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Medical Thesis

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Jaundice

Jaundice from the remarkable degree in which it partakes of its presence, has always been a subject of observation, and has called many and repeated endeavours to account for its production from such various conditions of the system. Still a more complete examination of the diseases and conditions of the body, in which the interference with the functions of the liver is detected, which will account in any case for the appearance of those marks, which indicate the presence in the blood of some pigmentous substance bearing all the characters of that found in the bile, seems to be wanting. Many conflicting opinions have been entertained as to the nature and source of this yellow matter, which in Jaundice tinges the secretions and tissues, but leaving these out of sight, and assuming that this substance is really the staining matter of bile we are met at the outset by the question - How is this pigment formed? It has long been a matter of dispute, whether the peculiar ingredients of bile are formed in the blood, and simply thrown off by the liver; or in reality formed from the blood by that organ. It seems now to be generally allowed that the peculiar biliary acids are formed by the liver, but there is not the same unanimity with respect to the staining matter the Cholepyrrhin - Great names are not wanting on either side. Amongst the supporters of the view that it is formed in the blood, might be named Nasse, Mongagni, Boerhave - Van Swieten,

And in late times Andral, Barth, Rilliet, Barthez, Roger, whilst amongst the upholders of the opposite view we might enumerate Monro, Ellis, Reil, Jericho. Some difficulties connected with the final settlement of the question. There are tests of considerable delicacy with for the Biliary acids and the colouring matter; but these have failed to detect either of the Biliary principles, even in the blood of the Portal, and even though they should be detected, in what seems the normal condition of the blood, still that fact would not be of much value, since one of the obscure causes of Jaundice might be in operation. The effect of diseases of the liver, which impair, or destroy its secreting function, are the most reliable grounds on which to come to a conclusion on the matter, but on this point there are serious discrepancies. Dr Budd (p. 39) says. When the secretion of the liver is suppressed Jaundice speedily follows and again when the Gall-duct is permanently closed there is always deep and persistent Jaundice although the cells in the lobular substance of the liver soon become inactive and indeed after a time are entirely destroyed. Jericho (Diseases of the Liver Vol. I p. 341) remarks. "Cases have repeatedly occurred to me in which individuals, who for a long period have suffered from Cirrhosis of the Liver have suddenly presented a series of marked symptoms, which are foreign to that disease, in most cases slight Jaundice made its appearance at the same time." He also gives the details of a case in which there were decided symptoms of

Jaundice, Post Mortem examination showed that fatty degeneration of the Liver had gone on to such an extent, that the secretion was reduced to a minimum - The bile ducts were not obstructed in any way and the Gall bladder contained only a small quantity of clear pale mucous fluid - (See Observation No XXII p. 245). — In the 4th vol of the System Frerichs (p. 83) says that he has seen a case where the secretion of bile was completely arrested in consequence of fatty degeneration of the Liver, so that the contents of the bowels were pale, the Gall bladder empty, and the tongue dirty coated with a greyish mucus, beneath which the skin was of a chalky paleness, and the urine not tinged with bile pigment. — Haspel in his "Maladies de l'Algérie" states that he has frequently noticed that jaundice was absent in cases of almost complete destruction of the Liver. — Dr Budd in his chapter on "Morbid enlargement of the Liver" gives several cases in which though the place of the secreting cells was almost wholly taken up by albuminous and fatty matter, yet there was no jaundice - On these cases he makes the following remark - "The absence of jaundice affords therefore a strong argument in favour of the opinion that much of the colouring matter of the bile is formed in the Liver itself" It seems unavoidable however that a gland should both secrete and form the same substance. — Taking all these facts together, we are forced to the conclusion, that of Cholepyrrin exists normally in the blood, and is formed from it, some intermediate process is necessary, which process in some cases, does not go

on, and as a consequence the formation of the pigment ceases. A few words more will be said on this point further on, after some necessary points have been considered.

Having now considered the subject of the formation of bile, we must next proceed to examine the circumstances, in which a part or parts of that secretion are not removed from the system. In considering the subject of Jaundice, we will find that it occurs in very various we might almost say opposite conditions of the organ, with which the formation of the morbid material is closely connected. Thus it is found to exist when there is an impediment to the discharge of the bile, and when no such obstruction can be detected, when there is excessive formation of bile and when that secretion is abnormally diminished, when there is Hyperæmia of the liver and when the opposite state of that viscus is present. It is obvious then that various views or theories must be adopted in order to account for its production in different cases. Since the formation of the bile in the blood and suppressed secretion of it, as these are commonly understood do not seem to be views which are well supported, we will assume that the intervention of the liver is necessary for the production of that fluid, and on that supposition we will now proceed to consider what circumstances would lead to the presence in the circulating fluid of an appreciable amount of bile. These circumstances must be such as either cause, ~~increased~~ absorption of the bile after its formation; or prevent the regular metamorphosis and removal from the system by the usual channels of elim-

mation of that portion of it, which is continually being taken up by absorption from the Intestines. —

Absorption under the laws of Physics is known to depend greatly on the comparative pressure exerted on either side of the structure, through which such absorption takes place. If the regular relation in this respect to the fluid be altered i.e. if the tension of the contents of the secreting cells and ducts be increased relatively to that in the blood vessels, a more than usual amount of bile will pass into the blood, and if this amount be sufficient, will lead to the characteristic symptoms of Jaundice. — Respecting the entrance of bile into the circulation by absorption from the liver, where from any cause the flow of the bile along the ducts into the Intestine is obstructed there can be no doubt — In fact this has been supposed by some to be the only cause which tends to producing Jaundice, and is perhaps the most common cause of the contamination of the blood, as in closure of the hepatic or common duct by means of a Gall stone — With respect however to the increased absorption from diminished pressure on the side of the blood, which is assumed by French as a probable cause of Jaundice, this is not, and cannot be the same certainty. It must remain a mere matter of conjecture; since we have no means of knowing the alterations, which take place in the portal circulation — We may well suppose that a very slight influence might have the effect of causing the normal secretion of the bile to be altered; when it is considered, that of the two substances formed by the Liver, viz. Sugar and Bile,

the former passes into the blood, whilst the latter escapes into the bile-ducts. Why the currents flow in different directions is unaccountable, but still such seems to be the fact so far as our knowledge at present goes. A difficulty, that attaches to the supposition of absorption due to diminished flow of blood through the liver by the portal vein, is that we cannot conceive of such an obstruction in the circulation from nervous influence being of long enough duration to lead to the absorption of bile in such amount as to cause symptoms of jaundice. The state of the circulation through the hepatic viscera is liable to great changes in the performance of the functions of the digestive organs — as great probably as could be produced by any nervous impression; and we should suppose of at least as long continuance, and still jaundice without some other apparent cause is a rare affection. —

In those cases, in which no anatomical cause of obstruction could be detected it used to be thought, that there had been spasm of the bile-ducts; but it is scarcely possible to conceive of spasm continuing long enough to produce the effect. ——— The opposite condition, viz, Paralysis of the ducts, has also been supposed to be often a cause. It is however to say the least very doubtful, whether paralysis of the large ducts, which alone possess muscular fibre, could have much effect in preventing the flow of the bile, whilst the agencies in particular were still operating; and further it is also doubtful whether this limited paralysis could

clear without giving some other manifestations of its presence. Branches divided into splanchnic nerves and removed the greater part of the Coeliac Ganglion on a cat, and no jaundice appeared. Division of the spinal cord high up in the neck was followed by the same negative result.

We have still to consider the second way in which bile or its colouring matter might be present in the blood in quantity sufficient to produce symptoms of jaundice, and that is, diminished metamorphosis, and removal of the absorbed portion of the bile. — The function of the liver seems, among the things to be, to form Hydro-Carbonaceous matter into a form, in which they can be easily oxidated, and thus play their part in keeping up the temperature of the body. The sugar formed by the organ, retained in the healthy condition known as of the body, to such as any of the Monosaccharides, and there is nothing more probable than that it is burned and resolved as Carbonic acid and water. — The bile when freed from nitrogenous matter he has been found on analysis to contain only about 17 per cent of Oxygen, and the same bile acids, the Glyco-Cholic and Taurocholic, according to Strecker seemed to have even a smaller proportion. — A very large proportion of the bile is reabsorbed from the intestines, and we can conceive of no other object, than for the purpose of being oxidated. From the fact of the bile being poured into the intestines, and especially into the upper portion, it seems likely, that independent of any other reasons for

such a disposition, it aids the process of digestion. But that it is not absolutely essential is shown by the fact that persons may live for a very considerable period in tolerable health, after the common bile duct has been completely closed. Dr Heidenhain cites cases, and among others that of a woman, who lived eight months in this condition and during that period gave birth to a child which she was able to suckle till her death. We may reasonably suppose then that the preparation of food for the animal economy is not the chief important of the offices performed by the liver. With respect to the metamorphoses of the retained bile Professor Kuhne's theory is that the biliary acids during the process of metamorphosis are converted into bile-pigment, in fact that the production of bile pigment is a stage in the process. He founds this conclusion mainly on the following fact. 1° By the action of concentrated Sulphuric acid upon colourless bile, there are formed colour-producing substances, which, upon exposure to the atmosphere and still more rapidly on the addition of Nitric acid, exhibit alternations of tint corresponding in every respect with bile-pigment. (Cases cited p. 98)

2° When large quantities of the biliary acids are injected into the veins of a dog, the urine after some time is found, on standing, to deposit green flakes, which have all the characters of Cholepurrhin; whilst the biliary acids cannot be detected in any case by means of Pettenkofer's test.

Dr Kuhne from his own experiments has come to quite

opposite conclusions. He holds that the biliary acids always exist in jaundiced urine, and that if solution of these acids be thrown into the blood, they pass off by the urine unchanged, and if pigment appear in such case it is produced by the action of the acids on the blood corpuscles. These two views are therefore directly opposite. Subsequent observers among whom are Professor Staedeler of Zurich and Dr. Heckmann have arrived at results similar to those of Frerichs who also urges the fact that whilst biliary acids can be converted into Cholepyrrhine by the use of reagents, that on the other hand no one has as yet been able to form bile pigment directly from the red matter of the blood.

He supposes then that this progressive metamorphosis in normal circumstances goes on to completion, and finds this supposition on the experiments given above, and also on the following additional facts - 1st that large quantities of biliverdine have been found in the liver, and 2- that every gradation between the regular biliary pigment and bile-pigment may be found in the urine in different states of the system. The regular biliary pigment he seems to look upon as the ultimate of the same substances after it has advanced to a further stage of decomposition. The chemical composition of the pigments seem to favour this presumption. Dr. Golding Bird remarked on the close analogy between the colouring matters of the bile and urine, as shown in the

following table extracted from his work on Urinary Deposits p. 177

	Normal colouring matter of Urine	Urinary colouring matter in jaundice	Urinary colouring matter in organic disease of liver	Bile pigment from Urine
Carbon	58.43	60.19	65.76	68.82
Hydrogen	5.16	6.66	6.01	7.437
Nitrogen	8.83	34.25	28.23	7.074
Oxygen	27.58			17.261

If then from any cause the process of Metamorphosis is arrested, the colouring matter will accumulate, and Jaundice will be the result. Professor Frerichs has observed, that this supposed incomplete metamorphosis occurs most frequently in those cases, in which the vicarian process of oxidation is interfered with from some derangement of the Respiration or Circulation, as in Pneumonia, Pyemic infection Etherization - This receives sanction from the fact, established by Bouchardat, Bence Jones, and S. Jarrod, that slight temporary diabetes may be set up in similar circumstances. On the evidence thus afforded we may assume it as probable enough that this imperfect Metamorphosis may be a cause of jaundice in some of those obscure cases for the explanation of which no better theory has as yet been propounded.—

Assuming Frerichs' position, that the Biliary Acids formed by the Liver and again taken up into the circulation from the intestines, are in the blood by some

become almost immediately converted into bile-pigment, it seems to me that Bilirubin from bruises might be supposed to account for certain cases, in which jaundice occurs in fatty degeneration or scrofulous enlargement of the liver we may have that organ presenting a very pale colour, perhaps almost white, and the gall bladder containing a light yellow or even greyish matter. Bilirubin may or may not be present. Such cases have already been mentioned as recorded by Rendu and Frerichs. How therefore are we to account for the appearance of this symptom in some cases, and not in others.

It is evident that in such cases, however far the functions of the liver may be impaired in other respects, it is at least unable secrete the usual pigmentary matter of the bile. So far as can be discovered, this pigment, which forms a regular part of the biliary secretion, seems to perform no special office in the intestinal Canal, but is almost completely thrown off along with the faecal discharge. It would appear therefore to be waste matter, destined to be completely removed from the body. When this fact is taken along with its composition, showing only a slight degree of oxidation, it is at all improbable that this pigment is a regular excess of one of the products during the regular metamorphosis of the biliary acids, which Maline has rendered it necessary to account for in any theory to be adopted with regard to the formation of the bile. The urinary pigment

as already stated, may be looked upon as the cause in a more advanced stage. If then from any cause this excess in the form of colouring matter is not removed from the system in the usual way, jaundice will be the inevitable result - supposing always, that the formation of the other constituents of the bile go on as usual in the usual manner. That such alterations in the secreting power of the liver may occur, seems not improbable; when we consider, that in the case of the kidney, with which comparisons can best be made, we shall find the state of the urine very much altered with respect to one of its ingredients - It seems probable that various diseases result from different kinds or degrees of imperfection in the eliminating power of the kidney. Sometimes in gout the urea is not sufficiently excreted, the urea being separated in its natural proportion: while in some cases of Bright's disease the reverse of this may occur; the urea escaping with facility, and the uric acid coming away with the urine in its ordinary and proper quantity. (Watsons Lectures on Pract. of Physic, 2nd Ed. p. 764. note) Here we have instances in which alteration in the composition of the urine, of the nature referred to, occur both in the healthy and diseased conditions of the kidney - What then is more natural than to suppose that a similar circumstance may occur with respect to the liver, either from functional or organic derangement? - It may be said, but what of those cases in which

with non removal of pigment there is no colouring Jaundice? the answer is - that with diminished power to remove the colouring matter there is also diminution or stoppage of the formation of the biliary acids, and consequently there is no excess of pigment to throw off. this view would seem to receive confirmation from the known circumstance, that want of the usual amount of exercise in the open air causes the urine to be of a higher than usual colour, and that though in its normal quantity. the effect of sedentary habits in causing the bile to be of a dark colour and increased consistence is also known - in these cases there is evidently imperfect oxidation and as a result of this, a greater than usual excess of intermediate products remains to be removed by the usual channels.

this theory may seem to proceed on an assumption, that was formerly known to be at least doubtful, viz, that the bile-pigment is formed in the blood; but really for the argument of the supporters of this view we must allow that there has been reason for coming to such a conclusion. Professor Frerichs speaks in a most decided manner against such an opinion as to the formation of the colouring matter; but he does not seem to consider that starting from his own theory of the metamorphosis of biliary acids, we must arrive at the conclusion, that this pigment does exist in the blood in the normal state of that fluid -

the view here followed differs however from the Common one in this very material respect, that though granting, that the colouring matter of the bile exists ready formed in the blood and is separated by the liver, it is not formed directly from the blood but requires the intervention of the Biliary acids, on the elaboration and absorption of which its formation depends.

The theory now stated has this advantage that it enables us to account for the absence of jaundice in some cases in which the function of the liver seems almost destroyed, and that explanation is, that in such cases the necessary intermediate substances are not formed from the blood and therefore the colouring matter in its turn is absent. It therefore takes a middle position between those who hold that many of the obscure cases of jaundice are caused by arrest of secretion, and those others who contend that such a case is not tenable.—

Of course it is a mere theory founded on another theory and I have had no opportunity of testing its correctness in any way.—

Having thus considered the main causes, that may be supposed to act in producing jaundice, it will be necessary now to pass on to some other circumstances connected with the peculiar state of the system.—

The Symptoms. The more diagnosis of jaundice is usually a simple matter, the most cursory inspection of the appearance of the person affected is sufficient to attract

the point.—

1st In being the most apparent and unmistakeable sign, there is yellowness of the surface of the body. The skin and conjunctiva are of a yellowish hue, the intensity of the tint varying according to the duration, and nature of the case, and in some measure depending also on the change to of the skin in the particular case. The sclera will be most marked when the skin is wrinkled, and the superficial skin. The simultaneous colouring of the conjunctiva is sufficient to point out the distinction from the tinging of the skin, which occurs in certain states of the system independent of the accumulation of bile-pigment—such as Chlorosis, in which there is a dingy yellowish appearance of the skin.—

2d The secretions are tinged of a yellowish or brownish hue, from the presence in them of Cholepyrrhin. The urine varies in depth of colour, with the nature of the particular case. It is necessary to make sure that the colour of the urine is due to biliary matter, and this can easily be shown. It tinges the linen—and when Nitric Acid is added to it there is a play of colours in which green, blue and red are most prominent. The secretion of the skin is yellowish and colours the linen; the milk is occasionally coloured, and the same has been said about the Saliva and tears

3 The bowels are usually constipated and the stools pale and very fetid, but this will of course depend

in the Causes.-
Some other Symptoms of a peculiar kind have been noted in certain Cases. Among these are— Itchiness of the skin which is not by any means universally present either before or after the Yellowness of the skin shows itself— Bitter taste, which however is seldom of long duration— Yellow Vision has been noticed as occurring in some instances, but it seems to do so rarely— Various other signs have been mentioned but as there is no uniformity with respect to them, they need not be recorded here—

As to Prognosis— it is generally favourable; but this point can best be noticed in connection with particular forms of the disease.-

The Treatment will also fall in more naturally in connection with special Cases.-

As to Duration— This will of course depend on the Anatomical or other Cause. In most cases the affection is slight and transient; though it has been known to persist for many years— Thus Dr. Budd mentions a case, in which it had existed for four years, and the man in whom it occurred was then strong and well nourished— Van Swieten gives a Case in which Cure took place after the disease had lasted eleven years.

Since so much has been said with reference to the Nature and Causes of Jaundice, there is little room for any

long & careful consideration of the special forms under which it presents itself, and of the Anatomical and other conditions, with which it is connected. — Cases of Jaundice seem to be best arranged, in the present limited state of our knowledge of the subject in two great classes
1st — Cases in which there is some evident obstruction to the escape of the bile — and —
2d — Cases in which no such obstruction can be detected or indeed seems to exist. —
We will consider first those cases in which the free flow of the bile is interrupted. — This may result from various conditions of parts. Perhaps it might be well to notice first among these conditions that which is the best known and perhaps the most common, viz, partial or complete closure of the Ductus communis Choledochus or the Hepatic duct from whatever cause produced These cases may all be considered together, since the immediate effects are the same in all; though of course the duration of the disease will vary according to the Anatomical or Pathological Condition. The main causes of partial or complete occlusion of the Ducts of the liver are — Thickening or adhesion of the walls of these ducts from Inflammation or Malignant disease — Impaction of Solid Matter — Pressure from without, as from Cancerous disease of the head of the Pancreas or Duodenum, tumors of any sort pressing the neighborhood, a constipated state of the

bowels. There may be other causes, which operate in this way; but these may be sufficient to indicate what may be expected in different cases.

There can be little doubt that Inflammation will more frequently occur in the Common than in the Hepatic duct with many branches, if such cases are considered out of connection with Inflammatory affection of the parenchyma of the liver. This is to be expected, when it is considered, that the bile which passes along it is more concentrated from having been detained for a longer or shorter time in the Gall-bladder, and that it is liable to irritation from the passage of Concretions, which may have formed in that Reservoir for the secretion — and lastly, any irritation produced on the Mucous Membrane of the Intestines may extend to it.

The Symptoms of Inflammation of the large ducts of the liver is a peculiar affection are rather obscure. There will be pain in the region of the Inflamed part of a lacerating character followed by the formation of a tumour in the situation of the Gall-bladder. And attended with Pyrexial Symptoms and jaundice. There may be difficulty in making out the difference between Cases of this sort and those in which a calculus has become impacted in the duct. There seem less propensity to be nausea, vomiting and rigors than when the duct has become obstructed by a Gall-stone (Budd) they will often appear after over indulgence at table

or the eating of unwholesome food. If they occur in a young person, and the febrile symptoms are very early, there will be a strong presumption, that they are not due to a concretion. The inflammation may sometimes go off without leaving any permanent marks of its presence - whilst in other cases ulceration, followed by contraction or complete closure, may be the result. In the latter case, the jaundice will of course be persistent - Prompt measures must therefore be adopted for the purpose of speedily of arresting the inflammation - as by the use of leeches, counter-irritation, fomentations or such other means as the case seems to demand.

Foreign bodies may lodge in the ducts, and thus impede or altogether prevent the passage of the biliary secretion along them - Worms have been known to make their way into the mouth of the common duct, and thus close it - small particles of matter have been found to enter the duct from the Duodenum; but all such causes are of very rare occurrence, and are an example of the difficulty, that would be experienced in arriving at a correct diagnosis in these instances - Inspissated bile, not of the nature of a true concretion, has been observed blocking up the ducts in some degree, and it is possible, that this may in some cases produce jaundice - By far the most common of these obstructions, situated in the ducts however, are due

to the presence of Gall-stones. These have been noticed in the Hepatic ducts. In such cases they probably originate in inflammation of the ducts which leads to accumulation of bile behind the obstruction; and this bile becoming inspissated comes in time to form a solid body composed of biliary matter mixed up with mucus. Dr. Budd has noticed two such cases. Most commonly the concretions are formed in the Gall-bladder, and pass out of it along the Cystic into the Common duct, through which they also usually pass without much difficulty. Sometimes however they are arrested and the bile, being prevented from flowing away, distends the Gall-bladder and ducts, and being gradually absorbed produces the usual signs of Jaundice. These concretions are generally composed mainly of Cholesterine along with variable proportions of the colouring matter of the bile, but concretions made up of other substances, such as Calcareous matter, have occasionally been found.

The symptoms which attend the passage of a Gall stone are sufficiently characteristic in most cases - Acute pain in the Epigastrium and Hypochondrium coming on suddenly often after taking food. The pain is subject to exacerbations and is relieved by pressure - There is nausea and vomiting - great prostration and often syncope. The pulse is not much affected, or if any thing is rather slower than natural at first, becoming rapid and feeble only when the symptoms have continued for a long time

dilatated.
According to the experiments of Saunders the bile in these cases is soon taken up into the blood by the absorbents. He found the serum of blood from the jugular vein dark-ly tinged in two hours after applying a ligature to the Ductus communis Choledochus. He infers from his own observations cannot confirm the results of these experiments he has seldom found traces of coloring matter in the serum before forty-eight hours - and he says that he could not detect it in the serum of the blood twenty-four hours after applying a ligature to the common duct.-
The Treatment should have for its object to allay pain and remove the spasmodic contraction of the duct. Opium is the best agent for calming pain. It may be advisable to give at first a drop of sulphuric acid in effervescing draught as the Stomach is usually very irritable. Dr Pratt recommends drinking hot water containing Carbonate of soda in solution for the same purpose. The hot bath - hot fomentations simple or containing opium will often be found advantageous. Indeed in these cases cold applications seem to be more effectual. Emetics will seldom be needed if administered at all in these cases since vomiting is often a common Symptom. Nature excessive vomiting or purging seems to be advisable since time is required for the dilatation of the duct, and the accumulated fluid behind the calculus will exert sufficient pressure upon it. It might seem advisable to produce

Nausea by means of small doses of Morphia, on account of its relaxing effect; but they may interfere with the use of other agents in the treatment, and besides this condition is rarely present naturally or can be produced by such means as the warm bath which has other advantages. The use of Chloroform might in some cases be advantageous.

If the duct becomes permanently closed, there will be persistent Jaundice, and Nutrition will suffer; though as already mentioned, life may be long sustained in such cases.

The Commonest cause of interruption to the flow of the bile from pressure on the ducts is Cancerous disease of the head of the Pancreas.

The Diagnosis is sometimes very difficult. The gradual appearance of the symptoms and the absence of the usual signs of disease of the structure of the liver, or of the ducts, or of the passage of Gall stones would aid greatly in the formation of an opinion as to the real nature of the case. Occasionally a nodulated Tumour in the region of the Pancreas may be felt through the Abdominal parietes, which would tend greatly to set the question at rest; but after all in many cases no certain conclusion can be come to.

No Curative measures can be used. The functions of the kidneys and bowels should be attended to. Death seems generally to be from exhaustion.

Cancerous disease of the Duodenum - a constipated state of the bowels - the pressure of the gravid Uterus may also give rise to symptoms of Jaundice, but of the Causes in

the two latter cases can be removed, the appearances soon subside.—

Various diseases of the structure of the Liver may lead to Jaundice, by preventing the free flow of the bile. Among these may be enumerated Inflammation from any cause!— Cirrhosis!— Malignant disease.— Atrophy.— that remarkable affection, which has been denominated Acute-Atrophy, and in which there is very rapidly a fatal result, may be considered as due to exudation around the Hepatic cells, cutting off their vascular supply and thus soon leading to their destruction.— Many of the cases of so called Malignant Jaundice are no doubt due to this disease of the Liver.—

It is impossible however to enter here into those cases of diseased states of the Liver, in which Jaundice is generally a comparatively unimportant symptom.—

We must now consider very shortly the second class of cases, viz, those in which the Jaundice can be traced to no obstruction to the removal of the bile after it has entered the ducts.—

There may be excessive secretion of bile, giving rise to what is commonly known as a bilious attack. This condition occurs readily in Europeans on their arrival in the warm country. It often follows some derangement of the digestive organs arising from a surfeit. In some persons there seems to be a great tendency to attacks of this sort from what might be deemed slight causes!— The biliary passages are more than usually distended, and consequently absorption

in greater Amount than Natural take place, giving rise to the dusky hue of the Skin seen in such cases.
The Symptoms are speedily cured by Quick purging with Calomel and Jalap. The Irritation caused by the bile may lead to the setting up of Inflammation which must be combatted by the Usual measures. — To prevent recurrence Attention should be paid to diet, and Means adopted to promote the Ablation of the Carbonaceous matter in the Blood by exercise in the Open Air, frequent bathing &c
In the remaining forms of Jaundice, the real cause of the Disease is not in the Blood One may be Guessed at. It has been known to follow, or be connected with the following Circumstances and States of the System
Mental Emotions — Inhalation of Chlorine and Nitrous Oxide Gases — Hydrocia. — Pneumonia
It having been noticed that Causes which give a sudden check to the System, as Fear, Grief &c have in some cases been speedily followed by a Jaundiced hue of the Skin and Secretions. Such Cases were included by Cullen and Others under Icterus Spasmodicus; but as already noticed Spasm could scarcely be expected to be of sufficient duration, and could in no degree account for the extreme rapidity with which the Appearances present themselves. Some allowance must no doubt be made in Case related by some of the Older authors, where Yellowness of the Skin appeared almost immediately; but as the fact of such cases being related, shows that the Symptoms may follow the assigned Cause

with a rapidity not observed in other cases – Probably
Arrested Metamorphosis of the bile affords the most plausible explanation at present; this arrested Metamorphosis being connected with interruptions to the Respiration and circulation, and the Renal secretion, the urine having been noticed to be devoid of colour at first in some such cases. Perhaps a temporary arrest or derangement of the functions of the Liver might also have some effect by preventing the removal of any portion of the pigmentary matter by the usual channel.–

Such cases are generally of short duration and of a very mild character, but there are marked exceptions to this rule. In rare cases the symptoms gradually increase in severity, and ultimately the patient dies, sometimes the most Cerebral symptoms – by restlessness, delirium, convulsions, coma. It is difficult to say why in some cases the symptoms take on this Malignant type. The mere presence of bile in the blood cannot account for such an occurrence – Dr. Budd supposes that the disorder of the Cerebral functions may be due sometimes to the action of some poison which is present in the system and which produces the jaundice, – or that the cause may be decomposition of the bile, and formation of some noxious agent – A remarkable case is related by Dr. Graves Clinical Lectures P. 457, in which these severe symptoms appeared in succession in three sisters, and led to a fatal result in the case of two of them – Probably there often
exists atrophy of the liver

That the Jaundice, which occasionally follows the inhalation of Ether or Chloroform, is due to arrest in the progress of metamorphosis of the absorbed bile seems to gain confirmation from the circumstance already mentioned, that sugar has been found in the urine under similar circumstances. The same cause may be assigned in those cases in which it appears in Pyemia, Pneumonia, Typhus etc. It used to be thought that in Pyemic infection, the yellow colour of the skin was not due to the colouring matter of the bile, but the characters of the substance found in the urine and other secretions are found to correspond exactly with those of Cholepyrrhin

It has been impossible in the space of this short essay to enter into anything like minute details on many points of interest connected with the various forms of Jaundice: Probably no other disease if a disease it may be called owns so many apparent causes, and the most that has been done, has been to view these causes and endeavour to see how they act in producing their effects. — Much obscurity still hangs over the functions of the liver, and their disturbances, but it may confidently be expected that when so many able investigators are engaged, many things that are now doubtful will soon become cleared up