161 Collins St. East.

Melbourne, April 5th, 1884.

Dear Sir,

I am sending, addressed to you, my thesis for M.D. degree, and as I am aware that it will not reach Edinburgh until three weeks after the 30th of April, I wish to explain my reason for keeping it back.

Being aware that my uncle was to sail for England on April 7th, and to go to Edinburgh immediately after landing, I was anxious to place it in his hands, for the sake of what appears to me greater security in transit and delivery. He has undertaken to deliver it personally at the University. I was also in some doubt as to the exact mode of payment of the University fee and Government stamp, so this matter he has also undertaken to arrange.

In consideration of these circumstances, I hope that, if the paper is considered satisfactory, it will be allowed to count...
for graduation this year.
In the event of the thesis being disqualified by lateness, or simply rejected as unsatisfactory, may I beg for an early notice of the fact?

I am yours faithfully,

[Signature]

Prof. Thomas R. Fraser.
Edinburgh University.
On Movable Kidney.

Remarks chiefly clinical,

with four cases.

By

David Grant

M. A., Edin. 1872.

M.B. & C.M. with 1st class honours, 1876.
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Introduction.

[Handwritten notes and drawings]
On Movable Kidney

Although the first literary appearance of floating kidney was made in 1581, it although many cases have been recorded, in unquestionable authority, since the beginning of the present century, it is not many years since the very existence of the abnormality was regarded with much scepticism, even by physicians of high authority. Even so late as 1882, Dr. Dawson Tait wrote in the British Medical Journal, "I have never seen such a thing, either in life or in a museum, nor have I met any one who has. In fact, I have no belief in its existence as a pathological incident." Many careful observations, however, abundantly supported by post-mortem records, have established beyond the possibility of further doubt not only the occurrence, but the comparative frequency, of movable kidney. A recent publication on the subject quotes no fewer than 127 bibliographical references. Such a formidable list would seem to justify the belief that the subject had been scrupulously considered from every possible aspect, but there is one point of view from which, so far as I am aware, it has not yet been discussed, viz., the Esoteric, if I may so call it, from this standpoint, being myself an example of the abnormality in question, I am unfortunately able to regard it. For this reason I select it as the subject of my thesis.

In addition to my own case, I have recently
Limitation of Subject to movable, not floating, kidney.

Section A.
Cases
1. Left movable kidney in a man.
became acquainted with three others. I shall, before commenting on the subject, give a brief account of all four.

But first, I must premise that this paper applies only to "movable kidney" in the usually accepted sense, i.e., to cases where the kidney, originally normal in position and attachments, has acquired mobility through any cause. Take no cognizance here either of fixed malposition without mobility, or of "floating kidney" properly so-called, i.e., a condition of fixed mobility associated with the presence of a "mesonephros," probably due to congenital malformation. "Movable kidney," in the limited sense, differs essentially from both of these in clinical pathological significance.

Section A. Cases

I. Case I was that of a retired medical man, aged about 80, whom I saw I examined in October 1883. He had suffered much from dyspepsia in youth and early manhood, had emigrated to Australia 40 years previously, had entirely recovered from his abdominal troubles within the last year or two he had again begun to complain of dyspepsia with constipation. A month or two before I saw him he had discovered a tumour on the left side of the abdomen, which caused him much anxiety by exciting suspicions of carcinoma. Two medical friends whom he had consulted were unable to detect any tumour,
Case II. Right movable kidney in a man.
These gastro-intestinal symptoms.
denied its existence, attributed his local symptoms to mere hypochondriasis. He was very stout, but said that he had been much stouter a few years before, the laxity of his abdominal walls, although they contained a considerable amount of fat, confirmed the statement. There was no evidence of organic disease in any of the viscera, but on placing my hand over the left lumbar region, I at once felt a movable tumour having the outline of the kidney. It slipped easily under the hand, could be pushed up under the ribs, moved towards to a point about two inches from the linea alba. Pressure caused a sense of discomfort, but no actual pain. — The symptoms in this case were very slight, consisting only of local discomfort, with a little dyspepsia and constipation, as the main cause of distress, viz. mental anxiety, was materially relieved by the detection of the true nature of the tumour, no special treatment was considered necessary.

Case II.

W. H., a gentleman retired from business, at 68, is peculiarly interesting as an example of a movable kidney discovered in early infancy. It was under observation for 67 years. It was examined by the leading physicians in London, Paris 60 years ago, diverse modes of treatment were adopted, but without any good result so far as the mobility of the kidney was concerned. The chief symptoms
Case III. Left movable kidney in a woman.
In this case have been obstinate dyspepsia, for years. The patient vomits after nearly every meal, great acidity, abdominal discomfort, occasional passage of mucus by stool, frequent defaecation. Notwithstanding these inconveniences, however, he has led a life of considerable physical exertion and activity. He certainly an excellent illustration of the fact that the prognosis of intractable kidney is not necessarily bad. In this case the right kidney is affected, the mobility is sufficient to be uncomfortably perceptible to the patient himself.

Case 111.

Maria Mayer, born at 19, unmarried, employed as a launderess. This patient, whom I saw on Nov. 29th, 1886, had been in good health. She then, after overworking herself in lifting a heavy weight, began to suffer from pain in the left lumbar region, down the left thigh, associated with abdominal pains, constipation, severe dyspepsia. Uterine functions were normal, the pains were not more severe at the menstrual period.

On examination, she was found to be slender, thin, with little or no subcutaneous fat. The abdomen was somewhat hyperaesthesia, but on palpation a tumour could be distinctly felt, occupying portions of the left lumbar left umbilical regions, near the lower border on a level with the umbilicus. The tumour was oval, smooth, firm, had its long axis directed downward and inward, and could be moved about with considerable freedom.
Case IV. Right movable kidney in man.
Pressure on it caused a peculiar pain. There was no disturbance of the urinary function.

Aspirin pills, with a broad pad, was ordered in this case; but as I left Bovis shortly afterwards, I was unable to state whether this treatment relieved the symptoms.

In my own case. During a slight attack of intestinal irritation, in Vienna, in June 1878, I observed for the first time a rounded smooth tumour in the right lumbar region of the abdomen.

My symptoms passed off, the tumour entirely cleared from my memory for 52 years. I remained in good health, with occasional slight dyspeptic symptoms, until 1882, when the dyspepsia became habitual. It was accompanied by gradually increasing constipation. These conditions went on increasing in severity until the autumn of 1883. In the end of December 1883 I had an acute exacerbation of the symptoms, with a peculiarly distressing pain localized in the right iliac, right half of the umbilical region. This pain appeared to be due to over-distension of the caecum. Fasciculation, too, was often accompanied by slight irregular peristalsis limited to the same regions. At this time having lost much flesh, I again accidentally felt the tumour in the right side, but once recognized it as the right kidney. I did not, however, associate it with my symptoms, regarding it as a mere anatomical curiosity, research as I now...
Description of movement to, of the displaced River

...
recollected that I had felt it 5 years before, it had been perfectly well, even equal to very active exercise, in the interval. The physician whom I consulted diagnosed gastritis-duodenal ulcer. For this theory, I tested myself by careful dieting, various gastric sedatives, &c. In July 1884, a visit to Heidelberg. The good effects were very slight, the peculiar localized pain still continued, my physician locating it in the duodenum. In Sept. 1884 I left England & for some months after my arrival in Australia I improved rapidly in general condition, while the local pain became reduced to a persistent discomfort. In August 1885 I began to lose flesh again, the local pain & intestinal irritation increased, this went on until I was much reduced.

The leading symptoms were, as before, general weakness of digestion, with constipation, special pain of a peculiar fluid, localized in the right iliac region. I again returned to England in July 1886, consulted various authorities, who agreed in recognizing the movable kidney as the main source of irritation.

In my own case the right kidney is the movable one. In the recumbent position it lies spontaneously under the ribs, but in the erect posture it descends till its lower border is on a line 1/2 in. below the level of the umbilicus. The depth to which it falls varies with the
Signs obtained by persuasion.
varying distension of the ascending colon, what I have stated is the maximum. The descent is not a mere vertically drop, but a rotation in an arc of a circle, so that the outer border becomes directed downwards forwards.

By moderate inward and forward pressure the kidney can be replaced, its return being attended by a reverse rotation. When thus replaced (in the erect position) it can be easily retained by the pressure of two fingers tips pressed horizontally backward under the lower edge of the liver. When it is down a vacant space can be distinctly felt between its upper end and the lower border of the liver. It reaches inward to a point one inch external to 1 1/2 inch with above the level of the umbilicus. A deep pressure at this point causes considerable pain. The body of the kidney itself can be freely pressed between the fingers, it is usually tender on pressure. After any unusual exertion it becomes very tender, it is then distinctly felt to be swollen. Even long standing is insufficient to produce this condition.

Percussion note over it is generally muffled tympanitic, but on joint raising, when the stomach is empty, the bowel undisturbed, it comes near close in contact with the abdominal wall, produces an area of complete dulness, which is separated from the liver dulness by about an inch of slightly resonant percussion. Contrary to the rule laid down by authorities, the right
Special symptoms caused by the movable kidney

Influence of the respiratory movements

1) In recumbent position.

2) In erect position.
Certain region posteriorly is always absolutely full, except
in the recumbent position, when the kidney is most nearly in
its normal situation. This paradoxical phenomenon will
be referred to again.

The special intestinal colic symptoms which this kidney
causes are the following:—(1) the peculiar aching pain in the
region specified, having its maximum point one inch to the
right half an inch above the level of the navel; (2) a per-
mance over-distension of the bowel in the regions named;
(3) general impairment of intestinal digestion absorption;
(4) constipation, with occasional diarrhoea following unusual
exertion; (5) pain disproportionate to fatigue of right leg after
walking much, this pain being especially marked along the
tibia side of the thigh.

I have no recollection of any cause for the mobility of
the kidney, but as it was present, to my knowledge, without
any symptoms, for nearly six years, and I have a history of
a fall from a height in infancy, I am inclined to believe
that it dates from that period.

An important point, especially as bearing on one theory
of the predominance of right movable kidney, is the influence
of the respiratory movements.

(1) In the recumbent position, my right kidney reaches
under the ribs; it can be felt only by forcing the point of the
fingers firmly upwards under the costal border. If a deep
inspiration be now taken, the kidney descends forcibly, is
very distinctly felt impinging against the fingers, and appears
to have a range of movement of about 1 1/2 inches.

(2) In the erect position the kidney spontaneously descends
Section B. — Topographical Anatomy.

I. Normal Position of Kidney.
The level which I have mentioned, and when so displaced the respiratory movements scarcely alter its position. If now it be replaced, it remains in situ by the pressure of the fingers under the border of the liver, if an ordinary inspiration be made, it descends perceptibly, with a slight downward and inward rotation which necessitates some adaptation of the fingers in order to keep it up. If now a forced inspiration be made the outward movement of the abdominal muscles pushes the supporting fingers away, the kidney rapidly slips downward under them, and once takes up its lowest position.

Some doubt has been expressed as to the influence of the respiratory movements on the position of the kidney, but my own observations have thoroughly convinced me of the energy with which a powerful descent of the diaphragm pushes the right kidney downwards.

In considering the causes which lead to mobility of the kidney, it is well to begin by ascertaining the mode in which the organ is normally retained in position.

The kidneys are placed in contact with the posterior wall of the abdomen, with their inner borders at an average distance of three inches from the middle line. They extend vertically from the lower border of the 11th dorsal vertebra to the lower border of the second lumbar.
II. Normal Fixation of Kidney.

1. Direct Anatomical Attachments.
right kidney is said to lie a little lower than the left, a statement which lacks further confirmation.

The anterior surface, on the right side, lies under the liver in $\frac{2}{3}$ of its extent, the remainder being covered by the ascending colon; on the left side, the upper $\frac{1}{3}$ is covered by the spleen, the lower $\frac{2}{3}$ by the descending colon. The most important relation, pathologically, is the close relation of the upper border of the right kidney to the descending portion of the duodenum, to the vena cava inferior, its close contact with the duodenum being credited with the production of partial duodenal catarrh in cases of displacement. (Bardele).

In this position the kidney is normally retained by two sets of agencies:—viz.,

1. **Anatomical Attachment**;
2. Certain Physical Conditions.

1. **Direct Anatomical Attachment**. These consist of the **renal fascia**, or fibrous capsule, a thin, smooth, closely separated fibrous layer, which is prolonged over the fascia covering the vessels of the membrane or capsule adiposa, which constitutes the most important direct agent in the fixation of the kidney, has been called the "ligamentum Renis" (Bartholin). It is formed by a prolongation of the perirenal fascia propria, which divides into two layers, one passing in front and one behind the kidney, the two uniting at the hilus to form a somewhat firm layer.
2. Physical Conditions.

Section C. 
Aetiology of Movable Kidney.

Action of Gravity.
of connective tissue. This layer is prolonged into the neighbouring fascial structures, and has been described by Engelke as the "ligamentum suspensorium rens." In the fetus, and child, the capsule adiposa contains no fat; in later life the fat which has become deposited in it is peculiarly liable to disappearance, when, from any cause, the general cachexia fails.

(2) The physical conditions which tend to counteract the descent of the kidney are chiefly two, viz., the general intra-abdominal pressure and the action of the diaphragm. This is shown by the fact that either opening the abdomen, or removal of the diaphragm, leads to an immediate slight descent of the kidney. Any condition which causes a sudden diminution of the intra-abdominal pressure will have the same effect.

Aetiology of Movable Kidney.

In the first place, there may be a congenital predisposition, e.g., looseness of the perinephric connective tissue, unusual length of the renal arteries, &c. (Elsken.) But the cause which is constantly tending to produce descent of the kidney, the cause which in any given case actually produces it must act either (1) by increasing or favouring the action of gravity, or (2) by enfeebling the counter-acting forces. In the great majority of cases the cause belongs to the latter group; but there are also many
1) Causes in the state of the kidney.

Loss of fat from capsule.

2) Causes in neighbouring organs.
condensed coming under the former category.

Causes in the state of the kidney itself.
The kidney may be enlarged, distended, or
increased in weight by the presence of various tumours, e.g.
sarcoma, carcinoma, or cysts. It may be the seat of tubercular disease, with swelling and suppuration,
or it may be affected with hydrops nephrosis. All these
conditions add to the volume or weight of the organ,
seriously impair the retentive power of the
renal capsule adiposa. But this retentive power may
also be diminished by the disappearance of the fat
from the capsule itself; this constitutes the
determining condition in a very large proportion
of cases. It is chiefly operative when rapid
enlargement has occurred in persons formerly
stout, not only the fat of the renal capsule
disappearing, but the large amount of fat stored
up in the abdominal cavity, thus not only the
direct, but the indirect, support of the kidney
being removed.

Causes in the state of neighbouring structures.

Among these may be mentioned, as alleged causes,
tumours of the liver or spleen, of the suprarenal
gland, or pancreas. Cases are also recorded (by
Eberstein, Ewingworth, & Henderson), in which cases
of the dorsal lumbar vertebrae, of vesical abscess,
has led to inability of the kidney by withdrawing
it from its firm basis of attachment.

But the most important alteration of neighbouring

"Pendulous Belly" as a cause.

Influence of Menstruation as a cause.
Structures as regards the causation of movable kidney is the condition known as "pendulous belly," a laxity of the abdominal wall which usually follows repeated pregnancies, but may also result from any great distension of the abdomen. The fact which it plays as a cause of movable kidney probably accounts for the much greater frequency of the condition in women than in men. (Thus of 96 cases collected by Elstein 82 were women, 14 men.) It was found by Landau in 25 per cent of his cases, other conditions dependent on defective tension of the abdominal wall were found in a large proportion of the remainder (e.g., prolapse uteri, hernia). A curious theory as to the cause of movable kidney has been supported by Becquet, Lanceray, and others, who maintain that at each menstrual period a congestion or increase of volume of the kidney occurs in consequence of the intrinsic nervous connection between the ovarian and pleural spaces of nerves. This causes increase of volume of the kidney with its capsule, with general dilatation of the latter to such an extent that the kidney ultimately becomes movable within it. It is pretty well established that the symptoms of movable kidney in women are more severe at the menstrual period, but this may be sufficiently accounted for by the general increase of local irritability which accompanies menstruation, if it seems altogether irrational to invoke a normal function, normally
(3) Variations in intra-abdominal tension.
performed, as the cause of an anatomical abnormality
of such dimensions. As Landau pertinently remarks,
"drei direkte Ursachen gegen das Eintritt und
desewegene Kniee sohn daraus (i.e. on account of the
intimate nervous connections of every kidney) abgehen,
weil sonst jede menstruationsfremd keine bewegliche
Kniee haben müßte."

1. Causes in the state of the general abdominal tension.

I have already said that one of the most
important obstacles to descent of the kidney
is supplied by the general intra-abdominal
pressure which normally exists. This tension is
determined by the relation between the volume of the
abdominal contents and the capacity of the abdominal
cavity; it subject to perpetual variations, in the
normal state, according to the varying degree
of fullness of stomach, bowel, bladder, the
varying condition of the mesenteric vessels. A
further normal variation occurs during pregnancy,
when the tension becomes greatly increased by the
enormous growth of the uterus. — There is also
probably a certain variation with the movement
of respiration, the tension being increased during
expiration, when the abdominal muscles contract,
and diminished during inspiration, when the abdominal
muscles are relaxed. During defecation the
tension is also much increased by the spasm of
the diaphragm. The powerful contraction of the
abdominal walls. Violent expiratory efforts,
Increased tension not a cause.

False analogy of utensils.
such as coughing & sneezing, produce a sudden
spasm of the abdominal muscles, a
still more pathological increase occurs when ascites,
liver enlargement, or tumors, are present.

Diminution of the intra-abdominal pressure
may depend on diminution of the contents of the
abdomen, or on undue flaccidity of its walls. Of
the former of these hernia, prolapse uteri, the sudden
removal of omental or sub-peritoneal fat may be
referred to as examples; of the latter, the most
notable example occurs in women, in the condition
of "pseudocoele bladder" already referred to.

Now, if it be true, as stated, that one of the
most important conditions of the retention of the
kidney in situ is the maintenance of the abdominal
pressure, it seems scarcely reasonable to regard causes
of increased abdominal pressure as causes of
descent of the kidney. Yet authors mention such
causes as straining during labor, straining at
stool, the lifting of heavy weights, carrying of
heavy children, such like (Sandan). They
appear to be misled by the apparent analogy
of the uterus. Probably all such causes have an
important influence in producing prolapse
of that organ, since as it does near a large
opening in the firm walls of the abdomen, an
opening occluded by soft tissues which are never
more than weak in contractility, are particularly
liable to become flaccid & relaxed. The kidney


Diminution of tension as a cause.

The Corset as a cause.
on the other hand, occupies a position in which any increase in abdominal tension must affect it equally on every side, it seems therefore irrational to refer to such a cause as tending to produce displacement in any particular direction.

There is one exception to this, viz., the violent sudden increase in tension caused by coughing or sneezing, which may be regarded as capable of causing such an amount of concussion, so to speak, as to loosen the anatomical attachments of the Kidney, thus to favour its subsequent descent. But it is difficult to see how an equal increase of intra-abdominal tension should tend to displace the Kidney.

The case is very different with diminution of tension, which, we hypothesise, must tend to favour renal displacement. Thus if an abdomen has been distended by pregnancy or by ascitic fluid, that suddenly returned to its normal dimensions, or if a large part of the abdominal contents escape in the form of hernia or prolapsus uteri, the abdominal wall will not at once adapt itself to the change in volume, the tension will be diminished, the Kidney attachments will tend to be relaxed.

Another alleged factor, whose effect, if any, must be produced by change in the abdominal tension, is the corset. The chief authority for the injurious action of this
Crinoline or the corset.

How the corset really acts.
J'ai rencontré plusieurs fois chez les femmes qui ont des corsets fortement serrés le rein droit dans la fosse iliaque du même côté. Ce déplacement arriva, lorsque par la pression exercée par le corset sur la foie, l'organe est forcé de l'espace de loge où il occupa à la face inférieure de cet organe, à peu près comme un noyau entre les doigts qui le pressa.

Now, although I have said that increase of the intra-abdominal tension, as such, does not necessarily tend to cause displacement and mobility of the kidney, yet the mode in which the tension is affected by tight lacing is peculiar. The force is applied, not uniformly to the abdominal wall, but chiefly to the lower part of the thorax, so that part of the abdomen covered by the lower ribs. In consequence of this there is (1) a greatly increased pressure from above, which, if the abdominal muscles are weak, or the abdominal wall relaxed from any cause, may very well tend to push the kidney down; (2) especially, the lateral expansion of the thorax in inspiration is impeded, the diaphragm descends more powerfully during inspiration; for this is necessarily accompanied by increased relaxation of the abdominal muscles, the conditions must be favourable to a descent of the kidney. If this reasoning be correct,
(4) External Causes.

Trauma.

Greater frequency of right movable kidney.

Why?
The damage done by right laceris is due, not, as
Cranwell's say, "to the pressure exercised by the
corset on the liver forcing the Kidney from the
wedge which it occupies," but to the simultaneous
increase of the diaphragm and decreased
relaxation of the abdominal muscles, during
inspiration.

(4) **Inferior Cordis.** Under this head are to be
mentioned blows, falls, sudden violent
exertions, such like, there seems no reason to
doubt that mobility of the kidney may thus be
produced. Thus, Robert H. Newman records cases
in which the unblunted condition was clearly
attributable to falls. Landau reports two cases
in which the movable kidney suddenly appeared,
in one after the lifting of a heavy burden with
the hand bent laterally, in the other after a fall.

An important question with regard to
apoplexy is the question why the right kidney is
so much more frequently dislocated than the
left. So great is this difference that of 91 cases
collected by Uebel, the right kidney was movable
in 65, the left only in 14. With 12 cases, i.e.,
the right was movable in a total of 47, the
left in a total of 26. Various reasons have
been broached to account for this, including the
greater weight of the right kidney, the greater
tight of the right renal vessels, the greater effect
of the liver in transmitting the pressure of the
Section D.

Diagnosis.

(1) Symptoms.

Frequent Latency.
correct, but the difference is not yet satisfactorily explained. Probably it depends upon the greater firmness with which the descending colon is
attached at its upper end to the ribs, upon the shorter course of the left renal vessels, upon the
relation of these vessels to the third portion of
the duodenum.

Section D. Diagnosis

(1) Symptoms. The symptoms produced by
movable kidney are exceedingly various, according
to the degree in which it affects, respectively, the
gastro-intestinal system, the genito-urinary
system, the abdominal vessels, the nervous system.

But first it is important to note that in
many cases the abnormality seems to be entirely
without evil effects, to produce not even the
slightest discomfort. Indeed it is highly probable
that a very large number of cases of movable
kidney never come under observation at all.

In other cases, again, it may exist for years
without causing any symptoms. It may,
either suddenly or gradually, become an active source of irritation. This may
probably be accounted for by some lowered
condition of general health, or by some
local disturbance such as slight gastro-
intestinal catarrh, or by both combined, the
former increasing the irritability of the
nerve-centres, the latter determining the
(A) Gastro-intestinal symptoms.

Gastric symptoms. 
How produced?
special incidence of the irritation. My own case is an example of this. From 1878 (and probably many years before) until 1883 I had no symptoms fairly attributable to the movable kidney, but my general health then fell much below par. I became much thinner, so that the kidney had greater range of movement, the dyspepsia had now become sufficiently pronounced to, so to speak, localise the irritation on the intestinal functions. I shall consider first

(a) Symptoms affecting the gastro-intestinal tract.
These are very various, I include almost all symptoms capable of being produced by the various functional inflammatory affections of the stomach, bowels. Thus there may be severe gastralgia, heart, burn, acid eructations, gastric or intestinal fulness, vomiting (as in Case II, where it was habitual for years), constipation or diarrhoea, etc. — In short, all forms of functional disturbance which are manifested in gastro-intestinal catarrh.

To begin with the stomach, let us ask why mobility of the kidney should give rise to disturbances of the process of gastric digestion, or of the sensations accompanying that process. Now there are only two ways in which movable kidney can operate to produce these phenomena,
Mechanical theory of Bartels.

Objections to this theory.
viz., (1) by mechanical interference with the stomach or bowels, (2) by an irritation
propagated through the sympathetic nerves.
In the case of the stomach, the mechanical
factor would, at first sight, appear to be
inadmissible, but even here Bartels and Kid
has endeavoured to explain the symptoms by
the pressure exercised by the right kidney on
the vertical portion of the duodenum, causing
obstruction of the pylorus, delay in transit of
the gastric contents, subsequent dilatation and
collick. The physical anatomical objections
to this theory, brought forward clearly put
by Beer and Sander, seem to be sufficient to
overthrow it, insomuch as they rest on the
apparently sound consideration
(1) That an easily movable body like the
displaced kidney cannot, from want of a
‘point d’appui’, permanently compress an
elastic cylinder like the duodenum. The theory
of renal compression of the duodenum ignores
the existence of intra-duodenal tension from
the presence of gases.
(2) That the direction in which movable kidney
experiences pressure on the viscus must be the
same as that in which it tends to fall, i.e.,
mainly downward, but slightly inward.
(3) And most cogent, that when the kidney is
at its normal level only its upper half
Experiments on self.
is parallel with the duodenum, so that when it is displaced downwards it falls entirely away from that portion of the bowel and cannot compress it.

To these considerations I may be permitted to add the results of a few experiments made upon myself, for the purpose of determining whether there was any real delay in the process of gastric digestion, or expulsion of its products. Adapting the method advocated by Liebermeister's "Vorlesung's Archiv" for distinguishing between various dyspeptic, catarrhal or other organic diseases (e.g. by an experimental meal or "Probe-Mahlzeit" subsequent washing-out), I on three different days in June 1887 applied the following test. At 8 a.m. I took a sufficient breakfast, consisting of eggs, bread and butter, milk, coffee; during the forenoon I suffered my usual dyspeptic discomfort, including the peculiar pain in the right half of the abdomen.

At 12.30, i.e. 4 hours after the completion of the meal, I washed out my stomach with the long tube, using a minimum quantity of cold water to set up the syphon action. Instead of getting remains of undigested food, as I expected to do, I found that the stomach was absolutely clean and empty, the fluid which was brought being perfectly clear and watery, with a faint acid reaction. At 1.30 I had lunch,
True explanation of gastric symptoms.
Reflex disturbance of innervation.
Consisting of meat, bread, butter, barley, &c., at 5.30 p.m., on again washing out, I got precisely the same result as before.

This procedure I repeated, with identical result, on three separate occasions, for all these days, it is to be noted, I suffered from symptoms which were attributed by a physician of ability to gastro-duodenal catarrh with slight gastric contumacy dilatation (i.e., the very condition which, according to Parke, are produced by the pressure of movable right kidney on the duodenum). Now the completeness, rapidity, with which the gastric dejection was performed seem to negative emphatically the presence of either catarrh or dilatation, to show that their acid is not necessary to explain the gastric symptoms of movable kidney.

The explanation is to be sought, not in a mechanical compression of the duodenum, but solely in a disturbance of innervation; i.e., movable kidney produces its gastric manifestations through the sympathetic nerves, either by disturbing the secretory process, or, as seems to have been the case with me, by causing hyperaesthesia of the nervous membrane of sympathetic centres. So far from retention of the gastric contents, and consequent dilatation, resulting from movable kidney, I believe that it is much more
Peculiar localisation of pain.

Intestinal symptoms.
likely to cause premature expulsion of the contents of the stomach, in consequence of the hyperesthesia and increased reflex irritability which it produces. But the dyspepsia of inmovable kidney is undoubtedly in the main, a nervous, not a mechanical, dyspepsia; chiefly one of hyperesthesia.

Every peculiar feature with regard to it is the localization of the pain. In my own case, I have always had pain almost immediately after a meal, in the right half of the umbilical region, about an inch to the right of the umbilicus. In any case in which pain in this apparently irrelevant position was a prominent symptom, I should regard it as presumptive evidence of the presence of inmovable kidney.

Turning next the intestinal tract, we find that the symptoms include constipation, diarrhoea, each of these alternately, flatulent distension, the passage of mucus from the bowel, &c. There again, as in the case of the stomach, cachexia is described as being almost constantly associated with inmovable kidney (Laudan & others), but as the authority for its presence appears to be clinical rather than pathological, it rests upon the interpretation of the symptoms above mentioned, it is possible that they may, equally with the
Intestinal Catarh caused by movable kidney?

Causes of intestinal symptoms.
gastric disturbances, own a functional cause. It is difficult to see how nervous thrombosis, for so, could set up intestinal catarrh, but probably it may cause a certain degree of venous stasis by interference with the mesenteric vessels. This stasis, if long continued, may easily lead to much serious infiltration of the submucosa, to a pseudo-catarrhal state of the mucosa. And here I may mention that Vol. Massengil of Bonn (whose long practice of massage has given him extraordinary delicacy of palpation) stated that he could detect in any right iliac or lumbar region a thickening of the intestinal wall, which disappeared after a few minutes' massage, which he therefore attributed to "blind-staining and serous infiltration." A condition of this kind may easily give rise to symptoms like those of true intestinal catarrh.

Another symptom, which was manifested by my Case III, which also occurs in a case mentioned to me by Dr. Landerporm, is the passage of mucus by stool. This would appear to be a characteristic catarrhal symptom. But I think that, in the absence of direct pathological evidence of true catarrh, the intestinal disturbances of movable Hernia are best explained by venous congestion from interference with
Why constipation \& diarrhea?

**Constipation** caused by inhibitory \(\Delta\)motor stimulation.

**Diarrhea** caused by inhibitory \(\Delta\)motor paralysis.
(2) Reflex disturbances of secretion;
(3) Acute hypertonic from vasomotor paralysis.

And this leads me to consider the occurrence of constipation and diarrhea in cases of movable kidney. Why do we find sometimes the one, sometimes the other? On looking at the records the fact would appear to be that in cases arising gradually and in chronic cases constipation is the rule, while in haemorrhagic or suddenly produced dilatation, 
and the acute exacerbations to which chronic cases are liable, diarrhea occurs. Thus Robert narrates acute cases (haemorrhagic) in which diarrhea was the chief symptom. And this difference between acute and chronic cases gives, I think, the key to the explanation.

In chronic and slowly arising cases the nerve-centres become gradually habituated to the irritation, which, therefore, produces its effects only in a minor degree, it is explained in stimulating the inhibitory intestinal nerves, the vasomotor nerves. This reflex stimulation would cause (a) diminished vascularity, (b) diminished peristalsis, and would thus doubly tend to produce constipation. In an acute or haemorrhagic case, on the other hand, or in an acute exacerbation
of a chronic case, the nerve-centres have either not had time to become hardened, or
the irritation is for the time in excess of that to which they have adapted themselves, the
result is a degree of irritation sufficient to paralyse the vaso-motor nerves and the
inhibitory intestinal nerves. This will lead to (a) increased vascularity (b) increased
peristalsis, will therefore produce diarrhoea.
That an irritant may produce opposite effect in small large doses (i.e. according to the
intensity of the irritation) is shown by the example of certain drugs, such as tobacco.
Nicotine in small doses stimulates both the vagus root and its cardiac terminations, thus
slows the pulse; in large doses it paralyses the peripheral ends, thus accelerates the pulse.
(Brunton's Pharmacology & Therapeutics p. 910).
As a further physiological analogy of an irritant causing vaso-motor and inhibitory
paralysis I may quote the effect of emotion (a psychical irritant) on causing vaso-motor
paralysis of the head, track, paralysis of the cardio-inhibitory nerves, sometimes producing
flushing & palpitation. Here the irritation starts from the grey matter of the cerebral hemispheres,
it is propagated to the vaso-motor centre, the vagus roots in the medulla; in the case of the
kidney it may be regarded as starting from that
Effects of constipation.
organ, being conducted to the abdominal sympathetic centre, there paralyzing vasomotor and muscular inhibitory impulses.

This view of the mechanism by which bowel immobility may affect intestinal function is indirectly supported by the authority of Landor Brunton, who found that in many cases of ovarian tenderness with constipation one drop of laudanum acted as a purgative, while in one case half a minm acted as a brisk purgative. These cases he explained by the theory that the constipation was due to reflex irritation of the inhibitory intestinal nerves by the tender ovary, that the opium removed the inhibition. I think it is equally reasonable to suppose that immovable tender kidney may act in the same way.

Another point with regard to constipation is its effect on the symptoms of movable kidney. Robert says that "Accumulation of faecal matter in the large intestines invariably aggravates the inconveniences of movable kidney." Now, though this is true as regards great accumulation, it is not invariably true as regards a moderate degree of constipation; for a moderate fullness of the colon, ascending colon, tends to maintain the right kidney in its position. The same is true of the splenic diaphragm.
Constipation from pressure.

Localization of intestinal disturbance.
flexed on the left side.

The question also arises whether constipation can be mechanically produced by pressure on the large intestine. Roberts recognises this as an effective cause, & Landau quotes a case reported by Rollet in which obstructive constipation associated with movable kidney was attributed to intussusception caused by pressure on the ascending colon. Here again, as in the case of the alleged compression of the duodenum, the physical conditions seem opposed to the possibility of any effective pressure being exercised by a movable kidney on the large intestine; but this case differs from that of the duodenum in so far as the line of movement of the kidney in its descent is such as to permit of pressure on the colon, & by that the contact of the intestine are here moving against the force of gravity, not with it, as in the vertical part of the duodenum. In this case, therefore, the possibility of mechanical compression may be admitted.

An extremely interesting point with reference to the intestinal symptoms of movable kidney is the very peculiar localization which they may present. This I have had ophthalmia most disagreeably in my own person, on various occasions when an unusual amount
of eruption (aided, perhaps, by some indigestible food) has brought on an acute exacerbation.

On these occasions I have usually been awakened about 2 a.m. with the following conditions: stomach empty, greenish, uncomfortable, general area of abdomen sharp, so that the area included in the right iliac, lumbar regions, the right half of the umbilical region, affected with a peculiarly distressing, acting pain, accompanied by palpable peristalsis of which 'squeezing'. The pain has its maximum point 'much external to the umbilicus: the 'peristalsis of squeezing' are limited strictly to the area named. The intestine is all the other regions being perfectly normal in its demeanour. In the affected area the condition may be so marked that coils of intestine stand up distinctly.

The symptoms are quite prohibitory of sleep, usually so on for several hours before sleep can be obtained. The peculiar point with regard to this condition is its strict limitation to a topographical area. The part of bowel affected include both small & large intestine. The limitation of the spasmotic contraction does not appear to be determined by anatomical or functional continuity of tissue, but by mere topographical contiguity. Why this should be so it is difficult to
(b) Genito-urinary symptoms. Often absent.

Trousseau on this point.

Mode of descent of kidney.
say, but probably an explanation may be found by appealing to the principle that structures developed from the same embryonic segment retain peculiarly intimate reflex connections in the adult. This, however, only leads to a further difficulty——viz., why, under these circumstances, or indeed, under any circumstances, should movable kidney cause severe intestinal irritation without in the least degree affecting the bladder. And this brings us to the consideration of

(b) Symptoms affecting the genital urinary tract.

The functions of secretion & excretion of urine are so often unaffected in cases of movable kidney that many authors, including Rosennstein, Jungel, & Trouseau, deny the influence of renal mobility on renal function. Thus Trouseau says:—"Neither the secretion of urine nor urination are in the slightest degree influenced by the kidney being movable." Now though this is true in a large number of cases, yet there are others in which much urinary irritation is set up. In others in which, without obvious symptoms, the quantity & quality of the urine are altered. And it appears only a necessary consequence of the physical conditions that this should be so. When the kidney descends, it does not fall vertically in such a way as to maintain the
Descent of kidney involves rotation round two horizontal axes, antero-posterior & transverse.

Torcon & compression of arterial vessels.

Effects of this on kidney.
parallelism of the structures entering the hilus, but it moves in “the circumference of a circle whose radius corresponds to the length of the renal vessels.” (Ébstein.) In doing so, the body of the kidney undergoes a rotation round a horizontal axis, the effect of which is to produce a certain torsion and flexion of the arterio-venous vessels. The lower end of the organ falls downward & forwards & points, when fully dislocated, slightly backwards; the upper end is inclined upwards & backwards, tending to fell forwards. The result of this alteration in position is that the renal artery is dragged downward so as to lie over the renal vein near its entrance into the vena cava, there compressing it, while the vena cava is sharply flexed and compressed at its exit from the pelvis of the kidney, by being dragged forward against the vessels.

The consequence of these two changes must be:

1. A certain degree of venous stasis in the kidney;
2. A certain amount of obstruction to the flow of urine from the pelvis.

The former factor in any marked case, must tend to cause diminished secretion of urine, the latter will cause diminished excretion of urine, & tend to produce some amount of hydrophobia.
Symptoms of Strangulation of Kidney.

Theories of Strangulation.

1. Exudative Peritonitis (Dietl)

2. Acute Hydrenephrosis Pyelitis (Filewski)
When these conditions are present in an unusual degree, in consequence, perhaps, of some violent exertion causing unusual displacement, the symptoms of the so-called "strangulation" or "incarceration" (cf. 'Einblömmung') of the kidney will arise. These usually occur suddenly, sometimes without obvious cause, and include the following: violent pain in the abdomen, great tenderness, especially in the neighbourhood of the kidney, distension, nausea or vomiting, great diminution or suppression of urine, swelling of the tumour. The attack is frequently ushered in by rigor, followed by fever. This has often led to the diagnosis of pyelitis as in cases quoted by Rousseau. These symptoms present a very close resemblance to those produced by a calculus becoming impacted in the ureter, hence there are two main theories to explain the phenomena.

1) First Dietl, Rollett, Hahnstein support the view that the symptoms are actually caused by inflammation and suppuration into the sub-peritoneal connective tissue, in consequence of which the kidney becomes incarcerated into blood-vessels urethra strangulated.

2) Secondly, Tilewski sought to explain the symptoms of incarceration on the theory of an acute hydronephrosis ('pyelitis'). He explains
Mechanical & Inflammatory Theories

not necessary.
The production of the latter by assuming that when the kidney is twisted upon its own axis, the ureter is compressed in this way retention of urine, pyelites, and their attendant manifestations, are produced. Silwski saw improvement set in simultaneously with the discharge of a mucous-purulent urine.

(Obstet. Article in Zimmerman's Cyclo. Vol. XV)

Now, I have not had personal observation or experience of the symptoms of "extravagulation of the kidney," but so far as I can judge, they are sufficiently accounted for by regarding them as a simple intensification of the symptoms seen in the ordinary acute exacerbations or in a case arising acutely. Here again I would attribute variations in the acuteness of the symptoms to variations in the intensity of the irritation, without appealing to inflammation or mechanical obstruction. The ordinary irritation of the displaced kidney affects a certain area of nerve tissue with sufficient intensity to cause the ordinary symptoms; an amount of exertion slightly in excess of what is customary may increase the irritation sufficiently to produce an acute exacerbation, manifesting itself by diarrhea, increased pain, particularly localized intestinal disturbance; if the exertion be sudden, violent, it seems reasonable
Analogy of impacted calculus.
enough to suppose that the symptoms may be greatly intensified, until they include even faintness, collapse similar to those seen in expulsion of a calculus. Even in the case of impacted calculus it is not the fact of the weaker being blocked that gives rise to the symptoms of agony, pain, nausea, collapse, but rather the intense irritation of nerve-terminations setting up a violent nerve-storm throughout the whole abdominal sympathetic. That this is so is shown by the fact:

1. That the symptoms arise immediately before obstruction has been established.

2. That the symptoms are proportionate to the angularity of the calculus, not to its size, and therefore not to its obstructive power;

3. That a much greater amount of obstruction, slowly established, may exist without causing similar disturbances.

And if this be true with regard to calculus, it appears unnecessary to invoke the aid of mechanical obstruction to account for the symptoms of "strangulation of the leisure". The sudden strain or violent ejection causes violent dragging of nerves and intense sudden pain. The rest of the phenomena are accounted for by the general disturbance of innervation set up. Even the great diminution of urine is easily explained by
Either of these conditions will diminish the flow of urine.
See Foster's Physiology, p. 372

Analogy of blow on testis.

Analogy of "renal crisis."
The lowered blood pressure in the glomeruli due to either (a) vasomotor stimulation of the renal arterioles, or (b) vasomotor paralysis from shock in very acute cases, causing a general lowering of blood-pressure.

Another analogous case, in addition to that of impacted calculus, is that of the symptoms caused by a blow on the kidney which may produce faintness and collapse. Here there is no question of obstruction or other mechanical change, but merely a profound impression on the nerve-centres.

At the same time there is one symptom, viz. haematuria, described in some cases of strangulation, which seems to demand a mechanical explanation, but this, I think, is sufficiently provided by the increased venous compression which the violent strain produces.

The renal crises ("crises néphrétiques") described by Baynard in locomotor ataxia may be quoted as examples of severe renal symptoms, with general disturbance, caused entirely by nerve irritation. (Ross on Nervous Diseases, Vol. III, p. 29.)

Therefore believe that all the symptoms of strangulated kidney can be accounted for like the ordinary symptoms of the movable kidney by the supposition of a violent disturbance of innervation, excited by a sudden and
(c) Vascular symptoms.

(d) Nervous symptoms.
Extreme intensification of the irritation caused by the kidney; this cause being reinforced by an increase in the nervous system.

Before leaving the consideration of the genito-urinary symptoms I may say that in my own case (1) the secretion of urine is most conspicuous in the recumbent position; (2) for several years (1875-1878) I suffered from intermittent albuminuria. I do not mean to imply any causal relation between the latter symptom and the movable kidney, but possibly the renal irritation may have contributed to its production by the nervous vascular instability which it produced. I have never found albumin since the movable kidney became an active cause of symptoms.

(c) Symptoms due to interference with the great vessels. These consist of edema of the lower extremities, caused by compression of the inferior vena cava. Kayser even reports a case in which the vena cava was obliterated in consequence of this pressure. - But symptoms of this kind are rare, it is only necessary to keep them in mind as possible.

(d) Symptoms manifested in the nervous system. Strictly speaking, the majority of the symptoms already discussed are produced through the nervous system, but there is a whole complex
(1) Psychical

(2) Sensory
of "nervous symptoms" properly so-called, partly psychical, partly sensory.

The psychical disturbance usually takes the form of depression, amounting in many cases to actual hypochondriasis. The accidental discovery of a "tumour" in the abdomen, especially if, as is generally the case, it has been preceded by obscure pain and disturbances of digestion, is quite sufficient to account for such a state of mind, more especially so, if the nature of the tumour be not recognized by the medical attendant. In my case A.T. where the two medical men in attendance denied the existence of any tumour, its presence was nevertheless sufficiently obvious to the patient who was a source of great anxiety to him, which was at once dispelled by my explanation of the nature of the lump.

The sensory symptoms include a peculiar sense of discomfort in the abdomen, a sort of perpetual consciousness of the abdominal viscera, a feeling of fullness, weight, and pressure on the side affected, and frequent dragging pain of an obscure kind. There is a peculiar drawing pain in the neighbourhood of the umbilicus which is especially characteristic. At the same point often an extraordinary feeling of "something moving" in the abdomen, as it is frequently described. This sensation has led women to believe themselves
(2) Physiological signs.

(a) Inspection.
pregnant, but I find that it is simply due to minute & very localized peristaltic contractions, rendered entirely perceptible, doubtless, by the hyperesthesia associated with movable Risedy. Treat abdominal symptoms, when described by women, I must not understand, are often superficially set aside as "merely hysterical," but they undoubtedly have a real objective existence. This reality is confirmed by the way in which they are aggravated by exertion and relieved by rest. Other nervous and reflex neuralgias affecting the lower limbs, the lumbar region, the abdominal & intercostal nerves. Thus in my Case III. pain in the leg was a prominent symptom, and my own experience teaches me that after walking, much, my right leg becomes fatigued long before the left, & the feeling of weakness is accompanied by a peculiar aching in the thigh.

(2) Physical Signs.

These consist of facts recognizable by inspection, palpation, & percussion, palpation being the most important. And in my opinion, the only trustworthy method.

(a) Inspection has been said by many writers to show a flattening of the lumbar region. This symptom, indeed, is simply stated as a fact not open to question by most English books (e.g., Roberts). But there is probably some fallacy here. When we
(b) Palpation.
reflect that the posterior surface of the kidney rests on a firm muscular mass, which is rendered still more firm internally by the presence of the lumbar transverse processes, it appears extremely improbable that the mere absence of the kidney should produce any alteration in the external prominence of the loin. As a matter of fact, I have never seen flattening or sinking-in of the loin. I do not believe that mere displacement of the kidney is capable of producing it.

Anteriorly, in a very thin person, the outline of the kidney may be distinguishable through the abdominal wall. This I can demonstrate in my own person, but only in the morning, when the abdomen is empty and undistended. The kidney (in the erect posture) is at its lowest level. It may then be seen to cause a slight prominence on the abdominal wall, between the umbilicus and the anterior superior spine of the ilium, a prominence which moves slightly with deep respiration. The results of inspection, however, are not important for the diagnosis of movable kidney.

Much more important are the signs obtained by palpation, by means of which an oval, smooth, firm tumour can be detected, usually lying between the costal border and the umbilicus, but sometimes downwards and forwards from the umbilicus. The surface is smooth, the tumour is evasive and difficult to grasp, slipping away quickly under the hand.
Erect position best.

(c) Percussion.
Its most distinctive character is the ease with which it can be pushed upwards, forwards under the ribs, until it comes approximately into the normal position of the kidney. On deep inspiration it can be felt to move upwards & downwards.

Authors describe the "knee-elbow" position of the recumbent position as that in which the kidney is most easily palpated (Landau), but my own experience convinces me that the erect or semi-erect position is better. In my own case the kidney recedes under the ribs on lying down, & only its lower border can be felt on inspiration, while in the erect position it can be manipulated with great ease, & grasped between the thumb & fingers of the right hand.

Deep palpation of the two lumbar regions will, or may, show that there is less resistance on the affected side, but this also, like the alleged flattening on inspiration, is a sign of little value.

Percussion. Under any conditions except that of great increase in size, the kidney is an organ little accessible to percussion. Indeed, when the thickness of the lumbar muscles, the contiguity, on the right side, of the large mass of the liver, & the extreme variability in the state of distension of the intestine, are considered, it would seem to be evident enough that alteration in the relative position of the kidney can have little influence on the percussion sound. At this point Koda says—
Shoda on Reception of Fishery.

The ordinary rule as to percussion.

This not universally true.
"The size of the kidneys contributes very little to the character (Beschaffenheit) of the percussion sound in the lumbar region. The latter may be quite well when the kidneys are very small. Pyelonephritis, although the kidneys are very large."


The same remark would seem applicable to the presence or absence of the kidney in its normal site. Nevertheless many authors, including Freireich and Rollet, lay stress on the point that on the side affected the lumbar percussion note is clearer and fuller than on the sound side. Kuffner says categorically, "If one kidney is dislocated, then the resonance in the lumbar region of that side is clearer than upon the other side." So Professor Grainger Stewart, in Grant's Dictionary of Medicine, writes, "On percussion over the renal region posteriorly a clear note may be elicited on the affected side."

With all due deference to such distinguished authorities, I desire to enter a 'caveat' against the universal application of this rule, for the results of repeated examinations in my own case, at different periods of the day and under different conditions, convince me the fact is of no real value in diagnosis, that the character of the percussion sound is almost entirely determined by the degree of distension of the bowel, by its freedom to pass backward into the lumbar region. The latter factor in the case has, I think, been overlooked by authors, yet I believe
That it may produce an actual reversal of the signs described, viz., a greater resonance in the loin on the sound side. Thus the note over my right loin (from which the kidney is absent) is invariably less resonant than that on the left, to almost always actually dull except in the supine position, when the kidney recedes. The bowel is free to gravitate into the lumbar region. The following table shows the usual state of the sounds in the various positions indicated:

<table>
<thead>
<tr>
<th>Region</th>
<th>Erect Position</th>
<th>prone position</th>
<th>supine Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right loin</td>
<td>Dull</td>
<td>Dull</td>
<td>Highly resonant</td>
</tr>
<tr>
<td>Left loin</td>
<td>Sym pathetic</td>
<td>Less Sym pathetic</td>
<td>Sym pathetic</td>
</tr>
</tbody>
</table>

This dulness on the right side in the erect position, when the kidney is at its maximum of displacement, is in direct contradiction to the rule of the author, but may, I think, be accounted for by these conditions:

1. Probably the liver descends to some extent when the kidney falls; it causes an increase instead of a diminution of dulness.

2. The cavity of the cellular tissue which permits the descent of the kidney also permits the recession from the lumbar region of the distended bowel.

Further, the prolapsed kidney itself, lying behind the bowel at a lower level than the normal, actually constitutes an obstacle to the passage of the bowel into the loin. In the recumbent posture, on the other hand, the kidney recedes within the ribs, and the bowel is free to gravitate back into the lumbar.
(3) **Differential Diagnosis.**

*From other disorders.*
region, I yield there its characteristic sympathetic note. Whatever may be the explanation of the fact, the above statement represents it exactly as it exists in my own case. Although, since I observed it, I have not had an opportunity of confirming it in other cases, I have little doubt that, at least in cases of right movable kidney, the affected loin will be found less, not more resonant than the unaffected side.

Percussion over the kidney itself, as it lies in its abnormal position, yields a muffled sympathetic note, or when the abdomen is empty the bowel undisturbed there may be absolute -dullness in consequence of the kidney coming directly in contact with the abdominal wall.

 Auscultation has hitherto had no application in the diagnosis of movable kidney.

(3) Differential Diagnosis.

Movable kidney has been mistaken for a great variety of other conditions, including tumours, hydrates of the liver, tumours of the gall-bladder, omentum, spleen, uterus, or ovaries, carcinoma of the colon, focal accumulation &c. The acute exacerbations have even been diagnosed as peritonitis (Fournier).

When a tumour is known to be present in the abdomen, the possibility of movable kidney ought always to be kept in mind, when the consideration of the following
Confusion of symptoms with Hysteria.

With other functional conditions.
points will usually be a sufficient guide; — the oval or rounded shape, the smoothness of surface, the slippery character of the tumour, the fact that it can be most easily pressed into the loin, the character of the pain produced by pressure. More mistakes are probably made in cases where the symptoms are entirely subjective, no tumour is complained of. In such cases the diagnosis of primary gastric or intestinal lesion is very likely to be made without physical examination, or if the symptoms complained of are specially peculiar, not applicable by the commoner stomach or bowel troubles, the patient is most likely to be relegated to the category of the hysterical or hypochondriacal, and dismissed with an admonition or a placebo. It should be an absolute rule, in all cases of obscure or unaccountable abdominal pain, to make a systematic search for a movable kidney. — From this symptomatic point of view, movable kidney is most likely to be confounded with functional nervous dyspepsias, gastric or intestinal catarrhs, lumbago, rheumatism, or neuralgia, or simple flatulent colic. The lumbago pain may also be attributed to intumus displacement, I have no doubt that the whole of the symptoms are often attributed to hysteria or hypochondriasis, simply from their apparently incomprehensible character. The
Special points in symptomatology.

Section 6. Prognosis.

1. As to life.

Favourable views of

Ehren i. Trouseau

Gloomy view of Kepler.
Special features in symptomatology, which ought to raise the suspicion of movable kidney are, I believe, the following:

1. That the pains are peculiarly localized in one half of the abdomen, they are usually most intense in the immediate vicinity of the umbilicus.
2. They are not relieved, as merely gastro-intestinal pains are, by even careful regulation of diet.
3. They are often relieved by injection of food.
4. They are much intensified by injection, are relieved by rest in the recumbent posture, and disappear entirely if this rest be prolonged.
5. The digestive disturbances are also influenced more by rest than by quality of diet.

Section E. Prognosis.

Of my four cases one was 80, another is now 69, years of age, thus illustrating well the fact that movable kidney of itself does not threaten life. Urbein says: "The movable kidney has, it seems, never been known to terminate fatally;" Pierreau also holds that "In itself, displaced kidney does not present any gravity in the prognosis. The prognosis only becomes serious throughblings in diagnosis, consequent improper treatment." (Lectures, Vol. I, 141).

Keppler, however, maintains that "floating kidney, even apart from all other complication, occasions nutritive disturbances, which slowly but steadily develop themselves, which, in time, infallibly
Effects on general nutrition.

(2) As to recovery.
undermine health of life," by this belief he justifies his formidable dictum that as soon as movable kidneys begin to cause any symptoms they should be removed by nephrectomy. This is obviously an extreme view to take, even the two cases which I quote (I. 17), in one of which for years the symptoms were very evident, are sufficient to show that uncomplicated movable kidney does not "infallibly undermine life," or even necessarily impair physical or mental activity. At the same time it must be admitted that in those cases where it is attended by marked disturbance of digestion, assimilation, the general nutrition must suffer, the patient will be less capable of resisting any acute disease. From this point of view movable kidney ought to have some importance in determining the value of a life for insurance purposes, probably, if the comparative frequency of the abnormality were better known, it would have its negative value assigned by the societies.

While the prognosis as to life is so favourable, the prospect of recovery is very slight. From its very nature, it tends constantly to increase, not only as to the mobility of the kidney, but as to the intensity of the irritation which it produces. Partial recovery can only be anticipated from prolonged retention of the kidney in its normal position, either by rest in the recumbent posture,
Section 7. Treatment.

(1) Reposition
   (a) By posture
   (b) By manipulation.

(2) Retention.
or by a suitable retractor apparatus, when the connective tissue may contract and finally be firm enough to oppose the descent of the kidney.

An important point in the prognosis is the possible occurrence of hydronephrosis from intermittent obstruction of the ureter. The frequency with which hydronephrosis has been found associated with movable kidney (in 5 out of 26 cases recorded by Sandau) would appear to show that this danger is not to be overlooked, although it is not certain which of the conditions is cause and which is effect.

Section 7. Treatment.

The treatment of movable kidney is still in a very unsatisfactory condition. The indications are obvious enough, but difficult to carry out. The first object is to replace the kidney in its normal position. This is usually easily effected. It generally recedes as soon as the recumbent posture is resumed, but if it do not, all that is necessary is to place the hand on the abdomen below the lower border of the displaced organ and press gently upwards forward. The difficult problem now arises, how to retain it in situ. For this purpose many different contrivances have been used.

Roberts reports a case in which very marked symptoms, especially diarrhoea, were entirely removed by wearing a tight leather belt with a pad fixed
As it is the position of the kidney.

Indeed, various methods have been extensively applied, either similar to ordinary hernia trusses, with especially large pads to press inward under the lower end of the kidney, or modified in various ways. An ordinary light bandage or binder has also been used; I found it convenient the use of the corset, prolonged downwards to the level of the pubis, so as to form an artificial abdominal well. This is probably well adapted to those cases in which pendulous belly is a prominent feature, Newman has modified it by making an abdominal corset of elastic bandage, placing a concave void pad, to be replaced over the region of the kidney.

In many cases one or other of these appliances may be of use, but each group has its defects. The bandage group cause general pressure over the abdomen, to diminish the mobility of the kidney, but they do not retain the kidney in its normal position, I cannot, therefore, diminish the flexion, torsion, and compression of the ureter vessels. The truss group, if their pressure is made sufficiently strong, do keep the kidney up, but they often cause painful and injurious pressure on other parts, such as bowel nerves. Have tried Newman's bandage and corset, two different trusses. The former simply increased discomfort by causing general
(3) Sattening treatment.

(4) General management.

(5) Treatment of acute attacks.
abdominal compression, without retaining the kidney or diminishing local pain; the latter to keep the kidney almost in its position, but cause such pressure on the viscera that they cannot be borne for more than 2 or 3 days.

On the whole I am inclined to think that in most cases the greatest benefit will result from the wearing of a broad bandage, the avoidance of all unnecessary exertion, spending as much time as possible in the recumbent posture.

Treatment should also be directed as much as possible to the restoration of the natural food, e.g., the sub-peritoneal fat by a diet rich in fatty elements, but unfortunately the dyspepsia and intestinal disturbance present usually form a serious obstacle to this.

The general hygienic management is very important, especially as regards the avoidance of all violent forms of exercise (especially riding), the proper regulation of the bowels. Any considerable faecal delay intensifies the local irritation, especially if there be sepsis in the cecum. If accumulation occurs, it ought to be relieved by enema, not by purgatives; if at any time a purgative be given, it ought not to be one acting chiefly on peristalsis, since such as moveable kidney exaggerates the painful effects of purging.

When an ordinary acute exacerbation of the symptoms occurs, such as is liable to be
Codée as an intestinal sedative.

Heat.

(6) Treatment of "Fluoridation"
produced by an unusual amount of exertion, the best treatment is rest in the recumbent posture, with a sedative to relieve the intestinal irritation. The most appropriate sedative in these cases appears to be cordia, which, according to Lander Brunton, has the power of lessening the irritability of the different fibres in the nerves of the abdominal viscera. (Pharmacology, p. 769.) For this purpose I have found it very useful in my own cases and much preferable to opium from the absence of unpleasant after-effects. Formerly I used to treat acute exacerbations on the theory that they were due to catarrhal irritation, by starvation diet, with a purgative to clear out irritable matter, but experience has taught me that the only effect of such treatment is to debilitate, thereby to increase the subsequent irritability.

The most valuable auxiliary in the treatment is the application of dry heat to the affected side of the abdomen by means of an Indian rubber bag filled with boiling water.

I have seen no case of strangulation, I am glad to say that I have no personal experience of it, but I should treat it on the theory which I have already expressed, viz., that it is simply a great intensification of the ordinary acute symptoms due to sudden great increase of the irritation. Absolute rest, opiates, dry heat would appear to be the rational indications.
Operations.

(1) Nephrectomy.

Its mortality.

Not justifiable.
Operative Treatment.

An important question, more especially since Fleischer's discovery that movable kidneys demands excision, is that of operative treatment. Two operations are advocated have been practiced, for the relief of movable kidneys, viz., nephrectomy and nephropexy.

Of the former I have only to say that it appears to me to be absolutely unjustifiable in any uncomplicated case, too extremely dangerous in a case of mobility complicated by disease to that only symptoms of the greatest urgency can justify it. In a table of 103 nephrectomies compiled by Harris of Philadelphia, there are 16 cases in which it was performed for movable kidney, in 13 of which the kidney was not diseased. Of those 13 patients 4 died, giving a mortality of 30.8 per cent. If we select from this table the results of one operator, viz.,

Dr. Martin of Berlin, we find 7 cases in which nephrectomy was performed for "painful floating kidney." Of these, 4 recovered 3 died, giving an enormous mortality of 43 per cent. When we reflect that this terrible risk is incurred for the sake of a problematical relief to disturbances purely functional, which according to such authorities as Tomeczek, Bethlem, etc., present too great a certainty to suppose, it may be said that the evils of the operation are unfitted to terminate fatally, we must, I think, come to
(2) Nephrography.

Tonic treatment.
The conclusion that the extirpation of a healthy movable kidney is absolutely unjustifiable. An operation so dangerous can only be defended on the ground of a greater or more imminent danger to life.

The case is very different with regard to nephrolithotomy, which consists in cutting down through the loin, drawing the kidney up, fixing it to the abdominal wall by sutures. The result, as regards care, of the few operations hitherto performed are described as favourable, and as it does not appear to involve any risk to life, it must be fair matter for consideration in any case where the symptoms have become so severe as to incapacitate the patient for the ordinary duties of life. Provided the patient can move about, or even sit up, with the help of a chair or other appliance, the propriety of operation ought not to be considered. Speaking as a patient I should say that although my movable kidney causes great discomfort & often much pain, the question of nephrolithotomy has not yet entered my mind, except as a remote possibility.

Various authors on the subject enjoin a tonic treatment as auxiliary to the mechanical treatment. It "some observers, among others Henning, asserts that the mobility of the kidney has been cured by a tonic treatment continued for a long time." This must be considered as highly
Section G. Conclusions.
improbable, except perhaps, in the way which
iedicated on p. 50, viz., through great increase
in the peritoneal fat, the restoration of the
natural pad. This might be equivalent to a
cure of the motility; but the restoration of the
normal abdominal attachments is scarcely
likely to result from mere "tonic" treatment,
however prolonged.

A more directly useful treatment seems that
directed to the restoration of the normal abdominal
peristalsis by local treatment of the muscles. For
this purpose cold douches, shower baths,
paraffination, above all massage, are the best
means to employ.

Section 3. Conclusions.

In this short paper I make no pretence to
the observation of new facts, but have simply
endeavoured to contribute to the rational interpre-
tation of facts already observed. My "doctrine"
of movable kidneys may be summed up in the
following propositions.

I. That mobility of the kidney, even
though it be slight, is no mere anatomical
curiosity, but a condition of real clinical importance,
producing serious disturbances of function in
various organs.

II. That it produces its effect chiefly by
reflect irritation of these organs through the
sympathetic centres, but little by its direct mechanical action.

III. That the irritation may influence the sensory, motor, or secretory functions of the organs affected.

IV. That variations in the symptoms may be accounted for by variations in the intensity of the irritation, a minor intensity stimulating, a major intensity paralyzing, certain reflex centres.

V. That the so-called "shock" of the kidney is probably due, not to a mechanical or inflammatory obstruction, but to sudden extreme intensification of the irritation.

VI. That in all cases of obscure abdominal pain a systematic search for a movable kidney ought to be made.

VII. That a certain peculiar localization of intestinal disturbance forms presumptive evidence of the presence of movable kidney.

VIII. That the physical diagnosis rests on palpation, the results of inspection, percussion being of no value.

IX. That as the condition does not threaten life, an operation involving danger to life is justifiable.

X. That mechanical appliances may palliate, but cannot remove, the symptoms.

XI. That the rational treatment consists in endeavoring to restore the natural food of fat, and in diminishing the reflex irritability.
XII. That for the latter purpose Codde was peculiarly adapted, on account of its special power of lessening the irritability of the afferent fibres in the nerves of the abdominal viscera.

Authors Consulted.
Roberts. Urinary and Renal Diseases, and Article in Reynolds’ System of Medicine.
Klotz. “Über Auscultation und Percussion.” (6th German Ed.)

The other authorities referred to have not been accessible to me here, I have had to take the statement of their views from those above noted.
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