the edge of the table, air seemed to pass into the chest more readily than when the back of the head rested on the table." A few years later, Dr. Howard in his investigations arrived at the same conclusion, and in his directions he recommends that "a roll of clothing be placed under the back just below the shoulder blades, the head hanging back as low as possible." In a later paper (*Lancet*, May 22, 1880), in discussing the proper position of the head to keep the epiglottis raised, he states: "Having, by bringing the patient to the edge of the table or bed, or by elevation of the chest, provided that the head may swing quite free, with one hand under the chin and the other on the vertex, steadily but firmly carry the head backward and downward; the neck will share the motion, which must be continued till the utmost possible extension of both head and neck is obtained." These diverse views caused some confusion in regard to the proper position in which to place the head, but neither one supplanted the other. The influence of Dr. Howard's work, however, was widely felt, and many cuts representing Dr. Sylvester's method of resuscitation represent the patient with shoulders raised and head hanging low.

Professor Hare, in a paper (*Johns Hopkins Hospital Bulletin*, January, 1895) in which he described some experiments made upon this subject by himself and Dr. Edward Martin, has advanced a step further and advocated an entirely different position of the head. While agreeing as to the effect of the Howard position on the epiglottis, he shows that it at the same time causes the soft palate to apply itself against the dorsum of the tongue and thus cut off the entrance of air through the mouth. The importance of this is apparent when we consider how large is the number of persons in whom the nasal passages are more or less obstructed. He states: "If the head is extended and simultaneously projected forward, both the tongue and epiglottis are raised, and the soft palate is so drawn as to permit of free breathing through the mouth as well as the nose."

Of the many methods of performing artificial respiration, that introduced by Dr. Henry R. Sylvester (*Rankin's Abstract*, 1858, ii.) is almost universally adopted. Modifications suggested by others may be combined with it, but in nearly all cases the principles of this method are followed to a greater or less extent. The object is to imitate the action of the respiratory muscles, by alternately raising and lowering the arms. The patient is placed upon his back, and the movements are made slowly and deliberately about fifteen times in the minute. The directions are as follows: "Standing at the patient's head, grasp the arms just above the elbows, and draw the arms steadily and gently upward above the head and keep them stretched upward for two seconds. Then

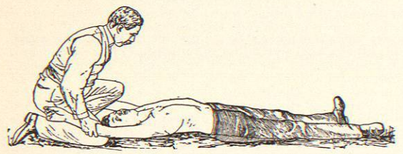

FIG. 362.—Sylvester's Method (First Position). Patient's arms extended to allow the entrance of air into the chest.

turn down the patient's arms and press them gently and firmly for two seconds against the sides of the chest."

In 1856, two years previous to Dr. Sylvester, Dr. Marshall Hall had introduced his "ready method." In this the patient is placed on his face and pressure made upon the back to expel the air in the lungs. He is then turned on the side, in which position the lungs can more easily expand. The directions are: "Place the patient with the face downward and one of the arms under the forehead, in which position the tongue will fall forward leaving the entrance into the windpipe free. Turn the body very gently on the side and a little beyond, and then briskly on the face again. Repeat the movement about fifteen times per minute, occasionally varying the side. On each occasion that the body is placed on the face,

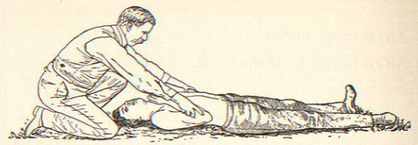

FIG. 363.—Sylvester's Method (Second Position). Patient's arms pressed against the sides of the chest to expel the air.

make uniform and efficient pressure on the back and sides, removing the pressure immediately before turning the body to the side."

These rival methods produced a great deal of controversy. Each one had its followers who praised their method and decried the other. The subject attracted so much attention that the Royal Medical and Surgical Society appointed a committee to inquire into the relative merits of the two methods. The work of this committee was very thoroughly done and their report was a valuable contribution to the subject of artificial respiration (Trans. Royal Med. Chir. Soc., vol. liii., 1862). In regard to the two modes, the evidence was very decidedly in favor of that advocated by Dr. Sylvester. They found that by his method the amount of air drawn into the lungs averaged about thirty cubic inches, while in Marshall Hall's method not more than fifteen cubic inches could be obtained. Quite recently, in 1895, Hare, in his experiments, which were carried out with much more exactness, obtained the same preponderating evidence in favor of the Sylvester method. He found that the amount of air expelled from the lungs, when the latter method was employed, was sixty-two cubic inches, while in Hall's it amounted to only twenty-two cubic inches.

In addition to the advantage just mentioned, there are others which Sylvester's method possesses. It may be easily and perfectly carried on by one person, while the other method requires the presence of an assistant to support the head in a proper position. In the former the two sides of the chest are being acted upon, while in Hall's method only one side is undergoing expansion.

Another method, ascribed both to Professor Pacini and to Dr. Bain ("Holmes' System of Surgery," v., 906), requires that traction be made directly upon the shoulders. According to Prof. Pacini, the operator, standing at the patient's head, should place a thumb upon the head of each humerus and his fingers in each axilla, and should then draw the patient upward by the shoulders until he occupies a sitting posture. According to Dr. Bain's method the operator's hands are to be placed in such a manner that the thumbs shall rest upon the patient's clavicles while his fingers press against the sides of the chest in the axillæ. The next step is to lift the patient's shoulders upward.

In the older methods of resuscitating the apparently drowned the effort was made to expel the air from the lungs by simply compressing the chest walls; it being assumed that the natural elasticity of the ribs would suffice for effecting a re-expansion of the lungs. Another factor upon which some dependence was placed was the reflex contraction which takes place in the diaphragm when pressure is exerted upon it. Among these methods special mention should be made of that of Dr. Benjamin Howard (*Lancet*, August 11, 1877). It is thus described by its author: "Turn the patient face upward, the roll of clothing put under his back just below the shoulder blades, the head hanging back as low as possible. Place the patient's hands together above his head. Kneel with

the patient's hips between your knees. Fix your elbows against your hips. Now, grasping the lower part of the patient's chest, squeeze the two sides together, pressing gradually forward with all your weight for about three seconds, until your mouth is nearly over the mouth of the patient; then, with a push, suddenly jerk yourself back. Rest about three seconds, then begin again. Repeat these movements about eight or ten times a minute."

In what is known as the Michigan method, the patient is placed with the face downward. The operator stands astride the body and seizing the shoulders raises them as high as he can without permitting the head to leave the floor, and then returns them to their original position; he next places his hands on the lower ribs and presses downward and inward with gradually increasing force; he then suddenly lets go to begin again with the first motion.

Another way that is frequently recommended is to apply pressure to the soft abdominal walls, directing it upward against the diaphragm. In this way a large amount of air is expelled; but the objections are, that considerable force is required and that there is danger of injuring neighboring organs.

Dr. Howard Kelly (*Johns Hopkins Bulletin*, January, 1895) describes a method which he has adopted and which should prove of service when the respirations cease during an abdominal section, as it prevents the escape of the abdominal contents during the manipulations. It also places the patient in the most favorable position under such circumstances, the value of the lowered head being well recognized. He thus describes it: "An assistant steps upon the table and takes one of the patient's knees under each arm, and thus raises the body from the table until it rests upon the shoulders. The anæsthetizer in the mean while has brought the head to the edge of the table, where it hangs extended and slightly inclined forward. The patient's clothing is pulled down under her armpits, completely baring the abdomen and chest. The operator, standing at the head, institutes respiratory movements as follows: inspiration, by placing the open hands on each side of the chest, posteriorly, over the lower ribs, and drawing the chest wall forward and outward, holding it thus for about two seconds; expiration, reversing the movement by replacing the hands on the front of the chest over the lower ribs, and pushing backward and inward, at the same time compressing the chest."

A very valuable addition to our many methods of resuscitation is that of Professor Labord, presented to the Paris Academy of Medicine, in 1892, and the subject of numerous papers in the *Tribune Médicale* during the following year. The object of this method is to induce reflex action on the part of the diaphragm and lungs by traction on the tongue. He traces the impulse through the glosso-pharyngeal and lingual nerves to the respiratory centre, and thence to the phrenic and other respiratory nerves. The mode of applying this method is extremely simple. After the ordinary preliminary measures have been carried out the tongue is held deeply and drawn forcibly forward, about fifteen times to the minute. The claims of Professor Labord are, that it not only is a good means of resuscitation, but the best, and in his reports of successful cases there are many in which other methods had been adopted without success. Very many others have also reported favorable results. Two points are to be carefully observed, viz., to grasp the tongue deeply so that the whole organ is acted on and not the tip only, and to draw the tongue sharply and relax it suddenly and completely. As in all methods it must be conducted patiently for some time. During its performance other methods of exciting the reflex action may be attempted. The finger of the other hand may be placed in the pharynx, the mucous surfaces of the nose and fauces may be tickled, or ammonia and other volatile substances may be used. Labord's method is particularly valuable in resuscitating newly born infants. In them the lungs have not acted, and some excitation is required to awaken the respiratory centre. Sylvester's and similar measures are not of much service in such cases, as the respiratory muscles are not properly developed, nor can the compression of the chest walls avail, as the lungs have not yet been inflated.

In infants dependence must be placed on reflex excitation and insufflation. For the former we have Labord's rhythmic traction of the tongue, slapping the surface of the body, etc., while at the same time an attempt may be made to compress the chest walls and to carry out Sylvester's movements. To inflate the lungs, the most ready method is to breathe directly into the mouth of the child eighteen or twenty times a minute. To insure a proper passage of the air, the larynx is to be pressed upward and back, to close the œsophagus, the tongue is to be drawn forward, and the nasal cavities are to be closed. Expiration is aided by pressing upon the chest walls. Catheters or rubber tubes may be introduced into the larynx, and various bellows and pumps have been devised for forcing air into the lungs, but the objections to them are, the valuable time lost if they are not at hand and the difficulty in placing them in proper position for use.

Faradization has been proposed as a means of contracting the diaphragm, and has been employed as an adjunct to other efforts to inflate the lungs. It is not of much value alone, but should always be utilized when at hand. One electrode is to be pressed over the right phrenic nerve, just outside the carotid artery, while the other is to be placed over the lower ribs. The left side is avoided in order not to interfere with the heart's action. The current should be applied regularly during the elevation of the arms, and cut off as soon as the arms begin to descend. The abdominal electrode should not be placed too low for fear of contracting the abdominal muscles instead of the diaphragm.

In all attempts at artificial respiration it is quite evident that one method must not be followed to the exclusion of all others. Fortunately, no one of them precludes the employment of another, but rather there is every reason to expect a greater benefit from their combined use. If a sufficient number of assistants are available, Sylvester's, Labord's compression of the chest walls, and electricity may be conducted at the same time. The only precaution required is, that they should be carefully and regularly conducted, and that the various efforts to promote inspiration and expiration should coincide.

Beaumont Small.

ARUMBARO SPRINGS.—Municipality of Morelia, State of Michoacan, Mexico. These springs are thermal. According to an examination by Dr. Zuñiga the water presents the following characteristics: "Perfectly transparent, yellow in color, unctuous to the touch, of a saline taste and alkaline reaction." A qualitative examination showed the following chemical ingredients: carbonates of calcium, magnesium, potassium, sodium and iron, sulphuric, sulphurous, and phosphoric acids, chlorine and organic matters. Total solids per United States gallon, approximately 118 grains. The soda salt appears to be the preponderating constituent. The water discharges sulphureted hydrogen in abundance, giving to it its peculiar odor. It is used for bathing, although no buildings have so far been erected. The baths appear to be beneficial in cases of eczema, herpetic eruptions, rheumatism, and diabetes.

N. J. Ponce de Léon.

ASAFŒTIDA.—"A gum resin collected from *Ferula fœtida* (Bunge) Regel (fam. *Umbelliferæ*)" (U. S. P.). To this definition the British Pharmacopœia adds "and probably other species."

Over the desert steppes of Western Asia grow in great numbers a variety of gigantic perennial species of *Umbelliferæ*, which perpetuate themselves during the long dry seasons by very large fleshy roots, protected against decay and foraging animals by antiseptic and obnoxious resins and volatile oils. So abundant are these plants that immediately after the occurrence of the first rains,

it is their germinating leaves which, according to the traveller Aitchison, chiefly impart the tinge of green to the landscape. Later, these huge leaves interlace so thickly as to become obstructive to travel, and huge flower stalks shoot up to the height of many feet. These, like their branches, terminate in great umbels of small greenish or yellowish-white flowers. Among these plants are numerous species of the genus *Ferula* L., several of which have been supposed to yield the substance under consideration. It is fairly well established that this is collected from the species named above, as well as from *F. asafœtida* L., assuming these to be distinct. It is probable also that it is collected from *F. narthex* Boiss., and perhaps also from *F. alliacea* Boiss. and *F. persica* Willd. The young leaves and shoots of these plants are used as pot herbs in their native home.

The history of asafœtida in Europe before the twelfth century is not clear, although it has been held to have been an article of commerce from near the beginning of the Christian era; but, from the twelfth century down, there is no doubt of its presence in European drug lists. On the other hand, of its use in Asia there is evidence in Arabian and Sanscrit writings of great antiquity.

The principal supply of this drug is collected in Afghanistan, and exported to India (Bombay), whence it comes to Europe or America. It is usually packed in large cases, but sometimes in bags or "mats."

Our knowledge of the collection of asafœtida rests principally upon the evidence of two travellers, who had the fortune to see it at an interval of nearly two hundred years from each other. The first of these was the celebrated Kaempfer, who observed it in the Persian province of Laristan. His description has been repeatedly quoted, and is, in the main, as follows: "About the middle of April, when the leaves have done growing, the fields are visited by the peasants, who dig away the ground around the older roots, tear off the leaves from the crown, and then carefully cover it up with earth and leaves, to protect it from the rays of the sun. After leaving the plants in this way for several weeks, they again uncover them, remove a portion of the top and cover them again, being careful that nothing touches the newly cut surface. In one or two days more the exuded juice is scraped off with a knife, a fresh surface is made by cutting off a thin slice, and the covering is repeated. This is continued until the root is exhausted, the product growing better as the season advances. The soft juice is mixed with earth to give it body."

The other authority is Staff Surgeon Bellew, who saw asafœtida collected during a visit to Afghanistan in 1857. The process was something like that observed by Kaempfer, but it was done at a season when the young leaves were sprouting, and instead of cutting off the top of the root they cut or gashed it in several places; the digging away of the earth and the covering of the roots to keep off the heat of the sun were the same in both cases. Mr. Bellew states that the juice is mixed with gypsum or flour, although some very fine juice, obtained from the bud, is usually sold pure. This latter, like the fine juice of Kaempfer's later cuttings, probably never reaches the European markets.

Good asafœtida, when the cases are first opened, is a moderately soft, yellowish-gray, rather tenacious mass, of a not very homogeneous texture; sometimes lighter, whitish or yellowish tears are common in the mass; oftener coarse impurities are the cause of its unevenness. Upon exposure, this light-colored asafœtida turns first pink, or reddish plum or violet pink, and then gradually becomes brown. Its odor is characteristic; strongly alliaceous, penetrating, and persistent. It is exhaled, like that of onions, in the breath of persons taking it. Taste bitter and acrid, nauseous. When in lumps, even if long kept, asafœtida is usually not quite brittle, but if finely broken and dried it can be ground to powder, in the cold.

The quality is considered fine according to the abundance of clear, whitish tears which it contains, and the absence of impurities and insoluble residue. Occasionally specimens are met with, consisting wholly of tears, but these are rare. The United States Pharmacopœia requires that it should dissolve at least to the extent of sixty per cent. in alcohol.

In spite of this requirement, such asafœtida cannot now be found in our markets. Very much of it will yield little more than twenty per cent., and importations yielding as low as twelve per cent. have not been unknown of late. This state of the asafœtida trade has been regarded as in the nature of a scandal in the United States Custom Department. Many authorities suggest lowering the standard to accommodate the adulteration, but it would appear a better policy to apply drastic methods of exclusion, which would doubtless cure the evil radically, even though slowly. When it is considered that the chief cost of the article is the result of its long transportation, much of it over very expensive stages, it will be recognized as exceedingly wasteful to import from eighty to ninety per cent. of sand and crushed stone. Polisek, in 1897, determined the composition of an almost pure sample of asafœtida to be as follows: "Ether-soluble resin (ferulic acid ester of asaresinol tannol, $C_{24}H_{32}O_4OH$), 61.4; ether-insoluble resin (free asaresinol tannol), 0.60; gum, 25.1; volatile oil, 6.7; vanillin, 0.06; free ferulic acid, 1.28; moisture, 2.36; foreign matter, 2.5." This composition is by no means constant, as the relative proportions of resin and gum, and to a less extent of the oil, are quite variable. The impurities and ash should not exceed ten or fifteen per cent. The gum is mostly insoluble in water. The resin yields resorcin when fused with potassa, and umbelliferon and oils when subjected to destructive distillation. The oil is light yellow and possesses very strongly the odor of the drug. It is related to the volatile oil of mustard, but is not, like it, a strong local irritant. It is of a very complex composition, which has not yet been perfectly worked out. It contains about twenty-five per cent. of sulphur.

Asafœtida is a typical antispasmodic, as well as one of our best carminatives. It stimulates the appetite and the gastric secretions and movements, as well as the internal functions. As an antispasmodic it is particularly useful in hysteria, and is sometimes useful in spasmodic affections of the respiratory organs, as pertussis and asthma. It frequently permits sleep by allaying excitement, and especially by removing intestinal irritation. It is very largely used in veterinary practice. The dose is 0.3 to 1.5 gm. (gr. v. to xx.). Four preparations are official: The Pilulæ Asafœtidæ contain each 0.2 gm. (gr. iij.) asafœtida and three times as much soap; the Pilulæ Aloes et Asafœtidæ contain 0.09 gm. (gr. 1½) each of aloes, asafœtida, and soap; the Emulsum Asafœtidæ (formerly "Mistura") has a strength of 4 per cent. and the dose is 15 to 30 c.c. (fl. ʒss. to i.). This preparation is remarkably effective when used as an enema, in which case the dose may be doubled. The tincture has a strength of 20 per cent. and the dose is 2 to 4 c.c. (fl. ʒss. to i.). Asafœtida is frequently used externally in plasters, being a mild rubefacient.

It may be added that asafœtida renders bait attractive to certain fishes, notably bullheads. *H. H. Rusby.*

ASAPROL.—Abrastol-beta-naphthol-alpha-mono-sulphonate of calcium—$C_{10}H_6.OH(SO_3)_2Ca+3H_2O$. An aqueous solution of beta-naphthol-alpha-mono-sulphonic acid is saturated with calcium carbonate, and the salt crystallized out. It is a white or pale reddish crystalline powder without odor and soluble in one part and a half of water and three parts of alcohol. It is of neutral reaction, is not changed by heat, and is incompatible with the sulphates, and with quinine and antipyrine. It is antiseptic, antineuralgic, and antirheumatic, and is eliminated by the kidneys in the form of a naphthol sulphuric ether. It may be detected in the urine by the formation of a blue ring on the addition of ferric chloride.

Internally it may be employed as an antiseptic in intestinal indigestion, enteritis, and typhoid fever. As an antirheumatic it is claimed by Dujardin-Beaumetz, Buck, Stackler, and others that asaprol is equal in value to the salicylates, and at the same time does not cause headache, buzzing in the ears, and depression of the heart. It has been tried with moderate effect in influenza, malaria, and chorea, and with relief of the pain in neuralgia. Locally, as antiseptic, astringent, and styptic it may be applied in one to four per-cent. solution or ointment, and in whooping-cough a one-per-cent. solution may be sprayed into the throat.

The dose internally is gr. xv. to lx., or more, three times a day, given in gaultheria water or elixir of orange, or in capsules. For typhoid fever gr. iij. to v. should be given every two hours. *W. A. Bastedo.*

ASARABACCA. See *Snakeroot, Canada.*

ASBOLINE.—A product of the destructive distillation of pine roots, prepared by Braconnot. It is a yellowish or brownish oily-looking liquid consisting mainly of pyrocatechin, homopyrocatechin, and allied substances. It is used in medicine against the tubercle bacillus.
W. A. Bastedo.

ASCARIS LUMBRICOIDES. See *Nematoda.*

ASCITES.—(Synonyms: Hydrops Ascites, Hydroperitoneum, Dropsy of the Peritoneum.)

Definition.—Ascites is an accumulation of free fluid in the peritoneal cavity.

It is either (1) a part of a general dropsy involving pleuræ, pericardium, and the subcutaneous tissues of the body, or (2) a strictly localized dropsy caused by disease in the peritoneal cavity. Class (2), if of long standing, may secondarily cause œdema of the legs, as a result of the anæmia which usually develops, or as a result of pressure upon the iliac veins. Class (1) includes diseases of the heart, kidneys, lungs, and blood. Class (2) includes atrophic and hypertrophic cirrhosis of the liver, cancer and syphilis of the liver, amyloid liver, atrophy of the liver due to external pressure or growth, abscess or echinococcus of the liver causing pressure upon the portal vein. Tumors of the stomach and pancreas, peritoneal adhesions and enlarged lymphatic glands may cause ascites by pressing upon the portal vein. Thrombosis of the portal vein or of the inferior vena cava likewise may cause ascites. Chronic peritonitis, either simple, tuberculous, or cancerous, and perihepatitis chronica (*Zuckerguss-leber*) are causes of ascites. Leukæmia and splenic anæmia are occasionally associated with this condition; and so also are intrathoracic growths and mediastino-pericarditis. A small ascites may occur in apoplexy; it has also been noted in intestinal obstruction. Occasionally on the post-mortem table there have been found, in the different cavities of the body, collections of fluid which had not been demonstrated by physical signs during life. Immediately preceding death there is an intense congestion of the viscera which frequently results in an outpour of serum. This condition, when involving the peritoneal cavity, is termed preagonal ascites.

Pathology.—From an etiological standpoint all varieties of ascites (chylous ascites is discussed under the corresponding heading in Vol. II.) may be classed under three heads:

1. Ascites due to stagnation of blood in blood-vessels.
2. Ascites due to interference with the escape of lymph.
3. Ascites due to disturbance of capillary secretion, *i.e.*, alteration in the walls of capillaries.

In certain diseases we have combinations of the above causes; for example, a chronic heart disease with incompensation may secondarily produce changes in the capillary walls, as a result of lack of nourishment resulting from the imperfect renewal of blood.

The third class is distinctly a conception of modern pathologists and will require more detailed discussion. The former belief that the process which resulted in dropsy was merely a filtration of fluid through an animal membrane has been discarded. It is now held that the capillary walls are to be regarded as living organs with a capacity for secretion. The prompt passage of the crystalloids from the blood and the lymph is accomplished with the aid of a force inherent in the capillary walls. The fact that the proportion of salts or of sugar in the lymph is often greater than that in the blood suggests a capillary secretion. The fact that the proportion of albumin in pure transudates in different parts of the body varies considerably, points to a differing constitution of the vessel wall in these several regions. According to Reuss' table, transudates in different parts of the body give the following percentages of albumin:

Pleura	22.5	pro mille.
Pericardium	18.3	"
Peritoneum	11.1	"
Subcutaneous cellular tissue	5.8	"
Cerebral and spinal fluid	1.4	"

Heidenhain believes that the specific function of the capillary walls plays a controlling part in the formation of lymph. Whenever the removal of lymph fails to keep pace with its formation, dropsy results. This investigator has demonstrated that the formation of this material can be influenced by various substances present in the blood. Subcutaneous injections of an infusion of crabs or leeches so increased the transudation of water from the blood-vessels into the lymph that the quantity of lymph flowing from the ductus thoracicus was increased even to fifteenfold. This exciting substance must stimulate the specific functions of those capillary cells in the capillary walls which secrete the lymph. Class 3 includes the varieties of ascites usually termed inflammatory and cachectic. In the majority of cases, the changes in the vessel walls are the result of protracted ischæmia, of imperfect oxygenation, or of chemical changes in the blood, or are due to the effect of high or low temperature or to active traumatism. It is also probable that either irritation or paralysis of the vasomotor nerves may lead to an increased vascular secretion. The exact changes in the vessel walls are not known, but there are probably alterations of the endothelial cells and of the cementing substance between them. It is quite possible that Class 3 may include Class 1 and that our so-called pure transudates of obstructed circulation are capillary secretions rather than filtrations, the capillary cells being stimulated to secretion by irritating substances circulating in the blood.

In cases of hydræmia with œdema, Ziegler looks upon the increase in the amount of water in the blood as only one factor which is favorable to the occurrence of œdema. In cachectic and nephritic subjects œdema occurs often when no hydræmic plethora is present, and conversely œdema may be absent when hydræmic plethora is present. So it is held that the œdema of cachectics and nephritics is due to alteration in the vessel walls caused either by the hydrated condition of the blood or by a poison circulating in the blood.

Two factors are present as causes of ascites in inflammatory changes in the peritoneum, viz.: alterations in the walls of the blood-vessels, and the destruction of a large number of lymphatic vessels through which the fluid, secreted in excessive amount, should be carried. The ascites almost invariably associated with perihepatitis chronica is to be explained by the coexistence of a chronic peritonitis. In a few cases of perihepatitis in which there was no ascites, general peritonitis was absent. *Ascitic fluid* is either a transudate or an exudate. Transudates are found in non-inflammatory conditions and are usually light yellow in color, while exudates are found in inflammatory conditions and are darker in color. There are essential differences in their composition, a fact which may be of aid in diagnosis. Peritoneal transudates have a specific gravity varying between 1.005 and 1.015, while that of exudates frequently reaches 1.030. The difference in the specific gravity is due to the difference in the amount of albumin; exudates contain from four to six per cent., while transudates con-