

the intensity is engrafted, will also almost certainly increase whatever menstrual disorder may be present; so that the outbreak by which the insanity becomes apparent may make its appearance during a menstrual period; but I do not believe that because of this we are warranted in saying that the insanity was caused by the menstrual disorder, and the same holds true with regard to pelvic disease. Anything which reduces the vitality of the individual will exaggerate whatever pelvic disease may be present, or even make apparent by local symptoms a condition not before felt or complained of. We often have young women, committed to the hospital, in whom there is a history of severe menstrual disorder, which disappears entirely in a comparatively short time under the régime of hospital life, with the relief of constipation, indigestion and insomnia, but without any measures directed against the menstrual disorder itself. The history of the menstrual molimen thereafter shows no evidence of exaggeration of the mental disturbance, nor do the manifestations of the insanity necessarily or commonly improve with the relief of the menstrual disorder. Among the women of the defective class, which furnishes the largest proportion of our primary degenerates—that is, those women who become insane during the adolescence and lapse into dementia—it is the exception to find any menstrual disorder, and those among them who have borne children, although subject to the accidents of labor, septic infection during the puerperium and the ill results of subinvolution, rarely bring with them a history of pelvic disease or complain of discomfort after coming to the hospital.

This naturally leads to the last subdivision of the question. How may that class of cases of insanity be recognized which offers hope for relief or cure by the treatment of pelvic disease, either operative or otherwise? Judging from my own experience and observation no case of insanity dependent on a degenerative process in the nervous system will be benefited mentally by operative treatment, but on the contrary may, and in the majority of cases does, have the degenerative process hastened by the shock of the operation or the production of a premature climacteric. In all cases of insanity among the unstable class, where there is serious menstrual disorder which the history of the case shows to have grown worse since the onset of insanity, the patient will be benefited by local treatment; provided her delusions do not in any way relate to the sexual function or the condition of the reproductive organs. Such treatment timely begun may be the starting point for recovery; yet it is only fair to say that I have often been disappointed and, on the other hand, have seen cases, apparently seriously in need of treatment recover promptly without it. However, neither of these exceptions disproves the general rule. In the presence of pelvic disease operative treatment is required for the very same conditions that would demand it among the sane, and the relief of the physical disease may and often does materially aid in recovery from the insanity. Even when this is not accomplished the life of the woman is made more comfortable and her mental disturbance lessened. The greatest risk to the mental integrity of the woman from operative interference is, strangely enough, in that class of cases where the temptation to operate has been the greatest. I mean in young degenerate women with infantile uteri, small sclerosed or cystic ovaries and who have explosive outbreaks during the menstrual period; or women who have borne children, who have a slight

perineal or cervical tear and an enlarged and tender left ovary and slight subinvolution, but with a symptom-complex out of all proportion to the amount of disease present. Operation in such cases practically always means the determination of dementia. The following conclusions seem to me to be warranted by our study of the data furnished by our examination and treatment of the women committed to this hospital.

Menstrual disorder and pelvic disease, while quite common among insane women, in the majority of cases bear no apparent relation to the insanity; nor is the intensity of the mental disturbance in proportion to the gravity of the physical disease.

In cases where the insanity has existed for more than a year, or the patient has a defective nervous organization, treatment of the disease of the generative organs is practically without effect on the insanity, and in such cases operative interference resulting in the establishment of an artificial menopause almost invariably hastens the onset of dementia.

Operative interference is called for in the treatment of pelvic disease among the insane for the same reasons that would determine the necessity for such treatment among the sane.

In order to determine whether or not treatment of the disease of the generative organs will have a curative effect on the insanity, it is important to know the family and personal history of the patient with regard to the presence or absence of evidence of unstable or defective nervous organization, the length of time the insanity and disease of the generative organs have existed, and to what extent the general health of the patient is affected by the pelvic disease independently of the insanity.

CHOLECYSTITIS.

ITS RELATION TO ANGIOCHOLITIS AND CHOLELITHIASIS.*
BY CHARLES G. STOCKTON, M.D.,

BUFFALO, N. Y.

In the etiology of cholecystitis, what rôle is played by biliary calculi, trauma, exposure to cold, and what by invasion of the gall-bladder by pathogenic bacteria?

To explain the various painful and obstructive disturbances of the biliary passages by attributing them to gall-stone has been so simple and natural that such pathology went for a long time unchallenged. The suspicion that the process was vastly more complex than we have imagined has long been held, and during the past ten years our knowledge on the subject has so much widened that the pathologic position of the calculus in so-called gall-stone attacks has undergone a radical change. There were series of ascertained facts that were not to be disposed of by the simple statement that gall-stone was present, and for some unknown reason took upon itself to migrate from the gall-bladder. Here are a few of these facts:

1. In a large number of post-mortems, gall-stones are found present without any history of jaundice, hepatic colic, or other liver trouble.

2. In post-mortems of those dying from biliary obstruction there sometimes have been found no calculi in the biliary ducts, but one or two very large calculi in the gall-bladder, quite too large to engage in the cystic duct, and, therefore, not directly guilty of the attack.

3. Obstruction of the biliary passages is not infre-

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quently found to be complete when no gall-stone is found present in any of the biliary passages.

4. A calculus is sometimes found in the common duct without jaundice, colic or other symptoms of obstruction.

5. When gall-stones are found post-mortem, or in operations *in vivo*, and there have been recent symptoms of hepatic colic and jaundice—whenever these have been searched for, evidences have been found of cholecystitis, or angiocholitis, or both.

These observations would seem to point to the fact that gall-stones may be innocent tenants of the gall-bladder; that attacks of hepatic colic may occur when there are no gall-stones at all; that an inflammatory process of the biliary passages seems in some way related to the attacks of gall-stone colic.

What then is the pathologic position of the gall-stone, and what the secret of its formation? What rôle does it play in the evolution of hepatic colic and biliary obstruction?

The belief has been held from time immemorial that some changed condition of the secretion of the liver, the result of diathesis or dyscrasia, led to the precipitation of the solids of the bile and the formation of calculus. This belief has had support in the fact that the gall-stone is more often seen in women than in men; in age than in youth; is more often present in those who lead sedentary lives, and in those who have obesity and the uric acid diathesis. On the other hand it has been long suspected that the gall-stone had its origin in local conditions, and that it was not so much dependent upon a systemic state.

In 1891, Naunyn, at the German Congress of Physicians and Naturalists, sounded a clear note on the nature and formation of biliary calculi. First, he showed the constant and unchanging presence of cholesterin and lime in the bile, without any relation to the food ingested. Next, he showed that there were present substances in the bile which hold in solution the cholesterin in far greater quantity than is necessary to prevent this precipitation in the bile. He also showed that dogs, when fed upon lime in large quantities, had no increase of lime salts in the bile. Thus, while experience shows that certain habits of life tend to favor the development of calculi, these experiments of Naunyn, which have been verified, prove that that tendency is not to be found in the amount of cholesterin or lime in the bile, contrary to the reasonings of Bouchard. It upheld the theory that the origin of gall-stone lay in some particular condition of the gall-bladder which favors the precipitation of the solid constituents of the fluid, thus supporting the contention of Frierich, Niemeyer, Barth, and a host of others who were committed to a strictly local origin, as opposed to the systemic or dyscrasic origin of the calculi. These conclusions have been well stated by Stanislaus Pechkranc¹ as follows: "Modern investigations and teachings show that the disease is but a local one, the result of a morbid condition of the bile-ducts and gall-bladder, and that it is uninfluenced by any disturbance of nutrition."

Various observers have found that the center of gall-stones consists of bilirubin and lime salts, and that about this center the cholesterin is deposited. Naunyn has shown that this formation of the center of the calculus, and also of the precipitation of the cholesterin about it, follows almost invariably from an inflammatory process in the gall-bladder. In other words, given cholecystitis and a free supply of bile—although Naunyn holds that this free supply of bile is unnecessary, which view,

I think, has been disproven by Mignot—and precipitation occurs in the order above described. The same reasoning holds true of the calculi formation in the other biliary passages.

It now remains to explain the origin of the cholecystitis, and this, it would seem, has been satisfactorily accomplished by Mignot, Gilbert, and others. While exposures to cold, trauma, obesity, age, and bodily inactivity favor the development of cholecystitis, there has been wanting some common factor to complete this explanation. This missing link in the chain, in the light of recent investigations, seems to be found in infection. This belief has not been reached without much painstaking effort, and we owe a debt to the French investigators for this step in advance.

It was formerly believed that bile possessed active antiseptic properties. This has been disproven by Vignal, Copeman, Winston and Bernabel. Naunyn proved that in the terminal portion of the ductus choledochus living organisms are usually found present. In 1891, Latienne showed that the presence of micro-organisms in the biliary passages always brings about the precipitation of various compounds of the bile. Mignot² and Gilbert³, with the assistance of Dominici, and later, Fourniers, have shown not only this result of the presence of micro-organisms, but they have traced the process step by step to the origin of the calculi and have disclosed the nature of the organisms usually concerned in the work. It is the colon bacillus that is most often responsible for the biliary catarrh; but the typhoid bacillus, the proteus vulgaris⁴, staphylococcus, streptococcus, and others are occasionally found. The colon bacilli are present, either dead or alive, in one-third the number of cases (70) investigated. It was shown that the calculi containing the living micro-organisms were of recent formation, while old calculi were sterile. Mignot, in 1896, showed that foreign bodies, when sterile, could remain in the gall-bladder for an indefinite time without inducing inflammation of the mucous membrane or precipitation from the bile. It is thus seen that the gall-stones may be innocent tenants of the gall-bladder, that their origin is secondary to infection of the gall-bladder, and that they are mere incidents of an inflammatory process and not themselves the cause of the inflammation, and that they may have no influence in producing inflammation of the bile-passages except when they exercise pressure upon the inflamed surface or, in escaping, cause abrasion of the delicate mucous membrane or, when held fast in the bile-ducts, they offer obstruction and thus favor the extension of the infection already present.

It is an interesting fact, as shown by Mignot, that the more virulent organisms do not give rise to gall-stones, but that only those having the properties of producing a slight inflammatory reaction are concerned in calculus formation. He also demonstrated that in the condition of atony of the gall-bladder, and in complete stasis of the bile, the formation of true stratified calculi is impossible. It is necessary for the biliary passages to be open so that the bile renews itself, in order to have the proper conditions for the formation of gall-stones. It is regarded as improbable that there is any increase in the size of the calculus after the death of the micro-organisms present. It is known that in man, under ordinary conditions, these organisms die in a comparatively short time; and thus is explained the fact that sterile calculi are found in sterile gall-bladders without attacks of biliary colic having ensued. The fact that the precipitation of the bile compounds occurs

when there is catarrh of the mucous membrane of the bile-passages, associated with the presence of micro-organisms, and that without this association, the gall-stones become inert, throws light upon the results of certain methods of therapeutics that hasten the death of the pathogenic bacteria, the subsidence of the catarrhal inflammation, and the disappearance of biliary sediment. On the other hand, the mere removal of the gall-stone by surgical intervention without other methods of treatment may not do more than afford temporary relief, and another calculus may at once form, as the infection and the cholecystitis may continue. It is a fact that in two-thirds of the cases of cholelithiasis in man, the bile is found to be sterile; in which cases the calculi are old and, as before stated, when the calculi present evidence of recent formation, infection and inflammation of the bile-passages are present. In passing, it should be mentioned that some experimental work supporting the views of the French observers has been done in this country by M. W. Richardson⁵.

W. Hunter⁶ attributes the catarrhal condition of the bile-passages to a toxic condition of the bile, resulting from faulty digestion and other causes of dyscrasia before referred to. He does not regard it as positively necessary that the biliary ducts should become infected. This view apparently rests on the fact that gall-stones are found present under sterile conditions; but, as has been shown, the bile under favorable conditions rapidly becomes sterile, and although infection sometimes continues for years, it is, after a short time, frequently absent. Instances of gall-stones, surrounded by mucopurulent fluid which is perfectly sterile, have been recorded.

It is very probable that the calculus acts as an irritating foreign body in the presence of inflammation, and the removal of the gall-stone unquestionably exercises a beneficial influence on the course of the cholecystitis. Indeed, it is held by Riedel⁷ and by S. Mintz that the more serious symptoms of gall-stone colic are the result of what Riedel calls "perialienitis," that is to say, an inflammation of the structures immediately surrounding the gall-stone. Riedel looks upon the inflammation about the gall-stone as a cause of the pain and spasmodic contraction of the gall-bladder, and holds that without this spasmodic contraction it would be impossible for the calculus to escape from the gall-bladder, believing the normal muscular activity of the organ to be quite sufficient. In the same way a gall-stone incarcerated may intensify the existing angiocholitis. Thus we have explained dropsy of the gall-bladder, pain, fever, jaundice, toxemia, as well as ulceration of the walls of the bile-passages that permits the escape of the gall-stones into surrounding parts. But we must not lose sight of the fact that the process, from beginning to end, hangs upon inflammation, and the inflammation upon infection. The question of dyscrasia, so long held and re-suggested by Bouchard and Hunter, may be explained by admitting that these conditions lessen resistance and thus favor infection and the formation of calculus.

Let us now look at the matter from the standpoint of the second question in this paper: "What relation does cholecystitis bear to angiocholitis, jaundice, enlargement of the liver and hepatic colic?" In other words, we are to take a different view of the same process. The question has already been answered in part. Usually when there is cholecystitis, there is more or less angiocholitis. The passage of the gall-stone increases the inflammation. There is swelling of the mucous lining of the bile-pas-

sages and closure of a sufficient number of them to lead to the retention of bile in the liver. Jaundice necessarily follows, enlargement of the liver succeeds, the organ sometimes reaching twice its normal size, becoming dark in color, tender on pressure, and sometimes painful. At such times the gall-bladder becomes distended with bile unless there happens to be closure of the cystic duct. But even then, distension quite frequently results from inflammatory exudate into the gall-bladder, which may be felt as a distinct rounded tumor. At other times it is concealed by the enlarged right lobe of the liver; or, the gall-bladder may become thickened or shrink into an insignificant space. In some cases it is difficult to say how much of the pain is attributed to the pressure of the stone, and how much to the inflammation. Naunyn⁸ holds that not only is distension of the gall-bladder due to cholecystitis, but also that the pain, cholangitis, and the symptoms of obstruction are thus to be accounted for. Of course, when the gall-stone acts as a distinct plug in the ductus communis choledochus, an icterus would result, but this is a rather unusual state of affairs. He points out that there are cases of cholecystitis that give the picture of gall-stone colic, but which, on operation, show the absence of calculus. As a rule in such cases, the pain ceases, the swelling, the gall-bladder, icterus and fever subside. There may be recurrences, and eventually, through accidental increase of the virulence of infection, the symptoms may become very prominent, metastasis may be formed, and death result from sepsis or prostration. Or, there may result a chronic cholecystitis, with hydrops or empyema of the gall-bladder, or, coincident with the escape of gall-stones, the patient may improve, and recovery will ensue. Naunyn reiterates the statement of Mignot, that cholecystitis and angiocholitis are infectious from the beginning.

In a recent contribution to the Berlin Medical Society, March 15, 1899, Pollatschek takes a very similar position, holding that biliary colic may arise solely from inflammatory processes without the presence of any gall-stones whatever, and that even in severe cases of cholelithiasis icterus may be wanting. In this connection he points out the frequency with which the pain of biliary colic is mistaken for cardialgia, and calls attention to the fact that in the latter condition swelling of the liver is present. The contrary is almost always true of cholecystitis or angiocholitis with or without calculus. He speaks highly of a method of palpation suggested by himself, the value of which I can from personal experience vouch for. It consists in placing the four fingers of the left hand lightly over the edge of the liver while the necessary pressure is given to them by the four fingers of the right hand placed upon the dorsal surfaces of the fingers of the left. The tactile sense of the finger tips is far greater when there is absence of muscular contraction in the examining hand.

Pollatschek also draws attention to the fact that in instances of cardialgia there are almost always present well-defined stomach diseases, whereas in cholelithiasis we have merely a sympathetic gastric condition; also in hepatic colic we nearly always have the accompanying peritonitic symptoms so different from those seen in simple gastralgia.

I have recently seen two cases of obstinate cholecystitis and angiocholitis in which a single gall-stone was incarcerated at terminal extremity of cystic duct, in which was seen a beautiful illustration of inflammation of the surrounding parts, which Riedel calls "perialienitis." In these cases the swelling of the hepatic duct was sufficient to produce intense jaundice and enlargement of the liver.

In both cases the gall-bladder was small and much thickened. These cases also illustrated very strikingly the results of long-continued localized peritonitis, so commonly present in cholecystitis. The numerous adhesions, binding down into a mass of scar tissue the regions about the gall-bladder, are not only a great embarrassment to the surgeon, but give abundant evidence of the seriousness of the affection.

Let us now turn to the third question: "How far may the course of cholecystitis and the prognosis be modified by treatment other than surgery?" We can not turn our backs upon the experience of the ages that points to the fact that certain habits of life predispose to the formation of biliary calculi. Just how obesity, a sedentary life, gluttony, etc., invite infection of the gall-bladder, we may not be able to explain. In some way immunity seems to be lowered. The experiments of Naunyn would seem to show that this does not depend upon the constituents of the bile. These experiments are apparently conclusive so far as lime, cholesterin, and coloring matter are concerned; but there may be other elements in the bile of those individuals leading unhygienic lives that favor irritation and inflammation of the biliary passages. On this very important point some light would seem to be shed from a therapeutic standpoint. The treatment adopted at Carlsbad has long been famous for the relief afforded such cases. This plan of treatment is not limited to drinking of Carlsbad waters, but it is a carefully worked out plan of hygienic living, including diet, baths, exercise, recreation, and the administration of drugs.

Bearing on this treatment, A. Hermann⁹ reports his valuable observations. He admits in the beginning that the treatment has no influence in the expulsion of the calculus, and says that such migration is a purely accidental matter. Nevertheless, he shows that attacks of hepatic colic are comparatively rare in the patients under treatment. Of 114 cases of cholelithiasis that came under his observation at Carlsbad in 1898, hepatic colic occurred in 19 only. Now, if the calculi remained in the gall-bladder without producing colic attacks, it would seem that the tissues must be so modified by the treatment that the inflammation disappears, and it is highly probable that at least a portion of the benefit lies in the modification of the character of the secretion of the liver. Herman reports that in 1886 there were in Carlsbad 34,320 cases of cholelithiasis, and only 18 died of the disease; 71 died from other diseases secondary to cholecystitis, such as abscess of the liver and peritonitis. He also reports that colic often returns after operation and removal of calculi. He cites 15 cases that were operated on in which the colic returned in 7. This can not be fairly construed as an argument necessarily against the proper practice of surgical intervention in cholelithiasis, but it goes to show that the disease is really an infection of the biliary passages, and that until these parts become free from infection there is a reasonable probability of the reappearance of the calculus.

A review of the benefit derived from a well-known plan of medical treatment is believed to be timely when surgical treatment of the affection is coming to be so generally advised. The benefits obtained from surgery are not merely owing to the removal of the calculus. Indeed, Riedel ventures the opinion that 95 per cent. of the calculi migrate from the gall-bladder and are discharged without provoking true icterus, or serious obstruction. This seems like a very strong statement, but at any rate it points to the fact that the gall-stone,

either in the gall-bladder or in its spontaneous passage from that organ, creates comparatively little disturbance as long as inflammation is not present.

Riedel believes that as soon as the diagnosis of cholelithiasis is made, the calculus should be removed by operation, and yet he admits that 80 to 90 per cent. of so-called attacks of hepatic colic are merely the symptoms of cholecystitis. In other words, the operative procedure, including the removal of the gall-stone, has for its object the cure of the cholecystitis. As has been shown, operation, even though offering temporary relief, offers no assurance that the disease may not recur. Undoubtedly in a certain proportion of cases the inflammation includes the dangerous complications of chronic angiocholitis, hepatic abscess, and peritonitis, which with the assistance of surgery might have been prevented; but even in the cases in which operation is demanded, a carefully considered plan of medical treatment should be applied, not only to assist in recovery, but to prevent recurrence. In the great majority of cases, if the patient can be put under proper control for a sufficient length of time, the inflammation of the bile-passages will disappear, the calculi, although retained in the gall-bladder, will cause no trouble, and the patient is likely to continue thereafter in good health.

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DISCUSSION.

DR. GEORGE DOCK, Ann Arbor, Mich.—When a case of cholecystitis presents itself, the physician should call in the surgeon in consultation, especially one who has had experience in diseases of this kind. I think, however, that the physician should not give up the case entirely to the surgeon. The after-treatment is of the greatest moment, and the patient should be watched for a long time. Such cases offer a fruitful field for experimentation. The importance of calling in a surgeon depends on the fact that in a small proportion of cases serious complications, such as adhesions and perforations, are likely to occur unexpectedly, and might be dangerous to the patient.

DR. JUDSON DALAND, Philadelphia.—I desire to refer to two cases recalled by Dr. Stockton's paper, and by the remarks of the last speaker. In one case the patient had recurring attacks of jaundice with pain, and the case looked like one of ordinary gall-stone with obstruction. The autopsy showed the difficulty to be cancer of the head of the pancreas. The mass, pressing against the opening of the common bile-duct, produced an obstructive jaundice, and from time to time the softened center of the cancer discharged into the duodenum, the pressure on the common bile-duct thereby being relieved, and the jaundice disappeared. Again the opening closed and the jaundice reappeared. This recurred several times. I also recall a case seen three years ago similar to the one described: in this instance a gall-stone was removed from the gall-bladder and the patient rapidly recovered from the operation and there was no return of the attacks of biliary colic for three months when they recurred and in six months attained their original severity. It was believed by the surgeon that he had removed all the stones, and the symptoms were looked on as due to other causes; a second operation was performed and a stone was found in the common bile-duct, which, judging from its size and appearance, probably existed at the time of the primary operation.

The common bile-duct is often found with difficulty by the surgeon, especially in patients with large abdomen and in the obese. If the head of the pancreas is grasped by the thumb below and the middle finger above, in the long axis of the body, and the index finger be allowed to fall downward, it will press against the region occupied by the ductus communis choledochus.

DR. T. B. FUTCHER, Baltimore—I wish to refer to the importance of the typhoid bacillus as an agent in forming the nucleus of gall-stones. A number of years ago Dr. Welch, of the Johns Hopkins Hospital, demonstrated that a clump of these organisms may form a nucleus about which calcium salts may be deposited. Such cases have been operated on, the calculus cut into under strict antiseptic precautions, cultures made from the center of the latter and the typhoid bacilli grown out in pure culture. This shows that typhoid bacilli may form a nucleus about which cholesterol and lime salts may be deposited. Recently, a case in Dr. Kelly's department was operated on for cholecystitis and suspected gall-stones. The cultures taken from the fluid in the gall-bladder at the operation showed the presence of large numbers of typhoid bacilli, subsequently grown out in pure culture. The patient, a woman, had typhoid fever eighteen years previous to the operation, and there was no history of any subsequent attack. A gall-stone came away with one of the pieces of gauze later on when the case was being dressed. Whether the typhoid bacilli formed the nucleus of the calculus in this case is not known, as the stone was not saved, but this instance shows how long the bacilli may remain in the body and finally give rise to an acute cholecystitis. The patient's blood-serum agglutinated typhoid bacilli from another source and also the typhoid bacilli grown out in pure culture from her own gall-bladder.

DR. HORACE D. ANFOLD, Boston—At a meeting this spring I had the pleasure of hearing Dr. Mark Richardson report an instance where there was injected into the gall-bladder of a rabbit, typhoid bacilli; this injection was made under the usual antiseptic precautions; as a result of such injection a calculus was formed. This is only one case, but it is in line with the evidence given by the last few speakers.

DR. CHARLES G. STOCKTON, Buffalo, N. Y.—The surgeon should not only be called in cases of cholecystitis, but he should be associated with the physician in the study of the case. In each case I referred to, as you may have noticed, a surgeon was called and calculi were removed. It is not always a clear matter to decide when an operation is indicated or when an inflammatory process is present. I had a remarkable case under my care this past winter. The patient, a woman, about 30 years of age, had always been healthy; she had typhoid fever last autumn, which ran its usual course; about six weeks later she was seized with severe pain and it was at first supposed to be simply a gastralgia. Later the pain was referred to the liver, and there was jaundice with distension of the gall-bladder. After the sickness had lasted about three weeks, a leucocytosis became marked and it was the opinion of Dr. Park that an operation was indicated. Operation was decided on for the following morning, but, the leucocytosis declining, we decided to wait longer. She made a recovery that was remarkable, but not until after she had passed gall-stones on three separate occasions. Since that time she has been well. This case is interesting in pointing out the close relationship existing between gall-stone development and cholecystitis. Typhoid bacilli are reported as surviving long in the gall-bladder, but not so the colon bacilli. Dr. Daland remarked, I believe, that when there is obstruction in the bile-ducts or the radicals of the biliary passages, this obstruction may develop an immediate infection. This is not so true of the cystic duct as of the common bile-duct. When the obstruction is at the outlet of the common duct, we almost invariably find jaundice following, and often pain. The jaundice, in this case, is not merely the result of obstruction caused by the angiocholecystitis. The latter is excited by the calculus, but without inflammation jaundice would, of course, continue.

RESPONSIBILITY OF THE PHYSICIAN IN VACCINATION.*

BY JULIA W. CARPENTER, M.D.,
CINCINNATI, OHIO.

That smallpox has ever been a fearful scourge in the world is known to but few outside of the medical profession, and the full extent of this scourge in the past, unless it has been portrayed in undying colors in the class-room, is not a vivid picture even now with the majority of physicians.

So quickly does the world become accustomed to the absence of a once dreaded disease that its reappearance is needed to force again a study of its history, its rav-

ages, its cause, its prevention and obstacles to its prevention. Its history tells us that since the days of the immortal Jenner there has been a grand transformation scene on the face of the earth. This change has been almost incredible. Before the days of vaccination the ravages of smallpox were beyond belief. Two millions have sometimes died in one country in one year. Now the majority of physicians have never even seen a case. To those who died of the smallpox must be added also a long list of those who recovered from it, but died of some other disease for which smallpox was the predisposing cause. For instance, smallpox predisposes to tuberculosis. The statement has been made by one observer that of 360 persons who recovered from smallpox and were kept under observation, only four escaped tuberculosis. Those that now die of smallpox can not be classed with any noble army of martyrs, for these deaths have been proved to be unnecessary.

The subject of vaccination is of vital interest to us at this moment for several reasons: 1. On account of the recent epidemic of smallpox. 2. On account of the discussion for and against the propriety of legislation one way or another on the subject. 3. On account of the growing sentiment against vaccination and the industry with which its opponents are working.

The epidemic of smallpox in the United States during the past year could not have existed if the proper precautions had been taken, and vaccination had been universal. Why it was not, can be accounted for in two ways: 1. Out of sight out of mind, is a true adage. Absence of the disease without law to insure its prevention is the forerunner of its reappearance. 2. Ignorance on this subject among the people furnished good soil in which the enemy sowed tares, and the anti-vaccinationists arose on the scene.

The vital point in it all is: What is the cause of the opposition to vaccination, and what are the means to overcome this opposition? The strongest weapons in the hands of these enemies are facts, but these facts do not need to be repeated, if great care is exercised by the physician in the manner of vaccination and care of the patient afterward. The manner of vaccination has now been reduced to a nicety. The responsibility for the purity of the vaccin no longer rests with the physician. We now have co-workers who make its preparation their specialty, and on their faithfulness and conscientiousness depend our success and their pecuniary reward; for any impurities traced to one firm would at once turn the demand in another direction. At present the hermetically sealed tube of glycerized vaccin outranks all other forms for safety. It is a little more troublesome, but so is everything that is done in the best way possible. The ivory points, though coated with the same pure vaccin, are more or less exposed to the air and contamination by germs.

As to the place for vaccination, there is certainly room for good judgment. In recent vaccinations one still sees with girls, as well as boys, large scars on the arm midway between the shoulder and elbow. Why put a scar in a conspicuous place when it is not at all necessary? Our office is to remove all traces of disease, not to put them forever before the eyes. This gives the bearer of such a blemish an occasion to blame, and also gives another physician an opportunity for just criticism. One young lady was vaccinated in four places an inch apart, making four corners of a square just in the middle of her arm; fortunately only one took; if all four had taken, such an immense cicatrix might have prevented the author from ever being sent

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