lary must conform to the requirements therein unless it is especially declared on the label that they differ. This means practically that any preparation may be made of any strength, provided the strength is named. For example, tincture opium, of which the official strength is 10 per cent. of opium, or 1.2 per cent. morphin, may be 5 per cent. or only 1 per cent. of opium and corresponding morphin strength, if it is only so stated on the label. The result has already been that chemicals below the official requirements as to strength, quality and purity are sold. Thus magnesium carbonate is labeled "for technical purposes;" sublimed sulphur "for mechanical uses," etc. Such chemicals for commercial, industrial or technical purposes may, and often do, contain poisonous substances, such as salts of the heavy metals, lead, copper, tin and poisonous compounds of arsenic, antimony, etc., which would be entirely excluded if they were offered without this qualification. This label requirement applies only to the original large packages of these cheaper chemicals in bulk and, necessarily, labels are never seen by those who may use the chemicals as medicines. In fact, except for interstate commerce, they may not appear on the packages bought by the retail pharmacist and, unless he examines these articles, he may be selling impure or adulterated medicines unconsciously. The law in this respect lends a false security which is, to say the least, very undesirable. Ever since the advent of pharmacopœias—practically a century—it has been the law, written and unwritten, that when the article is sold under the official title it must have the official requirements, that it must conform to the tests for identity, purity, quality and strength. In order to make adherence to these standards more acceptable to manufacturers, the U. S. Pharmacopœia, Eighth, affords certain limitations as indicated in the purity rubric.

It is, therefore, recommended that in all state legislation the following modification of the federal law should be insisted on:

a. Exemption from the label requirements for the articles of the U. S. Pharmacopœia and National Formulary and for physicians' prescriptions.

b. Articles of the U. S. P. and N. F. must conform to the requirements, although, if feasible or desirable, the preparations may differ in color or flavor from the N. F. formula product if so stated on the label.

RELATION OF PHARMACISTS TO PHYSICIANS.

The reformation of the materia medica and therapeutics and the work of the Council on Pharmacy and Chemistry have brought prominently to the notice of the medical profession the two legal standards for medicines; consequently also the pharmacist is reminded of these standards and incidentally of his relation to the physician.

The pharmacist has been in an unfortunate position, somewhat similar to that "between the traditional man in red and the deep blue sea." With ethical proprietary medicines and foreign synthetics on one hand and secret "patent medicines" on the other, his lot has been anything but a happy one. He now sees an opportunity again to become the compounder at least, if not the manufacturer, of the medicines used by the physicians; those who are awake and ambitious realize that a new era has begun for pharmacy. Unfortunately there are "druggists" and pharmacists just as there are "doctors" and physicians, and to distinguish between these is a difficult and almost hopeless task. Following the lead of medical men, however, the better class of pharmacists

have organized local societies as branches of the American Pharmaceutical Association and have taken up the work of awakening the pharmacists to the possibilities being presented to them through the movement of reform now in progress in the medical profession. That some of the causes which have been destructive alike to pharmacy and medicine may be modified if not removed, the encouragement of the American Medical Association is sought in behalf of the educated pharmacists of this country, who, through their national association—the American Pharmaceutical Association—are, like the physicians, working for the elevation of their calling and the improvement of their profession and practice. To facilitate the work of the local branches it is suggested, therefore, that this Section take such action on the following subjects as it may deem appropriate:

The Status of the Prescription.

Prescribing by Druggists.

The Attitude Toward "Patent Medicines."

Dispensing by Doctors.

Original Articles

MEDICAL TREATMENT OF CHOLELITHIASIS.*

GEORGE DOCK, M.D.

ANN ARBOR, MICH.

Two things have contributed to put the treatment of cholelithiasis on a certain basis. First, the demonstration by Naunyn that the chief elements in the formation of gallstones are infection of the bile tract and stagnation of bile. An important addition is suggested by the recent experiments of S. P. Kramer, who shows that the germus most commonly concerned, perhaps, in bile tract infection—*Bacillus coli* and *B. typhosus*—precipitate bile by their activity in test tubes. Second, the revelations of the actual conditions in gallstone disease by surgeons, correcting and amplifying the study of the anatomic conditions as made known previously by post-mortem examinations.

Prevention of cholelithiasis, in a broad sense, is an academic question, like physiologic perfection in any other respect. In practice, aside from general advice, such as few people heed, prevention must be limited to those patients who have an especial tendency, as indicated by a previous history of infection of the biliary tract. So patients who have had post-typhoid cholecystitis should be clearly advised of the possibilities and put on such treatment as will be likely to lessen the chances of gallstone formation.

It may be worth while touching briefly on the details, though these are, in general, well known. The diet should be full rather than slender; the meals frequent and at regular times rather than few or variable; a mixed diet is better than any one based on theoretic conceptions of the food elements going toward the formation of biliary stones. Regular movements of the bowels should be secured, using the simplest and most natural methods first. A very important point is the drinking of sufficient water to dilute the body fluids and to assist in intestinal peristalsis. If necessary, laxatives should be used. Among these Carlsbad water is often useful, but can not be said to be always or specifically valuable. Some persons can take hot Carlsbad water daily, with advantage, for long periods; others

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

soon acquire a gastroduodenal catarrh or aggressive one already present. The same possibilities are true of hot plain water, so often recommended. If a laxative salt is necessary sodium phosphate certainly seems the best one for long-continued use. But before using such preparations it is worth while trying the effect of cool drinking water taken before meals, and particularly after rising in the morning.

Regular movements of the bowels and proper meals unquestionably tend to lessen bile stagnation. Certain other things can assist. So, for example, exercise taken according to the patient's needs and habits. Tight clothing around the body should be avoided. The mere removal of corsets, so often insisted on, does not always secure the desired end. Many of the "hygienic" garments advocated by anti-corset speakers are as tight as the others. Congestions of the portal circulation due to disease of the heart, lungs or liver, should be reduced as much as possible. Systematic deep abdominal breathing is, perhaps, a useful aid in overcoming such congestions.

Among drugs used in suspected infection of the biliary tract salicylates are probably of definite value as disinfectants and cholagogues. Their effects must always be watched and undesirable results prevented by timely suspension of the remedy.

In discussing the treatment of gallstone disease already in existence it is necessary to distinguish between clinical and anatomic diseases. Many people, of course, have gallstones without ever having symptoms that are recognized. Of these, and of stones found at surgical operations, I shall not speak. The possibility of dissolving gallstones in the gall bladder or ducts is not yet abandoned; in fact, it is difficult to doubt the good faith of many observers who believe that such a thing is possible. Personally, I have never attempted to bring about solution of gallstones in the body, but have seen patients in whom others had tried practically all the remedies recommended for that purpose. I have never seen any evidence of even partial solution or softening, but have seen complete failure after the most thorough use of various drugs. But even if we were able to dissolve stones in the gall bladder as quickly as the most favorable accounts would lead us to think they can be dissolved in test tubes, the gain to the patient would be very slight. It is well known that gallstones can be formed very quickly, within a few days. So that as long as the stone-forming disease is present, solution of the stones is a very imperfect mode of treatment.

From every point of view it seems important to look on the stone as less important than the infection in clinical cholelithiasis. The treatment, then, in any case will depend on the interpretation of the clinical features. The so-called colic in by far the great majority of cases is not a mere colicky pain like that which occurs in ureteral calculus, but is usually an inflammatory pain, with the danger in all cases, of peritonitis, perforation, gangrene and more or less distant or widespread infection. The condition in many respects is like that in appendicitis; the anatomic condition may be of any grade of severity; the attack may subside, may recur or not, or a dangerous train of events may arise at any moment. The therapeutic problem is not merely to lessen pain, to diminish spasm, but to lessen inflammation and to diminish the risks due to inflammation and infection and their possible results. The majority of cases in the attack are not surgical; and yet, just as in any other local

inflammation in the peritoneum, every case must be viewed with a surgical eye, and if the physician in charge is not competent to do this himself he should certainly have the cooperation of an expert surgeon.

For the attack the indications are to relieve pain, to lessen inflammation and to diminish the risk of stagnation of bile. For the first indication opium is indispensable. A hypodermic injection should be given large enough to lessen the worst of the pain, but not so large as to entirely becloud the clinical picture. Atropin may be added with advantage and in full doses. For the rare agonizing pain a whiff or two of chloroform sometimes seems necessary, yet there is a serious practical error connected with the use of chloroform in gallstone colic. Some people seem to have an idea that full chloroform anesthesia will paralyze the muscular fibers of the bile ducts in such a way as to allow a stone to become freed. Acting on this principle, I have seen a man kept almost constantly under chloroform for seven days, and in many cases for shorter periods, but without any good result. Personally, I never use chloroform in such cases.

A hot-water bag or compress, or any other hot application, is often useful in relieving the pain. The hot full bath can also be used with advantage. I prefer to these external applications copious washing of the stomach with hot water or hot Carlsbad water. This seems the most soothing way of using heat and, theoretically, should lessen congestion and swelling and act as a general sedative to the affected tissues. The lavage is repeated every two or three hours according to the indications, during the period of most severe pain, and once a day afterward.

Rest should be enjoined so far as possible. Movements of the bowels should be encouraged by hot Carlsbad water or enemas. The after-treatment depends on the suspected conditions in the biliary tract, and after the acute symptoms have subsided careful attention should be paid to the presence or absence of bile in the stools or urine, the temperature, the leucocytes and the physical condition in the region of the bile tract. The treatment of obstructive jaundice does not need discussion here.

I think the passing of gallstones through the common duct, and finally per rectum, a comparatively rare event. In the most important cases, the actual proportion of which is very uncertain, the cessation of symptoms is due not to an escape of the stones but to the subsidence of impaction and inflammation. Small stones may pass the common duct, I will not deny that large ones can, but I believe that in many cases when this is supposed to have taken place perforation had occurred. Perforation can easily happen during severe attacks of so-called biliary colic, but I am convinced that it sometimes occurs with milder symptoms, so mild in fact as to be overlooked at the time and only discovered by operation or autopsy.

A few words regarding the use of olive oil may be in order. The solution of stones in the bile tract by internal administration of olive oil is believed by very few. It is probably true that some of the early use of olive oil was encouraged by finding soap concretions in the stools, and yet there are reasons for thinking that oil may nevertheless be useful in cases known as gallstone colic. In some of these it is probably useful because there is an error in diagnosis, and the supposed gallstone colic is a pain due to spasm of the pylorus from hyperchlorhydria or something else. It is well known that gallstones are sometimes associated with reflex dis-

turbance of the stomach, either secretory or sensory. If hyperchlorhydria is associated with gallstones olive oil given before meals will lessen the secretion of HCl, and in that way relieve some of the symptoms. In other cases there is little or no free HCl, but this may be combined with a hypermotility of the stomach. Olive oil will lessen the hypermotility and, in some cases, by so doing, improve the intestinal digestion. A careful series of clinical studies and experiments has been made in my wards by Dr. D. M. Cowie, and an article soon to be published by him can be read with interest by those who have used olive oil as a remedy against gallstones, as well as by those who are chiefly interested in its use in stomach diseases.

DISCUSSION.

DR. SOLOMON SOLIS-COHEN, Philadelphia, has failed to find an infallible remedy for gallstones. In his opinion, a case of cholelithiasis that gives symptoms is at least potentially a surgical case. Persistent or recurrent indigestion with recurrent pain should always arouse suspicion of cholelithiasis among other possible diagnoses.

DR. E. W. GOODENOUGH, Waterbury, Conn., gives a tumblerful of olive oil at the time of colic. The next morning the bowels move freely, whether morphin and atropin are given or not, the tongue is left moist and the alimentary canal clear. For this reason alone Dr. Goodenough considers olive oil valuable, if it were useful in no other way. He emphasized the value of hot Carlsbad salts and general hygienic treatment. In a large proportion of gallstone cases the individuals have suddenly grown stout. Females, gain in weight 10, 15 or 20 pounds, near the time of the menopause or during pregnancy, and in trying to conceal the enlarging abdomen they do not change the size of their corsets, thus increasing the pressure on the liver, where such pressure is undesirable. Dr. Goodenough has found the form of corsets used for the prevention of enteroptosis useful. These must be three or four sizes larger at the waist than the ordinary style, and the pressure from below upward, gives the waist a chance to expand and relieves the hepatic pressure. He pointed out that in pregnant women, some form of support is to be used, loose at the waist, and supporting the skirts from the shoulders. Women take off their corsets, or use corsets without steels, and yet wear the same tight waistbands as before. They forget that these produce as much harmful constriction as the corsets themselves. This explains the lack of benefit, in some cases, of corset removal.

DR. W. W. TOMPKINS, Charleston, W. Va., believed that in these cases the whole treatment is practically summed up in treating the attack, and the one remedy is morphia, combined with atropin, if desired. The great trouble with these cases, he said, seems to be that after having had one attack, one never knows when there will come another. Life insurance companies exempt any one who has had an attack of gallstone colic for two years from being insurable. Dr. Tompkins believes that it makes very little difference when we eat, or how much we eat, provided we have it properly cooked. People know best what they can eat and what they get most comfort out of. If the attacks occur frequently, surgical treatment is indicated.

DR. H. H. ROBERTS, Lexington, Ky., took issue with Dr. Tompkins in regard to the diet. There is, he said, always an infection in the alimentary tract, and to allow the patient to eat indiscriminately of anything he wishes is very bad practice. He criticised Dr. Dock for not calling enough attention to the diagnosis. It is important to know whether gallstones are present, and this can only be determined by the radiograph or by sieving the stools. So far as the medical treatment is concerned, he believed that very little can be done that has effect on the stone itself, but by directing attention to the metabolism and general secretion of the system, the formation of the stones can be prevented. The manner of living and the diet are the important factors in the whole treatment.

DR. J. C. JOHNSON, Atlanta, Ga., stated that he could report a large number of cases which were dependent on or

precipitated by hyperchlorhydria. He believes that, if they did not have this condition of the stomach, many patients would not have the attacks of colic, and that they would not have this condition of the stomach without error in diet. Food is a stimulus to the digestive system, and there can not be normal action of the liver or stomach, without normal duodenal pressure, and this is dependent, in part, on the mechanical and chemical condition in which the food leaves the stomach.

DR. L. AMSTER, Atlanta, Ga., believed it is generally conceded that cholelithiasis is a surgical disease. At the same time some patients refuse operation, and then it becomes the duty of the physician to relieve the patient, if possible, or to make him comfortable. There are a certain number of cases of cholelithiasis that do not need any surgical operation, and that get along very well, even with pronounced attacks occasionally, and that never are operated in and do not have to be operated. Again, he said, there are different stages and varieties of cholelithiasis. There are cases of simple cholangitis without enlargement of the gall bladder and without any jaundice. There are other cases with enlargement of the gall bladder and no jaundice, and more aggravated cases with enlargement of the gall bladder and jaundice. Dr. Amster has found that by putting these patients to bed for eight or ten days, with hot flaxseed poultices to the abdomen, hot Carlsbad salt water internally and dietetic treatment, many of them do very well. This treatment is to be repeated in six months or a year. At the same time there are a certain number of cases which from the beginning belong to the province of surgery. So far as the treatment of the acute attack of cholelithiasis is concerned, it simply amounts to relief of the attack. Dr. Amster believes in regulating the diet, and that it is a very important factor in the production of gallstone colic. Everything should be done to put the patient on a proper diet in order to prevent recurrence of the attack. He has found large quantities of water an excellent remedy, and has seen very little effect from oil or any other solvent. He has tried succinate of sodium, but not sufficiently long to see any results from it. Dr. Amster emphasized the importance of diet and treatment after operation for gallstones. The possibility of a recurrence still confronts the patient. Naturally, he wants to know what he should eat and drink in order to prevent such recurrence. It is therefore important that great stress should be laid on the dietetic treatment after operation.

DR. W. J. ROBINSON, New York City, stated that the medical treatment of gallstones resolves itself into the treatment of the attack and the treatment of the interval. The treatment of the attack is best accomplished by the aid of hyoscin and morphin. The treatment of the interval consists in the use of olive oil, Carlsbad salt, artificial or natural (the best results being obtained with the natural), sodium succinate, sodium salicylate and sodium oleate. These remedies, he said, will generally cure the disease and prevent recurrences. As to diet, he did not think that so much attention need be paid to that, but he agreed that it is important to limit the quantity of the diet, rather than the quality. The patient must not eat indigestible things, but as a rule, the patient is the safest guide as to his diet. Dr. Robinson expressed his belief in the efficiency of the medicinal treatment of gallstones. He has seen and heard of so many patients that have been advised to undergo an operation, that were told that it was dangerous for them to delay any longer, that they were risking their lives, etc., but they continued medical treatment and have been well for ten or fifteen years. Occasionally they have slight colic; they then take olive oil, etc., and feel well again for several years.

DR. JAMES TYSON, Philadelphia, referred to the danger of carcinoma arising from the irritative presence of the stone. He has had two such cases come under his observation recently—chronic cholelithiasis terminating in carcinoma. Therefore, he thinks it important that operative interference for cholelithiasis should not be too long delayed. He has used succinate of sodium a great deal, and finds that fewer cases which he has placed on the succinate of sodium have returned for treatment than when under any other remedy, so that he has fallen into the habit of using it in every case. Whether

or not the succinate is responsible for the disappearance of the attacks he could not say. It is supposed to act as a solvent for the cholesterin, which makes up the chief bulk of gallstones. In the matter of food, he would limit the quantity; and then it seems only reasonable that liquid diet is less likely to be attended by inspissated bile than solid foods. Most of the treatment, including the administration of hot Carlsbad water and milk, is thus based and is rational.

DR. J. F. HULTGEN, Chicago, has had 43 cases among 390 women; that is, over 4 per cent. of his adult women patients have cholelithiasis. About 10 per cent. of these patients have icterus. Repeated attacks of hyperchlorhydria may simulate gallstones, and any condition about the pylorus may produce colics, and lead the physician astray. In regard to the onset of gallstone-symptoms, he said that they are common 5, 6 or 15 years after the initial attack, which usually occurs during the late stages of pregnancy or in the puerperium. There is probably a mechanical factor helping to precipitate the first colic. This may not come back for years, and the patient may simply suffer from dyspepsia which is often not recognized. Dr. Hultgen inclines to the belief that the treatment of cholelithiasis ought to be more surgical than medical, but the weight of clinical evidence and the records of investigators do not seem to justify it, for the simple reason that there is little information about the formation of gallstones. After operation they recur. On the other hand, he thinks not sufficient account is taken of the diseased liver. Surgeons are in accord in attributing the main results in operation for gallstones to drainage of liver. It is not merely a question of the mechanical removal of the gallstones from the bladder, but hepatic drainage. A very small percentage of patients will submit to an operation. Some of them are too poor. Dr. Hultgen practices among a laboring class, and he has been surprised to find gallstones so frequent, especially among women. He has noticed that they grow stout a little before they come to consultation. He has tried olive oil and Carlsbad salt, but he does not know whether his results are due to the treatment or to time. Although he believes the patients get well by themselves, the diet should be regulated, taking into account the quality and quantity, and the removal of any mechanical obstacles to the free circulation of the liver and free respiratory excursions. He endorsed the surgical treatment of gallstones, if only to prevent carcinoma.

DR. T. C. KENNEDY, Shelbyville, Ind., referred to the mineral springs treatment of gallstone disease. The alkaline saline springs have a detergent effect on the whole biliary tract. But many patients are not able to go to the springs for treatment, and those who do go, do not consult the resident physician at the resort, who alone is competent to advise them as to the use of the water. He believes that in these cases a good effect is obtained both before and after operation, and that it is possible in some cases to restore the stone to a latent condition by relieving the inflammation about the gall bladder and gall duct. The patient is not well; he still has his gallstone, but does not know it. He is happy and contented. Where there is obstruction of the gall duct and ulceration an operation must be done. In the mild attacks, much can be done by dieting.

Although the action of succinate of soda and other medicines is not known, Dr. Kennedy cautioned against putting off their use until their action is explained. These remedies, he said, certainly have some action, for many patients get well and stay well for years.

DR. H. E. LEWIS, New York City, emphasized that there is after all no medical treatment for gallstones.

When the diagnosis of gallstones is made, there is only one thing to do, especially after what Dr. Tyson said of the grave danger of malignant growths. Neither should we forget that in the presence of gallstones there is a constant tendency toward infection, with the development of cholecystitis.

Of course, if conditions prevent operation, one will have to make the best of a bad condition. But this does not change the fact that the only logical place for medical treatment is in the prophylaxis of gallstones, and the after-treatment following operation. Diet is certainly of importance in these

* cases, but it must be adapted to the individual patient, for no two are alike.

DR. GEORGE DOCK, Ann Arbor, Mich., mentioned that a diagnosis of gallstone disease can often be made without the presence or history of jaundice, and these, he said, are extremely important cases. With reference to the danger of gallstones forming after the operation, it is important to realize that the capacity for forming stones is not limited to the gall bladder or cystic duct or common duct, but may take place in the liver. In regard to the matter of diet, he dissented from the statement that it doesn't make any difference about the diet. The ground he takes is that the diet must be such as to keep up the patient's nutrition properly, but have, if possible, a stimulant action without being irritating to the duodenum or any other part of the alimentary canal, but that there is no diet that will prevent gallstones as such. For example, it was formerly believed that if one could limit fat it would prevent the formation of stones. Gallstones may be formed on any diet. In regard to the statement that a limited diet is desirable, he suggested that that depends on the patient. In some we can leave the quality, in others the quantity, to the patient, but it is always safe to see the matter is understood. So experienced a man as Kehr states that large and frequent meals are useful preventives of gallstone symptoms. From some experience Dr. Dock has had in discovering carcinoma early in the history of gallstone, or even in the history of attacks that were typically those of catarrhal jaundice, without positive signs of gallstones, he has fallen into the habit of telling people who have gallstones that they ought to be operated on to obviate the possibility of developing carcinoma. When we make a diagnosis of carcinoma we may state that the patient probably has gallstones; otherwise a misunderstanding may arise later. The mortality varies in accordance with the dangerous processes that have taken place around the bile tract. One can not tell beforehand just how serious the operation is going to be, but the patient should be told that the mortality is not so great, however, as to necessitate the making of a will before operation.

SCARLATINA AND DUKES' DISEASE.

A. C. COTTON, M.D.

CHICAGO.

The struggle for recognition of the different acute contagious exanthems, though interesting as history, need not take our time except as a reminder of the obstacles and prejudices encountered in the evolution of differential diagnosis. As variola and varicella were separated, so morbilli and scarlatina parted company to stand as distinct entities instead of different manifestations or expressions of one contagium.

There are those who can recall the controversy over the identity of rötheln (German measles), and there may be those who still hesitate to award nosologic dignity to that symptom-complex.

With here and there exceptions, however, the profession has accepted rubella as an entity in the group of exanthems, to our great relief in differential diagnosis.

Morbilli, scarlatina and rubella in their typical forms show individuality beyond question. In hybrid forms and in mixed infections differentiation by mere symptoms alone is extremely difficult and at times impossible.

The temptation to theorize and speculate as to the probable causes which influence the clinical phases of these familiar diseases, crowds on the thoughtful observer. In the proper place a yielding thereto may not be unreasonable, since our newly acquired though limited knowledge of bacteriology reveals many and sug-

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.