressing influence in the abdomen is the "transverse colon". Its descent as soon as the intra-abdominal force mentioned elsewhere enters into play is constant and it soon reaches the pelvic brim. Ptosis of the transverse would not, we have

said, by itself, be conducive to stasis, did it not at the same time lead at the hepatic and splenic flexures to a tightening or contraction of the fibrous bands which binds the bowel below the costal edges. Kinking of the colon almost becomes a certainty as soon as the cæcum and sigmoid following suit find themselves after tugging away at their meso-colons also within the pelvic cavity. But the more these organs become prolapsed the more they drag on their costal attachments, the more the latter resists, so much so, that while in the later stages of the disease, we may find the elements forming the large intestine completely disorganised and figuratively speaking lying hopelessly entangled on the pelvic floor, the original anchoring bands *would* appear on the contrary to have grown thicker and wider. From a slender triangular insertion limited to a circumscribed portion of the ascending and descending colon, they invade its whole circumference. Spreading themselves, they descend along the bowel surface and specially on the right side of the body, they indissolubly bind it to the adjacent structures and in so doing they reduce, constrict and partially occlude its lumen.

To the contrast existing between the prolapsed and degenerated aspect of the large intestine

on one side and the marked firmness and resiliency of its superior attachments on the other may be ascribed the "fons et origo mali" of the whole of the complicated pathology of chronic intestinal stasis. The manner in which each portion of the affected colon reacts to this new form of strangulation depends on the intensity of the process and the special type of microbic invasion it is attacked by subsequently.

CÆCUM.

In the cæcum dilatation is the rule. The organ may become so enormous as to fill almost by itself the whole pelvis. It may be so inflated that it breaks out into large phlyctenular bulbæ of a reddish-bluish colour, circumscribed only at intervals by the longitudinal fibrous bands which run along its surface from below upwards. The dilatation favours still further the prolapse, which extending upwards finally affect the ascending colon, until the latter descending in its turn and becoming redundant falls in accordion pleated-like folds in front of its former associate. The descent often affects the hepatic flexure, ~~nor~~ on the contrary ^{it} may remain firmly anchored in situ. When it does, not the whole right side of the big bowel, may become prolapsed. This is a particularly serious form of

ptosis which does not take place unless the mesocolons attaching the organ to the side of the abdomen becomes inordinately loose and elongated. There is then little evidence of inflammatory deposits, either round about the cæcal head, the appendix, the ileo-cæcal glands and specially at the hepatic flexure. In such cases the pathological element dominating the scene is the ptosis. If kinks exist they may be found further afield at the splenic flexure, which on the contrary rarely if ever becomes deflected downwards or at the sigmoid and elsewhere.

This undue mobility of the cæcum and its dilatation were long considered by the Germans as the principal causes of intestinal stasis. They had failed to see what Lane so ably proved beyond doubt, that both the mobility, the dilatation and the paresis which follows quickly afterwards when infection enters into play, were only secondary results to the strangulation of the bowel at its superior outlet. Ptosis of the cæcal head does not however only affect the ascending colon, it also retaliates in a specially serious manner on the ileum which finds its outlet depressed and deflected downwards. The small bowel held in position by a firm and often unusually short mesentery fails to

give way and a kink is formed here within an inch or two of the ileo-cæcal valve, giving rise to the well known form of ileal stasis described by Sir A. Lane. This form of stasis may exist to the exclusion of any other in the big bowel, although in our experience we have always found it concomitant, and indeed always the result of cæcal ptosis, ^{or appendicular adhesions.} That it is a peculiarly serious form of obstruction is evidenced by the severity of symptoms which it calls forth, among which duodenal and gastric ulcerations are the most to be feared.

Ptosis and dilatation of the cæcum, now synonymous terms, have yet other consequences. It must be remembered that this organ is so to speak a secondary gastric pouch which receives in its still liquid form the products of digestion. This is a point often too little considered by surgeons who favour to the exclusion of any other method partial or total colectomy. In the cæcum the food is further saturated and permeated by digestive fluids. During the digestive act it is animated by peristaltic and antiperistaltic waves and its contents are consequently thoroughly kneaded together. A good deal of fluid absorption already takes place here and if the cæcum be healthy and

has sound muscular walls the food now practically solid should be rapidly pushed on to the hepatic bend and from there gain the transverse. In its dilated and paretic condition just the reverse is observed. First very little liquid absorption takes place, the glandular elements of the bowel having lost much of their activity and being replaced by bulbous almost transparent fibrous dilatations. Secondly, owing to paresis, the fluid contents of the sack sink to its lowest portion, where they stagnate a prey to all sorts of infections. The contents of the right side of the bowel should of course be aseptic as experiments have shown that the food on its exit from the ileum is almost always so, but causes of contamination are numerous and none are more frequent than those derived from the close contact of the cæcum with the sigmoid and transverse, both of them not infrequently supplied with an active intestinal flora only too ready to multiply in the admirable incubating chamber now provided for them by a dilated and prolapsed cæcal cavity. That such an infection is constant that it is the cause not only of the super-added and subsequent formation of secondary adhesions, either binding the cæcum in its new and

unfavourable position but affecting also the appendix and leading to all the acute and chronic inflammatory attacks this organ is specially liable to, owing to its position and anatomical structure, is only too patent. The infection however rarely remains restricted. Extending upwards it affects in turn the ascending colon, the hepatic flexure, and the under surface of the liver. It may pass on to the duodenal loop and become one of the most potent causes of duodenal and gastric ulceration as well as of cholelithiasis in all its varied forms.

The protracted retention therefore of a highly explosive mixture of undue fluidity within a partially occluded sack, dilated, paretic with degenerated muscular and mucous walls incapable of further neutralising digestive fluids, much less of excluding extraneous microbic invasion, is the cause above all others of the toxæmia which makes of this disease such a serious affection.

We emphasize the point. Whatever the views held as to the occurrence of other kinks in the body, the first and foremost is the one formed at the hepatic flexure. The rest including the ilio-cæcal or Lane's original kink are in our opinion secondary.

That this is so, is evidenced, by the different types of inflammations which have always been more prevalent on the right side than on the left. Without speaking of the time honoured pathological entities known as typhlitis and perityphlitis, we have the newer ones of "membranous-colitis" of "peri-colitis" of "entero-colitis" and of appendicitis. Except for acute appendicitis, which we have already noted, may exist as a special infection of its own, just as acute tonsillitis may do, with which indeed it is closely allied, and at times combined, the rest belong to the same morbid family, and indeed are synonymous terms. Whether the original process of inflammation started within the cæcum itself as an auto-infection, or whether it has been carried by the blood stream, or again, is a direct infection of the upper bowel, such as arise from epidemic or tropical diseases the pathological process is ultimately always the same and ends after the more acute forms of the infection has subsided into the formation of adherences distributed all over the bowel but more specially localised at the hepatic flexure. We have had during this war occasion to examine and operate upon a large number of soldiers returning from the Salonica front and who

after suffering from different types of entero-colitis had marked symptoms of chronic intestinal stasis. All of them presented different forms of caecal inflammation but in every case operated upon, the inflammatory process was more prevalent and more marked at the hepatic bend. Nowhere were the adhesions so vascular and as well organised.

ADHESIONS. Much has already been written as to the nature of these adhesions and many are the discussions that have been held as to the possibility of differentiating between what may have been at first Lane's acquired ligament and what becomes later an inflammatory one. It is practically impossible to do so, nor does it matter. The same may be said of the structure known as Jackson's veil. French writers have conclusively proved that this is a vestigial extension of the parietal peritoneum, which may exist in a more or less definite form, as a fine reticulated net spread over the upper part of the ascending and transverse colons but descends at times as far down as the "caecum" proper.

This diaphanous and glistening membrane, may be untouched by the typhlitis and perityphlitis which follow the incursion of the infective agent from the mucous to the serous surfaces. But it is

almost always in the long run also affected. It then becomes adherent and organised and can be but with difficulty differentiated from ordinary adhesions.

The same may be said of a special type of adhesions existing between the ascending and horizontal portion of the big bowel agglutinating them together as the two barrels of a gun and rendering the angulation at the hepatic bend more acute and permanent.

The French have honoured these adhesions by a special name "le ligament de Buy". Being an adhesive ligament like the rest occurring in these regions it hardly seems to deserve a special nomenclature.

A question of more importance is whether such adhesions produce actual obstruction to the chyme progress or whether they do not?

That they flatten the intestinal walls, thereby considerably restricting its lumen and at times leading to the formation of fairly acute bends or kinks, there is plenty of evidence. But that they actually so narrow it as to prevent any further

egress of the digestive fluids beyond the constricted segment is a matter of discussion.

We have been at some pains in our operations to arrive at some definite conclusion on this point. Although we have had to liberate, specially at the hepatic flexure, extensively adherent colons and although such adherences appeared organised and indeed firmly agglutinated together the bowel and the adjacent structures within its vicinity, at times making its liberation a matter of some anxiety - yet we have never found the bowel permanently constricted at any portion of its course, nor have we discovered within the area of adhesions any apparent loss of continuity, or special hypertrophy of its musculature. On the contrary, except on such occasions as the bowel itself was extensively degenerated and reduced in size and thickness, so much as to look beyond repair, as soon as its freedom was assured, it resumed its buoyant and natural condition, and apart, specially in the mega-colon - for its roughened serous surface and the signs of numerous tags still adherent to its coat was none the worse for its long imprisonment.

Again in performing Cæco-Sigmoidoscopy, we have in such cases as appeared under the fluorescent

screen to show evidences of iliac stasis, once the cæcum had been incised as a preliminary measure to its anastomosis to the sigmoid, passed our gloved finger in its cavity and pushed our way right through the ileo-cæcal sphincter up and well within the terminal portion of the ileum. Here again we never detected any thickening, or in spite of manifest adhesions present, actual narrowing of the ileo-cæcal aperture, either by spurs, or anything approaching a fibrous ring - On the contrary the bowel, here as elsewhere, remained flexible, extensible and except for a limitation in its movements - was normal in every way. Only once did we see its walls hypertrophied and dilated - but on this occasion the cæcum and ascending colon shared in the same process.

We have perforce therefore to agree with those surgeons who assert that there is no actual stenosis but only, as satisfactorily proved, by

- (2) Professor Keith, a neuro-muscular spasm of the circular muscle fibres of the intestine, produced by a mechanical or chemical irritation of Auerbach's plexus at the site of the contraction.

Such ileo-cæcal reflexes are frequently associated with an adherent appendix and may extend right up to the pylorus - In fact we fully endorse

- (3) Barclay of Manchester's statement that irregular spasmodic contractions of the ileo-cæcal region are here of more moment - than the actual disease of the appendix itself - hence the importance in this region to "search out and divide any small adhesions there may be, no matter how insignificant they may appear."

We have been lucky enough not only to watch under the fluorescent screen the formation of such a nodular contraction but actually to handle one on the operating table - In this last instance, the man, an alcoholic private, took the anæsthetic badly - While attempting to liberate the caput cæci, he was seized with an attack of reflex vomiting and we then witnessed the sudden formation at the terminal portion of the ileum, of a rounded swelling - The bowel appeared to shorten itself in its length, and to round itself, so to speak, into a circular node, the size of a tangerine orange. The process was evanescent, but had given us time to distinctly palpate a marked constriction and muscular swelling of the whole of the ileo-cæcal region.

Whether this hypertonicity of the terminal part of the ileum, or any other part of the large bowel, as opposed to its atony, be the real cause

of intestinal stasis, as Professor Keith would like us to believe - is another matter. We are rather inclined to the opinion, that the disordered motility of the bowel, no matter where it takes place, is as much correlated to the hyperplasia of its musculature as it is to its atony. The two processes dovetail - and insensibly pass into one another.

Spasmodic contractions, provided they be repeated frequently enough produce exactly the same effect as a partial fibrous occlusion. We are not certain that the results are really not worse as the element of congestion is generally more marked in active muscular spasm than in the presence of a mere fibrous ring. Thus, for instance, if the cæcum never empties itself properly owing to focal regurgitation in its cavity - through repeated spasmodic closure of its outlet - the effect of the backward pressure on its walls would be exactly the same, as if adhesions did partially close its outlet. Arrest of peristalsism followed by paresis, congestion, dilatation and late inflammation would inevitably follow - and the more the irritation of Auerbach's plexus, or its poisoning would tetanise the bowel musculature, the more should we witness the varied and complicated changes observed in intestinal stasis.

The subject bristles with difficulties, but in our opinion, it mainly does so because so little attention has hereto been drawn to the physiological fact that the essential element to intestinal activity - is its mobility.

Motion, constant motion whether visible only at times in the form of large ^{peristaltic} peristaltic or anti-waves, or invisible, in the shape of fine fibrillar contractions of the closely connected circular muscular fibres of the intestine has to take place in order that it should live and perform its functions normally. Stop this motion anywhere - impair the muscular action by nervous reflexes, due to adhesions or poisonous substances circulating in the blood or within the bowel itself and at once this highly sensitive and delicately equipoised sewage system, becomes thrown out of gear - stoppages take place here and there, mostly at such places as septic tanks are provided for the reception of the liquid faeces. Kinks and bulging occur at dangerous corners, in fact the whole motor mechanism of the system is at breaking point. That it is an admirable one, and not merely a vestigial organ as some would like us to believe - there is no doubt - but that ^{it} is also a complicated mechanism and obeys

to mechanical principles and in some of its disorders can only be relieved by mechanical measures is equally clear to our mind.

The inherent tendency to disorder of the action of the colic musculature when impaired by adhesions is admirably illustrated in the manner haustral segmentation of the faeces and their passage "en masse" from one end of the large bowel to the other - takes place in chronic constipation -

(4) Barclay of Manchester is the first/^{British} author who I believe has drawn attention to the fact that in order that this "movement en masse" should occur "a point d'appui" is necessary. By the "point d'appui" he means the formation of a temporary sphincter or contraction of the intestinal musculature, from which the effectiveness of the mass movement can start.

In his observations - the point d'appui - was near the hepatic flexure, and was formed probably after palpation of the caecum in the exploration of the appendicular region. In Barclay's opinion - the formation of a "point d'appui" is necessary in order that the mass movement should take place - or "catch on" - when the caecum contracting pushes forward its contents toward the hepatic bend. To use

his own words "It is too early to make a definite statement, but I am more and more convinced that the keystone to the efficiency of this movement of the large intestine lies in the competence of the "point d'appui" and that it is on the competence of this temporary sphincter that the natural action of the bowels depends.

Inversely, the failure or incompetency of this valve is responsible for the constipation i.e. the ineffectiveness of the "mass movement" when it takes place - For if there is no point d'appui the faeces regurgitate in the caecum possibly giving rise to the sloppy caeca that we recognise and think of as the cause of constipation - not only so, but in time one would expect this to lead to inefficiency of the ileo-caecal valve. Moreover, if the "mass" movement is not effective, there is nothing except the comparatively feeble movement of the caecum to propel the food through the large intestine and when the movements take place, they propel the faeces in both directions, i.e. the mass in the caecum has to act as an inefficient "point d'appui". We subscribe entirely to this statement - Mass movement ^{generally} we feel certain/only takes place from the hepatic bend downwards, and it can only do so, provided the

peristaltic action started from the cæcum. becomes synchronous with the movement initiated at the hepatic bend. We do not know, whether a sphincter is necessary here for the movement to catch on - i.e. a special contraction, which would be sufficiently distinct by itself, to enable one to speak of it as "a point d'appui" - nevertheless - the idea that the cæcum has a separate mechanism or peristaltism for mixing the contents of the bowel and feeding them into the ascending colon, preparatory to the occurrence of the "mass movement" is in our opinion correct. Thus one has seen as we have repeatedly done at operations and under the screen peristaltic waves running from the cæcum onwards to the hepatic bend. We have seen others starting from the initial portion of the transverse to the rest of the big bowel, but we have never witnessed, at least in adherent colons, the movement transmitted from cæcum to sigmoid. It is therefore possible that a nodal muscular point is present at the hepatic flexure and that it is at this special junction of the large bowel, that haustral segmentation can only be initiated and transmitted "en masse" along its course - If so - then the remarkable influence brought about by adhesions on the mobility and motility of the hepatic

segment become of paramount importance. It becomes evident in order that the feeding process of the ascending bowel - into the transverse and descending should take place - the way must be clear, there must not be any narrowing of the intestinal lumen - but above all there must be synchronicity in muscular contraction. If there should be a break, or an irregularity in the neuro-muscular rhythm - the mechanism at once becomes defective and the process of defæcation is either retarded or completely arrested. That adhesions do produce this disordered cæco-colonic reflex cannot be doubted.

In "Chronic stasis" we have stated the delay is nearly always in the cæcum and ascending colon - this part of the large bowel forms the big cesspool, or catchment area of the human sewage system, and unless it becomes emptied regularly and its outlet works readily and effectively - all the rest of the mechanism - whether it be "mass movement" or defæcation proper goes out of gear. Colons may be of the hypertonic or atonic type - may be prolapsed - or on the contrary hung up high in the abdomen - they may be twisted in all manner of shapes, or even extensively adherent - symptomatically speaking

nothing will matter - if the cæcum and ascending colon have an efficient outlet.- but let the reverse take place and at once a complexity of pathological problems arises which shows how subservient the whole digestive process is to the motility and mobility of this the second gastric pouch in man's economy.

TRANSVERSE COLON. The condition of the transverse colon is as already stated, Being extensively prolapsed and elongated it rapidly assumes in advanced ptosis an anæmic and ill-nourished appearance. In very thin women, I have found it so attenuated that it looked like a particularly colourless tape on which had been threaded irregular and dirty-looking beads the size of walnuts or larger. These were the scybali so often found progressing in a desultory

fashion within the thin and degenerated walls of at one time a healthy organ. Scybali form of course when undue delay of food progression in the bowel leads to the absorption of all liquid portions of the excreta, leaving behind the mucus loaded concretæ characteristic of the disease. Scybali and diarrhœa are frequently associated symptoms, the one condition favouring the occurrence of the other.

Again the transverse ^{colon} may be enormously dilated and hypertrophied. This condition may prevail over the whole of the big bowel and when so there is no retardation in the passage of food, but on the contrary acceleration. At times the hypertrophy and dilatation affect only a portion of the big intestine, frequently the first portion only, and is continuous with a similar state observed on the cæcum and ascending colons. When it is so, an obstruction invariably exists at the splenic flexure or lower down, at the sigmoid loop. The "mega-colon" as it is called, is a pathological curiosity fairly frequent in its less pronounced form, but rare in the larger variety, which then, except in gravity recalls Hirschsprung disease in childhood. It is probably caused by a special microbic infection.

The kinks occurring either at the splenic flexure or at the sigmoid recall those already described at the cæcum and hepatic bend. The process is identical, except that here the adherences always look much older and have a tendency to become elongated. They then give rise to the different forms of "diverticuli" so ably described by Lane and American writers. Whether they are the result of the accumulation of hardened fæces, of stercorones as the French call them or not, it is difficult to state. Such as they are, they unquestionably intensify the chronic intestinal stasis, although owing to the not unfrequent aseptic condition of the hardened fæces generally devoid of active microbic life in their dry form, they are far from having the serious toxenic effects of the retention existing in the right side of the big bowel. In fact unless there be at the same time - cæcal retention - such a condition does not lead to intestinal stasis. Women have been known to carry huge accumulation of fæcal matter in their rectum and sigmoid without apparently being inconvenienced in any way and specially without showing signs of stercoræmia. The importance therefore which has been given to what is described as the "last kink" has possibly been over-estimated as a cause of true intestinal stasis.

PART III.The Surgical Treatment of Chronic Intestinal Stasis.

We have in the preceding part attempted to prove

1° That Intestinal Stasis in the right side of the bowel is perhaps the most frequent cause of Chronic Constipation - as it certainly is also, one of its most serious complications.

3° That Typhlatony or atonic dilatation of the cæcum whether primary - or whatever its origin, whether only a form of viscerop-tosis or the sequel to infective causes, invariably leads in the long run to an abnormal mobility of the organ - The cæcum mobile and its prolapse into the pelvic cavity favours in turn the descent of the ascending colon, which after dragging on its superior hepatic attachments becomes elongated and finally reaches the pelvic brim in redundant accordion-like folds.

Once thus dislocated the whole right side of the bowel may become inordinately distended and should its mesentery equally become relaxed will frequently undergo axial rotation from right to left - thus initiating the first movement towards the formation of a volvulus.

Such enormous diverticuli of the right colon

are however rare, generally the dilatation only affects the caecal head which frequently attains the size of a man's fist, and may be much larger.

3^o That whatever the nature of the caecal dilatation - this condition is invariably *intensified by* ~~the consequence of~~ the strangulation of the bowel at the hepatic flexure ~~on~~ by adventitious bands - ~~and~~ the result of recurring inflammatory attacks such as occur in the course of cholecystitis, with or without gall stones, of typhilitis and peri-typhilitis, of gastric and duodenal ulcers and last but not least of acute and chronic appendicitis.

That these are facts can easily be demonstrated in cases of non-acute appendisectomy - Should at such operations the surgeon instead of aiming at the removal of the appendix by the smallest incision possible take the trouble to inspect the upper part of the ascending colon - he will often find it covered by a fine net-work of chronically inflamed adhesions. These adhesions may, as we have said, be neo-formations of a purely inflammatory nature or are associated and blended together with the remains of the vestigial structure known as Jackson's membrane. In any case, however, they bind down the bowel to the postero-lateral sides of the abdomen and at times further agglutinate its

redundant folds together as low down as the caecal head proper - but nowhere are they so well marked than at the hepatic bend - Here they rapidly become organised and by their retraction may so restrict the lumen of the bowel as to frequently give rise to serious symptoms of chronic stasis.

The mere division of these adhesions has been unsatisfactory as they generally re-form again. As to the operations of cœcoplexy and coloplexy for cæcum mobile although they would appear to have proved of some use in well defined but generally mild cases of typhlatony - they leave these lesions untouched and have always seemed to us precarious measures to depend upon to hold in position such an over-extensible, dilatible and frail organ as the right side colon, specially when degenerated and attenuated or, on the contrary when extensively dilated and prolapsed as is so often the case in the class of patients suffering from enteroptosis. The same may be said of the simple removal of the appendix. This operation only deals with one complication of the disease and leaves the rest untouched - hence the large proportion of so-called chronic appendicular cases still showing a persistence of constipation and pain. Failure to deal

with so complicated a condition led to the appearance of short circuiting operations. Starting at first with ileo-sigmoidostomy, they have evolved from caeco-transversotomies to right side colectomies until they have culminated into the removal of the whole colon. No doubt colectomies are at times necessary - but it is equally certain that a large number of chronic constipation cases, specially when due to right side colonic stasis, may be effectually drained and cured without the destruction of so important a functional structure as the ileo-caecal sphincter or by the resection of a whole organ which however cumbersome and imperfect ^{it may be considered} ~~as~~ a drainage scheme is yet of some utility in the maintenance of the proper equilibrium of the intra-abdominal economy. We are satisfied after an experience now extending over some years that when the caecum and ascending colon are thus dilated - prolapsed and unduly mobile - they can be effectively reduced in size and made to resume their physiological function by the operation of Cæcorrhaphy - The latter consists in plating together, or invaginating into longitudinal folds - the bulbous - phlyctenular and overdistended organs, until they are not larger than the terminal portion of the

ileum. Previous to the invagination the whole colon from caecal head right up to well beyond the hepatic bend should be freed of adhesions and the appendix removed.

Cæcorrhaphy however should be strictly limited to cases of Typhlatoxy and where the symptoms of stasis are distinctly located to the right side - further the adhesions blocking the hepatic bend should not be extensive or too firmly organised. Should they prove to be so and the liberation of the bowel appear a hazardous experiment - specially should it become apparent that some other obstruction exists lower down - then to the cæcorrhaphy should be substituted a cæco-sigmoidostomy in our opinion the best operation for drainage of the big bowel.

Both operations are conservative - are devoid of undue risks to the patient's life and give permanent results.

Technic of Cæcorrhaphy. The abdomen is opened by the usual vertical incision for appendicitis - along the external border of the right rectus. At first only a few inches long it should be made to run up to the costal edge. It is advisable to have plenty of room - to see well - and to deal

with the bowel outside of the abdomen - Inspection of the latter will soon decide the next step.

Should the cæcum be adherent and with a chronically inflamed appendix - it should be decorticated from its recess in the usual way. The caput cæci being liberated - the same process is carried out all along the ascending colon - The adhesions are generally easily broken up with fingers - Should Jackson's membrane be present and adherent it can be severed with a knife or a blunt pair of scissors - The dissection should be specially thorough around the hepatic bend and the angle of the bowel well freed from adhesions right up and beyond the initial portion of the transverse. Should the latter present a normal appearance and specially should it not be hypertrophied and suggestive of the condition known on the continent as "megapachycolon" the invagination of the redundant colonic structures can be attempted - First the appendix is removed in the usual way.

In dilated cæcum we make it a practice to include in the purse-string suture closing up the cauterised section a good portion of the cæcal head - thus reducing already by a large invagination the dilated bowel.

The next step is important - A series of fine rat-toothed Kocher forceps (we have had some specially light ones made for this purpose) are then placed all along the internal longitudinal band of the ascending colon. A second lot are placed opposite on the middle band. The external one is left untouched. The surgeon then armed with an intestinal straight needle, threaded with a long coloured silk suture or linen thread starts from the caecal head and invaginates the portion of bowel situated between the internal and middle line of longitudinal fibres, uniting both by a firm continuous suture - The thread should be locked every 3-4 inches and the suture prolonged right up to the transverse and only stopped when the colon appears normal in size and devoid of adhesions.

When the plating is over the bowel should not be larger than the ileum - in fact if the work is well done, looks as if it was a prolongation of the small intestine and the right colon had been removed. Before closing the abdomen a careful examination of the ileo-caecal sphincter should be made and any kinks existing there treated accordingly - We have however never been able to satisfy ourselves that Lane's ileal anchoring bands were really

responsible for the symptoms of ileal stasis - We believe that such symptoms are usually produced by the prolapse of the caecal pouch in the pelvis which is not followed in turn by the terminal portion of the ileum, hence the formation of kinks, no doubt aggravated later by the fresh adhesions which such a condition always entails. Plating and invagination of the loose bowel - generally corrects this malformation without further ado. In one case although a Lane kink existed - we boldly left it alone and only attended to the prolapsed caecum - The result was as expected and the iliac stasis disappeared.

Cæcorrhaphy thus performed will also obviate the necessity of a cæcoplexy - Should however the meso-colon be unusually lax, we have on some occasions taken a reef on the overstretched peritoneal folds and added to the invagination a sort of cæco-suspension. This step we however consider as usually unnecessary as it is not obvious the mobility of the caecum is "per se" a pathological condition. The whole trouble in right side colonic stasis, as already stated, resides entirely in the imperfect drainage of an overdistended cavity supplied with an inefficient outlet. By reducing the size of

the caecal sac - in preventing by invagination of a large serous surface the re-occurrence of adhesions and by securing once more a free exit to the bent up intestinal contents - caecorrhaphy cures this form of chronic stasis and does so permanently. *Vide Radiograph No 111.*

Our operative list now exceeds 24 cases - Our immediate results have been excellent - and the distant ones as good - Thus we had lately occasion to re-examine under the screen six of our patients operated upon from 3-5 years ago - in each case the constipation and all symptoms of toxæmia had disappeared - There was neither dilatation, ptosis nor retardation of the passage of the barium meal from caecum to sigmoid - Most of the patients had gained weight, except one boy of 16 - who on the contrary being obese - apathetic and backward in his studies, had lost much superfluous fat but gained in intelligence and brightness so as to pass successfully his school examinations.

Caeco-Sigmoidostomy. When however the bowels are either too firmly adherent - are hypertrophied - too extensively prolapsed and degenerated - specially if a kink exist somewhere further down - then to the caecorrhaphy should be substituted a short-circuiting operation.

The question resolves simply itself into one of drainage.

How to properly drain the big bowel - ~~where~~ to drain and in so doing how to create a convenient and highly efficient short-circuit, giving permanent relief and with as little disturbance to the general equilibrium of the abdominal cavity should naturally be the aim of every operator.

That this can be done without resorting to the extreme measures still so largely advocated we now hope to demonstrate - First let us point out, that the surgery of chronic interstitial retentions is subject to the same physical and mechanical laws governing the presence of accumulated and nefarious collections anywhere in the body - Here the old Latin adage "ubi pus, ibi evacua" holds good - just as the surgical axiom "Drain in the most dependant part" equally applies. The largest and most infective quantity of retained secretions being in the cæcum and the latter - specially when prolapsed being further the most dependant part of the bowel system it follows - should the sigmoid loop - be similarly situated - as it frequently also is - that drainage to be efficient should be instituted at their junction - That such a junction does exist

Diagrams of
Short-circuiting
Operations

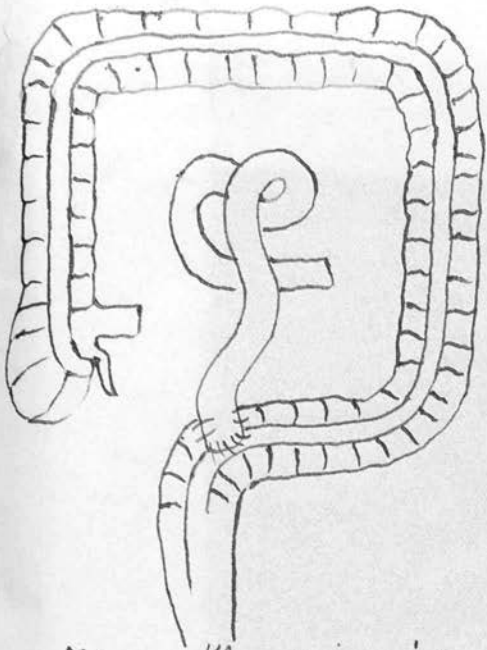


Fig 1 Ileo-sigmoidostomy

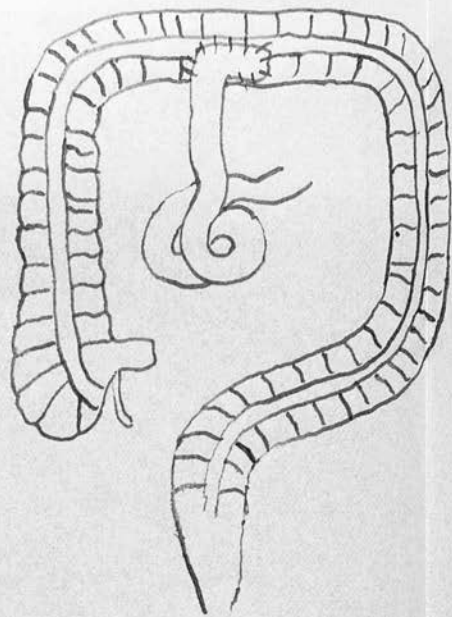


Fig 2 Ileo-transversostomy

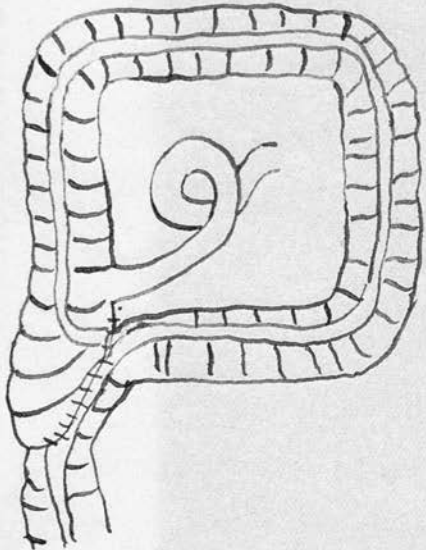


Fig 3

Ceco-sigmoidostomy
without resection of caecal head.

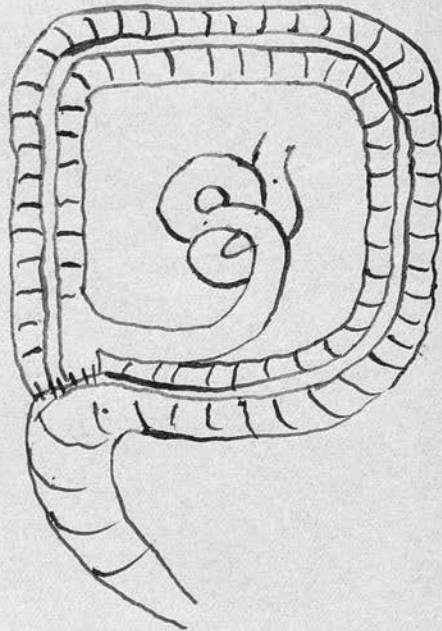


Fig 4

Ceco-sigmoidostomy
with resection of caecal head.

in the pelvic cavity can easily be demonstrated under the fluorescent screen.

If after the usual bismuth meal - a patient suffering from stasis be examined in the erect position 4-5 hours afterwards, the caecum will be in a large proportion of cases found prolapsed in the pelvic cavity - Its lower pole in any case is generally well within the pelvic brim.

Should then a bismuth or barium rectal in-⁺jection be administered at this time and the sigmoid examined in turn - both shadows will be found to coalesce. Should they not do so, they may be only separated by a narrow strip of clear outline, thus demonstrating the fact which indeed intestinal surgery is fully aware of, that in chronic stasis both organs are in frequent apposition or if not actually so, have such lax mesenteries that they can readily be brought in contact one with another by manipulation.

Now logic and common sense would indicate that this is the site of election for drainage - It unquestionably is so! The following diagrams show the difference between the operations of ileo-sigmoidostomy - of ileo-transversotomy - ~~of partial and total colectomy~~, of caeco-sigmoidostomy without resection of a portion of the caecal head, finally

+ In most radioscopic examinations of the large bowel the rectal injection replaces with advantage the Barium meal.

of cæco-sigmoidostomy as it should be performed to obtain perfect drainage. It will at once be patent to any unbiased observer that mechanically at least the advantages as a drainage scheme are all on the side of the last operation. Physiologically and surgically speaking it is equally superior to any other short circuiting device.

Unlike the ileo-sigmoidostomy, cæco-sigmoidostomy does not destroy those all important structures the ileo-cæcal valve and sphincter. It retains the cæcum, so important from a digestive point of view, without making ^{of} it a blind sac - the inevitable receptacle of regurgitating putrefying substances. It thus obviates the necessity of a second operation in order to relieve tension and evacuate the products of retained secretions.

Unlike transverse colectomy and right side colectomy which drain imperfectly because the new anastomosis is placed above the umbilicus instead of below it - it drains as well as a total colectomy without any of its dangers. In fact cæco-sigmoidostomy is indicated at least as a temporary and preliminary measure whenever colectomy appears necessary and specially in that form of colonic stasis - known by the French as megapachy colon or

acquired Hirschsprung disease in the adult. In this disease, as we have pointed out, the large bowel becomes, owing to some obstruction lower down, unduly dilated and hypertrophied and its walls are evidently the seat of an active ^{microbic} infiltration. It then becomes a matter of extreme delicacy to handle the intestine, inasmuch as the mere bruising of its surface will liberate in the abdominal cavity toxic substances of a virulent nature. To perform colectomy at once when faced with such a situation is to court immediate disaster - hence the practice of some surgeons who seek safety in a preliminary ileo-sigmoidostomy - leaving to a later date the larger operation.

Cæco-sigmoidostomy generally saves the patient from this painful necessity, the drainage being so perfect that the bowel recovers completely its tone and normal size. We have had X-Ray demonstration of this fact after three operations for megapachycolon performed at the S.A. Ambulance on soldiers returning from Salonika with advanced chronic stasis. This disease appears to have been prevalent on active service and is not an infrequent sequel of either typhoid and para-typhoid but also of amœbic dysentery.

Most of our cæco-rrhaphys and cæco-sigmoidostomys were performed on men returning from the near East and had long lingered in hospital without benefit from the various medicinal treatments.

Whatever then the cause of acquired Hirschsprung disease in the adult - the infective hyperplasia of the intestinal walls and their friability makes of total colectomy in these cases a very dubious undertaking. Cæco-sigmoidostomy which drains the big bowel at its safest and most normal points, the hypertrophic hyperplasia affecting mostly and only the ascending transverse and descending portion of the colon is infinitely safer than the immediate resection of the whole colon or even the preliminary ilio-sigmoidostomy and should therefore always be given the preference.

But total colectomy has ultimate and other results which no means in our power have as yet been able to successfully prevent and that is the production of secondary adhesions.

Of course adhesions will form after all manner of operations, even after the mildest - but it must be owned they are exceptionally extensive after colectomies and may be so grave as to necessitate 2-3 successive laparotomies. The reasons

are quite apparent - not only are the omental and mesenteric stumps left behind difficult to render innocuous , but colectomy throws out of gear the whole intra-abdominal equilibrium by destroying that conservative force so imperfectly known - the intra-abdominal pressure. The big bowel although prolapsed and even when extensively adherent is still a protection to the small intestine. It forms a sort of framework within which the ileum and jejunum are more or less contained - further being provided with an omentum - the latter like a sentient veil, glides backward and forward above them, Animated with something almost like consciousness it rushes here and there, jugulating infections when they can be located and limiting the formations of adhesions. Its total resection - coupled with that of the large bowel - leaves the small intestine entirely unprotected, hence the extensive adhesions it so frequently contracts specially with the anterior parietes.

The operation of cæco-sigmoidoscopy has none of these drawbacks. It is easily performed - it requires a small abdominal incision - it only deals with structures well within the pelvis proper and further which can be exteriorised with ease - while

full protection can be given to the rest of the abdomen in the usual way by placing the patient in the Trendelenburg position , it thus reduces the chances of adhesions to a minimum. Its prototype with which it has many points of resemblance is gastro-enterostomy, the most successful operation in the abdomen. Like gastro-enterostomy caeco-sigmoidostomy drains a large viscus with retained secretions, it does so at the most dependant part, it drains without troubling about the conditions of things above - it resects practically nothing - it only makes an opening between two cavities, which it unites by the simplest of intestinal sutures. Its technic is simple, its instrumentation restricted. A clamp - the one used for gastro-enterostomy acts admirably, a couple of bowel forceps to be placed above and below the proposed site of suture - half a dozen fine Korchet forceps and a couple of straight needles with coloured thread is all that is needed. Once part of the caecal head with the attached appendix have been clamped off, one sweep of the knife or cautery removes the excess of tissue to be discarded. The sigmoid is then drawn in situ an incision corresponding in length to that of the caecum is made on the surface selected for the



anastomosis and the latter is carried out in the usual way. It may be necessary to place a ligature at the base of the meso-appendix. Generally if the precaution has been taken to unite by a continuous thread running from left to right the mesocolons no hæmorrhage is to be feared. This thread should be tightened after the operation is completed so as to keep the two portions of the bowel together and prevent strangulation of the small bowel should it slip backwards below the newly sutured organs.

It may be argued that cæco-sigmoidostomy does not prevent the products of digestion from travelling by the usual course. It certainly does not, but it drains the excess of liquid contained in the cæcum - which is all that is wanted - in one word it relieves the stasis - it gives the necessary rest to the big bowel and allows it to recuperate if possible. In any case, it always cures the constipation, the irritative diarrhoea and the toxæmia. We have now performed this operation more than a dozen times and our results have been invariably excellent. The anastomosis will remain patent as long as necessary and provided the incision on the sigmoid be large enough may remain permanently opened. As in gastro-enterostomy however when the

duodenal ulcer heals, so in caeco-sigmoidostomy the faeces may again travel by the old way and the new opening become obsolete. This is a matter of secondary importance, a return to normal conditions being in our mind the best proof of a successful issue. The obsession of a "circulus viciosus" which seems to haunt the minds of some operators does not therefore appear to us to be founded on facts, or much to be feared. If drainage be good and no retention occurs, what matters the way the products of digestion reach the exterior?

Further the idea that a short circuit must of necessity be permanent is illogical - The injured bowel like every other organ in the body will recover provided it is given rest - nay, as every laparotomist knows, will not only fully regain its former tone, but destroy the adhesions or kinks it once created to meet the emergencies of the case. According to Hurst,⁽⁵⁾ the mortality of simple short-circuiting operations is small, but it is always greatly increased if adhesions are divided at the same time. The mortality of partial, and to a still greater extent, that of complete colectomy, is high even in the most skilful and experienced hands.

The recoveries of our 16 cæco-sigmoidostomies were as uneventful as those of ordinary chronic appendi-
sectomies - only one case ran a temperature of
103° F. for three days - was slightly delirious and
looked distressed. The free passage of flatus soon
relieved the condition evidently due to some reac-
tion at the seat of the anastomosis. Again there
is little doubt that cæco-sigmoidostomy with its
simplicity - the ease with which it can be performed
and its safety should be the ideal short-circuiting
operation to be selected whenever it is desired to
drain temporarily or even permanently the big bowel.

Two conditions are however essential to make
of the operation a perfect success - (1) The mesen-
teries of each colon must be lax, and the apposition
of one bowel to the other easily obtained - i.e.
there may be no tension on the sutures. (2) The
anastomosis must be a large one - No catheter need
be placed in situ - and the bowels should only be
opened on the fourth day.

Conclusions.

- (1) Intestinal stasis in the right side of the large bowel is the most frequent cause of Chronic Constipation as it is its most serious complication.
- (2) The condition invariably leads to what is known as Typhlatony or atonic dilatation of the Cæcum.
- (3) Typhlatony and the Cæcum Mobile are constantly associated together and are the preliminary steps to the descent of the whole right side of the bowel into the pelvic cavity.
- (4) Typhlatony, the Cæcum Mobile - Prolapse and elongation of the ascending colon are never so well marked as when following inflammatory attacks binding down the large bowel at the Hepatic bend and diminishing its lumen. It is doubtful if the dislocation of the right colon in a downward direction is outside of a restricted outlet able to produce true Intestinal Stasis.
- (5) The protracted retention therefore of a highly explosive mixture of undue fluidity within a partially occluded sac, dilated, paretic with

degenerated muscular and mucous walls incapable of further neutralising digestive fluids, much less of excluding extraneous microbic invasion, is the cause above all others of the toxæmia which makes of this disease such a serious affection.

(6) Cæco-rrhaphy which reduces the cæcal sac and dilated ascending colon is the operation to favour in Typhlatony and Prolapse of the right Colon.

(7) It should never be performed without the destruction of adhesions if any and can be coupled with a cæco-pexy if necessary.

(8) In any other conditions giving rise to Chronic Intestinal Stasis - Cæco-sigmoidostomy is the operation to be favoured to the exclusion of other short-circuiting methods specially in the treatment of the "Megacolon".

(9) Its retention of the Ileo-cæcal valve - its rapidity - simplicity and safety makes it preferable to the ileo-sigmoidostomy even as a preliminary measure to Colectomy.

- (10) Colectomy should be the "ultima ratio " of cases past less medical measures - It should never be as the French say "une operation courante" but always an exception.

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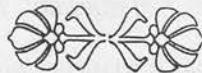
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Radiographic synopsis of a case of advanced
chronic intestinal stasis - with esophageal and pyloric
spasms due to colonic adhesions to internal pelvic organs.

X. P. aged 40. Two children - aged respectively 14 - 16. Normal labours.
Last delivery attended with some elevation of temperature. Symptoms
constipation and stasis date from last child and have been gra-
dually getting worse. When first seen the patient showed all the symp-
toms of advanced stasis. She was very thin - had a pallid complexion -
pigmentation below lower lids - cystic and degenerated mammae -
cyanosis of extremities - constant headaches - occasional vomiting
immediately after food - obstinate constipation and locked energy -
In fact any exertion on her part caused palpitation and faintness -
menstruation had at first been profuse - menses lasting a week to 10
days and coming every fortnight. In last 18 months the flow
had become scantier - and she had missed one or two periods -
On inspection and palpation the abdomen was seen to be flat
and hollow - somewhat retracted. Liver & spleen areas normal -
slight resistance and dulness on percussion could be detected in
left flank - Pressure over Mc Burney point elicited ^{tenderness & a} tenderness to
striking. Patient had been treated at various spas - for her constipa-
tion. The uterine condition and nervousness. As the uterine condition
appeared normal and no positive symptoms of any well
marked affection could be detected - she was styled a
neurotic - and treated as a neurasthenic

Radioscopic examination -

1. Barium meal at 7 A.M. On ingesting the solution - the
esophagus was seen bulging out and the patient made efforts to
bring up the mixture. Stern injections not too so - was successful
and a flash light Radiograph taken - just as the esophageal
spasm was giving way and the Barium started trickling down -
and filling the dilated stomach.
2. 11 A.M. The Barium meal now fills the whole stomach. None
however has yet passed out and there is evidence of a pyloric spasm.

due no doubt as the esophageal one to reflex influences induced from the site of the partial obstruction.

No. III. 3 P.M. The stomach is now seen slowly emptying itself. The Barium solution fills the small intestine and may be seen slowly trickling down along the jejunum into the protracted coils of the small bowel.

No. IV. 7 P.M. The last portion of the ileum, caecum and first portion of the ascending colon are now clearly visible. The stomach 12 hours after the Barium meal still shows a considerable amount of retained residue.

No. V. 11 P.M. This radiograph - the last taken for the day - shows in the terminal portion of the ileum well defined focal segmentations. The caecum is now in full contraction in its attempts to press forward its contents. Only a faint shadow however shows the progress of the stultion in the haustrum - although a portion of it - appears already to have invaded what will be clearly seen later as the site of the obstruction.

No. VI. 7 A.M. second day - The caecum, the first and second part of the haustrum partly protracted in the pelvis are now well filled with the solution and clearly defined. A distinct narrowing of the bowel in the first part of the ascending portion of the Transverse toward the splenic flexure is visible and is evidently the site of the obstruction.

No. VII. 11 A.M. The caecum, ascending and part of the Transverse are still overloaded with Barium - faint traces of the solution are seen travelling up the bowel to the splenic flexure while some scybala are visible in the descending portion of the big bowel and in the sigmoid - The marked narrowing of the gut is here very well defined.

No. VIII. 11.30 A.M. Radioscopic examination under the screen showing that no progression of the evacuation of the right side of the big bowel was likely to take place for a long time, even after an active abdominal massage had been practised for a full quart of an hour, along with (2 pints) of soup & water with oil was administered and when evacuated - the

a second radiograph taken. This shows the whole right side of the
big bowel in full contact. In fact under the screen active
peristaltic waves could be seen running along the colonic musculature.
The manipulative procedures have actually driven some of the re-
tained Barium in the large sacculated portions of the lower
pole of the caecal head - not at first visible - it would now
appear as if some had been forced into the ileum. Through the
two caecal valves - showing its inconstancy. The enemata however
cleared away the whole of the recumbent portion of the big bowel, on
the distal side of the structure. The latter is still more clearly visi-
ble and shows the abrupt termination of the retained retention
in the contracted segment of the transverse -

Operation.

The work was performed on the 24th day of May 1919. On
opening the abdomen the second portion of the Transverse. was
found adherent to the left tubo-ovarian appendages and
to the sigmoid and descending colon - by long standing
adhesions - which had agglutinated the bowel and the
tubo-ovarian organs into a solid mass. The active stage
of inflammation having however long since disappeared -
the organs although solidly bound together, had again become
flexible and by palpation and vaginal examination could
not be defined or differentiated from normal ones - Situation
of the adherent bowel was obtained after some time, and the
left ovary which was cystic was removed - The impairment
however of the bowel was extensive - the possibility of a reversal
of the adhesions and the urgent necessity to drain the large bowel and
the whole system by a rapid and efficient drainage - made it
advisable to short circuit at least temporarily, the bowel by the
operation of caeco-sigmoidostomy which was performed as
described elsewhere. The operative sequelae were normal in
every respect and the bowels opened normally on the 4th day
without an enema. The patient rapidly improved and when
seen last - 3 years after his operation was in perfect health.

018 Radiograph was taken 15 days after the operation as soon as the patient left his bed. A Barium meal was administered at 7. A.M. All the previous symptoms were absent. There were neither obstinately constipated nor splenic system, and the stomach was practically empty & normal afterward. Ten hours after the ingestion of the Barium, the present radiograph was taken. It shows the caecum fully loaded. The position of the ascending colon and first part of the transverse are still exactly what they were in former pictures - but the shadows are less marked as the Barium salt is more evenly distributed. A faint streak of salt is seen ascending to the splenic flexure - showing the patency of the second part of the transverse. The sigmoid however is well delineated, the Barium solution having invaded its cavity directly through the anastomosis. The lobe is well seen and the line of suture clearly marked. All symptoms of stasis are disappearing. The patient has a well formed motion daily - no diarrhea - is increasing in weight and appears well on the way to recovery.

P.S. This patient was seen lately - close to four years after his operation - she has gained considerable weight - her skin had cleared up, and she had a regular motion every day - On inquiry her doctor told me - she now menstruated regularly and the after result of operation could not be more satisfactory.

Remarks - Cases such as above - where long standing intestinal stasis is the result of ovarian, uterine or simply appendicular adhesions are too frequent to require any discussion. Perhaps however it is too often the case - that the absence of palpable lesion of the uterine adnexa lead to an erroneous treatment and still more faulty diagnosis - It should never be forgotten that at times, especially on the left side, between the adnexa & the caecum structure are extremely frequent and the cause of a great deal of suffering & infirmities -

no 1.

F. a. M.

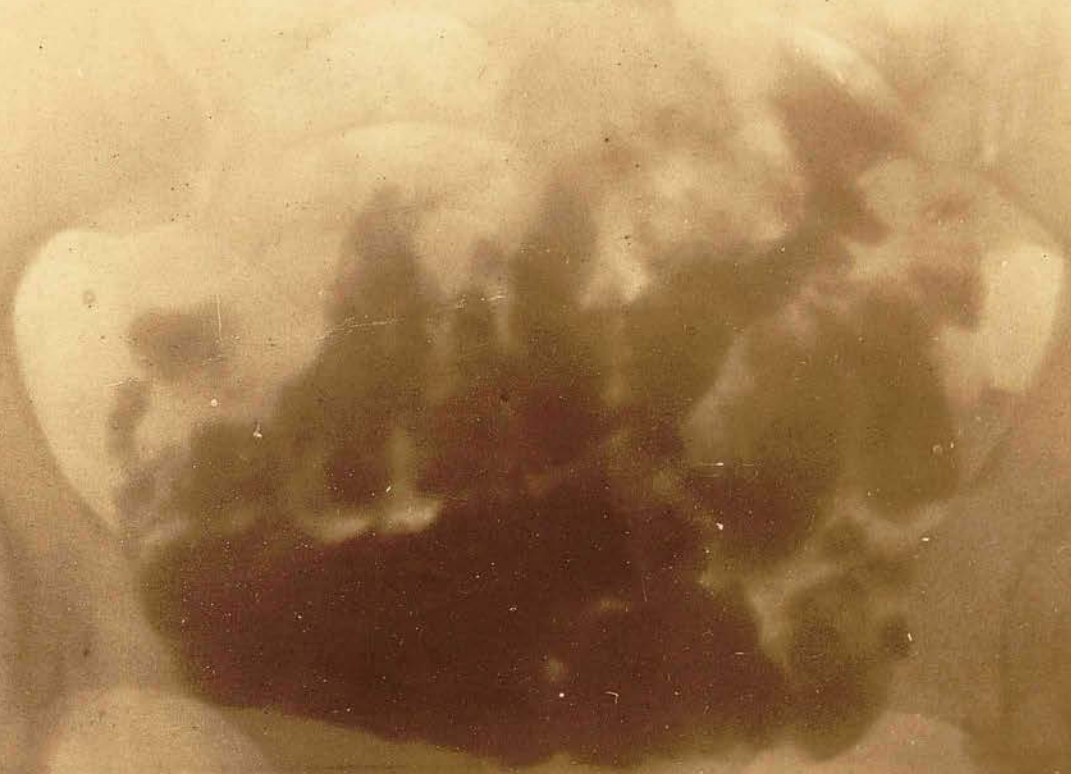
U.

U. A. U.



No. 114

3.P.M.



No. IV.
7. P.M.



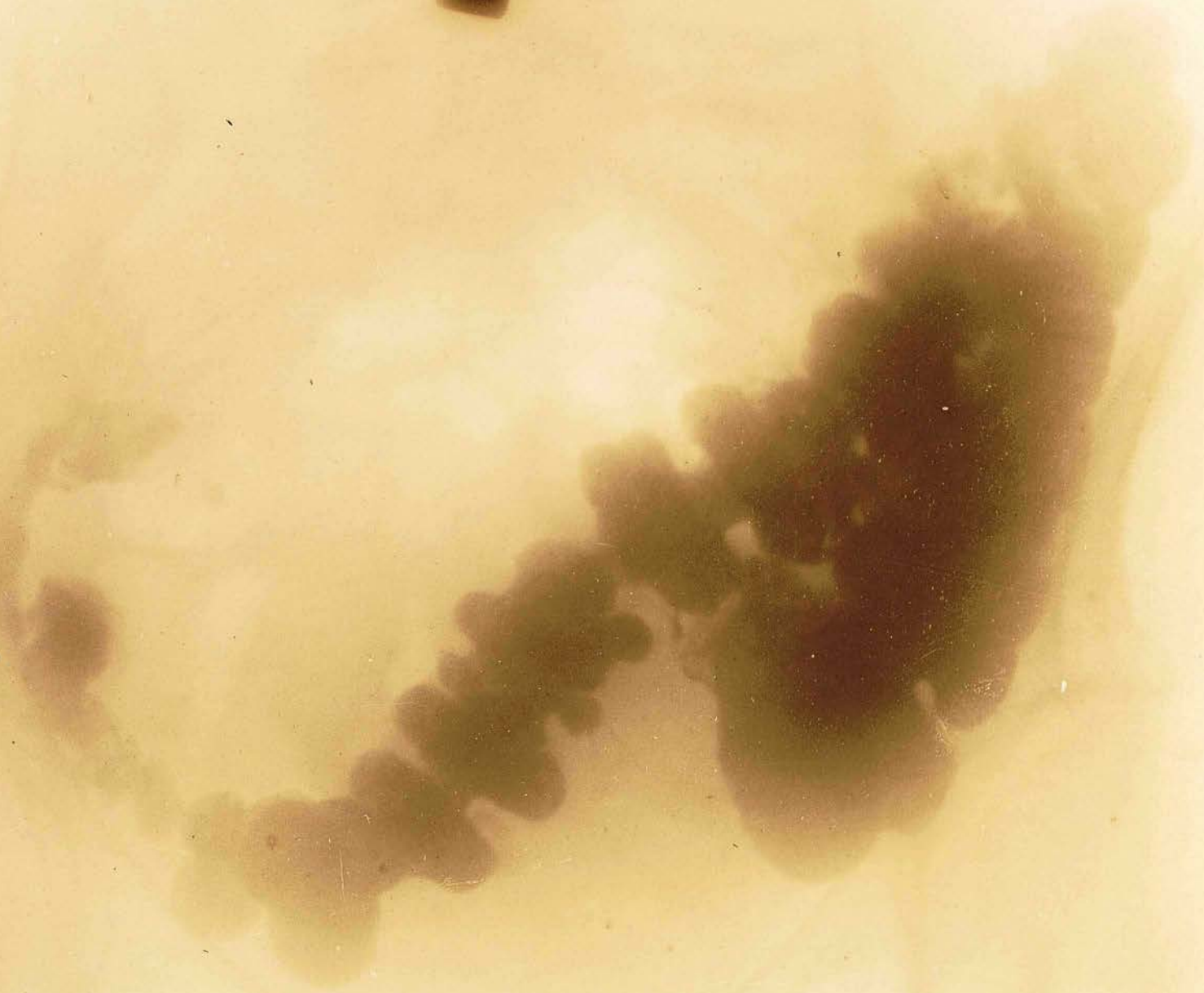
K²V.

11. P.M.



1871.

7. A.M. (Kendoo day)

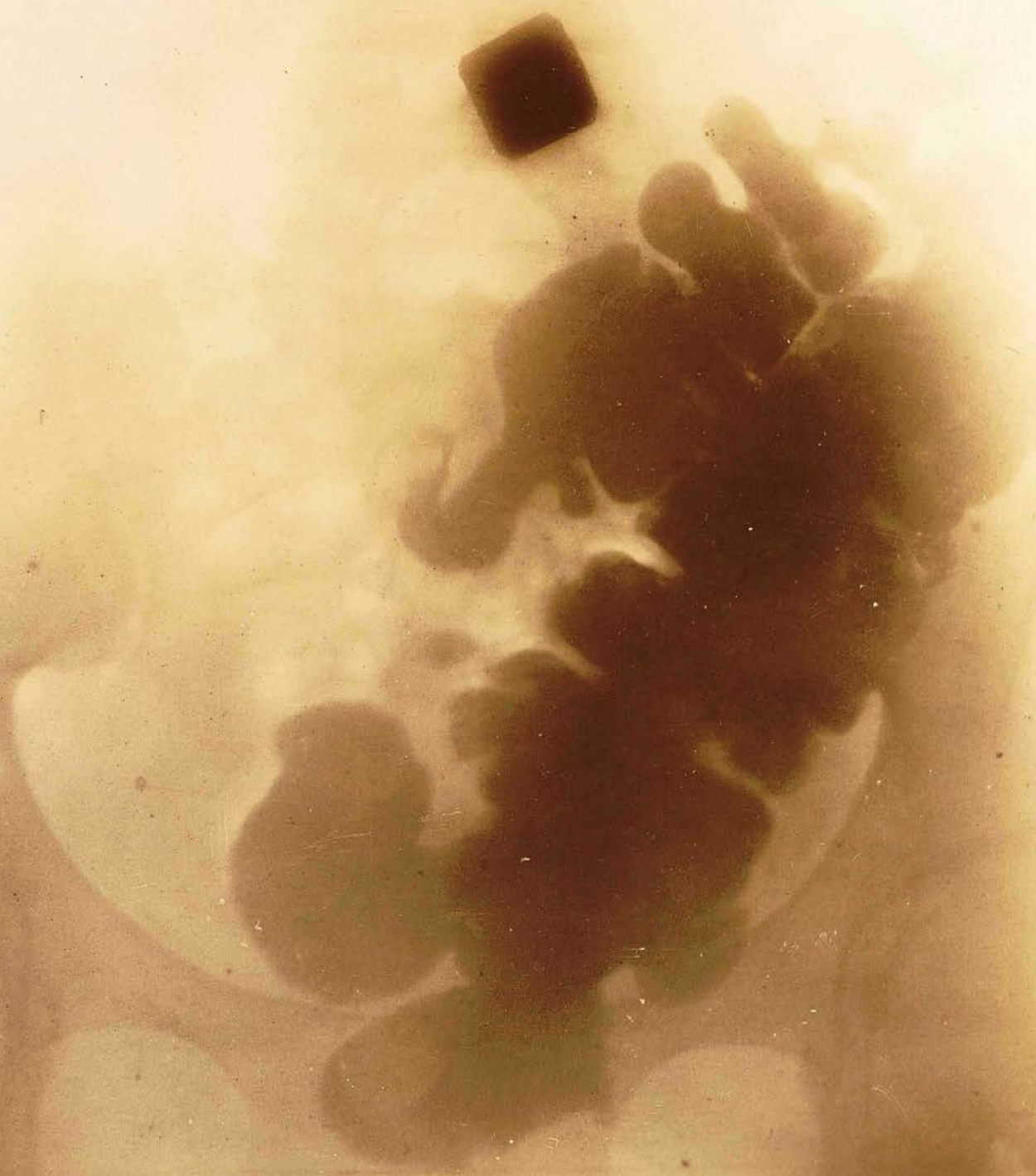


° VII. 11. a. M. (Kens. Day)



No VIII 11.30. a.m. (Tenth Day)

second radio after enema.



h 21x .

Ceco-Sigmoidostomy with resection
of caecal head.



+++ Line of mastomosis.

Miss H. aged 24. A Case of extreme ptosis of stomach - no intestinal stasis but
general enteroptosis with occasional attacks of "mucous-membranous colitis".

no 10.

Miss M. P. aged 18. A case of adherent
and obstructed hepatic bend. The whole of
the ascending colon - above caecum proper and first
portion of transverse - were agglutinated together
under the liver. Plating of the caecum and
ascending colon - together with liberation
of adhesions, completely cured the
patient.

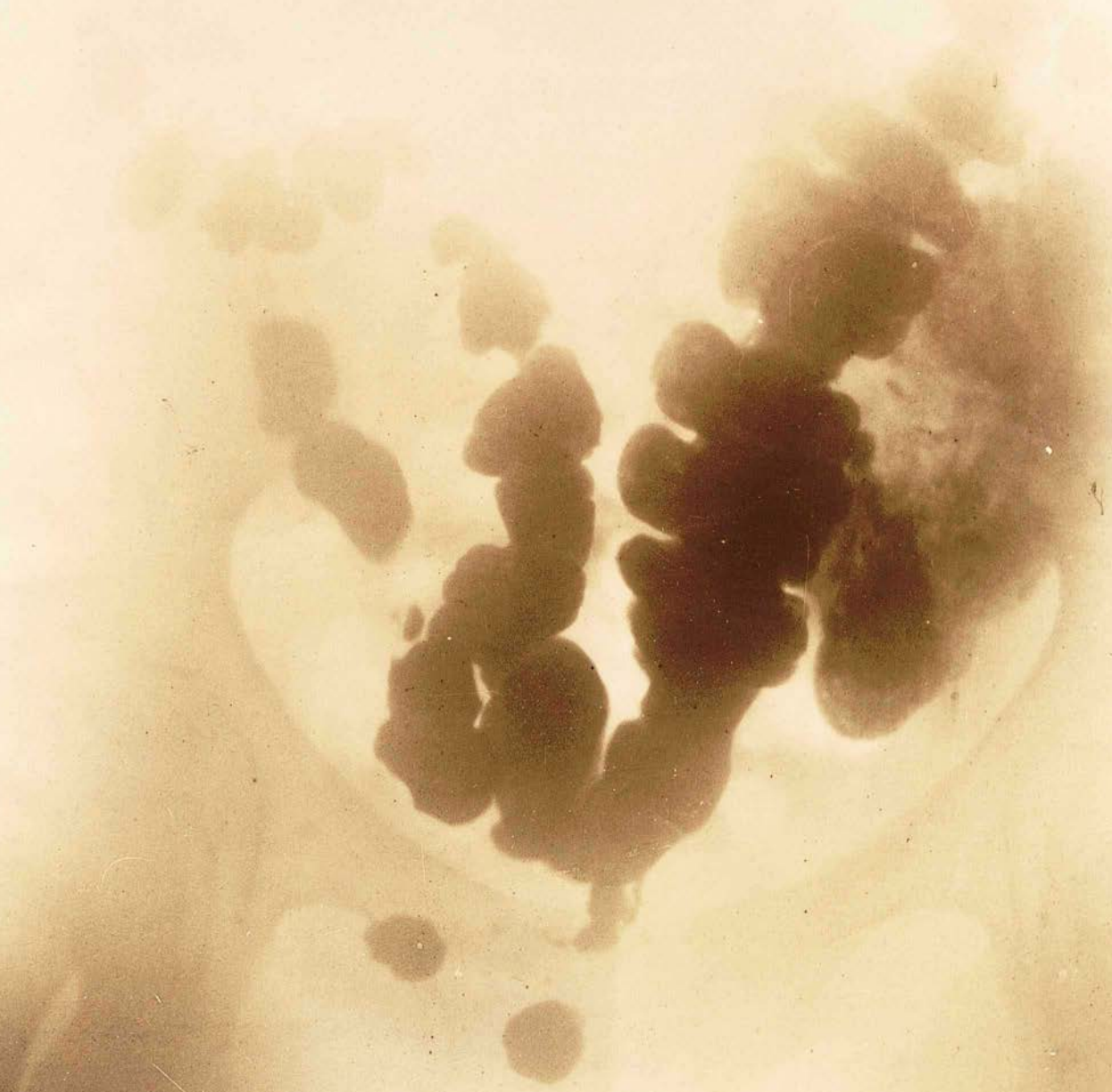
no 11.

Miss W. aged 24. Case of advanced ptosis of caecum, hepatic flexure,
transverse and descending colons. Prolonged treatment improved
her patient. But she still suffers from occasional attacks of mucous catarrhs.
The case is obviously not one for operation as there are no obstructions.

h 012.

Mr W. aged 35. A case of V. shape ptosis of Transverse in the Pelvis
Such cases are very frequent among young women but unless there
be tubercles somewhere - there is
no "Stasis"

no 13.



Mrs. O. aged 30 - A case of what I call "the girde transversa" - In spite of a
complete prolapse of the sigmoid in the pelvis there was no "stasis".
Patient suffered from "muc. membranous colitis."

h014.

Mrs D. aged 28. Acas of v shaped proctored hæmorrhoids with partial
descent of hepatic flexure. The constipation in this case yielded
to a prolong treatment by massage and electricity -

no 15.