Case

Alexis St. Martin, a Canadian lad, 18 years of age, of good constitution, robust health, was accidentally wounded by the discharge of a musket on the 6th of June 1822.

The charge, consisting of powder & bullet shot, was received in his left side, at a distance of not more than one yard from the muzzle of the piece. It entered posteriorly, then an oblique direction forward & inward, carrying away the integument & muscles, the size of a man's hand; perforating, entirely blowing off the anterior half of the sixth rib, fracturing the fifth, lacerating the lower portion of the left lobe of the lung, the diaphragm & perforating the stomach.

The whole contents of the musket, with fragments of clothing & pieces of fractured ribs, were driven into the muscles & cavity of the chest.

I saw him in 25 or 30 minutes after the accident, in examination, found a portion of the lung, as large as a Turkey's egg, protruding through the external wound, lacerated but not; immediately below this another protrusion, which, on further examination, proved to be a portion of the stomach, lacerated through all its coats & pouring out the food he had taken for his breakfast, through an orifice, large enough to admit my forefinger.

In attempting to return the protruded portion of the lung, I was prevented by a sharp point of the fractured rib, over which it had caught by its membranes; but by raising it with my fingers & clipping off the point of the rib, I was able to return it into its proper cavity, though it could not be retained there, on account of the redundant efforts to cough.

The projecting portion of the stomach, was as nearly as large as that of the lung; it passed through the lacerated diaphragm & external wound, mingling the food, with the bloody mucus, blown from the lung.
After cleansing the wound of the charge and other extraneous matter by washing the stomach, Lucerne, as far as practicable, I supplied the cavity with some solution of ammoniac, muriatic acid, and camphor, and gave internally the aci; Ammoniaci, Aceticus, Camphenii, in liberal quantities. Under this treatment a strong reaction took place in the abdomen, accompanied with high arterial excitement, fever, marked symptoms of inflammation of the lining membrane of the chest and abdomen, great difficulty of breathing and distressing cough.

He was bleed to the amount of 18 or 20 oz. and took a cathartic.

The bleeding reduced the arterial excitement somewhat, but the cathartic had no effect, as it escaped from the stomach through the wound.

On the 5th a partial sloughing of the integuments and muscles took place, some of the protruded portions of the lung, flaccid parts of the stomach, also sloughed. I left a perforation in the stomach, large enough to admit the whole length of my forefinger into its cavity, and also a passage into the chest, half as large as my fist, opposing to view a part of the lung, admitting the free escape of air and bloody mucus at every respiration.

A violent fever continued for two days, running into a typhoid type, & the whole became very hectic. On the 11th, a more extensive sloughing took place, the febrile symptoms subsided, & the whole surface of the wound, assumed a healthy & granulating appearance.

For 17 days, all that entered his stomach by the Eschlagert, soon passed out through the wound. The only means of sustaining him, was by nutritious injections from an intestinal compress & adhesive strips could be applied to retain his food.

During this period, no albumin evacuations could be obtained, although cathartics & enemata & various other means were adopted to promote them.

In a few days after the zinc dressings were applied, the contents of the stomach returned, the wound became gradually infected, with the result of cathartic injections, a very hard
After cleansing the wound of the charge, and other extraneous matter, I
replaced the stomach, the care as practical as possible, applied the
Carbonated spirit of potash, keeping the surrounding parts const-
stantly moistened with the tincture of ammonia; Murante, equal acetate
and giving externally the "Ag. Ammon. Acetati. Gum Complor" in liberal
quantities.

Under this treatment, a strong reaction took place in about
24 hours, accompanied with high arterial agitation, fever, and
marked symptoms of inflammation of the lining membranes of the chest and
abdomen, great difficulty of breathing and distressing cough.

He was bled to the amount of 18 or 20 oz. took a calomel
The bleeding reduced the arterial action, gave relief, but the cathartic
had no effect, as it escaped from the stomach through the wound.

On the 5th, a partial sloughing of the integuments and muscles
took place—some of the protruded portions of the lung adherent
parts of the stomach, also sloughed, I left a perforation in the stomach
plantly to be about large enough to admit the whole length of my
four fingers into its cavity, I also a passage into the chest, half as
large as my fist, opposing to view a part of the lung and allowing
the free escape of air & bloody mucus at every inspiration.

A violent fever continued for ten days, running into a
typhoid type, the whole became very hectic—on the 17th, a more
tenacious sloughing took place; the fibrinous symptoms subsided &
the whole surface of the wound, assumed a healthy & gran-
ulating appearance.

For 13 days, all that entered his stomach by the
Gastric, soon passed out through the wound, the only
means of sustaining him was by nutritive injections given
until compressed adhesive strips could be applied to
retain his food.

During this period, no obvious evacuations could
be obtained, although cathartic enemas were various other
means were adopted to promote them.

In a few days after the gums dressing were applied
of the contents of the stomach returned, the bowels became gradually
affected, with the aid of cathartic injections, a very hard
Black footed stool was produced, followed by several similar ones, when the bowels became quite regular, have so continued ever since. The Cataplasm was continued until the sloughing was completed, and the granulating process fully established. It was afterwards occasionally resorted to, when the wound became ill-conditioned. The Neg. Ammon. Cure Campb. was also continued for several weeks in proportion to the febrile symptoms. The joint condition of the wound — No lachrymation, nor unusual secretion of the stomach; nor even nausea, was manifest during the whole time, but after the 4th week, the appetite became good; digestion regular; the stools evacuations natural, and all the functions of the system perfect. Healthy.

By the adhesion of the sides of the protruded portion of the stomach to the pleura costalis of the external wound, a free exit was afforded to its contents, thereby diffusing into the abdominal cavity prevented. — Cauterization & contraction of the external wound commenced the fifth week; the stomach became more firmly attached to the pleura & intercostal ligament of the external coat, but showed not the least disposition to close its ori
dine by granulations, which terminated as if at a natural boundary, & left the perforation, when thin, in all but a slit. The natural wound, with a slight fistula end.

Whenever the wound was dressed, the contents of the stomach would flow out in proportion to the quantity recently taken; if it happened to be empty, or nearly so, a partial involution would take place, unless prevented by the application of the finger. Frequently in consequence of the arrangement of the dressing, the inverted part would be found the size of a hen's egg — no difficulty, however, occurred in reducing it by gentle pressure with the finger, or a sponge moist with cold water, mixture of which, produced the least pain.

In the fourth week, eflsations of the ribs to separation of their cartilaginous ends began to take place. The fifth rib was demanded of its peristeme for about two inches from the fractured sternum, so that I was obliged
to amputate it about 3 or 4 inches from the articulation with the spine; which I did by dissecting back the muscles, securing the intercostal artery, if leaving it of with a very narrow fine saw made for the purpose, introduced between the ribs, without injury to the neighbouring parts.

The amputated bone appeared 5 from 3 inches over the amputated end—about half of the inferior edge of the 5th rib, also separated & separated from its cartilage.

After the removal of these pieces of bone I attempted to contract the wound & close the perforation of the stomach, by gradually drawing the edges together with adhesive strips, laid on in a radiate form.

The circumference of the external wound was at least 18 inches & the orifice in the stomach nearly in the center, two inches below the left nipple line, drawn from this to the front of the left ilium.

To retain the food drink I kept a compress plug of lint fitted to the shape & size of the hole, confined them by adhesive strips.

After leaving empty means in my power for 3 or 10 months to close the orifice by utilizing adhesive infiltration in the lips of the wound, without the least appearance of success, I gave it up as impractical in any other way than that of incising them, bringing them together by sutures, an operation to which the patient would not submit.

By the sloughing of the injured portion of the lung, a cavity was left as large as a common sized teacup, which continued a copious discharge of fluid for 3 months, when it became filled with healthy granulation firmness adhering to the pleura & soundly cicatrized over that part of the wound.

Four months after the injury was sustained the breast & about two inches below the wound, nearly over the cartilages and ends of the 3rd & 4th false ribs very painful & extremely sore & producing violent symptoms fever. On the application of warm fomentation, it pointed externally. It was then laid open to the extent of 3 inches & several holes filled of wood extracted, after which a gum elastic bougie could be introduced 8 or 10 inches in the longitudinal direction of the ribs, towards the spine. Great pain sternitus extended from the opening of the abscess along the track of the cartilages and ends of the false ribs to the spine.
with a copious discharge from the sinuses.

In 5 or 6 days, there came away a cartilage one inch in length. In 6 or 7 days more, another, an inch and a half,prod the same length of time a third 2 inches long, & they continued to come away every 5 or 6 days, until five were discharged at the same opening, the last 3 inches in length. They were all extremely pliable, free from the false ribs.

The discharge, pain limitation, during the 4 or 5 weeks, these cartilages were working out, greatly reduced the strength of the patients; produced a general debility, & stopped the healing process of the original wound.

Directly after the passage of the last cartilage, inflammation began over the lower end, of the sternum. which, by the usual applications, terminated in a few days, in a large abscess, from which, by boring it open 2 inches, I extracted another cartilage 3 inches in length. The inflammation then subsided in a day or two, another fine came away, & the discharge subsided to support the patient under all these debilitating accidents, I administered wine, with dilute morocco, and 30 or 40 drops of the mixture of delphium, three times a day, which seemed to have the desired effect. Very much improved the condition of the wound.

On the 3rd of January 1823, I extracted another cartilage from the opening over the sternum, an inch and a half long; & on the 5th another 2½ inches in length, an inch broad at one end, narrowing to half an inch at the other, of which must have been the end form cartilage of the sternum.

After this, the sinuses closed, & there was no return of inflammation.

On the 6th of January, a year from the time of the accident, the injured parts were all soundly healed, except the exception of the sternum, which continued much in the same condition, as it was.

24 weeks after the wound was received.
The perforation was about the size of a shilling piece, with its edges firmly attached to the pleura & intercostals, and the fluid & drinks constantly escaping unless prevented by a firm compress & bandage.

The lad is now (September 1824) in perfect health; says he feels no inconvenience from the wound, except the trouble of dressing it. He eats as heartily & digests as perfectly as he ever did; is strong & able to do all kind of laborious work, from that of a house servant to chopping wood or mowing in the field—He has been in my service since April 1823, during which period he has not had a day's sickness sufficient to disqualify him for his ordinary duties.

He will drink a quart of water, or eat a dish of soup, if then by removing the dressings he feels, can immediately throw it out through the wound.

On removing the dressings, I frequently find the stomach inverted to the size of a half dollar, & the wound gapes. But the complaints of the pain, if it will return itself, or be easily reduced by gentle pressure.

When he lies upon the opposite side, I can look directly into the cavity of the stomach, & almost see the process of digestion. I can pour in water with a funnel, or put in food with a spoon, & draw them out again with a syphon. I have frequently suspended flesh, raw or roasted, or other substances in the hole to ascertain the length of time required to digest each. I had one time caused a piece of raw beef instead of bread to stop the oriifice, & found that in less than five hours it was completely digested off, as smooth & even as if it had been cut with a knife.

This case affords a most excellent opportunity for experiment upon the gastric fluids & process of digestion. It would give no pain, nor cause the least anxiety to extract a gill of fluid every two or three days, for it frequently flows out spontaneously in considerable quantity. Various kinds of digestible substances might be introduced into the stomach, & easily examined during the whole process of digestion.

I may, therefore, be able hereafter, to give some interesting experiments on these subjects.
Experiments on Digestion.

The following were made upon the stomach & fluids of Alcides St. Martin, the subject of the foregoing case.

Experiment 1st.

On the 1st of August 1823, at 12 o'clock P.M., I introduced through the perforation between the ribs, into the stomach, the following articles of diet, suspended by a silk string and fastened at proper distances, so as to pass in without giving pain—

Viz.—A piece of highly seasoned Alamoso beef—

A piece of raw salt lean beef—A piece of raw salted fat pork—

A piece of raw lean fresh beef—A piece of boiled corn—

A piece of stale bread & a bunch of raw cabbage,

Each piece continuing about 2 3—the lad continuing his usual employment about the house—

1st. P.M.—Withdraw them—found the cabbage & bread about half digested, the pieces of meat unchanged. Returned them into the stomach.

2d. P.M.—Withdraw them—found the cabbage, bread, pork & beef, all cleanly digested & gone from the string—

the other pieces of meat, but very little affected—Returned them into the stomach again—

3d. P.M.—Withdraw them—found the Alamoso partly digested & the raw beef slightly macerated on the surface,

but its general texture firm & elastic. The fluids of the stomach, smell & taste, slightly changed. Boy complains of some pain & uneasiness at the breast—Returned them again.

The lad complains of considerable distress at the stomach, general debility, a latitude & some pain in his head—Withdraw them—found all the remaining much in the same condition as when last drawn out; the fluids more voluminous & half—The boy came
placating considerably, I did not return them any more.

August 24th. The Lady complaining of suffering, pain in the head & continuance, accompanied with a deformed pulse, dry throat, tongue very numorous in all white of its orifice, coldness, chylous concreted lymph, spread over the inner surface of the stomach; I thought advisable to give medicine; I accordinglyignet in through the wound, half a dozen Calomel pills, five or six grains each; which, in about 3 hours, had a thorough cathartic effect & removed all the foregoing symptoms, and appeared upon the inner coats of the stomach. The effect of the medicine was the same, as when administered in the usual way by the Osophagus; except the nausea commonly occasioned by swallowing pills.

Experiment 2d.

11. 0' Clock, A.M. — August 7th. After having kept the Boy fasting 17 hours, I introduced the glass tube of the Thermo. Fahrenheit through the perforation into the stomach, nearly the whole length of the tube; to ascertain the degree of natural warmth of the system; in five minutes or less, the mercury rose to 90°. I then remained stationary, which I determined by marking the height of the mercury upon the glass, with ink, as it stood in the stomach. I then withdrew the glass, placing it upon the graduated plate again.

I then introduced a gum-elastic Syphon & drew off an ounce of pure gastric liquor, runned with any other matter. I then took a piece of Combed flax, large as my little finger & put it into the liquor as the Thiel, coated it tightly, placed it in a damper-pan, filled with water, raised precisely to 100°, I kept it at that point by placing it in a grate & nicely regulated sand-bath. In 20 minutes digestion had distinctly commenced over the surface of the meat — at 50° the fluid had become quite opaque & cloudy; the orifical texture began to separate & unicorn loose. 60 minutes, Chyme began to form — at 1 O'Clock.
10th P.M. (digestion having proceeded with the same regularity as in the last half hour) the cellular texture seemed to be entirely destroyed, leaving the muscular fibres, loose and unconnected, floating about in small fine threads, very tender and soft. — At 3 0 P.M. the muscular fibres had diminished one half; since 10 A.M. — At 5 P.M. they were nearly all digested, a few fibres only remaining. — At 7 P.M. its texture was completely broken down; very few of the small fibres only floating in the fluid. — At 9 0 P.M. in the evening, very part of the meat was completely digested.

The gastric fluid, which when taken from the stomach, was clear and almost transparent at first, was, at this time, about the colour of whey, after standing at rest a few minutes, a fine sediment of the colour of the meat precipitated to the bottom of the vessel.

**Experiment 3**

August 1st, 11 O'clock A.M. (at the same time I commenced the foregoing Experiment) I suspended a piece of meat exactly similar to that put into the vessel, into the stomach, through the wound. — At 12 0 P.M., with how it found it just about as much affected by digestion, as that in the vessel, little or no difference in their appearance. — Return'd it again. — At 3 0 P.M. drew out the string; but the meat was all completely digested and gone.

The effect of the gastric fluid upon the piece of meat suspended in the stomach, was exactly similar to that in the vessel, only more rapid; after the first hour it was nearly completed. — Digestion commenced, was confined to the surface, entirely in both situations; digestion accelerated the solution in the vessel, but it removed the coat, that was digested upon the surface, whereas the remainder of the meat I gave the gastric fluid
access to the undigested portions —

**Experiment 4th.**

August 8th. — 9. o'clock. a.m.

Pour off 1/3 of gastric liquor into a 3 3/4

Poke & suspended two joints of boil'd chicken, from the head & neck, I placed it in the same situation of temperature as in the second experiment, observing the same regularity & minuteness.

Digestion commenced and progressed much the same as in the foregoing experiments, only retinue slower, the foul

appearing to be more difficult of digestion than the flesh; the

texture of the chicken being firmer than the beef, the gastric juice

seemed not to insinuate itself into the interstices of the muscular

fibres, so readily as into the beef; but operated entirely upon the

surface, dissolving as a piece of gum arabic, waxes in the

mouth, until the last particle was digested.

The colour of the fluid, after digesting the chicken

meat, was of a grayish-white, more resembling milky fluid than

whisky, as in the experiment of beef in the 3rd; the sediment

was lighter, coloured; but in other respects, very nearly similar.

The contents of both vessels, kept perfectly tight, remained

pure from any fester, acidity or offensive smell or taste, from the time

it was taken out of the stomach (Aug. 8th) to the 6th of September

at which time that containing the boil'd beef became very offensive

and putrid, while that containing the chicken, was perfectly bland

and sweet. Both were kept in exactly similar situations.

The foregoing are given, as nearly as I have ability
to observe, of language to express, exactly as they occurred, and

such as they be. I submit them for consideration.

The man absconded for Canada, it will be regretted

that the experiments on that account, have been disturbed.

Fort Niagara, N.Y. 3

November 1825.
Fort Crawford, Upper Mississippi. June 20th, 1829

Alexis Saint Martin, having returned from Canada, after an absence of nearly four years, with his stomach in the same or very similar condition as when he left me in September 1825, the following gastric experiments were made:

1st of Oct. The natural healthy appearance of the Villous coat of the stomach of its variations from, in some states of disease. Upon this point, but little diversity of opinion can exist, with those who have had sufficient opportunity to observe.

In a healthy state, it is of a pale pink colour, varying in its hue in proportion to the fullness or contraction of the stomach, and of a soft or fine Velvety appearance, covered with a very thin transparent layer of mucus, two or which appears the mucous follices, each smooth and distended, constantly secreting their lubricating fluid to soften its inner surface.

Through this covering lies the interior of these follices, when viewed with a microscopie, appear innumerable very fine sharp pointed papillae, from which, when excited by the application of food, seem to exude a clear transparent fluid, increasing in proportion to the stimulus applied. It is absorbed by the aliment in contact, or collects in small drops and trickles down the sides of the stomach, the more distended parts, and there mingles with the food, or whatever else may be contained in the gastric cavity.

This fluid, however, never appears to be accumulated in any considerable quantity in the cavity of the stomach; on fasting, and is seldom, if ever, discharged from its proper becoming vessel, except when the stimulus of a due quantity of aliment is removed for replenishing the system; and is then naturally given out in exact proportion to the aliment taken in.

I have never, on numerous trials, been able to obtain
at any one time, more than 1/5 or 2/3 of the gastric juice, after the stomach had disposed of its alimentary matter, however long the period of abstinence from food—and even this small quantity, seemed to have been excited to flow, more from the irritation produced by the introduction of the gum elastic tube, through which it was extracted, than any other cause; for it invariably commenced by dripping slowly, at first, increasing in frequency at first to a gentle, but intermittent stream, as the tube was moved, from point to point, about the stomach—10 or 15 minutes were necessary, even, to collect this quantity.

The interior of the stomach, when empty, exhibits a plain delineation of the peculiar formations & motions of its inner coats, described by authors. In this condition the rugae, seem folded upon each other & almost in a quiescent state, of a pale pink colour, with the surface merely lubricated; with mucus; but on the application of aliment, the action of the osseous is increased, the colour brightened, and the vermicular motions excited—these fine small intestinal papillae become erect & a clear transparent fluid, the true gastric juice, no doubt, begins immediately to flow abundantly, to accumulate, as aliment is received for digestion.

The motions of the interior of the stomach, at this time, follow different & distinct directions; one seems spirally, lower epigastrial (if I may be allowed the expression) in a direction from the pyloric to the splenic gastro-parieties; and the other transversal, in the shortest diameter of the stomach—at least, such is the indication of the glass tube of the thermometer, 6 or 8 inches long, when placed in the stomach, during this action. Falls by the revolving motions of the forming Chyme as it appears of the same time. The stem of the Thermometer gradually rising out of the stomach, half its length or more, then gently falling back again, every 25 or 30 seconds, giving a uniform & regular spiral motion to the stem—The Chymous contents synchronously taking the same direction and motions, revolving from the Splenic to the Pyloric end, with uniform regularity of precision & diminishing.
gradually diminishing in quantity after it has become chymified, which generally takes place in about an hour and a half after being received, varying however in time, according to the digestibility of different kinds of food.

If the mucous covering of the Villous coat be wiped off with a sponge or handkerchief during the period of chymification, the membrane appears roughish & of a deep pink colour at first; but in a few seconds, the follicles & fine papillae begin to swell, become erect & pour out their respective fluids, which, being diffused over the parts abroad of mucous, restored to them that familiar soft & velvet-like coat of pale pink coloue, correspong with the undisturbed portions of the membrane, the fluids go on accumulating & trickle down the sides of the stomach again.

If it be wiped off when the stomach is empty, or during the period of passing a similar roughness & defined colour appear, though in less degree, the mucous matter is more slowly restored. The follicles only, appearing to swell and produce not accumulating in quantity, sufficient to trickle down as during the time of digestion.

The foregoing, I believe to be the natural & invariable appearance in a healthy condition of the system.

In disease, or partial disarrangements of the healthy function, this membrane exhibits variable & essentially different appearances, either with or without the excitement of aliment.

In febrile diathesis, or predispositions from whatever cause—obstructed peristalsis, undine excitement by stimulating ligatures, overloading the stomach with food, fear, anger, great anxiety, or whatever depresses & disturbs the nervous system, the Villous coat becomes, some times red & dry at first, pale & moist, looking it soft. Bene
Healthy appearance & the secretions become vitiated, greatly diminished or entirely suppressed—the mucous and scarcely perceptible, the solids flat. Flabby & pale with drooling insufficient to protect the nervous part from irritation—no gastric juice can be extracted under these circumstances, not even on the application of alimentary stimulants—drinks received are immediately absorbed, or otherwise disposed of, none remaining in the stomach, 10 minutes after being drunk—food introduced, in this condition of the stomach remains undigested for 24, 48, or more hours, increasing the derangements of the whole alimentary canal, aggravating the general symptoms of disease, as indicated by the corresponding appearances of the tongue, skin & pulse—pains of the head, back, loins, accompanied by costiveness, loss of appetite & morbid vigilance.

Gelatinous and mild alkaline drinks, with rigid abstinence from stimulating diet, are the most efficaceous in restoring from this to a natural healthy condition—aided within nausea, by copious saline draughts, or rectal cathartics—

Thoughts on Digestion by the Gastric Fluids.

This theme has been a fruitful source of sedulous inquiry for ages past, and still continues to be a subject of no inconsiderable controversy among modern authors. The belief in the peculiar & specific solvent power of the gastric juice has become almost universal, with physiological friends, yet there are those, who from aversion to the slow and tedious process by which truths are attained, yet facts are speeded, or the vain desire of undutiful ambition to become the discover of some new & extraordinary theory, despit this power, or even the existence of such a fluid, set at nought the experiments, observations & opinions.
of the ablest Physiologists, and most experience writers existing on the subject, both ancient and modern.

That Stomachic, or first-digestion (chyle) action in the Duodenum, being the second, (more complete stage) is effected by the solvent properties of the Gastric juice, aided by the motions of the Stomach and natural warmth of the system, not a doubt can remain in the minds of any candid persons who have ever had an opportunity to observe its effects upon alimentary substances, or the liberality to credit the observations and experiments of those who have. And, so far from being "merely water" as some Authors assert, it is the most powerful solvent in nature of all alimentary matters capable, even out of the Stomach, of effecting perfect digestion, with the aid of due uniform degrees of temperature from 90° to 100° Fahrenheit & gentle agitation, as will be shown hereafter.

The discrepancy of results in the reports of those who have had opportunities to make experiments & observations on the Gastric juices have been owing more to the difficulty of obtaining this fluid pure, in sufficient quantity, under proper circumstances, than to any real difference with effects.

The fact that alimentary matter is transformed in the Stomach into Chyme by the solvent action of this fluid is now well known, but the peculiar process by which this change is effected, yet remains enveloped in doubts & obscurity.

Pure Gastric juice, when taken directly out of the Stomach of a healthy man, with any other fluid, save a portion of Mucus with which it is most commonly mixed, always unambitiously comprised, is a clear transparent fluid, almost as
limpid as water—inodorous, a little saltish (perceptibly acid),
giving a taste when applied to the tongue, similar to thin mulb-
erous water, slightly acidulated with muriatic acid—readily derso-
ible in water, wine, or Spirits, not coagulable by heat—slightly
erossing with alkalies—powerfully antiseptic, effectually restor-
ing of healthy action, when applied to old putrid sores & foul
cerating surfaces and effectually antiseptic when ad-
ministered in cases of indigestion.

This I believe to be the invariable properties of healthy
Gastric juice; though it is not always to be obtained so pure:
its virtue is, however, dependent upon many and various circumstances for its due healthy action.

Arrangements of the digestive organs, fever, fright, or any sudden
affection of the glands, cause material variations in its appear-
ance—our incurring the stomach with food, produces much vari-
city of the fluids & retards digestion—general febrile irritation
causes entirely to suspend its secretion into the Gastric cavity.
It renders the Villous coat dry, red & irritable—Fear, or Anger,
check its secretion also—the latter, causes an infusorphone bile into
the stomach, which impairs its solvent qualities.

It does not accumulate in any considerable quantity in the
Gastric cavity until alimentary matter be received; it excites
its secretory vessels to discharge their contents for the imme-
diately purposes of digestion; if then ligies to excude from thy
fields of exceedingly fine sharp-pointed follicles, situated in the intima-
ure of the Mucous foliage; increasing in proportion to the quantity
of food, naturally required to be received.

It is capable of digesting only a certain proportion of
aliment in a given quantity of the fluid, in a given time—Not unless
chemical combinations & decompositions—when the jaw becomes satiated
with nutriment, it ceases to dissolve more. The residue of the al-
iment remains entire in the stomach, a Source of Notorious irritation
pain & disease for many hours, perhaps, days & weeks or till the
vis Medicatrix Materiae may have restored the vessels of this Viscus
to their natural & healthy action, either with or without the aid of medicine.
There seems to me to be a sense of perfect intelligence, conveyed from the Stomach to the common sense, which, with health, innately dictates when and what quantities, corresponding to the sense of hunger, the due satisfaction are naturally required for the vital purposes of life; which, if properly attended to, would prove the most useful and voluntary monitor of life and health, or effectual preventive of, or even restorative from, disease.

It is not the sense of satiety—so this is beyond the point of healthful indulgence, it is nature's first and earliest indication of an abuse to overstrain the powers to replete the system. If not immediately opposed to this, it may be known by the delectable sensations of perfect satisfaction, ease of quiescence of body and mind—taste, such as the Stomach has enough. The latter is distinguished from satiety by the difference of the sensations produced, the former feeling, enough—the latter, too much. The first is produced by the timely application into the stomach of proper aliment in exact proportion to the requirements of nature, for the perfect digestion of which, an exact quantity of Gastric juice is secreted, completely, to satiate, or rather take up, the alimentary matter taken in. But to effect this most agreeable of all sensations, and conditions—the real Icys, or satisfaction of the reasonable Epicure—timely attention must be paid to the preliminary processes, such as thorough mastication, perfect insalivation and moderate deglutition—these are indispensable to the due and natural supply of the stomach, at the stated periods of alimentation, for if food be taken too fast, it feeds on into the stomach, imperfectly masticated, not sufficiently imbued with saliva, too much comes in too short a space of time, imperfectly prepared, to be disposed of by the Gastric juices, already in waiting to be excited to flow, in quantity, exactly in proportion to the requirements of the system. Thus not in proportion to an excess of food, unless it happen to be in a direct ratio to the calls of nature, in which case
it never fails to produce a sense of quiet, oriental, healthful enjoyment.

Satiety, on the contrary, is produced by causing too much at once for the requirements of the system; more than the gastric juice, at the time, is able to take up & dispose of, disturbing the muscular fibres beyond that point, so admirably fixed by the invariable & inviolable laws of the animal economy, for agreeable sensations, disturbing that peculiarly pleasurable undulatory motion, of the rugal of the stomach, in ten operations in forming Chyme, & perhaps in retarding, if not diminishing, the natural decelerations of the gastric juice.

The redundant aliment, incapable of being dissolved for want of sufficient gastric juice, remains a source of nervous irritation, & consequent suppression of this fluid it causes, even imperfect chymification of what, otherwise have completed—hence that sense of weight & disagreeable fulness, attendant on an unusually heavy meal, the subsequent derangement of the alimentary functions, of consequent acidity & vitiation of contents of the Præcereal Viscera, from acetic fermentation in the stomach, imperfect formation of Chyle in the small intestines, defective assimilation of nutritious fluids in the lacteal absorbtors.

Bile & Pancreatic juice are not essential to the operation of the gastric fluids in the stomach, or at all necessary in the formation of Chyme: neither do they, in my opinion, ever come to its aid in natural healthy digestion. — They are not only not necessary, but evidence prejudicial & embarrassing to its operations, whenever accidentally mixed with it in the stomach. They seem only required for the formation of Chyle in the second stage of digestion performed in the Duodenum & Small intestines, where their presence & union with Chyme from the stomach, are indispensable to the due separation of the nutritious from the excrementitious juices.
parts of the Chymous mass, as it arrives in the vicinity of their common ducts, stimulating them to discharge their digestive fluids; which, combining with the Chymous mass, forms the Chyle, preparatory to its absorption by the lacteal vessels, for more perfect assimilation. This, appears to me, to be the principal and primary use & destination of the Hepatic & Pancreatic fluids. That they are indispensably necessary & important in the formation of Chyle in the intestines, I have not the least doubt, having, as I verily believe, had ocular demonstrations of the fact; in some of the following Experiments on artificial digestions— that they are very seldom received, & never naturally permitted to pass the pyloric orifice; to mingle with the fluids of the stomach, in health, I am equally convinced; from never, with 5 or 6 exceptions, having found the least appearance of them in the gastric cavity, in more than one hundred examinations of the contents of the stomach, both in its empty & full state, during all stages of digestion & periods of fasting—extracting the gastric juice & chymous fluids at different times, under various circumstances of conditions.

The following is a second Series of Experiments on Digestion, performed on the gastric fluids of Alexis Saint-Martin, between the 5th of November 1829, and 13th March 1831.

Experiment 1st

Decem. 6th 1829— Nine O'clock A.M.

To ascertain the variations of temperature of any tissue &c. in the interior of the stomach, under different circumstances & conditions of the system.
Weisssturz of atmosphere. I introduced the glass tube of a thermometer (Feinmühler) thru the artificial opening into his stomach, in a healthy condition & empty, nearly to the whole length of the stem — in 6 or 8 minutes the mercury became stationary at 90°. Weather cloudy, damp & almost raining, ground wet, muddy & thawing. Winds S. & mild. Thermometer in a frost, exposure, 63°. Commenced raining at 11 A.M. & continued all day, with oppressive atmosphere.

December 7th. — Introduced Therm. at same hour as yesterday, circumstances of stomach the same. Mercury at 93°. Weather cloudy, atmosphere damp. Winds N.W. Light Therm. 27°.


January 25th, 1830. — Introduced thermometre at 3 A.M. Pallas. Weather clear & calm. Therm. 3° below 0. Winds S.W. Light Mercury stationary at 96°. Stomach empty, coats healthy.


March 18th 1831— 8 O'clock A.M. — Introduced Syphon

December 5 1829 — 8 O'clock A.M. — after 12 hours abstinence from either food or drinks — Introduced, at the perforation, a gum elastic syphon, from the stomach.

December 12th 1829 — 3 O'clock P.M. — Introduced syphon — could get 2 or 3 fl. only of gastric juice — Stomach appeared to contain more in a few hours.

December 14th — 1 O'clock P.M. — after 18 hours fasting — introduced syphon & drew off 13 fl. gastric juice of a clear & almost transparent colour, tasting a little saltish & sourish, when applied to the tongue, similar to thin gum-water, slightly acidulated with Muriatic acid — no accumulation in the stomach, before the introduction of the syphon.

March 17th 1830 — 10 O'clock P.M. — Stomach empty. Introduced syphon — unable to obtain any gastric juice; but on the application of a few ounces to the inner surface
of the Stomach; it began slowly to accumulate a flow. The tube: the crumbs of bread adhered to the mucous coat. Soon became soft; I began to digest. Viewing the villous mem- 

Mar. 16th—6 O'cK A.M.—after fasting since 8, O'cK A.M. 

Jan. 26th—1831—9 O'cK A.M.—Stomach empty—extracted 

Jan. 25th—6 O'cK P.M.—Stomach empty—introduced 

Jan. 24th—6 O'cK P.M.—Stomach empty—introduced 

Jan. 23rd—6 O'cK P.M.—Stomach empty—introduced 

Mar. 6th—5 O'cK A.M.—extracted 2 oz gastric juice without difficulty—added this to 2 oz Maltase mixture—no visible change was produced—no coagula formed—they united like pure water and wine. Heat produced no other effect.

Mar. 7th—6 O'cK P.M.—Stomach empty—extracted 

Mar. 8th—8 O'cK A.M.—Stomach empty—extracted 

2 oz. gastric juice—no more being accumulated—
1831. March 12th. 9 O'clock A.M. Stomach empty—extracted 1/2 oz. gastric juice—no more in the stomach. Put in bottle.
March 13th. 11 O'clock A.M. Stomach empty—extracted 2 oz. No more accumulated—put in a bottle.
March 14th. 12 O'clock M. Stomach empty—extracted 2 oz. juice—no more to be obtained—bottled.
March 15th. 4 O'clock P.M. Stomach empty—extracted 1/2 oz. only—bottled.
March 16th. 5 P.M. Introduced syrinx could obtain no gastric juice—a little acid fluid pretty mucous only could be extracted—Villous Membrane red and dry. Lad complains of some headache, pain in distresses about the Scrobiculus Cordis, Lassitude & loss of appetite. Directed him to take 1/2 oz. tinct. Aloes & Myrrh at 9 O'clock P.M. Moved the bowels several times next morning. I removed the foregoing symptoms little or no change in the appearance of the inner coat of the stomach—if any, a little more moist & a shade paler after operation of the scarification—gastric juice lying again to be extracted in usual usual quantity.
To ascertain the difference between Natural & Artificial Digestion, I endeavored to demonstrate the performances of Digestion by the gastric juice out of the stomach, and also the continuation of the natural process when taken out during the periods of Chymification. I took 12 3/4 quarts of fresh milk from the stomach, after 48 hours fasting, put it into an open vessel at the C. & left it 12 3/4 fresh beef, built a fire placed it in a water bath of about 70° Fahrenheit, kept it at that point for 12 hours, with frequent gentle agitation during the time. Digestion commenced immediately upon the surface & progressed in that manner uniformly for about 6 hours, when its enzymatic action seemed to cease - the mass of this time, was nearly half of its completely digested; the texture of the central portion considerably tender & tender but resembling the same kind of aliment when ejected from the stomach. Some 12 or 18 hours after being devallionized, as frequently been in digestive processes.

The Phial & its contents continued in the same situation for 24 hours, varied considerably in its sensible qualities - the digestive portion separated into a rather brown precipitate & yellow clear fluid; - in 125 hours from the commencement of the process the contents of the Phial emitted a peculiar flavour, not easily to be described - it was neither positively bitter, sweet or sour, but pastaking slightly of all three - not in the least jointed the salina flavor predominated in lasting, combined with a slight acid - this I conceived to be the incipient stage of acetic fermentation.

I more separarate the undigested from the Chymous portion, by expression through cloth. I when Iquised day, weighed 14 2/3 oz. 1/3 weight of water, which deducted from the 12 3/4 of meat put in at first, makes 37.

12 gas digestive in 12 fluid drachms of gastric juice.

This process was conducted with as much precision as possible, with the temperature of the digesting bath kept as near blood heat as was practicable to continue & regulate artificial warmth. The fence or range, during the time, between 90° & 100° Fahrenheit.
Dec. 16th. 2 P.M. - Twenty minutes after Alexis had eaten an ordinary boiled dinner of Corn'd, Beef, Bread, Potatoes, Carrots, &c. I drank a gill only of clear water. I took from his Stomach, through the artificial aperture, a gill or more of its contents into an open mouth. I found digestion had evidently commenced and was perceptibly progressing at this time. This fluid of contents was immediately placed in the Water-bath, at 90° or 100°, I do continued for 5 hours, until the digestion of its contents continued to progress, until it was completely chymized. At 7 P.M. 5 hours after eating his dinner, I took out another gill of pure chyme, no particles of undigested food appearing in the mixture. This, when compared with that in the first fluid of digestion, in the bath, a very little difference only was perceptible: the Stomach had digested a little faster and more perfectly than the Viscus.

Experiment 5

January 17th, 1830. At 3 O'Clock P.M. Alexis din'd on

87/8 Corn'd, 1 lean Beef, 11/8 Potatoes, 1 1/2 Turnips,

on an open flame. I took out a portion of the contents of the Stomach: the Meat made its appearance in an inaudible state of digestion. At 45 minutes past 3 O'Clock, I took out another quantity, the Meat only appeared in a still more advanced stage of digestion. The texture of the meat, at this time, was broken into small shreds. I placed the fluids containing it had become of opaque fluids pellucida in appearance. I let this second parcel into a fluid of the same temperature of the Stomach (95° F.) as indicated by the Therm° immediately preceding the extraction. I continued it in the same situation on a warm bath.
At 5 O'clock a second quantity digestion had advanced in about the same ratio as from the 1st to the 2nd time of taking out; when compared with the second parcel, contained in the试行 on the bath, little or no difference could be perceived in them; both were in nearly the same stage of digestion, that contained in the Trial had advanced regularly, rapidly, nearly all the particles of meat had disappeared, become changed into a semi-liquid brown sediment, suspended in the new fluid portions, with small particles resembling white coagula floating about near the surface.

On taking out the 3rd parcel, small pieces of the vegetable apparatus in a partial state of digestion; this was also put into a second placed with Sediment of the same uniform temperature (95° F.) kept up, with frequent gentle agitation.

At 6 P.M., digestion progressing equally on both, the only difference to be seen was the particles of vegetables in a little advanced stage than the meat.

The contents of both trials, kept on the bath, nearly in the same temperature till the next morning, were completely digested, except the few small particles of vegetables, which remained almost entire.

The Colour of the contents of the trials, at this time, was light brown, thick consistency of turbid thin jelly-tasting, perfectly insipid, slightly saltish tacks and, after standing at rest a while, the brownish sediment subsided towards the bottom or partially precipitated, while small particles of white, coloured, loose coagula, floated about in the fluid above—

— the undigestible particles of vegetables settling to the bottom—

Experiment 6th

March 19th—12 O'clock. He drank half a pint of new milk—in 15 minutes took a portion out of the stomach, in a fine loosely coagulated condition, perfectly white, transparent. Semi-transparent, white, coloured fluid—placing this up on the
Bath, it continued to digest for hours. When the coagula was completely taken up—a very small proportion of light-coloured sediment, settled loosely to the bottom of a creamy coloured, semi-jellatinous fluid, of a sweetish taste.

At the same time of drinking the milk, I put 1/3 of Gastroic juice, warm from his stomach, into 2/3 of milk, placed it on the bath, at the natural temperature (95°) for 5 mins. A pure white coagula formed which, in 15 mins, exactly resembled that taken out of the stomach—In 20 mins, the same loose fine coagula appeared suspended in a similar liquid. These 2/3 of milk, mixed with 1/3 of pure Gastroic juice out of the stomach gave the same result; it exhibited the same appearance. It is nearly the same time as that drank & taken from the stomach. Nearly a shades difference could be perceived in 4 hours.

This drachms of milk, coagulated by acetic acid, produced coagula very similar to the other, but the whey was part, lost no resemblance except in more fluidity—that formed from the Gastroic acid, being of an opaque, slightly yellowish fluid of albuminous consistence, the other thin, transparent solution. The coagula formed by the Gastroic acid, continued to digest regularly in its fluid for about 3 hours, when it was completely taken up & converted into chyme. That formed by the acetic acid remained in the same condition for 24 hours, with no other change then the mere subsiding of the Coagula, below the watery fluid.

Experiment no. 5

January 25—1831—At 3:00 P.M., Nervis, cat a full dinner of Roast Beef, Potatoes, Beets, & bread. He kept exercising about his usual employment as house servant—At 25 minutes past 3 o'clock, I took out a portion of the contents of the stomach—Digestion of the different kinds of food.
Latin insinuated it was considerably advanced. The bread reduced to a pulvaceous condition, appeared floating about in a brownish-red fluid, about the consistency of althaea, a few small particles of the mast, could also be seen in the fluid. None of the Vegetables were discernible at this time. The fluid tasted slightly acid, giving the flavour familiar to dilute Muriatic acid, very slightly bitter—several grains of Carbonate of Soda thrown into a dram of 100, or two of this fluid, produced a slight effervescence. 25 minutes past 4. I took out another portion of a shade or two darker colour than the first, this dark colour of the chyme, I attribute to his having, with his dinner, some of the red side of scorch'd part of the beef. No distinct particles of the food to be seen at this time. Within acid and not bitter flavour discernible to the taste; upon the surface of both these parcels of fluids, floated a layer of an oily consistence, which, doubtless, was the remains of the fat pork, he had eaten for his breakfast.

The first parcel contained much more of this turbid viscous fluid than the last, which circumstance leads me to think, that a considerable portion of the Chyme formed from the pork, remained in his stomach when he eat his dinner, I then mingled with the chyme—tasted at 3.30, in an imperfect state of digestion.

At 3.30 mins. past 5. PM tried to extract a 3d parcel, but could not obtain anything except a very little gastric juice, the chyme formed from his dinner, appeared to have all passed from the stomach.

Experiment 8th.

March 6th. At 9.00 A.M. Adam breakfasted on Venison Steak, Cranberry jelly & Bread & drink a pint of Coffee—20 mins. after eating, I took out a portion of it out, in an incipient stage of digestion—placed this on the bath—At 45 mins. past 9. A.M.
March 7th — Sliced 1/2 oz of albumen of a fresh egg, with 1/2 oz of gastric juice warm from the empty stomach placed it in the bath at the natural temperature [95°F]

The juice & the albumen, being so similar in their appearance, that when first mixed, the change was not perceptible; but in 15 mins, small white floccules began to appear (floating) about, the mixture became of a opaque whiteish colour — this appearance continued slowly uniformly to increase for three hours, at which time the fluid had become of a milky appearance; the small floccules or little coagula had mostly disappeared, a little light coloured sediment had adhered to the bottom.

At the same time with the above experiment, Alexis swallowed the whites of 2 fresh raw Eggs, unwashed with any other substance — the stomach perfectly empty & contained nothing but pure gastric juice — in 30 minutes, I took out & examined a portion — it exhibited the same, or very similar appearance as that, mixed out of the stomach, in the bath or the bath, only perhaps, it was more opaque in its digesting process — in 1 hour & 30 mins, I examined the cavity of the stomach — I found nothing but a little foam gastric juice — the Egg was completely digested & dissolved.
Experiment 10th

March 8th.—Ate, breakfasted, on fresh sausage, soft boiled eggs, bread & a pint of coffee, at half past 8 o'clock. After—At half past 9, I took out a portion consisting of distinct particles of bread, sausage, &c, with a larger portion of fluid than usual—digestion not much advanced—

At 10 o'clock another portion—digestion considerably more advanced, small particles of sausage only were to be distinctly seen.—At 11 0’clock, examined the stomach—not a particle of his breakfast was to be found—Chyme all passed out.

Experiment 11th

March 9th.—8 O’clock A.M.—Stomach empty. Temperature 94.5°.—took out 2.3 gastric juice, divided it into two equal parts. I put them into separate divided to each of them I put in 2 oz. of Roasted beef, placed one of them on the bath at 95° F. the other in the open air at 34° temperature—

Put the same quantity of the meat into the same quantity of clear water & placed it with the cold gastric juice in 34° temperature—

At 9 o’clock, he had finished breakfasting on the same kind of meat, with the addition of warm light biscuit, fresh butter & a pint of coffee—Temperature of the stomach immediately before eating 94° in 30 mins after eating 96.5° digestion advancing rapidly—

At 10 o’clock—took out a portion, partially digested, the meat—the least so of any part of his breakfast—

The meat contained in the third of gastric juice on the bath, was at this time in just about the same condition as that taken from the stomach, very little difference could be perceived—the biscuit he had eaten with his breakfast occasioned the only difference, that being reduced to a soft but firm
The aqueous portion exhibited no other appearance of digestion than that of a simple maceration in warm water—at the end of the last 24 hours on the bath, appearances of incipient Putrefactive fermentation began to be exhibited, as the evolution of small bubbles of fatty gas & change of colour from a violet to a greenish-blue shade.

A difference in the degree of Chymification was very evident between the several parcels. The gastric portion, or that taken from the stomach an hour after eating, was most digested—The artificial, or that portion of gastric juice & meat at first placed on the warm bath, was next, & nearly as much digested, though a difference was observable—The 3rd, or portion of gastric juice & meat in a cool situation, after having been on the warm bath for 6 or 8 hours, was the next, but considerably less digested than the second—the 4th, or aqueous portion, exhibited no appearance of Chymification.

**Experiment 12th**

March 12th—8.00 a.m. Extracted 1½ oz. gastric juice & put it in a bottle. 9.00 A.M.—breakfasted on fat pork, bread & potatoes—in one hour after examined contents of stomach, found a heterogeneous mixture, resembling thick barley gruel.

At 1.00 P.M. 4 hrs after eating, took out another portion in a complete Chymicous state, without any particles of eaten food to be seen—it was of a whiter, or rather albuminous consistency & considerably tinged with yellow; this last a circumstance but once before occurring in my experiments upon him, & this I believe to have been the effect of violent anger, which occurred about the time of taking out the last.
March 13th - 10th A.M. Dined on Roast beef, bread & potatoes - in half an hour. Examined contents of stomach - found what he had eaten reduced to a mass, resembling thick broth. - 2. O.K. Examined again - nearly all Enzymes removed; no distinct particles of food to be seen. - 6. O.K. - Examined stomach - found nothing but a little gastric juice, tinged with bile.

Experiment 14th

March 14th - 15 minutes before 8. O.K. A.M. introduced 2 3/4 oz. roast beef, suspended by a string, into Alijs's stomach. At the same time put 1 3/4 oz. of meat into 12 oz. gastric juice, contained in a flask. Put it into the bottom - the juice in his stomach, examined every hour, tel 12. O.K. M. exhibited uniform, but very slow process of digestion; confined entirely to the surface of the meat, in 4 hours, about half of it only was digested & gone. That in the flask, at the same time, digested, still slower, one reason of which, I conceived to be, that the gastric juice in the flask had been taken from the stomach 4.5 hours previously to the experiment, I supposed it get cold, came to the freezing point. The meat in the stomach, was too much confined by the string, from moving about in the gastric juice, so as to act upon by the natural motion of the muscles to digest so fast as it otherwise might have done. An other circumstance, or two, may also have contributed, to interrupt the process of digestion, such as anger & impatience, which were manifested by the subject during this experiment.
March 14th. 12.00 A.M. - Eatted a pint of milk & 4 oz. bread - examined stomach in 30 minutes - found the milk coagulated & the bread reduced to soft pulp & floating in a large proportion of fluid. At half past 10.0 A.M. took out & examined a portion found it a thick, pulpy mass of bread & coagulated fluid, of a milky colour, slightly bitter taste & acid smell. Placed it on the bath, where it continued to become more & more milky, for an hour, when every particle seemed to be reduced to a rich, milky fluid mass resembling milk porridge.

The portion taken out 30 minutes after eating, when on the bath, retained the appearance of the gastric fluids, with distinct floccula of bread & coagulated fluid floating about & suspended in the fluid, with a little coarser precipitate at the bottom, after standing at rest a while.

At 2.00 P.M. examined the stomach & found it nearly empty, the bread & milk seemed to have been disposed of gone.

Experiment 16th.

--- At 30 minutes past 2 O'clock, dined on 1st beef & vegetable soup, & 4 oz. bread, at 20 minutes after 3 O'clock examined contents of stomach - found a pulpy mass, of the consistency of thick gruel, of a semi-liquid appearance. The soup seemed to have coagulated, or its fluid parts had been absorbed, for at this time it was of much thicker consistency than when eaten, or than is usual after eating more solid food placed this on the bath. At 5.00 P.M. took out another portion of a whitish colour & more
partake consistency, mixed with a little thin trans-
parent yellowish fluid of an acid taste. The thicker
part had the flavour of bile, but not the colour.

Experiment 17th

March 15th — Breakfasted at 8 minutes past 8 o'clock,
upon fresh sausage, light pancakes & a pint of coffee — at 30 min-
after, examined & found the stomach full of fluid mixed
with the aliment. A large portion of clear oil floating
on the top & presenting itself at the perforation of the stomach —
at 30 min. past 10. O'clock, took out a portion — found the cakes
& particles of meat, about half digested, the oil pure, bland & limpid, ris-
ing upon the top & untouched by digestion — placed it on the bath —
— At 12 O'clock, examined stomach — found no vestige of his breakfast —
not a particle of oil was to be seen; nothing but pure gastric juice could
be extracted, of which I took out 1/2 gal. — That portion of his breakfast,
extracted at half past 10, was, at this time, almost completely chymified;
a few small particles of oil only remaining; the chymic mass of a
milky colour & semi-jellatious consistency.

Experiment 18th

March 16th — Half past 8 o'clock, Breakfasted on fresh meat &
vegetable hash, bread & a pint of coffee — 30 minutes after 10 — Examined
& found but very few particles of his breakfast in the stomach — Some oil
& a few small floccules; of a brown colour, ran out with a little thin fluid.
— At 11 O'clock, examined again — found nothing but a little gastric juice
remaining — breakfast gone & stomach clear.

Experiment 19th

— At 2 O'clock, same day, He dined on beef, bread,
beef, pork, potatoes, carrots, turnips & bread. — Examined him
at 5 O'clock found his stomach clear of food, but containing a
quantity of white putrid mead, free gastric juice — yellowish coat —
clined to dryness & a deeper pink colour. Boy complained of some
headache, pain & distress at the pit of the stomach, dry and of
thirst—directed him to take 4 J. willing meals, half an hour, at bed time,
which, operating 2 or 3 times last morning gave relief; the gastric
juice, however, was not found in its usual quantity 4 hours
after.

Experiment 20th

March 18th. At 9 o'clock Breakfasted on Tripe, and
fruits. 14th hour Soused bread & a pint of coffee—30 minutes
fast. 9h took out & examined a portion—founds it in an
half digested condition. Tripe, sour & bread all reduced
to a homogeneous pulp, floating in a large proportion of fluids
placed it on the bath—10h 10m—Examined stomach
again, tried to extract another portion—could find no chyme
(only a little gastric juice), with very few small fibrous
particles of tripe & a little coffee grounds. His breakfast didn't
have been digested I passed from the stomach in 4 hours.
The portion taken out & placed on the bath, was also,
at the end of 4 hours, reduced to nearly a complete chy
condition, a very few of those small fibrous particles
of tripe & coffee grounds only left, as in the stomach.

Experiment 21st

At 10h Pm. He eat 8 oz of calf's foot jelly. Nothing else—20 minutes after, examined stomach I took out a
portion of its contents, consisting of gastric juice combined
with the jelly. nearly all of it, in a fluid form, a few particles
of entire jelly only, suspended in the fluids, with a few
small yellowish-white coagula floating near the surface
placed this on the bath—1h 10m—examined again extract
of a little fluid, but found no appearance of the jelly.
During the examination of this time, the boy swallowed
a glass full of water & being situated in a strong
light, from a to an internal view, through the wound, I distinctly saw the water pass into the cavity of the stomach, through the cardiac orifice!—a scene never before witnessed. For some time the wound, as far as I could judge, was about 2 1/2 or 3 inches to the right of the cardiac entrance of the oesophagus, in the smaller arch, towards the pyloric stomach-an observation, as far as I could judge, might be distinctly seen to enter the stomach.

Experiment 22

April 7th—At 6 o'clock breakfasted on three hard boiled eggs, pancakes and coffee—At 30 mins. past 8 examined stomach—found a heterogeneous mixture of the several articles eaten, slightly digested—At 30 mins. after 8 examined again—found contents, reduced in quantity & changed in quality, from a hetero, to a homogeneous mass, & about half digested—At 15 mins. past 10 A.M., no part of his breakfast remains in the stomach.

Experiment 23

At 15 mins. past 11 A.M. he ate 2 roasted eggs 1 3 ripe apples—in 30 mins. examined stomach—found a heterogeneous mixture, in an incipient state of digestion—At 15 mins. past 12 A.M. examined again—found stomach clear, no vestige of either apples or eggs.

Experiment 24th

20th. A.M. dined on roast pig, & vegetables—At 30 mins. examined—found it about half digested—At 4 o'clock—very little remaining in the stomach—5 past 4—nothing remains but a little greasy piece.
April 8th - 200th - Dined on wild game (goose).
- 200th - Stomach full of fluids, with a large portion of oil floating on surface - the goose flesh in small threads & soft - fast digesting - at 200th - Contents of stomach - two thirds gone - that remaining chymiferous.
- half past 10 - Stomach empty.

Experiment 26th

April 9th - 30th - P.M. - Dined on dry salted fish, potatoes, bread & brown butter - at 30 minutes past 50th, examined & took out a portion - about half digested, the potatoes the least so of any part of the dinner, the fish was broken down into small filaments, & soft the bread & parsnip not to be distinguished.
- At 50th, examined another portion - digestion regularly advanced - very few particles of fish remaining internal - some of the potatoes distinctly to be seen.
- Half past 4 - P.M. - took out & examined another portion - all completely chymiferous.
- 50th - Stomach empty.
With a view, partially, to ascertain, if practicable, what effects were produced by the bile, pancreatic juice, or dilute Muratic acid, when added to the Chyme, I made the following observations & experiments.

Not being able to procure human bile, I obtained some Beef's gall; for pancreatic juice, I substituted diluted Muratic acid (12 acid to 63 water) — I was induced to use this acid, from a resemblance observed between its flavour & that of the pancreatic & gastric juices, I not being able to obtain any pancreatic fluid at the time; and also, from recollecting Dr Prout's suggestion, that the human Stomach, naturally contains a portion of Muratic acid — believing, if it were so, that the Stomach might have derived it, in some way, from the Pancreas.

1st — I divided the Chyme produced in Experiment 3rd, Second series, December 14th, 1829, into two equal parts, about 53 y each, to one of which I added 1/3 of the ox-gall — a fine coagulum was immediately produced, of a slightly yellowish green Colour — to this I then added 1/3 of the dilute Muratic acid, which immediately produced a white balsamic mixture — this, after standing at rest a few minutes, separated into three distinct parts — a Clary-coloured sediment at the bottom, a Whey-coloured fluid above, & an oily thin Whitish or creamy pellicle on the top.

2d — To an ounce of the Chyme formed in Experiment 4th, December 16th, I added 1/3 of the ox-gall, which immediately converted it into a Milky fluid, very finely coagulated — to this, added 1/3 of the dilute Muratic acid, which all
first, increased the coagula; but immediately after, threw down a brown precipitate—this, on the addition of more bile of acid, varied in colour, according to the different proportions put in, from a light clay-coloured to a dark brown, tinged with green, without any change in the colour or consistence of the fluid above.

On standing at rest, it separated into three distinct parts—a brown sediment at bottom, a yellowish or yellow-coloured fluid in the middle, & a milky white film on the top.

On this time, produced some fresh gall from an ox, recently slaughtered. I took a. g. of the chyme, form it in Experiments 3rd January 1730, to which I added 20 drops of limpid bile from the gall bladder, a turbid yellowish-white fluid, or rather, a very fine cream-coloured Coagula was instantly formed, while, after standing a few minutes, separated into a bright yellow turbid Coagula, sedimenting towards the bottom, & a greyish milky coloured liquid above. By adding 20 drops more of the bile to this, the coagula were increased, more collected together & changed in colour, from a yellow to a greenish hue—the addition of 20 drops more bile (making in the whole, 130) concentrated a deep grassy green, jellyous substance at the bottom of the fluid—the fluid above, became more of a milky appearance, as the coagula & sediment became darker, on the addition of bile.

I now added 20 drops of the dilute muriatic acid to the 14 g. of the same chyme, without any bile—this produced no change in the colour or consistence, but increased that saline acid taste peculiar to the gastric & pancreatic juices, when unmixed with chyme, by adding bile to this the same effect & appearances, similar were produced, as in the other experiment—viz a yellow
ish brown sediment at bottom - a grey coloured fluid in the middle & white floccula or creamy pellicle on the top.

To observe the different effects produced between a combination of bile & dilute Muriatic acid, in pure water, & that of the Chymous masce, I mixed equal quantities of the gall & dilute acid, 1/3 each, with 2/3 water - the first produced no apparent effect upon the appearance, similar to that exhibited by their combinations with Chymous, but gradually changed to a thick green coloured thin fluid, with a deep green jelly-like deposit on bottom, without any of that white milky fluid appearance of the Chymous mixtures or white pellicle on the top.

4th. To 1/3 Gastric juice fresh from the stomach, I added 40 drops of 1/3 gall, which produced a turbid yellowish green fluid, yielding no sediment.

Forty drops, dilute Muriatic acid, added to this 4/3 of the gastric juice, effected no change in its appearance.

Equal parts of the bile & dilute acid, mixed together produced a fluid of exactly the same colour as the first, but not of the same consistency, the latter being thinner & less albuminous.

Mixing the two first together & adding 2/3 of Chyme from the stomach, a very fine coagula forms it, in a milky fluid, throwing down a brownish sediment, from a yellow-coloured liquor, with the same milky pellicle on the surface as in the former observations.

To 1/3 of Chyme, form'd in a Phial, & at Rest, I added 2/3 of bile - a turbid yellowish white mixture formed, without sediment or separation of any kind.

To another ounce of the same Chyme, I added 2/3 of the dilute acid, no change in its appearance was perceptible - mixed these together & the appearance of both were changed - a whitish coagula form'd & fell a brown sediment, leaving an opaque grey-coloured fluid above.
Bile, added to the 3rd portion of chyme, taken from the stomach. One hour & 10 minutes after eating breakfast of Venison, Steaks \&c. Experiment 83 March 6th. 1831, changed it from a brownish, homogeneous paste, into a milky fluid, forming small white flakes floating about, or adhering to the sides of the flask, & a light-brown sediment fell to the bottom. The usual proportion of dilute hydrochloric acid added to this, produced no very essential change in its appearance.

Bile added to the chyme formed from the eggs, digested out of the stomach. Experiment 9th. March 7th. 1831, produced a rich milky fluid, with a small quantity of fine light-coloured sediment falling to the bottom. The dilute acid added to this, produced a fine coagula & formed a milk-white, cloudy, or fluid from which none of the light-coloured sediment was precipitated.

More minutely to observe the reactive changes effected by the addition of bile \& hydrochloric acid, on the several parcels of chyme, formed in Experiment 11th. March 9th. 1831. I note this difference: I put equal quantities of each, into glasses \& added a den proportion of fresh hogs' gall in the first (that taken from the stomach at 10 O'Clock after eating) a fine bright orange-coloured coagula was immediately formed \& equally diffused thro' a fluid of the same colour, but exhibiting no precipitation or standing at rest, but held the coagula uniformly suspended throughout the fluid: the dilute acid added to this, occasioned a copious sediment to fall to the bottom of all the colours of the mixture, leaving a transparent, semimolliens fluid above, in the proportion of about 1/5th of the whole, \& upon the decoction of which floated a fine thin pellicle.

The second portion (that produced on the bath) under the same treatment, exhibited nearly the same
appearance, with the exception of the colour, it being a shade or two
lighter—the sediment not quite so compact—The fluid a
little less jelly-like, with a little of that white pellicle on the surface.

The 3rd portions treated like the other two, differed
about as much from the 2nd as this did from the 1st. All
exhibited the same general appearance.

The 4th or aqueous portion under the same treat
ment of the other three, exhibited a wide difference—the same
proportions of bile added to this, produced a similar colour to
the fluid at first, but during very little coarse coagula
tnot do uniformly diffused through the liquid, but inclining
more to precipitation—adding the acid, it let fall at
very small quantity of yellowish-green sediment leaving
the semi-transparent fluid in more than quadruple the
proportion of the other three.

5th—Bile + dilute Mur. acid. added to a portion of the head
& milk chyme, from in Experiment 15th March 12-th of
produced their usual coagula & precipitation, but of
a lighter yellow—the sediment forming about 4% of the
mass—the small white particles forming the pellicle on
the top, were in greater portion than in some of the other
experiments, especially that of lean meat—the fluid part
was in greater proportion to the sediment & of a whey-like
consistency.

To another equal portion of this same kind of
beef & milk chyme I added bile, as in the other. Instead
of the Murieetti acid, we panemetic juice fresh from a
a recently slaughtered beef—all appearance exactly
similar to that produced by the acid, was exhibited, excepting,
the precipitate was more slowly thrown down & in rather
larger proportion, the white pellicle on the surface
also less, the fluid & sediment a shade lighter & in
more equal proportions.
7th — Pancreatic juice combined with the chyma of roast beef, formed both in & out of the stomach, increased its paste-like consistence & gave to it more of a cream colour — bile added to this produced a fine coagula, suspending from the top to the bottom, without depositing any distinct sediment or separating any fluid above — dilute muriatic acid, added to this darkened the whitish colour a shade or two & threw down a more copious & darker coloured sediment, increasing the white pellicle on the top.

10th — Bile & Pancreatic juice added to the froth meat & vegetable soup, chyma — in experiment 16th March 14th 1831 — produced a coarse cream-coloured coagula, which, on standing separated into three, about equal proportions, a coarse brownish sediment, a semi-transparent, yellow-coloured fluid, & a thick white pellicle on top.
Remark—Immediately on returning from a short walk in a fine perspiration, with stomach entirely empty when I started, I found on examination an unusual sty of fluids in his stomach; though he had drank nothing for many hours was able to extract 3/4 of clear, limpid fluid possessing the acid taste and flavour of the pure gastric juice; but not so distinctly as common, or rather not so strongly—than was not so much but desire of salivary Jeba mixed with it; caused me the juice to doubt its purity. I tested it by submitting a piece of it to the action of a small piece of lean meat into similar quantities of these two fluids—that these different solutions effect even evidently different—that in the pure gastric juice was dissolved about two-thirds though change the other.

Feb. 13th. 9 A.M. took 30 grains masticated whole beef steak, divided into two equal parts, put one into 3/4 of gastric juice, the other into 3/4 of a mixture of dilute masticated acetic acids, reduced by water to the same flavour of the gastric fluids, nearly as practicable, 3 parts of the masticated stomach, 1 part of the acetic acid, added together on the table at 6 A.M. the meat in the gastric juice all dissolved; that in the dilute acids, when run through the muslin filter, left a residue of 9 grains of a jelly-like consistence. The fluids differed in appearance that from the gastric juice was opaque and of a highly bright yellow colour, depositing a brown sediment on standing, the other was also opaque and of a reddish brown colour, depositing no sediment.

At the same time of the above, put the same quantities of juice by
gelatine (Schistogelus) into exactly similar quantities, three of fluids, I placed them all together on the bath—

6 in. P.M. The gelatine in the gastric juice all completely dissolved, that in the dilute acids, after running through the circular filter, left a residuum of 3 grains jelly-like substance—these two fluids differ in appearance, that from the gastric juice a liquor, of an opaque rich white, yellowish colour, with little fine brown sediment. That from the acid menstruum was also opaque, but of a rich brown colour, thin, viscous consisting, with a residuum. 36. infusion of nut-galls added to the gastric solution, immediately afforded a thick, creamy fluid, it slowly precipitated a fine compound or sediment.

The same quantity of infusion added to the other immediately from the whole mass into a coarse brown considerably in a similar colour, which after standing a little, afforded a large coarse brownish sediment. The mixture, which on standing became white as milk, & preserves its form. The precipitate, after the addition of the infusion, was fine & filtered, weighed as follows, viz., that in the gastric solution, 18 grains, the other 40 grains, the difference of the weights being about equal to the quantity of gelatine put in. Was not reasonable to expect from this, that the gelatin in the gastric juice had been totally converted into ditto and converted. What is the other not at all, but only different?—I will try it again.

Feb 15th. 9 3/4 o'clock. Repeated the above experiment with gelatin & the gastric juice & dilute acids, in the same proportions—3 P.M. Gelatin in gastric juice all dissolved, to a warm mixture that in acid mixture nearly 20. grains only remaining in the filter of a jelly-like consistency. The fluid gastric nearly a bluish-colour of this yellowish or about the colour of the dry gelatin. 6 in. P.M. The gelatine in the acid menstruum all dissolved of the many similar—31. grains of nut-galls added to each instantly formed a distinct clear jelly-like colo, liquid in both. From three hours being poured through the filter in the acid menstruum contained suspended throughout the thick jelly-like.
Feb. 15. 1 1/2 P.M. - Died on board cowfish & bread.

In P.M. Examined. Stomach full of fluids - 5/8 stomach empty.

Feb. 16. 1 1/2 A.M. - Died on board. Made 2 parts. Aged C. - 6 O'Clock.

Stomach empty.

Feb. 19th. 9:20 a.m. - Put 20 grains of cold fat pork cut into 1/4 inch cubes. & cooked. Clear gastric juice of the same kind & quantity, into 1/4 pint. Gastric juice strongly tinged with yellow & with a view to ascertain whether there be any different than shortly after upon fat meat placed both in aprons & 1 P.M. The pork in gastric juice tinged with bile & clear dissolved to less than 2 grains that in the clear. P.M. weighed 24 grains.

Feb. 20th. 1 1/2 P.M. Put 3 panels, 10 grs each, cold cowfish, into 3 portions of gastric 1/2 each, one pure, another containing bile in one of the clear limpid, slightly acid fluid, taken from the stomach, after small exercise, in more abundant gastric solution, usually spilled over or in both together.

Feb. 21st. 1 1/2 P.M. Took out & weighed the 3 panels of fish. The result was as follows - that in the pure gastric juice weighed 23 grs; that in the yellow 5 grs. Fthen 6 grs. Feb. 23rd. 2 1/2 A.M. Took two panels, 31 each. Gastric juice one pure, other the other of the clear limpid fluid, & made 1 put 8 grs lean beef, finely cut, into each spilled or back together - after boiled alike for six hours & the residue of the pure gastric juice, weighed 27 grs & the other in the clear fluid, 17 grs.

A long time gradually subsiding until the end of 48 hours, had it all become precipitated & the bottom into a compact mass exhibiting distinct particles of the entire insensible gelatin, mixed with a white, colour card-like substance.
Mar 27 — 9½ A.M. — Breakfast with bread, bread & coffee. Kept exercising moderately all a.m. Temperatures half empty, half of breast clearing. 11½ A.M. — Particles of cold meal still to be seen in stomach. — The P.m. stomach entirely clear of food. Temperature 101° after standing in 5 minutes.

Mar 28th — 8½ A.M. — Weather clear & pleasant. Stomach empty & healthy; Temperature 100° — no further properties present. A little pepper & life & minutes followed the warmth of the thorax. — 1½ P.M. — Temperature of stomach 101° containing some chyme.
Memo Thermometrical Observations

1833


- 9 OK P.M. Weather Clear. Wind Calm. Therm. 75°.


Stomach empty & clean. Temp. 101°. After Exercise


The 6th morning examination of the 9½ok was made while in bed & before inhaling the fresh external air.

In the morning of the 12th he had risen & gone out into the serene open atmosphere, before the examination.


before rising from his bed. Pulse 58. Respiration 20.


- 6 ¾ A.M. returned from a smart walk, & as to produce a gentle perspiration. Temp. 101½°. Pulse 68. fall. Respiration 24.

14th - 5½ OK A.M. Weather partially cloudy. Heavy thunder shown during the night. Wind S. Mod. Therm. 75°. Temp. of Stomach 100° on rising from bed. 100½° after walking out into the open air. Immediately back. Pulse 60. Respiration 20.
July 14 - 9 P.M. - Weather rainy. Atmosphere oppressive. Them. 79°. Wind E. Temp. of Stomach 102°. A full of chemifying aliments has been out on the plains all day. Picking berries & berries. One food from 7 in the morning till 8 at evening but appears to have drank something strong than water. Content of stomach perfectly.

While of frothing like milk just from the barn in heathen weather.


7½ A.M. - Weather, Wind the same as at 5½. Them. 74°. Stomach empty. Temp. 102°. Immediately after

Small exercise in walking. Producing firm

Perspiration.

11 A.M. - Weather clear except within 15 minutes during which time fell a light showe of rain. Wind N. & Therm. 74°.

Stomach empty. Temp. 10½°. Has been walking constantly for 4.5

A.M. on road line of trail & Snap beans at 2 00 P.M. A 4½ 30 yrs. Stomach empty. 9½ 01¾ A.M. - Weather, Wind N. Therm 70°.


Two hours previous to examination.

16 - 7½ A.M. - Weather cloudy. Wind N. & Therm 73°.

Stomach empty. Temp. 101°. After rising before exercising.

Observations Continued.

July 28th.
Weather Clear. Wind N.W. 60°. Thermometer 66°. At 9 A.M.
Stomach empty. Some aphanous patches & red spots upon the exposed mucous surface had been drinking ardent spirits freely for a few days past. For breakfast at 9 Ok. A.M. on fat pork, bread & coffee. 11 Ok. A.M. examined stomach—nearly empty. Some oily very little chyme fluid to be seen—Temp 101.

3 Ok P.M. Stomach empty. After walking or sleeping an hour & a half—Temp 101.

Aug 1st. 8 Ok. A.M. before eating or drinking anything—examined stomach—coats not healthy—considerable very freckled. Some aphanous patches on the exposed surface. Scanty vitiated saliva introduced. Elastic tube & extracted about half an ounce of gastric juice. Not pure as in health.

8 Ok. A.M. Circumstances appeared exactly very similar to those of previous Morn. Extracted an ounce of gastric juice mixed with unusual tincture of vitiated mucus. Saliva & some bile tinged slightly with blood. The blood appeared to be occasioned by the irritation of the tube passing over the surface of the stomach. Patches which were tender & more visible than common—also complained of no symptoms of indisposition, & preserved appetite. Ok. A.M.inner digestion of stomach more than previous.

1 Ok. A.M. Inner digestion of stomach more than previous.

2 Ok. A.M. stomach more convulsions & tension, the dark red spots more lively than usual. From the surface of some of which leaped a little common blood. The aphanous patches larger. The elastic mucous coat, or connective membranes thicker than common.

The gastric secretion much thicker. In extracting the gastric juice this morning it came out bloody mixed with thickly yellow tinged flakes of vitiated mucus. The mucous coat of the stomach appeared very slightly tinged with common blood. The mucous
discharges in chronic obstructions very little, if any
general indications of chronic derangement of the
lymphatic or even symptoms of slight manifestation
some manifested has felt a slight tenderness
recommends a course of at the pit of the stomach
for several days last I took a slight writhe on rising
stomach, slightly coated with a yellowish brown coat.
flulor regnavar uniform 165 in minute restless
quietly slept well last night appetite good.
July
Mil - Countenance rather sallow.
Aug 7th 4 A.M. Stomach empty - few of the white phlegm
ridding than yesterday - the tumor has now almost
disappeared over the upper coat has a green
Surface inclined to bleed - irritations vitalis
extracted about an ounce of gastric fluid composed
of many mucin, some bile - less of the mucous
fluids than yesterday - taste meatish acidified with
no perceivable acid - rested well - appetite good
few general symptoms of indisposition.

8,01 A.M. Stomach empty - coats more healthy than
yesterday - old thick patches disappeared - very few red
spots - surface of mucous membrane moist & nearly of
the natural healthy pink colour - secretion
less vitriolic - Extracted 341 gastric juice more
purplish than that taken for the last 10 or 2 days
past, slightly acid, but containing a larger portion
of mucin, more purplish than usual, in a healthy
condition.

Remark - The weather for the last 6 or 8 days has been
very variable - for the most part of the time, very
hilly, cold & damp, especially at Morning's Kroumbhe.
Sometimes alternated with hot sun & frequent Showers
ers in the course of the days or nights - Some
foggy mornings & frequent periods of darkness
Chilly atmosphere—During these 5 or 6 days St Martin has occasionally felt unpleasant sensations at the pit of his stomach; a slight sense of nausea, some vertigos, a prevailing sense of hunger, especially in the nights. No increase of gastric juice could be detected during all this time. Thus as has been observed is indeed to become fixed in a day or two.

Aug. 6th & 8th A.M.—Stomach probably coated; clean and healthy as usual. Decisions more firm than for several days past—Character 3½. Gastric juice of a more watery, less healthy appearance, with the usual gastric acid flavour.

It may be of interest here to note & compare the appearance & properties of different pieces of the gastric fluid taken from the stomach under the various symptoms.

It may be of interest here to note & compare the appearance & properties of different pieces of the gastric fluid, taken from the stomach under the various symptoms.

The fluid extracted on the 1st day, soon after the commencement of the morbid appearance of the coats of the stomach, was clearer, more opaque & contained a larger portion of mucus than when healthy. It was distinctly acid—its fluid & acid & retained the usual gastric flavour in diminished degree. Few small aphthous patches & spots were visible on the protruded part with a rotten.

The gastric fluid extracted on the second morning was more vitiated, containing larger proportion of very mucous. It was a bile & slightly tinged with blood, and the flavour was scarcely perceptible. The quantity taken out became a little more in 36 hours. It was offensive by a so.

The aphthous patches & deep ulceration were more numerous & extended, with their surfaces very tender, very tender, & inclined to bleed on the slightest touch. The third day, the diseased appearance of the membrane, was still more increased.

Ieconded
the secretions more vitiated, containing a large proportion of bile & mucus. A few days after this had a peculiar disagreeable flavour. They extracted it by means of 4 or 6 hours' alcohol. A considerable proportion of mucous granular matter was also mixed with this fluid. General symptoms of indigestion or derangement of the digestive functions during the course of all these appearances. He had been drinking about 8 or 6 pints, but I kept him in abstinence for several days previous. At the time felt a sense of discomfort & tinnitus at the base of the stomach - tongue was slightly furred with a yellowish coat - tinnitus lasted longer.

On the 4th day, the smell of appearance of the stomach was less considerable, the patches of spots from an eruption pale - the secretion similar to that before a few became furred, with the mucous granular fluid was changed with the gas, in fluids.

On the 5th day, the chills and appearance disappeared. Secretions considerably increased, slightly acid, containing but not pure.

Sixth day. The coat of the stomach has become quite clean & healthy. After the appearance of the mucous fluid it had disappeared almost entirely. Secretions pure & clean, healthy possessing the usual stomach and phlegm and colour.

It is this case the subject. It must have been drinking liquor more or less for several weeks. I had restricted him from the use of it. However, for a few days previous to these observations, with a view, expressly to note its effects.
of a sudden pituitary abstraction of the deleterious stimulants.

These diseased appearances of the membranes, initiated

by unwise directions, were doubtless aggravated by excessive

drinking, though his appetite & general health remained

unimpaired. His digestion was good & rather

facilitated, his head being always disposed
to dispose of them when he had previously
drank nothing but water. Coffee was also for many
months in excessive

measures, the inner coats of the stomach

perfectly healthy before he commenced drinking

without sp. It became so again in 5 days
or less after leaving it off.

And this has invariably been the case. Several
times, when he has been persuaded to indulge
this his strong & inveterate propensity of quenching
drinking, a sin to which he is very prone—
Experiments & observations continued.

Sept 15th 1833

8.00 A.M. Ates breakfasted on 3/4 pound of bread & 2/3 of some kind of frankfurter meat caught at Richey. The meat & bread were a tumbler full of clear water & continued at work during work—The coat of the stomach were not entirely healthy. Some patches dark and red spots to be seen on the mucous membrane. Gastric juice highly viscid—acid taste distinctly perceptible.

At the same time of the above—15 mins before 9.00 I masticated 3/4 of the same fish & 3/4 of same kind of bread & put them into 3/4 of some juice taken from the stomach & my first morsel & placed them in an apieal kept warm.

At 10.00 & fifteen min. I examined stomach & found it entirely empty—his breakfast completely chemiseed & gone—nothing but a little gastric juice & flocculi of viscous mucus remaining.

At the same time—10.4215 mins later I examined the contents of Said stomach; it was, filtered & pressed dry, as was set in, the undigested residue weighed 3/4 of a pound. The main stream after filtering was a clear opaque fluid, about the colour & consistence of fine myf. Excess from the vessels of the stomach distinctly acid taste. The residue was mixed in an apieal & kept together again & continued them in the same apieal for a few minutes. Then placed the seal on it & sand bath at 140°. Kept it constantly agitated for three hours. Now filtered again through fine muslin & placed the undigested residue between blotting or drying paper & it weighed precisely 30 gm. the fluid had become thicker & thicker in consistence & consistence mixed them together again & continued in both or in apieal another hour & now weighed the residue & mixture in the same case—24 grms.

The food was probably chemiseed & left the stomach after 45 minutes previous to this examination; as suggested by the same process. Some sensations frequently felt & described on such occasions indicative of the passage of chyme through the pylorus. Also in my observations of the nature of the stomach at these times.
Observations continued

mixt together & consumed in apitatem 2 hours longer. It weighed 4 grains, consisting chiefly of the skin of the fish mixed with together with the blood. 24th Feb.

The temperature of the contents of the seal which kept in the apitatem near 2 degrees below the heat of the Stomach being only 96°.

At 2 0'Clock 10 Mins. Alexis drank 6 ½ cups of tea, followed by 1 pint of wheat bread, a potato & piece of trumpet pie & drank a tumbler of water. Continued at work 6 hours till 8 o'clock. He had eaten nothing from the time he took his breakfast till he ate his dinner. Throat been hard at work all the time. Looked very quite fatigued.

At 3 o'clock 40 M ins. Examined up about Stomach about half full of a nearly homogenous fluid of milk, milk, or cream of hares. About the consistency of fine cream mixed with a few small particles of the fish. Some of the vegetables could be distinguished.

At 4 o'clock 45 M ins. Stomach empty & cleared.

At 9 o'clock. The food almost entirely reduced to chyme of a nice, bright, golden, quick like appearance. Some few particles of the skin of the fish remaining undigested, with some small, apparently foreign and indigestible substances, which were probably adventitiously mixed with the food.

On the addition of a dropper of bile from the human stomach being obtained by the perforation of an exentero of the chymus, the first apparent change was a new colour, which particles of the bile then a slight effervescence was produced and any fine coagula were formed - the fluid became thicker in appearance.
The words: Putrid & Fetid, in this book, are used in different senses: The first expresses it meant to express the teneur of putrefaction, or putrefactive fermentation. The last is intended to express that disagreeable, loathsome, odious emanation from vitiated animal fluids familiar to bile, saliva, etc.
the pit was in a great measure corrected by the addition of chymification of the food,

in the stomach. The sharp and disagreeable sensation of the stomach

by a slight piton—chymification seems to have corrected

the piton to increase the acid—Did the chemical changes effuse in the stomach, between the alimen and juice: another

opportunity play of chemical affinities. To produce this peculiar acid?

I would seem so from this and some other phenomena incident

to the process of stomachic digestion—er instance. The acid is

always increased on the introduction of a quantity of alimen

of none kind into the gastric juice within in the stomach or

out of it more from vegetable than animal diet—Do not

vegetable aliments contain more of the amino acid in

animal phosphates. May not the acids produced by them be different in

their chemical character though not distinguishable. The common gost?

Sept 21. At 8.00 a.m. Ayles. Breakfasted on 38. blood

beef's liver. 1/2 z bread. 1 pint water & continue usual

exercise.

Sept 30. A.M. Stomach full of half

chymific fluids. Considerable oil. V little in

stomach, floating on the surface with consid-

erable black pepper distributed with it. Depressing

the strong aromate odors of the liver—

10.30. Stomach clean & clean. Extracted 2 z

bottles lime gastric juice.

Sept 31. At 8.00 A.M. Minus. Put 30 grs of fresh beef steak. 1/2 z fresh

beef's liver. Large bottle. Masticated in 6 z

beef in muslin bags. Separately into 3 z. fresh gas:

juice. 1/2 z kept in a glasse.

At 9.30 stomach took on & squeezed as long as

water put in—The steak weighed 17. grs. The liver 11. grs

Put them back in stomach.

1 o'clock the steak weighed 14. grs. Liver 8 grs

At 11.45 put in the piton again in a glass for 2 hours no

further change effected—Weight the same as at last examination.
8th 21. At 11:30. Brought 1 lb. Rich Beef Vegetable broth made of the joint, together with some remnants of the leg. & 3 oz. which had
continued several hours.

At 3:15. Examined the stomach full of slightly
Chymicred fluid, with thick pellets of fat floating
on the surface. 1:30 pm. Stomach empty.

9th 21. At 12:30. Brought 1 lb. new cheese, masticated in 3
stripes, gastric juice not very pure. 1:30 pm. Acidified in a vessel. at 2:00
pm. 5 grains of the nux vomica removed, understood, colouring
principally of volatile oil. Combined with a nauseous substance
floating on the surface, of a red gum like or milky fluid,
with a little very fine white compact precipitate at the bottom
of the vessel. At this time it smelted a strong nauseous smell, very
stronger one than the cheese itself possessed when put in.

20. 12.5. Put one ounce of 3% phial to the left so as to leave the
side of the gramine. With this, but 1/2 gluttonous into 3 stripes. Gastroine juice
kept the phial in a phial. When first mixed, they were so much
alike that, they could only be distinguished from each other
by the globular form of the gramine, but by the time they were
allowed to digest the gramine, till the had all disappeared, the phases began to
come out. The gramine became opaque white, in two hours 20 minutes no trace of the
lachryma could be discerned, the fluid was more opaque & milky, no precipitate
was found in standing for 24 hours. A slight acid was perceptible
perhaps the gramine acid of the gramine.
Sept 22d 11h 05m. Put 5 grains of dry wheat flour into 4 drachmes of water and
then together in the apothec. When first mixed they very much
resembled each other but in less than an hour they differed
markedly in appearance— the contents of the aqueous (i.e.,
water) part was a mixture of flour and water, plainly exhibiting the
individual particles floating about in the
Munstrumum— The gastric portion was thicker, more
milkly and of a cream colour, with less particule syudling
to the bottom on standing than in the water.
of a milky appearance.

September 13th, 4 P.M. – Put 30 g. of pure peach juice into the gas jar, 13 g. of milk and 13 g. of sugar. Stirred well and allowed to stand

September 14th. – Put 20 g. of sugar in the gas jar and 3 g. of powder in a small quantity of water. Stirred well and allowed to stand. All digested in 8 hours.

25 g. of the 80% alcohol. Put two Bouchardets, one filled with the other entirely.

26 – 10.25 A.M. – Put 30 g. of ripe peach juice into the gas jar, 13 g. of milk and 13 g. of sugar. Stirred well and allowed to stand. At 8:45 P.M. examined.

27 – 10 g. of water – Apple – 24 g.
Sept 26. The gastric fluids extracted. They for several mornings last
have been much vitiated & mixed with unusually large portion of
undigested mucus & considerable mucopurulent matter. This
last circumstance frequently occurs & especially after a free
indulgence in the use of intoxicating liquors. The
mucous is profusely disagreeable nauseous & prevents the gastric
acid & flavour in much less degree than at other times.
Soon becomes facet. & possesses obstinate property of
the mucopurulent character is indicated on being thrown
into water, by falling immediately to the bottom. However,
time, the mucus usually extracted with the gastric juice is
in a healthy condition of the Flimmer. Disagreement in motion raises
to the lungs. Whatever this irritability occasions
the morbid appearances of the coat of the stomach are
most manifest, epithelial & desquamated patches. Tender
points on the interior of the gastric surface are most manifest.
The frequent complaint of the heart of pain from the
Swelling of the end of the colon or the duodenum, as it is
moved about the stomach in extracting the fluids.

26. Stomach appears more healthy. Decoctions less injurious
little of the mucopurulent result considerably to be fitted.

29. Mucous appearance of epulis. Membranes nearly disappeared
no mucopurulent discharge. 5 days. Gastric dejection past.

30. Stomach healthy. Extracted from stomach jar this morning.
Sept. 27 - 21st. 15. — Put 4 drachms of albumen, into 4 drachms of

steam, gastric juice, from the healthy stomach, raised the temperature to 100° & put it into the syringe.

At first the albumen fell to the bottoms of the jar, but on being agitated, it was diffused in 8 or 10 minutes. Loose coagula or flakes began to form, & remain suspended near the bottom.

Put the same quantity of albumen into 4 drachms of simple water, at the same temperature, placed it with the other in the syringe. Then first put in the albumen was diffused in loose light flakes, through the water and collecting coagulating & collecting like those in the gastric juice. I am leaning, to the bottom, but sticking round the sides of the Vial or rising to the surface.

When both Vials were strongly agitated, the whole is either mass like white, milk but formed on the top of the first coagula occur Vial, the gastric juice exhibited none of this pretty appearance, but shows the Coagula, broken into similar particles, pour compactly settling to the bottom.

After an hour from the time the albumen was put into the syr. & Ren in the syringe, frequently shaked, the gastric mixture had become quite opaque & milky with the small white coagula at the bottom, & considerably diminished in quantity. The aqueous mixture remained unchanged. The pretty portion on the top of the fluid below turned & clear. Now when put in — no appearance of albumen, in any shape could be seen except the froth on the top — Indeed the albumen seemed to have clarified the water of all its impurities — At 6 o'clock, the albumen in the gastric juice was completely dissolved, the fluid was perfectly precipitated, fell down on standing.

That in the water was strikingly different in appearance, the agitation had heat up the albumen completely & turn it into a beautiful white froth, & lay like a snowball & lump of clean raw cotton on the surface of the water. much

Transferred as clear as crystal, with not the least particle of sediment.
Sept 20. - Mixed 1/3 sweet cream with 3 dropperfuls of gas: ji: placed in a cappella. The first few together before agitating they did not unite, but the Gas: ji: sunk to the bottom of the Flask remained there distinctly, till shaken together. When it was reunited with the cream, the Gas: ji: separated. All the temperature was raised to about 80°: the cream formed a fine white coagulable isomorphically distributed in the mass.

Sept 21. - Appearance nearly the same as at first. The fine coagulable seems to be a little more collected together forming a fine mass occupying 1/4 of the space of the capacity of the flask. About 1/2 of it suspended in a thin white colored liquid. Looked from the cappella at 8 a.m. till morning.

Sept 20. - Placed in a cappella again - 1/3 - 30°. Considerable change in appearance. The creamy coagulated mass diminished nearly one half; leaving on the top an opaque white whey colored fluid occupying nearly half the space of the Flask - about one drop of pure butter oil stood in small globules on the surface. Continued in a cappella - See pg 3 forward.

Sept 20. - Placed in a cappella - 1 1/2 - 30°. The cream fell to the bottom of the Flask as in the former. Exhibited a little fine coagulable sticking to the inner side of the Flask: when the temperature was raised to 80° it formed into loose coagulable suspended in a white milky fluid.

Sept 20. - The coagulable more collected together, diminished one half or more. The fluid has become less milky, more resembling the first: with very little fine, white, fine suspension at the bottom of the Flask. Some few cream colored globules on the top.

Sept 20. - Placed again in a cappella - 1/2 - 30°. Coagulable almost completely dissolved. Fluid resembles rich strained cream, a very few flakes rising to surface. Temperature slightly increased - continued in a cappella.

Sept 20. - 9 o'clock. Appearance much the same as at last. Examine the fluid: Very white, rich, granulate in color and consistence. A little fine sediment in fine white coagulate of butter - no visible distinct separations of parts - nearly the whole mass of fluid assumes a rich cream colored on 30°.

Sept 20. - Put 13 drops of gas: ji: into 3/4 of sweet milk at the temperature of 65°. A slight appearance of very fine coagulant formed at first, but not so as to become separated till after the temperature was raised to 85° or 90°. Where the milk giving cool to mix: gradually form a translucent, jelly-like curd. After standing an hour or two, separated into two: one part equal parts: a opaque coagulated, white colored whey - the curd, I subsequently subjected to the effect of the gas: ji.
8:30 A.M. Examined Stomach. Nearly full of a milky fluid, intermingled with a pulp of bread & coagulate of milk. Taste quite acid. 9 A.M. Examined took out a portion. The contents of the stomach were considerably diminished since last exam. The portion taken out appeared to be nearly oily milky. The bread was reduced to a mere pastaceous mass, intermingled with fine flakes of coagulated milk. The fluid part was of a whitish yellow colour & consistency. Put this in a vessel & pour it in apille. 9:30 A.M. Observation complete. Stomach healthy & clear for one of portion taken out. See next page.

9:00 A.M. Mixed 23. of soy curd formed by coagulating sweet milk with a few drops of gastric juice, with 1 spoon of gastric juice. Placed it in apille.

2:00 P.M. The curd appears to be completely dissolved nearly all dissolved. The mixture of a rich creamy white & consistency of a very fine compost. Deposited at the bottom. The fluid smell considerably corrected & the acid flavour increased. Intermix in apille. 9:00 P.M. Appearance similar to that of last examination. Colour of fluid the same. Deposited at bottom less considerable. A pellicle of very fine looks: placed on the top. The intermediate liquid of a rich whitish yellow colour & consistency semi-transparent, slightly faint & insipidity acid.
Sept 30 - 6 ok - 30" a.m. - Alexis eat 3/4's sweet apple without skin or core and at 12 o'clock noon not a vestige of it remained in the stomach. I could extract nothing but a little gas, it was mucous more acid than common. Stays his bile always smart more when he eat fruit than when he eat common diet.

Sept 30 - 7 ok - 6 M. - Put 1 drachm of black mustard seed with the skin broken all except one, which was put in a bottle, into 1 ounce of gas; jee. Heavily in a vessel - 6 ok P.M. - Took out the residue of the berries, consisting apparently of seeds & skins, & then the entire berry, then weighed together 35 gr. - the fluid was of a rich blood red colour, resembling cumberland jelly thinly diffused in water.

30 Continued from last page - 26th P.M. - Digestion or Solution of the alimentary matter continued. The pulp of bread & apples nearly all chymiferous; very little to be seen. The fluid of a rich green colour & consistency. Let it aside till 3 ok P.M. Oct 1st. At this time the residue of the bread reduced to a soft putrescent thin fluid mass, was loosely suspended at the bottom of a yellowish yellow coloured liquid. The soda appearing to have ceased. I added 1 drachm of fresh gas; jee; but it in the vessel again - 6 ok P.M. pulp of bread & seed coagulated all completely chymiferous, fluid of a rich brownish olive colour of the consistence of rich gruel - after standing at rest a while, a loose reddish brown sediment subsided to the bottom & left a clear yellowish olive coloured fluid in about equal proportions to the sediment.
Oct 1st. 9 O'clock A.M. - Placed in apella again. 9 O'clock P.M. - The same
progressive change of appearance. Continued. The creamy coagula
is now reduced to about 3/8 of the space in the Phial. The fluid below,
increased in richness. occupies 5/8. The butyric oil on the surface greatly
increased, forming a thick pellicle, nearly resembling soft butter.
No precipitate at the bottom. Set aside till morning.

Oct 2nd. 8 O'clock A.M. - Placed in apella again. 10 1/2. 30 " added 1 dram of gas. ju:
Continued in apella. 9 O'clock P.M. - Creamy coagula one half diminished
since the addition of 1 dram of gas. ju. yesterday the oily pellicle on the
top increased. Fluid resembles clear rich Gould. Vomitus about 5/6
of the Phial. No sediment. Set aside till morning again.
- 8 O'clock A.M. - Placed in apella again. 12 1/2. 40 " not much change
in appearance since 9 O'clock. Added 1 dram more gas. ju. Continued in
apella. 6 O'clock P.M. - Creamy coagula still more reduced, now
forming a layer light stratum above the rich granular fluid.
With a thick pellicle of clear yellow butyric oil on its upper
surface. Set aside as usual till morning.

4th. 10 O'clock 55 " - I divided the contents of the Vial into two equal parts.
Pour them into two separate Vials. To the 1st, I added 2 drams of
pure gastric juice. To the other 2 drams of fresh gastric fluids con-
taining a large proportion of olive green bile, placed them in apella.
9 O'clock P.M. - The change effected since these additions is absolutely
evident. The fluid is no more the yellow butter-like fluid.
prevented a very rich perfectly homogenized liquid of a rich
greenish consistency, not a globule of the butyric oil
or particle of the creamy coagula could be discerned.
A very little loose dirty white sediment was discernible at
the bottom of the Phial. That with the addition of the 2 drams
of pure gas. ju. was diminished in thickness. Bile to the quantity
added - the coagulated creamy portion was reduced to a stratum
of about the height of an inch. The butyric oily pellicle was scarcely
perceivable. The globule extremely smooth & milky covering
more of that fluid. Gas. ju. to the 2nd

5th. 8 O'clock 15 " - Added 2 drams pure gas. ju. to the 1st
apella. The coagula more fully coagulated. I stood it aside. 8 O'clock P.M. - The
fluid continued in apella has now become

[Note: The handwriting is difficult to decipher in some parts.]
to the edge of the phial above the fluid after agitation, &
when the supped to stand at rest a short time a loose
yellowish flocculi accompanied rose on the surface; succeeding
more than three the space of the oil before it was around
the last addition of gas & fluid — no sediment could
be detected — of the fluid.

Page 243 — No. 1 Vial

The solution with the pure gas & fluid had regularly progressed
in the solution of the oil: in ratio proportional to the juice added.
The oily portion on the top was diminished in thickness nearly one
third. Hence the last addition of gas & fluid had changed from its
globular oily appearance into a whitish fleshy-like mass.
Intermingled with milk-white flocculi — the main body below still
of a rich milky appearance, with a little coarse white distinct
tending to the bottom of the Vial.

Page 244 — No. 2 Vial.

At 9.0K 45 in. added: 6 drachms pure gas & juice; to No. 1 Vial
+ 5 drachms of fresh yellow Gas & fluid to No. 2 Vial placed
then in a still — on both — kept them constantly agitated
24' 0K 45 min. The oily portion in No 2 Vial was now
completely broken down & not a globule remained on the
surface. The flocculi or loose flocculi rose upon the surface.
On standing the fluid was of a rich brownish color
of consistence — slightly tinged with the fluid — no Sediment
was perceivable. — the contents of No. 1 Vial had undergone
but little change in the same time — an oily flocculi was
still on the surface, very slightly of any discernible colour:
the addition of the Gas & fluid — perhaps a little lighter color;
more Schonauens. — The fluid was of the same milky
colour.
Dec. 15. 1/2 O'clock P.M. Dined on Parch. Meat & Bread, at 4 1/2 O. A. Pickled Starch

Stomach empty. The contents of the Pouch, continued on the

bath 24 hrs., frequently agitated, exhibited the following change.
The portion taken from the Stomach, at 11.00, A.M., remained nearly
the same as when extracted, only perhaps more completely digested; some
small particles of bread & fibers of meat, seen when first taken out,
being now completely dissolved. That masticated & put into the
gastric juice, was reduced to a thick, semi-fluid
mash, but yet retaining some small distinct fibers of the meat,
which, after 90° of clear yellowish chylomicron fluid,
fell to the bottom. These remaining particles of undigested gruel,
I conceive to have been left for want of more gastric juice, the gly
sulphate, at first being too small, for the gly of meat put in. That in the
Vial of water, had undergone no other change than that of
an insensible pepsin-faetory fermentation, which was very evident
That containing the unmasticated piece of meat, had undergone an

involuntary process of digestion, the piece of meat, was about half dis-

tracted of the

remaining part loose & soft. the containing fluid
had become of a grayish brown color, opaque, with a fine brown
sediment settling to the bottom. Similar to that of the masticated
Meat in Gastric—that in the water, it will be well, perhaps, for

me to observe, that the Gastric juice containing the unmasticated
Meat, when taken from the Stomach, some 24 or 48 hours before
was not so rich as common. It mixed with the yellow bile,
also was in too small proportion to the piece of meat put into it.
The flavor & colour of the other two Vials, were very similar. except
the one with the masticated meat put in, had a sharper & more
acid smell. Blended them again on the bath. 16th Dec.
I deemed it proper here to note a phenomenon that occurred to me.

The fluid of gastric juice taken out at 12½ O'clock yesterday (5th) although but ⅓ could be obtained, it was mixed with a large portion of thin yellow bile of the colour of the yolk of an egg. This put on a vivid yellow light. Standing in the temperature of my room between 60° & 60° Fahr. (white) had the next morning become of a bluish green colour, with a loose grass-gum deposition at the bottom, in tincture much resembling murrine; nothing had been added to it which had been un stopped or moved from the time it was placed on the shelf — it retained the usual smell & taste of the gastric juice, except the bitter, which is not common to pure gastric juice. But once before have I ever extracted any fluid similar to this, & that at a time when my stomach had been made very angry. But no such circumstance had happened since to my knowledge, nor any other unusual occurrence that he was sensible of. The natural & healthy secretions of the stomach appear to be modified little or no gastric juice can be obtained in my usual way — the mucus coat is thick — digestion somewhat imperfect — no other particular symptoms of indisposition however, exist — appetite is good, but digestion is slower than common. Tongue clean, fluid — natural — respiration fair & thin. Soft, his countenance, so the hollow tongue. Bowels fair & regular.

Dec 16th — O.K. &c. — Breakfast fasted on pork, steak (cold), bread & coffee, &c.

On examining the stomach an hour after the chyme had passed out, several red spots, patches, abrasion of the mucous coat, tender and irritable, appeared spread over the inner surface; the tongue too had when it a thin whitish fur, yet his appetite was rather covering. At 2½ o'clock a full dinner of cold roast pork, fresh bread, a few of radishes I drank a tumbler of water. At 5½ o'clock found stomach half full. 7½ O'clock examined a considerable alimentary fluid yet in the stomach. 11 P.M. Stomach empty.

Dec. 17th 8½ A.M. Put 2½ fresh fried sausages into a fine muslin bag & suspended it in the stomach. The immediately after breakfasted on the same kind of sausage & a small piece of boiled breast of mutton, a little bread & a pint of coffee. 11:20 A.M. Examined stomach, half empty. Contents of bag, half diminished. 2 P.M. Stomach empty. At 8 P.M. — Contents of bag all gone, except 15 grams consisting of small bits of cartilaginous & connective fibres, the skin of the sausage, which weighed 8 grams, leaving only 9 grams of the meat put in. It may be proper to remark here, that in consequence of being called out, I omitted the last examination too long from the appearance of the examination. This fortun had no doubt that the stomach was clearthe bag empty by 2½ A.M.

The contents of the food left in the stomach at 1 A.M. of the 18th.
Dec. 18th - 8:30 - Suspended. 2 oz. fresh fried sausage. Masticated. Put into the muslin bag into the stomach. The breakfast on the same with bread & small coffee. 1 1/2 ch. stomach half empty. Contents of bag about half gone. 1 P.M. examined. Stomach nearly empty - very little left in bag. 1 1/2 P.M. - Stomach clear, except the bag containing a little of the sausage. Took this out & kept it in the scales, it weighed 13 1/2 P.M., of which 13 oz. was left clear. Yesterday the bag when drawn out came from far towards the pyloric orifice. It was covered with a coat of serum & yellow bile - the contents have been unusually and since yesterday morning the complains of uncommon smell & irritation at the edge of the aperture - countenance looks hollow. Stomach covered with thin yellowish coat. Several of these deep red patches over the inner coat of the stomach - feels not his usual appetite. - at bedtime 9:00 - drank in 12 oz. blue mass. 4 1/2 P.M. - Eaten at 3:45. P.M. - Eat a meal of boiled & stewedlast was called out & made no observation -

Dec. 19th - At 8:45 A.M. - Suspended 13 oz. boiled stewed last in muslin bag. into the stomach. The breakfast on the same kind with bread & a kind of coffee. He eat also a small piece of sausage - At 11:45. Stomach about 3/4 empty. Contents of bag not 1/4. P.M. - At 2 1/2 P.M. the boy complained of a good deal of Smarting at the aperture. I took out the bag & on putting its remaining contents into the scales, found they weighed 2 oz. leaving lost 13 only in 5 hrs 4 1/4 mins.
Dec 20th, 6½ O'Clock P.M. — Cocts of the stomach appear healthy. Considerable food gastric juice, very plainly to be seen, took some effort to remove, but otherwise it came out of the aperture freely, by turning it down. Came out of usual transparent, contained flocculi of mucus, Breakfasted on broth, bread, toasted bread & coffee. At 11½ O'Clock, stomach half empty.

2 O'Clock P.M. — Stomach empty & clear.

At 2½ O'Clock, dined on boiled chicken breast & dumplings.

Wheat bread — 6½ O'Clock P.M. — Stomach empty.

Dec 21st. 6½ O'Clock P.M. — Examined stomach, appearance not healthy, several small deep red patches, erupted & gastric juice tinged with yellow color. Mastreated with 1½ of the thigh of a boiled fowl & 3 bread & put into the gastric juice & placed the Viol under the arm in the abdomen, into the same quantity of pure water, warmed to 90°, just the same asy of the fowl & bread, placed in the same situation & at the same time, the stomach did not recover on the same kind of diet, boiled fowl, bread, cold — ½ O'Clock P.M. — Stomach empty. Ate at 6½ O'Clock P.M. Dined on some food, cold fowl, & bread — 6 ½ O'Clock P.M. Stomach nearly empty. At 7 O'Clock P.M. — Stomach empty.
The masticated portion put into the Phial & placed on
the bath & frequently shaken & digested regularly & uniform
ly till the particles were all dissolved except a few fibres.
That contained in the water in the same situation had not
changed in its appearance from the time it was put in.
Separating the remaining particles of the food in the gastric
juice, it evening it weighed 14 grains left 1/4 the fraction
of an opaque milky coloured fluid
that in the water,
taken out the same time, weighed 40 grains left 1/4 of
turbid opaque fluid, like water, with a cloudy floater
stirred into it, with a musty insipid smell & taste.

The first half the stomach filled & smell bad.

Dec. 22 - 8 A.M. - Expelled - Stomach - Temp. - 100 ° precisely - inflated
about 3/4 gastric juice, not free this morning, before

8 - Breakfast on Bread & coffee alone - 9 A.M. - Stomach
stomach full of fluid, Temp. - 100 ° precisely - 11 A.M. - stomach
full, with the cheese in fluid form floating on surface &
reduced its fluid - Temp. - 100 ° - 12 A.M. - Food still in the stomach
considerably diminished - 1 1/2 - The - some of the cheese
yet remaining, stomach nearly empty - 2 O'Clock -

Stomach empty.

The contents of the stomach have not appeared
in their normal healthy condition for several days past.
the contents dark brown colour, coat uneven - some patches
of purple faint colour, with atrophious edges - surface
inclined to be dry - very little secretion of gastric juice.

Dec. 22. - 6 o'clock A.M. - Weather clear. Atmosphere dry. Wind N.W. Therm. 26°. - Temp. of Stomach 100°; quiescent. Morning stationary at that. in 2 mins. Pulse 65 in a min.; regular. Stomach empty. System under some circumstances as last evening examination. 8 o'clock A.M. - Temp. of Stomach same as at 6; quiescent 100°. Pulse 75. - 11 A.M. Temp. of Stomach quiescent 100°. Pulse 75. - forgot to examine at evening.


8 o'clock P.M. - Colonel operated twice copiously. commenced at seven o'clock. appearance of diseased action of the coat. Temp. of Stomach 100°; quiescent. Pulse (2) mild (left).
Dec. 23d. 6 A.M. - Temple of Stomach 100° - Pulse 65.
9th. A.M. - Temple of Stomach 100° - Pulse 95. - Sprinkled 5 drasps of Calomel over the mucous membrane. Ball was at this time inclined to dryness & darker than natural colour. papillae small & sharp, mucus covering scarcely perceptible.
Bowls castive. Tongue coated with a yellowish fur, its edges pale. - Streamed in at the aperture 1 z of Rima & sprinkled over the surface of the protruded coat. 5 0/6 grains of Calomel. He eat a light breakfast of cornbread, crackers & a cup of coffee.
2 P.M. - Stomach empty. Coat look healthier. - They did not having moved his bowels since 11 days. More calomel per 16 z. at 6 A.M.
Dec 24 - 6.0 A.M. - Weather clear, atmosphere dry — Winds E. Ely.  
Temperature 21. — Temp. of Stomach 100° — Pulse 70 — regular & soft.  
8.0 A.M. — Temp. of Stomach 100° — Pulse 76. In recumbent position, 8°.  
Sitting position uniform & soft. General indications of perfect health  
this morning. The Calomel, taken at 11.0, yesterday, operated thoroughly  
at vomiting, between 7 & 9.0.  
4.0 P.M. — Temp. of Stomach 100° — Pulse 55. In recumbent position.  
in recumbent position — digestion, regularly advancing — breakfast, half  
gone.  
11.0 A.M. — Temp. of Stomach 100° — Breakfast nearly all gone.  
12.0 P.M. — Temp. of Stomach 100° — Pulse not examined — Stomach empty.  
8.0 P.M. — Examined Stomach — Temp. 100° — Pulse 70. In recumbent position.  

Dec 25 — 8.0 A.M. — Weather overcast; partially cloudy, atmosphere dry & sunny.  
Winds E. Ely.  
Temperature 21. — Examined Stomach — Temp. 100° — no pain.  
Pulse 55. In recumbent position.  
Sitting position — a few small red spots on the  
mucous surface — gastric secretions appear healthy — as usual.  
9.0 A.M. — Breakfasted on for pork salad, corn bread & coffee.  
10.0 A.M. — Examined Stomach — Temp. same as at 8.0.  
Pulse 65 in recumbent position.  
5.0 P.M. — Gastric cavity full of bitter green  
mixture — 1 1/2.  
8.0 P.M. — Just returned from walking about  
1 hour, a distance of 2 1/2 miles, not to produce much perspiration  
but gentle diaphoresis. — Weather clear, calm & dry.  
Therm. 50°.
Temp. of Stomach 101°. — Pulse 70. in recumbent position. — 8:30 A.M. — Sitting rect. — Regular.

Contents of Stomach half reduced, & nearly homogeneous.

12½ O'clock. — Examination Stomach. — Temp. 100°. — Pulse 62. in recumbent position.

7½ A.M. — Contents nearly gone.

1½ O'clock. — Stomach empty. — 9 o'clock. — Weather cloudy.

Atmosphere dry. — Wind Calm. — Therm. 42. — Temp. of Stomach 99½.

Head drank a tumbler of water. 15 or 20 mins before 8:30 A.M. —

Pulse 62. recumbent. — 7½ A.M. —

Date 26. 6 o'clock A.M. — Weather cloudy. — Atmosphere damp.

Wind N.E. — Therm. 38. — Temp. of Stomach 99½. — Pulse 55. in recumbent.

11½ A.M. — Respiration in recumbent posture 15. in a min.


Pulse 65. in recumbent. — 8½ A.M. — Feelings of impatience to return from breakfast. — 9½ A.M. — Breakfast. — a small lunch of Roast Turkey’s breast, bread & coffee. — Made no observations.

5 o'clock P.M. — Weather rainy. — Wind N.E. — Therm. 41. — Examination.

Stomach. — Temp. 99½. — Pulse 60. recumbent. — 5½ A.M. —

Therm. 101°. — Pulse 50 & 60.

Respiration 15.

His diet for today has been confined principally to farina, wheaten bread & Crackers, in moderate qty.
Dec. 24, 6 o'clock, dull. Weather foul, atmosphere damp. Wind S.

Thermometer 38 degrees. Tempest of stomach. 99% surface clean, healthy.

None of those dark red or efflorescent patches, nor white elevated, 
muscular coat uneven or uneven of the natural pink colour.
No excoriation or smarting of the edges of the aperture.

Extracted an ounce of gastric juice. Slightly tinged with yellow bile, this however I conceive to have been entirely accidental & occasioned by regurgitating through the pylorus. As he turned upon his back, from right to left, to favour the exit of the gastric juice - the same circumstance has happened several times before.

At 9 o'clock A.M. Breakfasted on 3/4 broiled breast of mutton, 1/3

whitish corn bread, half a cup of coffee, very thoroughly masticated.

At the same time of eating, put 2/3 of some kind of food, 
equally well masticated, into the ounce of gastric juice,
taken from the stomach at 6 o'clock - the same quantity of 
same kind of food, masticated in same manner, into an 
ounce of simple water & placed them both together first 
in the axilla of - & afterwards on the bath.

Between 9 to 10 o'clock continued frequently agitating them,

- 12 o'clock A.M. Examined stomach - nearly empty - was just able 
to get out 1/2 for comparison in almost complete dissolved 
a few small particles of bread only visible. Temp. 100°.

12 1/2. The fine, no distinct particles, not at all to be seen, all 
passed from the stomach - nothing but a little froth remains, 
At 2 o'clock. Dined on same kind & qty of food taken for his breakfast. Broil mutton & bread. drank nothing that morning. Temp of stomach 100°. Throat 52. Wind South & Weather clear since 12 o'clock. 2½ o'clock. Stomach as full of fluids as when he drank a pint immediately after eating. no perceptible difference in appearance.

6 o'clock. Stomach empty & clear. 9 o'clock. Temp of stomach 100°. Abject of weather, same as at 2 o'clock.

Dec. 28. 8 o'clock. All clear. atmosphere dry. Wind N.

Throat 34. Temp of stomach 100°. Coats clear. Healthy. Gastrojejenum. leaves extracted. 2½ only. That with considerable difficulty.

9 o'clock. Breakfasted on same kind of food as yesterday morning in several manner. Slightly masticated & swallowed fast, without regard to quantity.

The change effected in the sublunar contents of the two vessels yesterday, kept in the apothecary til 9 o'clock evening were as follows. That containing the gastric juice & food was about half dissolved. Lastly dissolved toward the bottom of a semicardinal, grayish-coloured fluid, that in the water exhibited no other appearance of digestion or dissolution, than what was occasioned by instillation when first put in. The masticated food had subsided to the bottom of a transparent, watery fluid clear & limpid, as when first mixed. At 8 o'clock this morning, added the 2½ of gastrojejenum. taken from the stomach. To the Vial containing the gastrojejenum of the same qty of water 25
the existing mixture & placed them together in the axilla again.

1st P.M. - a small portion of his breakfast still in the stomach - nearly dissolved - 1½ times stomach empty.

6th P.M. - examined Vial - digestion had recommenced gradually in the gastric juice in proportion to the gas added yesterday. the sediment had become more dissolved & the fluid part increased. what in the water remained unchanged. the remaining food taken out pressed dry, but a piece of meat weighed 17 g. having parted with 2.5 g. that, I conceive, to have been dissolved by the saliva mixed with it in mastication, with what was taken up by more maceration in water for 36 hrs.

The sediment of the gastric fluid taken out, squeezed between in the same manner, left 4.5 g. only, having completely dissolved 13.15 g. sooner or later gelatinous, milky-coloured fluid.

These two portions, kept in temperature between 55 & 70° Fahr., remained free from any fume. the gastric portion at this time emitted the nauseous flavour of the aqueous portion.

Dec. 29 - 9 O'C. All Wet - Wind clear dry. Wind SW. Wind 32° 32°. Temp. of Stomach 100°. coats clean & healthy. Breakfast at 7 a.m. 1½ times stomach half full of capacious fluid - no particles of any thing else but gastric fluid to be seen. Temp. 106°.

3½ O'C. P.M. - Stomach - empty - 3½ O'C. P.M. Stomach - empty & clean. the protruded period of complete digestion in this meal. I merely conceive to have been owing to the unusual size of food taken, being dissolved rapidly. 8 to 9 times the ordinary proportion. It was required to replenish the natural food bill of the dyre after the meal.
Dec. 20. 8 o'clock. All weather clear, dry. Wind N.W. St. Therm. 26.

Temp. of Stomach 100° clean & healthy. Gastric juice pure &
mucous than common - digested 1/2 without any difficulty.

9 o'clock. All breakfasted on: 2 1/2 lb. fat pork, fresh corn & milk.
3 1/2 wheat bread & coffee, masticated in usual manner.

- at the same time, took equal quantities of same food (bread, 
6 1/2. each kind) both masticated in same manner. took one of 
those into the Gastric juice, taken from the Stomach before 
eating, & the other into the same qty. 1/2 liquid water, of 
same temperature, of the Pass. jet, placed these in the apille 
11. o'clock. Piled - took from the Stomach. 1 1/2. q. put in into 
a vial & placed it the apille with the other. two - the 

perceptible difference between this latter oil & that of the Gastric 
juice was perceptible, in as much as the particles of aliment 
contained in the last appeared more nearly dissolved, having 
far fewer distinct particles remaining both, I judge, were about 
half digested - that taken from the Stomach, contains a larger 
proportion of the entire food & floating oil - the colour of the 
middle portions were very similar. - older, smell & taste - that 
from the Stomach, was rather more rancid & sharp than that 
in the Gastric juice, both possessed the peculiar earthy, or Gastric 
flavour. See Sen. 2. for completion of this Effort.

1/2 o'clock. All stomach empty & clean - it probably was do at 
10. but owing to accident didn't examine at that hour -
took it drinking in the afternoon, interrupted my experiment, 
& came home at 9. o'clock. quite tipsy.

8½ 0k. Breakfasted on same 85° kind of food as yesterday. Post bread.

1½ 0k. Ate. Took out 1 ½ ounces mass from stomach. At appearance, half digested. 1½ 0k. Ate. Took out another portion more completely dissolved. Stomach nearly empty.

3½ 0k. Stomach empty. ½ 0k. Ate. Dined on corn's boiled beef. Potatoes. Parsnips. Bread. Full meal, without regard to quantity or mastication. ½ 0k. Ate. Stomach perfectly empty. The ½ eye tooth from the stomach at 11 A.M. Very nearly resembled the contents of the visel of gastine joins. & masticated food of the 30th yesterday, in almost every partic

clara. That taken out at 12 0k. ill. Much more of the liquid viscous principles. Voids of the distinct particles of the albumen.
Jan. 1st 1833 8 O.K. Rainy dark & rainy - Wind South

Therm. 49° - Examined Stomach - Temper 100° - Healthy & Clean -
Egested 1/3 Gastric juice, pure - 2/3 lean beef - 2/3 boiler, chopped very fine with a knife. I put 1/3 into the 1/3 Gastric juice & the other 2/3 in 1/3 simple water. I placed them together in the agella. At the same time I break fasted an 2/3 lean beef & 2/3 boiler. 3/3 bread & coffee -
12 O. K. Took out an ounce is not fully digested & bread remained remaining reduced to a pulp - compared with the gastric juice -
I find in the vein the particles of meal seem more digestible. -
Stomach about half empty.

10 A.M. Stomach empty & clean
10 A.M. Lined on lean beef but bread - half meal.

5 O.K. Stomach empty & clean.

Jan 4th The beef in the Gastric juice of the above Exp. Jan 3rd 8:00 not being completely dissolved I added 3/3 fresh Gastric -
3/3 of water to the aqueous mixture. Evaporate than submit to the freezing failure in agella beginning now to cool - quite solid.

Jan. 5th 8 O.K. Meat in Gastric juice completely dissolved
A fine redish grey sediment fall to the bottom. of an opaque grey -

The ag. Gastric becoming more solid the particles of meal the same as usual float in only a little mountain blossom. The fluid turns clear, but may darker & a little aqueous of constitution - barn 10% content of 29.5 -

A 1/3 boiler & Gastric juice mixed together 8 as stated produced a turbid

milk white fluid which after standing 12.30, tired a
Thin white fluid on the surface of fine loose gas bubbles - when the
Gas was allowed to just float together before agitation. The Gastric juice -

[Further text not legible]
Jan. 2d — 8 o'clock. All. Stomach healthy. Extracted 1/3 z Gastri pure.

& placed it in the vessel of ether. Next day, out of stomach at 11 a.m.

Dec. 30th which at this time contained a large proportion of undigested bead-like matter floating on the top. Put the vessel in the apparatus — At 8½ o'clock. Breakfasted on nothing but dry bread & first of coffee. Stomach nearly full of fluid mucous fluid. 12½ p.m. nearly empty.

12½, clean — Drove Pill. dried on boiled potate. A small piece of bread & glass of water. At 8½ o'clock stomach full fluid & quite acid — of whitish color, with particles of potato floating about. 6 o'clock stomach empty.

(Took out one tube from the stomach at 12½ o'clock.)


Temp of stomach 101°, immediately after a walk of two miles producing a free perspiration & color of the face. 8½ z gasto juice, it did not flow so freely as it had done twenty (added 1/3 to the vessel of gas juice containing the neutralized cond. but put in at 9 o'clock. 1st tube of the other 3½ to the gas taken from the stomach, at 11 o'clock. Dec. 30th). Added 1/3 z water to the vessel containing the watery mixture & masticated cond. but placed tubes together in vessel — At 9½ a.m. the breakfasted on. Bread & breast of veal, cold boiled potatoes & bread. At the same time or within 15 mins. of the time suspended into the stomach at the abdomen. 20 grs. Masticated. Veal muscle, contents of stomach contained in a muslin bag.
10th Pill—nearly empty—1½ th Pill—All gone from Stomach except bag & contents, to appearance about half diminished.

20th Pill—took out the bag of viat. Expressing it as dry as I could without forcing the remaining particles of flesh through the cloth, it weighed to grains, having lost 15 grains by digestion in 2 hours. Should have returned it again, but the fellow complained so much of smarting around the aperture & was so illnatured, as in my belief, to affect & retard the digestion process. I did not carry the experiment any farther. The viat. when first put into the bag & suspended was of a clay-coloured white, but when taken out & weighed was of a paleish red or light flesh colour & of astringent consistence.

3½ th Pill—Dined on fresh boild veal, & bread & drank a tumbler full of water—7½ th Pill. Stomach empty.

Jan. 7th. 8½ th Pill. Stomach empty, no accumulations of gastric juice. Excepted 23. only, with difficulty added this to the contents of viat, containing the gastric juice of sinni oractivated meat, of Jan. 5th. All still at this time; distinct contained particles of the meat undigested. Added the same quantity of water to the viat. Contained both in vessel—


21½ th Pill.—Dined on breast of veal boiled & bread & tumbler of water—5½ th Pill. Stomach nearly empty.
Jan. 6 - 8½ O'Clock. - Examined Stomach. Cont. generally healthy
one or two small red patches. Sustains for Owen Extracted
1/2 & clear Gastric juice. containing less than usual gly.
of Muscles. Stomach - it ran freely through the Gum Elastic
tube - could have gotten more; but a sensation of pain
2nd & 3rd. at the pit of the Stomach. Being felt - concluded
of I decided - this sensation has almost uniformly occurred
whenever the Gas. jee had flowed freely, it sufficed to run
out to the gly. of 1½ or 2½ - accompanied by diminu of vis.
A very slight rising - these however subsided in a few mins.
the fluid as usual. I eat his meat with a good appetite.
9 A.M. - Breakfasted on Brooks real bread again, as yesterday the 37th. [Exercising?] 2 hr 39 min of the gas; jum- 
ttation only this morning to the esophagus, made taller from the stomach. Dec 36th. 11 A.M. I placed 2 tsp upon the 
bath. 10 A.M. Stomach nearly empty. Several small points of dense, gummy, blood speckling from the 
papillae of the inner coat of stomach.

2 P.M. - Examined stomach - some appearance of breakfast still; a few globules of oil; some 
the product of a few mouthfuls of Beef Sauce. Eaten with his breakfast. 2 hr. 2 P.M. Stomach empty. 

2 1/2 P.M. - Dined on Barley Gruel. In 12 Sent 
with mustard. 1 pint. At Stomach nearly 
empty. Any motion of the barly broth to be seen. Small 
small sharp pointed white freckles appear upon 
the surface of the mucous membrane. at the time. 

The surface generally was paler colour than 
common (or weak).

Jan 7th - 8 A.M. - Weather cloudy, damp & disagreeable. 

8 A.M. - Wind NE - Temp. 100°. Less of 

those small freckles & patches than ye Tuesday. Colour 
of coats natural again. No sunburn or gastric 
juice this morning. Could get only a few drops. 

9 A.M. - Temp. 100°. Breakfasted on soft 


examin'd. Stomach half empty. remaining contents covered. edge of aperture excavated. fundulus and patched on surface of mucous membrane. ¼ Pill. Stomach X containing in nearly the same condition as at

last examination. Very acid & sheep coated.
6 P.M. Stomach empty.

Jan. 8th - 8½ o'clock. A.M. Examin'd. Stomach coats healthy.

- some of those white spectator & pale patches. Seen yesterday & day before, to be seen this morning. colour of mucous membrane rather paler than common. Surface moist.

- extracted ½ oz. from gastric juice without difficulty. A slight momentary vertigo fell on rising up. No sinking or faintness felt at the scrobicularia. with this extraction - divided this ½ oz. of gastric juice into two equal parts. Took a dinner of simple water. in 3 viols. & added to each. 11 grs. of the muscle of a sheep's heart fried in undivided spirit. - kept one of the viols of the gastric juice in the apothecary's cell. the other with the ap. Viol in a cool place agitating alike. frequently - of evening the

juce in the warm Gastrin was half digested. the fluid of one plague did not contain that in the cold Gastrin, was a very little digested on the surface being

8½ o'clock. Breakfast. on 2nd Lancaster. ½ Pill.

beast & ½ of coffee. full meal. 1 P.M. Stomach empty covered with a true coat. like jelly. The fluid a little turbid. That in the stomach was entirely digested. the least dissolved. the water was perfectly transparent as when first in.
At 9 O'C. A.M. 9th. These several pieces of musilie showed the following results: that in the warm gas-jar, taken out & having rested with 7½ grs. press dry, weighed 3½ grs. that in cold gas-jar after the same manner weighed 12½ grs. - that in the simple water weighed the same as when put in 11½ grs., having neither lost nor gained, the remaining 3½ grs. of the 1st will, was in one entire piece of the same shape as when put in, but very soft & tender, scarcely able to sustain sufficient pressure to be raised by the finger-thumb.

It was a mass jelly - the 2d 12½ grs. was immersed in latter had sufficient pressure of figured to resist considerable pressure of the thumb-finger, when taken up, but still firm & compressible, that in vial of water, retained all its properties. Firmness of musilie. It was unaltered in off-white resplendence of surface, assessed by macroscopic - continued them all in the same situation till 8th night morning (10th) when the following differences were evident:

- The 1st piece in the warm gas-jar, weighed 15½ grs., having lost in the last 23 hrs. 1½ grs. only, it retained the same shape & about the same consistence as yesterday, a reddish brown sediment, settled to the bottom of a thick, coloured, semi-digested fluid.

- The 3rd in the cold gas-jar weighed 9½ grs. & put in, having lost 3½ grs. in the last 23 hrs. this retained its original shape, but diminished in circumference & softened in its texture - that in vial of water was unaltered & weighed the same as when put in, 11½ grs. - Remark. The two pieces in the cold gas-jar,.discerned from their 1st position, in tank of about 46°, increased for the last 23 hrs. on the macropin & the fire in my notice in length of about 60° - hence, we deduce the loss by digestion of the 3½ grs. of meat in gas-jar by the addition of its imaginary waters. Further -
Jas. 9th. 8 o'clock a.m. - Stomach coat, a little faint, 100°.

Intended to use gas; fever not great, but slightly tinged with yellow or greenish, not in the least bitter, but slightly acid, very little or no flavor of mucus; it differed a little in color from that taken yesterday, but this I conceive to flow from the rankness of having taken his quid of tobacco when his first got to dwell 

of it, and then appeared a few small particles resembling tobacco in the feces of the patient.

Can it be owing to the effect of tobacco on the glands of the stomach that the gas; fever was more abundantly dispersed than at 8 o'clock, &c. morning of 6th this morning? - The gas; fever deferring a little in appearance.

I equal gas; same kind of meal, yet than parts into similar 

This of the two parts of gas; fever &c. water & place them on the bath together, 8 o'clock &c. note the difference of any; in the result 9 o'clock. Believable presence difference of the two parts, but in the charge and to be perceived both almost completely dissolved that in the water unchanged - Jan. 10. 9 o'clock same manner containing of the above mentioned meals for the purpose suggested. The pure of both in the gaseous phase of the 6th was completely dissolved as was also that of the 9th equally good - the latter being contemporaneously half of the former, patient in the -

Difference of the two masses of gas, &c.

For small to be consumed by the smaller weight consisting apparently of the cellular

Microscopic phase - Digest of the new work smallest of the two.

The pure in the water, more unchanged both of equal weight. Interchange the bu- ams as when parts yes, &c. water was also placed in the 6th, &c. I am -

of the other two gaseous parts, one of an opaque, milky color, with a light colored loose particle rising to the top on standing. No sediment at the bottom.

Therm. 36. - Temp. of stomach 100°. - Coat clean, healthy. Pulse 67.
in 6th position. 77 in second position. before eating - Extracted 37
pounds of gastric juice. without difficulty, produced a slight degree of
disturbance in the stomach and some vertigo on rising - not to impair the
appetite.

Breakfast on grits. Bread & Coffee.

In a vessel containing the warm gastric juice, 37 grams, 8.74 g, I
added 12 g. fresh gastric juice. warmed - put it in a cylinder.
In 5 hours it was dissolved to a mixture scarcely perceptible.
The peau in the cold gastric juice left on the mouth piece; in temp.
between 55 & 60°. The urine, 11°. to boil out & pressed dry.
weight 1 g. retaining the same shape & similar texture as yesterday.
The fluid had become more opaque & milky & the distemper increased.
The bottom - The peau in the water at this time remained unchanged.
I weighed precisely the same as it first 11 g. At 9½ A.M. placed both these in the cylinder. At 9 A.M. the peau remaining
in the 2nd vessel; nor placed in the cylinder. This morning was nearly all
disturbed. I gave only 1/3 an ounce of peau. The peau in the water
remained unaltered. I weighed the same figure, but began to
unless a strong petit mals. - I became

Jan. 11: 9. The ice in the well cont'd the middle of meat (under which
constantly a little juice still remaining it). Original shape & size. Two
no doubt, though troubled to handle, or take out. I added 37 g. more of gastric juice.

In the bath to remain. In the morning I found the at once. A
begun to diminish. The juice was completely expelled.
Jan 11 - 8h A.M. Weather clear, dry. Wind S.W. B. Therm. 15°.

Temp. Stomach 100°. - Cores healthy. Extracted 1.3 fl oz. Gaseous juice.

10h -来宾 - Stomach full. Digestion advancing. Contents acid.

2.30 A.M. - took 3 flasks each 2 fl oz. from gastric juice: first from healthy stomach, 1st flask 2 oz. 3 fl oz. White of egg containing small emulsion, 1st flask 2 oz. 3 fl oz. Yolk 1 oz. 3 fl oz. White, sent the two first in asialia & the other on beefsteaks, after agitation.

4h P.M. Albumin in the cream, gaseous mucus had become quite opaque, with loose lighter coloured sediment at bottom. The vial in cool place, remained emulsified. That containing the yolk exhibited the appearance of a main portion of four yellow coagula combining with the milk of heated 

together - 12th day at coming both vials continued in asialia or on alcohol.

During the day - the difference observed. Last coming between the cold & warm Vials of albumin, very little mixed. The gaseous considerably altered, form a loose, agglomeration, deflected that the gaseous to a fine coagula rising upon the top of a perfectly clear, transparent fluid of colorless, no plate of sediment.

Jan 12th 8h A.M. Stomach healthy. Extracted 3 fl. Gaseous juice

ta little tinged with yellow, whether from bile or tobacco, difficult to say, having taken his quid the day previously. Turn being no bitter taste perceptible in the fluid - a large portion of frothy

dilute flocks of mucus than common. 2 oz. A.M. Breakfasted on dry codfish, bread & coffee. 12½ h. A.M. Stomach empty.

Dined on Pork and peas at 3h P.M.
Jan: 13th - 8 hr. A.M. - Weather overcast - dry & smoky - wind S.


Jan: 14th - 5/2 A.M. - Weather clear. - dry & Vernon. - Wind S.W. 15 Thro: 28° - Stomach: healthy - coats: clear. - Temp. 107°. - Extracted 93° from gastric juice. - clear transparent. - albuminous consistency - plenty of few flakes. - 4 pm. at little very little. - surface of rocky salute. - slight faintness throughout. - as usual. - Breakfasted at 9 0.15 hr. - 1/2 hr. after. - 9 1/2 hr. - Add 10 grs. soluble powder of the salt of pot. into 3/4 of the gastric juice taken from the ball. - then warming, & pen it in cell: - 9 hr. 1/4 hr. - 15°. (Could not weigh) jell 9 grs. - 9 am. 16°. - 8 1/2 grs.

9 1/2 P.M. - 17°. weight 84°. - 12 0. hr. - 15°. - cut heavily the same - add 13 more. - gas; fume: - 19°. - - 1/2 grs. - 20°. - 1/2 grs. - 23 1/2°.


Temper of stomach 108°.  

8 O'clock - Break fast on pork & bread.  

2 P.M. - Stomach empty & clean.  

5 P.M. - supper.  

Fresh beefsteak, boiled. 15 yrs each done into small pieces.  

Put one into 1/2 of stomach juice; the other into 3/2 of saliva, burnt in fresh from the mouth & at the same time put 15 yrs of the new sink allowed into the other mixture into 3/2 of stomach juice.  

Thoroughly stir with PIXIYTA.  

Put on the rolling pan; fill the bath alternately frequently stirring them - at 6 O'clock, that in the saliva.  

Showed strongly the appearance of maceration in warm water.  

The fluid having become granular white, bloody & at the other two parcels in the gastric fluids, considerably digested diminishing the appearance of coagulation in warm water, the fluid having become granular white, bloody & at the other two parcels in the gastric fluids, considerably digested diminishing the appearance of coagulation in warm water.
9 in. O'C. The salivary portion began to
change colour - its thin layer perfectly blond -
later it was yellow. I dissolved four ounces of plaster of
the bottom of the bath and placed in a bowl till 9 am and
when the bath was thrown out into the salivary portion had become green
-
of a greenish colour. The fluid of the main returned
while the shape of the bowl had become bowl-like shape the a
small part of the green - which was rather dry shown
the same fluid was returned to the bowel of colour. But noticing
the same fibrous structure of the bowel, I coughed a bit
from the bowel, leaving a white gross
the fluid from the bowel above - the fluid from the bowel to
10 am. - no motion - the gastric portion was all
most completely dissolved. The cooked peas still in
2 ounces - 1/2 litre - Saliva. The gastric portion
then was put through the funnel and weighed.

The bowel meal - 17th - The meal 25 grams - the salivary
portion 12 fives.

Jan 17th - 9 in. a.m. Weather clear - dry - wind NW w. Th. 19
Temps of Stomach 100° - Cool - clean - healthy - 15 - 3 x.
Intestinal fluid not clear & limited as usual - very little trace
of yellow bile. A more appearance of salivary then common -
and not so perceptible as usual. Divided this into
to three equal parts - 1/3 each. 4 to one part in 15 yrs. from
conglutinated albumen of boil egg to the 1. 15 yrs. - Left conglutinated albumen, in getthmaste in to the 2. 15 yrs. raw albumen
placed on both or in a pita alternately. At the same time
9 o'clock A.M. Breakfasted on 3 hard boil egg coffee - 10 a.m. - Examined stomach - fluid. Temple 103.
Some sourred and sour - continued now - started 5 to go to the
post office - 12.4. first returned from post office - 10 mile.
Martin clear, day serene - Wind N W Lt. Therm 23. - Temp of Stomach 102. - Nearly empty took out 1/3 from stomach, almost completely chyme free little from oil floating on surface float composed into small lumps on bath - 12 1/2 P.M. - Put 25 gr. lard boiled mutton into 5/3 gasje. The same qty into 5/3 Saliva. Both seethed from mouth distill to the same jacket - Placed on the bath - 1 P.M. Stomach empty q'ty P.M. examined the 3 panels of Alumen. 1/3 of this money.

The firm coagula remaining 10 g 3/4 left for more - Raw 12 3/4 gr. at 5 P.M. Jan 18. The coagula are completely digested. Ample 1/3 of the fluid portion of the same color.

In close with coagula. - At same time of P.M. examined the two panels of mutton put in 12 3/4 P.M. - That remaining in the gastric jee: taken out & dry with paper, weighed just 12 g 3/4. of the mixture of gasje + saliva weighed 13 1/2 gr. The lecture of the 1/3 was more dissolved & tended considerably thicker.

Returned them into their respective vials again.

Jan 18. 12 1/2 P.M. - Meat remaining in gastric jee: 5/3 gr. in gasje + saliva.

13 3/4 gr. tender quite firm, retaining its fibers from reddish bloody color.

Put them on the bath again - 1:30 P.M. - the firm in gasje: weighed 2 gr. - color of fluids diffuse as yesterday. the firm in gasje: saliva weighed 9 1/2 gr.

Fluid of a reddish brown color - less precipitate.

In 5 days, the salivary mixture became very foetid, but the gastric portion was perfectly fresh. I do continue for 30 days all around.
Jan. 18. To ascertain the antiviscous properties of the gelatine took a portion of very fluid animal matter, that is, a giel of gelatine, then heated very at once, completely coagulated leaving only the natural
of the gelatine.

Jan. 18. 7 A.M. Took out 1/2 g of gelatine added this to 2 1/2 g rich milk, the whole was poured into a loose white coagulated in less than one minute placed on the table. 10 A.M. remaining coagulable after filling through small in 13 g of fresh milk, both again 9 A.M. no coagulable remaining. all completely dissolved.

11 A.M. Ejected 3 g of gastric juice turgid strongly with yellow bile, quite biteness and then usual said several perceptible to the taste coats of stomach finding healthy and clean, no symptoms of indisposition present appetite as usual the fluid standing unaltered on the original pate. changed gradually from bright yellow to green at first, blue, then resembling a deep grassy green in the thick turn of a small city of yellowish green decrement had settled to the bottom.

1 P.M. Put 13 g gelatine (using 43 even solution) by 168° boiling water. & 2.5 h the cool of a stiff cream (consistency) into 3 g gelatine & placed it on heat it was completely coagulated in the gelatine when added boiled of water, nor else it seems to change the appearance of the gelatine. 4 1/2 h. A.M. added 30 g more making zii in 1/2 h. immediately dissolved and all changing the appearance of the firm. at same time the but zii of the gelatine with 7 g pure water (poured through both for the taste) both of pate very much alike.
Jan. 19. - Of the bowels examined Stomach coats perfectly healthy.

A clean, no appearance of morbid action. Tongue clear, but
with very slight indication of perfect health. No

4 fluid in the gastric cavity. Till after the elastic tube was
introduced, when the

saliva began slowly to distil from the
end of the tube. A few drops by drops perfectly transferred,

the colour of water distinctly, and got about 3/4 of a draught of this

then gave him a mouthful of bread to eat, & no sooner had he

swallowed it, than the fluid from the tube & ran

off 2 3-thirds from containing saliva. Saliva 3/4 containing

slightly

yellow, oil, probably, the surface of the probed portions of

the villous coat. at this time became covered with a similar fluid.

uniformly spread over it, while surface is distilling from myriads

of very fine capillary points, trickling down the sides - after letting

him rise & walk about 2 or 3 mins. & again introducing the tube

about 2 3 more very pure gas: but was obtained. Making in

the whole 33. - Breakfasted on Pork & bread - 3 3/4 P.M. 4

on hot loaf. 7 P.M. slept on pork & bread.
June 28th 8½ a.m. - Examined. Stomach appeared healthy. 3½ oz. of 3% gas fluid, coloured with yellow bile. Slightly acid and bitter. 8½ oz. of pure gelatine. Simples prepared with boiling part of a transparent & translucent consistency. 9 a.m. 8 oz. of pure gelatine. Stomach appeared nearly as full as usual after eating his common meal. Fluid clear & of consistence of allum appearing to be the gelatin dissolved or diffused in the gastric juice, the gas; just liquid gelatine. So much resemble each other, could not distinguish them apart. At 9½ a.m. examined again, found the stomach almost entirely empty. Considerable able to obtain 2½ only of fluid. Yellow and turbid. It appears to be a mixture of gelatine, gastric juice. Flocks of mucus. More opaque than the gas; juice alone. More acid than the fluids of the stomach. Immediately before it was recollected - not the least appearance of bile or yellowish colour. In the gastric cavity or fluid after taking the gelatine - considerable vomiting followed the extraction of the last fluid. Breakfast from 10½ a.m. with his usual appetite.

To ascertain whether the sense of hunger would be allayed by feeding through the aperture, he waited from 10½ a.m. until 4 p.m. & became at that time quite hungry. By putting in at the aperture 3½ oz. of lean boiled beef, the sense of hunger subsided to ease his own expression. 'I told him to hollow,' meaning it allayed his desire for food, as a croaking mouse from the stomach motion of air inments, intestines, which did subside to him & almost entirely observed when the stomach is empty otherwise after introducing any thing at the aperture.
The inferences deducible from the different experiments exhibited during the last week are:

First. That the sooty juice is strongly antiseptic.

Secondly. That it always contains a free acid, which is the

Oxalic acid.

Thirdly. That the sooty locutions are the great agents in digestion, and that they act as solvents of alimentary matter.

Fourthly. That the Valvica is not the digestive fluid, although doubtless necessary to digestion.

Fifthly. That the alimentary substances are simply dissolved, but that their chemical character does not seem to be

modified.

Sixthly. That the seat of hunger is in the stomach.

Seventhly. That no satisfactory results are obtainable from

an examination of the Chyme by the microscope.

It became fluid - the Buckwheat of mercury added. Rendered this

fluid too thick, but afforded no precipitation, being of quicksilver, instantly

forming insensible close bowels, which congeals whether above a copious loss

precipitate of the same calum different entirely from the portion deposited

in the gasps. The fluid too, was distinctly different being slightly opaque,

almost as liquid as water...
1. In one Bottle. — 3 c.c. Saltpetre. 3 c.c. Water.

2. In the other. — 3 c.c. 3 c.c. Saffron Water.

The solution in the saffron water was at eighty more turbid than that in water; was a red, and had not the opaque mucous character of the pure saffron water.

Took one Drachm of Phial No. 2. and added 3 c.c.

Took the same quantity of Phial No. 1, and added 3 c.c.

Bichloride of Mercury added to the Saffron solution afforded an albuminous precipitate. When added to the other solution it exhibited none.

Impregnated Sails added to both Phials caused a copious precipitate: the one from the saffron solution being apparently more copious and of a lighter colour. When filtered and weighed: the precipitate from the saffron solution was found to amount to

——

Exp. II. On Chyme from boiled Beef. The Bichloride of

Exp. III. Two Drachms of a Saffron Solution of Albumen were taken: containing one Drachm of Albumen: the Bichloride of Mercury was added. As long as a Precipitate was thrown down: the precipitate, when weighed, amounted to 2 c.c. which indicated 2 c.c. Albumen.
Gas. pie. is always acid to the taste, & to the appropriate tests, as the smell of ammonia, & of the
indicated by the addition of silver nitrate solution. This is shown by the addition
of saline carbonate of silver, the precipitate produced is acetate of
precipitate.
Jan. 21. 8.30 a.m. Examined stomach-no free juice could get but a few drops—sent him out to exercise in open air.

Half an hour-secretions increased-gas gave flavour of smoke.

33-8 degrees. Breakfasted on bread and coffee & small piece of meat-lean pork.

Fares the following:

**Microscopic Experiments**

I. Product of the gastric juice and unmasticated lean beef

Admitting more of the blood

Admitting more of the blood

N.B. The gastric juice exhibited the appearance of water except that there was a small amount of very minute globules.

II. Gastric juice and albumen [Dec. 17, 1838, 9 a.m.]

Appearances resembling considerably those presented by the gastric juice alone; no distinct globular arrangement.

III. Gastric juice and tallow of pork [Dec. 18, 1838, 8 a.m.]

Numerous minute, apparently floating particles; no globular appearance.

IV. Gastric juice and pork and bread [Nov. 21, Dec. 32, 8 p.m., 8 a.m.]

In the comparatively clear portion (taken without shaking the vial) a few undispersed particles and very few globules; a portion taken after shaking the vial exhibited considerably more particles and a greater number of globules.

V. Product of the same elements (pork and bread) put into clear water on

the same day as the foregoing [26 Dec. 32, 8 p.m., 8 a.m.]

Numerous undispersed particles, with a few globules; the globules, not so regularly formed as in the foregoing experiments.

VI. Simple beef made from beef

VIII. A.
VII. Before gastric juice, prepared with bile when taken from the stomach, swarms and phony particles, with a few globules.

VIII. Chyme from fish and bear, artificially, exhibited numerous globules of different sizes, apparently oily.

IX. Chyme from the food of gastric juice and fat flesh formed in the stomach, exhibited a beautiful appearance of large transparent globules instead of a mass of different sized globules, evidently oily.

X. Fat flesh in pure water immersed on the Navy Bay, as in the foregoing experiment, presents the appearance of globules, precisely similar to those in the 9th expl. the product of digestion.

/ By a test of the anti-leptic contents of the gastric fluid.

Detection of the concentrated disinfectant solution of chloride of soda, prepared according to the formula of Lobanovski, was added to a small of an extremely fat mixture of beef immersed in water - the feto rapidly disappeared, but not more speedily than when a drop of pure gastric juice was added to the same quantity of the same beef mixture.

The foregoing experiments were made by Dr. Beaumont in presence of Dr. Langhson and Capt. H. Smith of the Army.
2 P.M. - Stomach empty. After. 3/4 gas jet lighted with bile (yellow) - then 3/4 of pure tincture of juniper distilled by drops from the end of the tube - 2/3 past 10 grs. beef extract, more into the gas jetting with bile & 1/2 ac. also into 3/2 pure gas jet; placed on belt.

9 A.M. - the pure of blood in pure tinged earth bile was considerably more dissolved than that in the clear gas jet.

When viewed through the conical microscope, the globules afforded for more numeros & much smaller this difference was also, clearly perceivable to the naked eye, as it stood in the view.

10 A.M. - the pure in the yellow jar all dissolved the other not quite.

Jan. 29 - 8/2 a.m. - Stomach clean & healthy. Extracted 3 1/2 very clear, pure gas jet: the 1st 1/3 ran out quite freely. The 2nd 1/3 distilled by drops - not the least tinged with bile. Taste dist.strictly acid. - Breakfasted on beef steak, bread & coffee.

2 P.M. - had some beef steak & bread - 9 P.M. having had nothing since 2 A.M. - feeling quite hungry. put into the stomach at the aperture, eight ounces of good beef & barley soup introduced gently through the tube with a syringe, lukewarm - it caused no unpleasant sensations, but seemed to allay the sense of hunger, he positively declared it had stopped his feeling hungry & said he had no desire to eat more.

at 10 A.M. he said he felt a little hungry again to eat 8 1/2 more of the same kind of soup. Which had a similar effect with the other in allaying his appetite. he went to bed satisfied.
Jan. 23rd - 9 ok. a.m. - Weather rainy. Wind N.E. L2.

Therm. - 39°. - Stomach: empty, clean & healthy. Tempt. 100½. By 6 o'clock taken from Body Thermometer, immediately before eating Breakfast of Sausage, Bread & Coffee. - 10 o'clock: aspect of weather the same as at 9 a.m.

Therm. 40°. - Stomach full of fluids. Tempt. 101°. The Jet became stationary at that time. After helping the tube float in the Stomach, for 10 minutes, after which it varied from 99 to 100°. Started to walk to Post Office - 10 o'clock. Returned from Post Office - Weather same.

Therm. 40°. - Stomach nearly empty. Tempt. 101°. - Started to walk after 5 o'clock. 1½渴 Stomach empty.


- 9 o'clock returned from short walk. Tempt. of Stomach 100°. Breakfast on bread & coffee. Empty at 12 o'clock. Tempt. after walking 2 miles or more, 101°.

1 o'clock: Sense of hunger quite urgent. Slight in at the aperture. 12 raw oysters, more than middling size, sense: allayed, & appetite satisfied the same as if swallowed through Old of Hunger - was not hungry again till 1½ o'clock. When he ate a dinner, more raw oysters & bread for his dinner & supper, together - 10 o'clock. Stomach empty & clean. Weather: damp & raining. Wind N.W., Wind.

Therm. 45°. - Tempt. of Stomach 99½°. had been covered in bread. SLEEPING 2½ hours fell to sleep during the examination of only another. While I was letting in taking out the glass tube...
Jan. 25 - 6 A.M. Weather damp & rainy. Wind SE. St. 7/00. Temps. 98°.

Examined Stomach before rising from his bed. Temp. 99°.

Extracted 153 Gas; for, it flowed out remarkably free, but rather more opaque & contained less flakes of mucus than common for the very distinct particles of the bread eaten with his oysters at 4th P.M. yesterday were distinctly to be seen in this parcel of feces. Having to the surface of the mucus membrane,


10 A.M. Breakfast on Raw Oysters & Bread. 1 W. A.M. Stomach

Temp. of Stomach 100°. 温度 100°. Attended for the Post Office.

12 P.M. He just returned. Stomach empty. Temp. 92°.

Furnished Professor Bunglium with a bottle of gastric

juice, for the purpose of chemically analyzing it. Writing me the results soon as practically convenient.


Extracted 31 Gas; for, only containing more flakes of mucus than usual. 9 A.M. Breakfast on Sausage, Bread &

Coffee. 10 A.M. 温度 Stomach 100°. Full of fluid like

1½ A.M. Stomach nearly empty. Temp. 100°. Started for the

Post Office. 1 P.M. just returned. Temp. 91°. A perfect weather,


on raw oysters & bread. 5 A.M. 温度 Stomach empty.

6.40 P.M. Immediately after drinking a tumbler of water, at

Temp. 95°; introduced them. Spt. rose very slowly, but til the lock had stood in for 35 min. did it become stationary at the natural Temp. 100°; 12 night. Temp. 99°.
Jan: 27 - 6 o'clock A.M. - Before rising. Weather cloudy - dry. Wind light. Therm. 32°. Stomach empty. Clean and healthy. Temp. 99½°. Sit stationary in 10 mins. Instru-body a gill of cold water at the temperature of 57°, which immediately diffused itself over the stomach. I discharged some at the aperture by the stem of the glass tube which had not been withdrawn. The spirits, instantly fell to about 90°. Took at that point ½ or 2 mins. Then began again very slowly to rise, and not until 30 mins had elapsed after taking the water did the spirits regain the 99½ degree. At the end of this time there was no appearance of water in the gastric cavity.

Note: 1/2 Gas jin - 9¼ - Have cat a full breakfast of fresh bread but a small pot of cold. Bread & coffee. Took a second coffee at 9½ A.M. - gas note. Stomach containing considerable chymus & oil. Should say it was 2/3 gas. Temp. 101°. Continually
- 12½. Stomach, nearly empty. A small portion of fluid, mixed to a more perfect chymous condition, with HS acid mixture from globules. 1/210 P.W. chymus gone, very little oil of the arm mixed. 13 clear direction of coffee, with 3½ fresh gas. gin. To ascertain whether it would have any tendency to destroy the flavour of the coffee - had no punctual the effort. Flavour of coffee remained for 10 hrs. distant as at first. Added 3½. Loaf sugar to the mixture of coffee & gas gin: & placed on heat - remained 48 hrs. had not effect on the flavour.

Jan: 27½ O.C. P.M. - Put 15 pce. from bread cartilage into 11/2 Gas jin.

[Note: Handwritten text]
3½ O'clock—Stomach not empty, about half gone. Small piece of cartilage of the oyster-shell of bread to be seen floating in a thin pultaceous fluid, quite acid, sharp, no bitter taste or yellow colour. Temp. 101½. Observation—a steady difference in the movement of the fluid in the tube is observable—it now rose from about 68° to its stationary point 10½° in less than 5 minutes after the ball was set in the stomach—at last examination—2½ o'clock—it was 15 minutes, or more, in making the same range. Some time it had been 20 or 30 minutes before it became stationary—under no appreciable difference of circumstances—weaker—he had been moderately exercising, walking, immediately before the last examination. 5½ o'clock—just returned from walking. Temp. of stomach 107½°. Sph. rose the same half hour last in less than 3 minutes—food almost completely digested. Half gone to the tube 3½. Thick pultaceous, homogenized fluid. Some small pieces of the edge of the oyster—red and a slightly yellowish corneous—flavus and slightly budded. Half part of 3½.
Saturday, 28th June

6½ P.M. Stomach empty & clean — 6½ P.M. Eat full meal of cold boiled beef & fruit jelly. 8½ P.M. — Stomach, almost empty — Temp 100° — 10½ P.M. Stomach empty.


The bulb of thrum was let down 3 or 4 inches. But to 107°. Stomach appears, when the bulb had descended about 5 inches, by a sudden operation, movement of the tube, as communicated to the thumb-finger, which guided it, it also felt oppressed by the thrum. The thrum, accordingly, at that point, to contract forcibly a grasp the bulb, giving it a sudden draw downwards, as much as to require a gentle considerable more compression, by the thumb-finger to prevent it slipping suddenly into the cavity. This grasping operation would continue for half a moment or more, then appear to relax again. This operation then the bulb, forced that point within 2 or 3 inches of the thrum,

With the thrum, the contraction appeared less or not at all — below that was below this point the thrum, made of a degree, when raised above, fell the same — don't turn the sucking motion was stronger than at others. When the thrum was let go of it pulled degree down towards the reform and its whole length 30 or 16 inches, a most considerable distress. Virtue of surface suction at the stomach, concerning

— Extracts from Sanscrit. Acid — not bitter or yellow at all.
9 A.M. - Breakfast as yesterday exactly. Ripe quince. Most of the juice in mucous back portion on chewed.
11 A.M. - Appetite of even the same as in morning. Throat 146°.
- Contents of stomach about ¾ diminished. Temp 100°. At 3 or 4 inches below 101°. List of active thin substance to the bottom varying proportionally to the length of the stem introduced. 12 ½ the nearly empty. Temp 101° ½ P.M. Stomach empty. Four portions of food floating on surface of stomach. Temp 100° ½ P.M. 11 ½ P.M. Served sauce as yesterday on.

Raw subjects of bread. Took of stomach immediately before leaving. 10° at 12 ½ P.M. 104° at 2 P.M. No nausea.

9 ½ P.M. - Stomach half empty. Temp 102°. Drank tea.

5 ½ P.M. - Posture of the pharynx nearly complete. Few particles of bread kip on.

5 ½ P.M. - Stomach very nearly empty. Temp 101° ½ P.M.

6 ½ P.M. - Stomach still contains alimentary fluid quite varied in shape. 6 ½ P.M. Stomach empty.

7 A.M. - Supper on rabbit loaves of bread. 18 A.M. - 6 ½ A.M. Before rising. Matter clean, dry. Middel 6.0


At top - 99° at top — No gas; few to be extricated, could not get 10. Despite matter mucous, not saliva.

9 ½ A.M. - Stomach empty. Coats perfectly healthy. Free from any sign of alpha-particles or nodules even uniform. Smooth kept. Stomach mucous coat on the whole surface. Temp 100° + 100½° quickly. Exhaled 3108.5 cm gas. Few co. Cont. Some flakes of mucus no bile mixedly and but no better taste. 9 A.M. Breakfasted on sausage bread. I kept exercising walking smartly for 2 hours returned from the shop.

11 ½ A.M. - Stomach ¾ empty. Temp 102° ½ P.M. 101½° — quickly.

12 ½ A.M. - Stomach almost empty. Temp 101½ X 100½° moderately.
-10h Tm - Stomach empty - ½ P.M. Dined on
Stewed oysters. 1 Bread - kep still. 5 P.M. Stomach
empty - Exit 3/4. few gas pce. - 6½ P.M. Stomach
empty. - Temp. = 101½ + 100 ½. Moderately -

Stomach empty - Clean healthy. Temp. = 99½ + 98½. Slowly increased
immediately before rising - 9h A.M. Temp. 101½ + 100 ½. quick
stomach. Gas pce came slowly. The last came up.
Breakfast - On Reaf. Steak, bread 6 slices.

11h A.M. - Stomach almost empty. Temp. 101½ + 100 ½.
when the bulb of the glass tube reached about half way down
through the aperture between ½ 6 inches the stomach suddenly
contracted upon it drew it quite forcibly toward the
pylorus orifice. big left free to its own motions the tube
would sink to the bottom the whole length of the sternum
about 10 inches. Then rise again 30º off the
floor of its own accord with continuing this alternate
motion every 30 or 40 seconds - when drawn
the point of approach contraction is the top end
of the stomach toward the perforation. The motion of
the tube indicated a particular direction toward the
pylorus of the stomach and even to make it right
of the aperture but inward a peculiar motion, involving
the tube from right to left. So as to leave it completely
around in the sphere of 10 or 15 degrees. This motion was
not always present, or constantly continuous when present
but interrupted by alternate with the appearance of
contraction at the pyloric end. distinctly evident only
from 12 to 3 hrs after eating of the time when the chyme was
most visibly leaving the gastric cavity. 12½ P.M. just returned fron
Jan: 29 - 10 00 AM - Put three equal parcels of cabbage - boil 1 hr.

4 cold slaw - 10 gms each, into 3 1/2 gills gas - set on both.

5 1/2 P.M. - took out, expressed and the regular parcels weighed as follows - the raw 5 1/2 gms - the cold slaw 3 1/2 gms - the boil 6 1/2 gms.

Jan: 30 - 10 00 AM - put 10 gms. boiler lean beef - 10 gms. raw lean beef in entire pieces. 10 gms. boiler lean beef, chopped fine with a knife into 3 1/2 gills gas. set on both. - Jan 31 - 12 00 AM - raw

5 gms - added 3 1/2 gills gas - set on both.

Feb 1 - 10 00 AM - Boiled 1 gill of salt water. 1 gill gas - set on both.

Jan: 29 - 10 00 AM - Put three equal parcels of carrot - boil 1 hr.

4 cold slaw - 10 gms each, into 3 1/2 gills gas. set on both.

5 1/2 P.M. - took out, expressed and the regular parcels weighed as follows - the raw 5 1/2 gms - the cold slaw 3 1/2 gms - the boil 6 1/2 gms.

Jan: 30 - 10 00 AM - took out, treated the same way as yesterday.

The raw weighed 5 1/2 gms - the cold slaw 3 1/2 gms - the boil the same as yesterday evening. 6 1/2 gms - added 3 1/2 gills gas - set on both.

Jan 31 - 12 00 AM - Raw weighed 2 gms - cold slaw 1 1/2 gms - boil 5 gms - added 3 1/2 gills gas - Feb 1 - raw 1 gill - cold slaw 1 gill - boil 2 1/2 gms.

Feb 2 - 12 00 AM - Put 10 gms. carrot. 10 gms. Parsnip. 10 gms. potato - some of

carrot - raw in slaw. 1 gill of salt water. 2 1/2 gills gas - set on both.

Feb: 4 - 12 00 AM - Parsnip and potato washed. 3 gills gas - set on both.

Feb: 5 - 12 00 AM - Parsnip - carrot and raw in slaw, all weighed, a grain of salt in a small portion of the carrot, a large portion of the potato, a small portion of the parsnip, was weighed. 2 1/2 gills gas - set on both.

Feb 6 - 12 00 AM - Put 3 1/2 gills salt water into the large pan of salt water. 3 gills gas - set on both.

Feb 7 - 3 1/2 P.M. - took 3 1/2 gills water. 1 gill of salt water. Put the large pan of salt water, with 3 1/2 gills water, and the large pan of salt water, and 3 1/2 gills water, into each pan of salt water, 2 gills gas - set on both.

Feb 8 - 12 00 AM - Put 10 gms. carrot. 10 gms. potato, 10 gms. parsnip. 1 gill of salt water. 2 1/2 gills gas - set on both.
Jan: 30 – 2 1/2 P.M. Dined on venison curry. Bread. Keps. Stix
5 1/2 h. P.M. Stomach empty. Temp. 101 1/2 – 100 1/2. mod.
6 1/2 P.M. Suppt on raw oysters. Bread. 10. P.M. Empty.


Threw 45°. Stomach empty, clear, healthy. Temp. 101 1/2 – 98 1/2. Eas.
no accumulation of fluids in gastric cavity. Hunting.

Stomach – under strict inspection. Observe motion. Intestinal end found in the
Spasm, the muscular stimulus at the thoracic cavity.

A bowel movement occurred from 11:30 p.m. to 12 a.m.

Drainage took the way of evacuation. The

4:00 a.m. Had a tetanic feeling. The fluid contraction & evacuatory motion was evident. Not as strong as usual.

Chyme formation – when the bulb is sunk down low
in the colonies of the small intestine, when a minuit.

It gives pain at the end of the pyloric esophagus, like
the cramp, or the sensations frequently described by patients.

Suffering from tendency to vomit in the stomach.

Has a desire of looseness. Improved a few times. Took

8 A.M. Ate. To ascertain which diet had a lasting effect.

At 9 A.M. Laid off 3 1/2 beef steak. 7 1/2 soft toast. 1/4 cup.

Keps. Stix – 9 1/2 A.M. Lay down on his pallet, but she Threw

in his Stomach. Continue faithfully, constantly to observe of
motions transitions til 11:10 A.M. (The 20 min.) at first the
Stomach was full, its overflowing, of heterogeneous fluids & food,
in much commotion, as indicated by the fact that part of the Stomach left
out 4 inches, lying six in the mixture continued about half an hour.
to 10 o'clock the contraction seemed to subsist, the pulse became more regular, but no other motion than that caused by the respiration were noticeable. The chill lasted a little for nearly half an hour, longer, until 10 o'clock, when a different motion appeared to commence, indicating a considerable possible contraction upon the bulb of the tube, now about 6 inches from the orifice, and simultaneous downward depression of the stem. An irregular twirling & twisting of the stem was induced in 20 or 30 seconds, by an apparent relaxation of the.
Feb. 2d. 8 1/4 A.M. - Finished breakfasting on full ration of fried sausage, 3 1/2 muffins, 2 cakes 3 1/2 - Pink coffee. I kept gently exercised for 1 hour then increased his exercise to level walking 2 or 3 miles for 2 hrs. Stomach full when he started at 9 1/2 A.M. just returned from walking. Full and entirely empty, all food perfectly eliminated 1 1/2 considerable fluid in the stomach tinged with yellow bile - no distinct particles of food to be observed. 10 A.M. Stomach empty, clean, 2 1/2 - no gas; for 3 hrs. 1/2 - 1 1/2 P.M. Stomach empty, clean, almost completely chyme-like. 5 P.M. - Stomach empty.

Feb. 3d. 8 1/2 A.M. - Breakfasted on full ration 3 1/2 buck 2 1/2 1/4 bread - pink coffee kept perfectly still. Slight gas; 12 1/2 A.M. - Stomach empty. 8 P.M. empty, no food - 2 1/2 - 1 1/2 Gas full. 1 1/2 P.M. - Dined on 3 1/2 - fried back with 3 1/2 bread and potato - 6 P.M. - not entirely empty - 6 1/2 A.M. - Very little of the bread & potato taken. 6 1/2 P.M. - Stomach empty.

Feb. 4th. 9 A.M. 2 1/2 - Breakfasted on 3 1/2 wheat bread. Coffee. 1 1/2 - very smartly for 3 hours. 12 1/2 A.M. Just returned from walking. Stomach nearly empty, no distinct particles of food. 12 1/2 A.M. Stomach empty.
Feb 7. 8 a.m. Breakfast at 8 & 1/2 a.m. as yesterday. I kept still—11 a.m. Stomach nearly full—12 & 1/2 p.m. Considerable yet in the stomach. At 12 plain table spoon—12 & 1/2 p.m. Content of stomach not yet gone—1 p.m. Stomach almost empty—1 p.m. Eatsky—2 p.m. No gas. 2 p.m. Eatsky

Feb 8. 8 a.m. Breakfast at 8 & 1/2 a.m. As yesterday. The book—Breakfast at 9 a.m. On some kind of fish & stomach empty. Bread—1 1/2 p.m. Fish in ghee on butter almost dissolved, only remaining fluid opaque, white, nearly the colour of milk—not 3 p.m. Fish all completely dissolved. Solution of Bichloride of Mercury added to this; threw down a little whitish precipitate. Suspension of nitrate of silver afforded a copious loose light-coloured coagula, & on shaking, placed very nearly resembling that obtained from the fifth molten digestate in gasteur jenny.

Feb 8th. Two packets each,
Feb 9. 2 a.m. 20 gns. String cheese. One masticated & the other in solid form. into ghee. Gastric juice at 10 & 1/2 a.m. 6 p.m. The masticated portion all completely digested: Some a trace left on the filter—The entire piece had lost 1/2 gns. The remaining undissolved of the same shape as when put in, having lost its depositions only. This piece continued gradually to diminish until at 2 p.m before dinner all completely dissolved.

Feb 13. 2 1/4 a.m. Rice & some of mutton peltry. Soup. 5 & 1/2 a.m. Eatsky

Feb 12. 11 & 1/2 a.m. Dinner on mutton and beef. Wood. 2 & 1/2 p.m. Stomach empty.
Feb-18th  2/4 P.M. — Took dilute muriatic acid, reduced to the strength & taste of the Gastro juice, nearly as practicable. 2ij. Dilute acetic acid to about the same flavour. 2ij. Mixed them together & put into the mixture 3ij of ground steak, cut fine, boiled down in the bath. The same quantity of meat into 3ij of Gastro juice, placed them on the bath —

- 9 P.M. — The meat in the Gastro juice, taken from out the fingers, left in solution, weighing 2 grams only. That in the acid mixture, treated in the same way, had dissolved, but had lost its fibrous form, forming a jelly-like mass, converted into a gelatinous mass, by leaving it to evaporate through the filter. The matter was of a greyish colour, more thin than when put in the acid mixture. or resembling that of the Gastro juice had taken place —

After digesting shows longer on the bath, the contents of the acid mixture had become nearly dissolved or emulsified. When run through the filter, left only a very little of that jelly-like mass. So abundant in the first examination, the liquid was now more similar, though not like that of the Gastro portion, this latter being opaque of a light grey colour, and a dark brown sediment on standing. That from the acid mixture was also opaque of a redish brown colour, depositing no sediment — 3ij. 2ij. 2ij. Added to the Gastro portion three drops a few drops of brown muriatic acid, and offered an opaque fluid. 2ij. A clean white fluid of a yellowish colour, nearly clear.