

easily controlled. The advantages of such a vehicle over a horse ambulance are obvious. It does not take up so much stable room, it does away with the noise and odors of a stable, it is always ready when charged, and no harnessing is necessary, and it is less expensive when in actual operation. Its disadvantages are its great price and large cost for repairs, that it needs more skilled and therefore more expensive labor to take care of and run it, that its position at present is rather uncertain owing to the rapid improvement in these vehicles, and that on slippery pavements and in deep snow it is unreliable. Though at present no institution would attempt to run automobile ambulances exclusively, it is highly probable that in a short time they alone will be used.

In New York City the hospitals maintaining a regular ambulance service are the following, the figures indicating the number of ambulances regularly in service in each case: Hudson Street, 2; Gouverneur, 3 or 4; New York, 2; Flower, 2; Presbyterian, 2; J. Hood Wright, 2; St. Vincent's, 2; Bellevue, 4; Roosevelt, 2; Harlem, 2; Fordham, 2. (Each of the hospitals named has one or more ambulances reserved for emergency use.)

Before the general introduction of telephones, calls were usually sent to hospitals by the ringing of a gong, as is now done by the Fire Department. It was also customary at one time for an ambulance to go to every fire call. Since telephones have become so universal they alone are generally used. The ambulance work is under the supervision of the Police Department, and every call is theoretically supposed to be sent by an officer. Practically, however, every reasonable call sent by a civilian is answered. The Fire Department becomes an element in calling ambulances only when there is a large fire with much loss of life. In such case, following the alarm of fire which is rung in almost all hospitals having an ambulance service, a call of three fours is rung to summon all available ambulances in the city; immediate response is made to the call.

Cities differ considerably in the way in which their accident service is done. Sick cases are everywhere handled in much the same way; patients who are too ill or too poor to be taken in carriages are conveyed by ambulances. The accident work in certain cities is done entirely by police patrols. This system has some peculiar advantages; it is not imposed on ignorantly by civilians, or wilfully abused by the police themselves; slight scalp wounds received by "drunk and disorderly" unfortunates do not so often occupy the time of a hospital staff, and cases of pretended illness are more carefully investigated, to the relief of the temper of the hospital authorities, while calls in outlying sections far from a hospital can be answered more readily and promptly. On the other hand, the patients are not handled so carefully or so skilfully, and ignorance does in exceptional cases produce very serious consequences. On the balance of advantage, the individual benefits by the hospital service; the police system is undoubtedly more economical. In some cities public hospitals do all the accident work, the private hospitals only running ambulances for sick cases. Sometimes there are ambulance stables distributed about the city without trained surgical attendants; these carry patients directly to the nearest public hospital; in other cases all calls are sent in to the hospital. The value of prompt transportation without skilful assistance on the one hand offsets the intelligent skill coupled with delay on the other.

The most perfect but most extravagant method is the establishment of an ambulance service in private as well as in public hospitals, and the assignment to each hospital of a limited area, so that all parts of a city can be rapidly covered by intelligent workers. This entails much expense on private institutions, even if laboring under financial difficulties, but is another refinement in the method in which many of our cities look after the welfare of their inhabitants. This is the case in the city of New York, where the Board of Charities divides the city into districts and allots to each district a certain

number of police prisons. The districts are so divided as each to contain a hospital maintaining an ambulance service, and the jurisdiction of each hospital within the limits of its own district is complete.

In all cities cases of contagious disease are transferred to reception and contagious hospitals; this is generally done by special vehicles, old city ambulances altered into closed vehicles. There are in many of the cities ambulances operated by private individuals for the purpose of transferring patients in as inconspicuous a way as possible; these are built to represent an ordinary vehicle externally, with a stretcher arrangement within like that of the ordinary ambulances. The varieties are numerous, and that one is best which least attracts attention.

That ambulance services are imposed upon there can be no doubt; unfortunately there seems to be no remedy for the evil. The imposition is sometimes effected through ignorance, sometimes through design. The convenient and efficient practice of calling ambulances by telephone increases the opportunity for mischief. To the hysterical layman every attack of syncope means apoplexy, and every abrasion of the scalp a fractured skull. When these or kindred things come to his attention, he immediately sends in a "hurry call" by the nearest telephone, often without the knowledge or desire of the patient; when it is answered with all possible speed, the surgeon finds that the patient has gone home or refuses treatment. By ambulances, also, ready means is afforded to the policeman to dispose of his obstreperous and slightly battered alcoholic charges, and when no evidence of injury is apparent the surgeon is solemnly told that the patient was comatose when the call was sent. A hospital that does not leave anything to the discretion of the surgeon, but insists on all cases being brought in unless refused, of course suffers most in this way. No remedy that will throw out all improper calls and answer all the worthy ones can be devised, and, as in the fire service, much time and money are sacrificed in order that no single case requiring attention shall be neglected.

The position of ambulance surgeon is usually filled by internes or by physicians specially appointed for the purpose, or by students nearing the completion of their medical school course. There can be no doubt of the inadvisability of allowing medical students to occupy so important a position. Most cases require simple treatment, but exceptional circumstances arise, and one untrained to meet them is little better than a layman. Such training as a service requires can be readily and thoroughly acquired in an emergency ward, under competent supervision, and as either of the first two methods brings every benefit to the patient, the choice must fall upon the one which better meets the requirements of the service without affecting the administration of the hospital as a whole. A very active ambulance service is too much of a drain upon the strength of a man busy with additional work; on the other hand, such a service is but a slight inducement to a capable man, unless, as is seldom the case, it offers chance of future advancement. The question is open, and is decided in each case by existing conditions.

The following statistics may be of interest as showing the development of the ambulance system in some of the leading hospitals of New York City:

Hospital.	Year of establishment.	Number of calls in first year.	Number of calls in 1899.
Harlem	1884	3,608
Gouverneur	1885	4,835
New York	1877	480	2,028
Presbyterian	1880	276	2,152
J. Hood Wright	1885	1,868
St. Vincent	1879	823	2,551
Bellevue	1869	1,466	6,835
Roosevelt	1877	273	4,041
Fordham	1882	272	1,300

John Howland.

AMENORRHŒA.—Disregarding refinements of nomenclature, we may define amenorrhœa as a suspension or cessation of the menstrual function in a woman who is not pregnant and who has not reached the "change of life," or the period at which menstruation naturally ceases. The term should not be employed to include cases in which menstrual blood really exudes from the uterine mucous membrane (or from that of the oviducts, if we accept the doctrine that the Fallopian tubes take part in the function), but is prevented from making its appearance externally by some malformation, such as an imperforate hymen. It should be borne in mind that amenorrhœa is not in itself a disease, but simply a result of some morbid condition affecting either the system at large or some part of the genital apparatus.

CAUSES.—There is scarcely any derangement of the general health, especially if of a serious nature and chronic in its course, that is not prone to prove at least the predisposing cause of amenorrhœa. Usually, however, these deviations from health affect either the function of hæmatosis, the general nutrition of the body, or the normal action of the nervous system, and any two, or all three, of these disturbances may be combined. Moreover, it may be said that defective hæmatosis is itself a nutritive disorder, and that all irregularities of nutrition may take their origin in impaired nervous action. All this is true, but the practical utility of these distinctions remains, nevertheless. Of the particular diseases that give rise to amenorrhœa, the most noticeable are pulmonary consumption and chlorosis. In both instances, the suspension of menstruation seems to be a conservative effort on the part of nature to spare the system every unnecessary tax, and this consideration alone ought to be enough to teach us that it is not the re-establishment of the menstrual flow that we should aim at, but rather the restoration of the general health.

It has been doubted by good observers whether it is possible for a woman in perfect health to suffer from amenorrhœa, and there is much to sustain this position; but it is certain, nevertheless, that in many cases the impairment of the general health goes on for a long period without producing amenorrhœa, until, finally, some additional factor comes into play, and may truly be looked upon as the exciting cause of the disorder. Among these exciting causes we may reckon almost all pelvic diseases, the functional perturbation consequent on exposure to cold during a menstrual period, emotional shocks, and traumatic injuries. It will be seen that these factors must vary widely in their mode of action.

VARIETIES.—Doubt has been cast upon the doctrine that the menstrual function is dominated by the ovaries, but it cannot be said that the doctrine has been overthrown, and we have, therefore, to distinguish, for purposes both of diagnosis and of prognosis, between amenorrhœa which is and that which is not due to failure on the part of the ovaries. In other words, concerning ourselves only with the mechanism, and leaving ultimate causes out of account for the time being, we have to distinguish between uterine and ovarian amenorrhœa. Practically, the only guide we have to a failure of that ovarian action which should serve to stimulate the menstrual flow, is the absence of the menstrual "molimen"—the *ensemble* of symptoms usually attendant upon the flow, including a sense of weight and pain in the pelvis, and in some cases pain, tenderness, and swelling of the breasts, with or without the various reflex disturbances that sometimes attend the menstrual effort.

The uterine variety is to be recognized by the state of the uterus, which will commonly be found to be one of atrophy (including the so-called "superinvolution") or of impeded circulation due to the contraction of old inflammatory exudates.

DIAGNOSIS.—Amenorrhœa, as it is here defined, requires to be diagnosed only from retention of the menses and from the physiological suspension due to pregnancy. The diagnosis will necessarily rest upon a physical examination, and for the details the reader is referred to the articles on *Pregnancy* and on *Menses, Retention of*.

PROGNOSIS.—The question of our ability to restore the menstrual function is to be answered wholly in the light of the causes on which its suspension is found to depend. Grave constitutional diseases, such as phthisis pulmonalis, render the treatment in that direction not very promising, while the cure of any less serious fundamental disorder may, on the other hand, be reasonably expected to be followed by the re-establishment of menstruation. As regards the local conditions, atrophy of the uterus and functional inactivity of the ovaries must give rise to an unfavorable prognosis, although temporary benefit may be produced by treatment in some instances. The prospect is better in the case of old inflammatory disease within the pelvis, for such affections are often amenable to treatment. In general, the causes will be found to be remediable, and, therefore, the prognosis favorable.

TREATMENT.—In the first place, the practitioner should avoid taking the patient's view of the matter—that she would "feel better if her courses would only come on." Women very commonly express themselves in some such phrase, and they apply to a physician under the idea that his art will bring on the menstrual flow promptly, and thus restore them to health. From what has been said of the causes of amenorrhœa, the reader will have inferred that any such expectation on the patient's part is likely to bring disappointment to her, and, if he allows it to go on, discredit upon himself, for, in all probability, he will not be able to meet the demand made upon him. It is better to give the patient to understand, at the outset, that her condition might be expressed more truly by a change in the phrase alluded to, namely, that her courses will come on when her health has been re-established.

Another caution needs to be given. Women who know or suspect themselves to be pregnant, frequently consult a physician in the hope that, in the attempt to bring on menstruation, he will really succeed in causing abortion. Whoever, under such circumstances, prescribes any measure, no matter how innocent, with the understood purpose of inducing the menstrual flow, is liable to have unpleasant charges brought against him in case abortion actually does take place, even as the result of some interference with which he had no connection. When called upon to undertake the treatment of a case of suppressed menstruation, it is prudent, therefore, for the practitioner to satisfy himself that pregnancy does not exist, and, in case of doubt, to decline the management of the case unless he can protect himself in some way, as by insisting that some trustworthy person be made acquainted with the facts at the start.

Having undertaken the management of a case in which treatment is sought for on account of amenorrhœa, the physician should make a systematic inquiry into the patient's state of health, and whatever deviation from the normal standard is found should be made the subject of treatment. For the details of such treatment, the reader is referred to the articles devoted to the various diseases that may be found. But, while insisting upon the general utility of measures addressed to the organs concerned in the menstrual function, without first attending to the general health, I must admit, nevertheless, that stimulation of those organs may be resorted to with some chance of success when no other indication can be made out; and, moreover, that, in cases in which there are other indications at first, there often comes a time when the result aimed at may be hastened by measures that operate directly upon the pelvic organs.

There are but few therapeutic procedures that have a direct and unequivocal influence upon the function of menstruation, and, in so far as they tend to relieve amenorrhœa, those few act as local stimulants. The so-called emmenagogues are not much to be depended upon, although we may admit that aloetics and chalybeates tend to produce a pelvic congestion favorable to heightened functional activity of the sexual organs. Their use, however, in the absence of other indications than the mere failure of the menstrual flow, is not to be recommended, although, if employed in conformity with such indications, they undoubtedly exert a certain influence.

As a matter of fact, they are often indicated, and it is seldom improper to resort to them.

The preparations of manganese have come into use of late years, having been recommended by Dr. Ringer and Dr. Murrell, of London (*Lancet*, January 6, 1883). One-grain pills of potassium permanganate may be administered, beginning with one pill three times a day, and increasing to two four times a day. The use of the drug should be begun three or four days before the time at which a menstruation should take place, and be continued, if the flow does not come on, until the time for the next period. It should be kept up also during the flow. Both sodium manganate and manganese binoxide are said to be equally effective, and it is stated that manganese acts as well with the plethoric as with the anæmic. Manganese has been tried extensively in this country, but the results have not, on the whole, justified the expectations with which its employment was begun.

There are several other drugs that have more or less repute in the treatment of amenorrhœa. Among them is apiol, which is said to act best in cases in which whatever flow there may be is ill-smelling. From eight to ten minims should be given daily during the week preceding the day for menstruation to begin, and fifteen minims on the morning of that day. Cimicifuga has been thought serviceable in cases of delayed or arrested menstruation. Senecio vulgaris has recently been recommended in cases unaccompanied by pelvic lesions. In the ovarian variety of amenorrhœa, "ovarine," a preparation made from the expressed juice of the fresh ovaries of healthy young animals, has been used with success. Aloes undoubtedly aids the action of the other so-called emmenagogues, and should be employed if there is constipation.

Electricity probably acts more directly as a provocative of menstruation than any other agent. Good effects may be produced by either the galvanic or the induced current, but the choice should not be a matter of mere caprice or convenience. Galvanism is more to be relied on for increasing the blood supply of the uterus, while faradization is useful to intensify and precipitate the hemorrhagic effort. To accomplish the latter purpose, the application ought to be made at a time when the degenerative changes in the endometrium have advanced to such a degree that heightened blood pressure, aided by muscular action, may operate at the greatest advantage in producing rupture of the capillaries. This condition can be judged to be present only when there are some symptoms of ovulation, or when the amenorrhœa is of such recent date that the time for a menstrual flow to fall due is accurately known. In the use of galvanism, it will generally be prudent to place both electrodes on the external surface, unless the current is quite weak and the sitting a short one; aiming, however, to pass the current directly through the uterus. When the faradic current is employed, on the other hand, one electrode should be applied within the vagina, or even within the canal of the cervix.

Milder measures than the use of electricity will often succeed, especially where there is not complete absence of the flow, but scantiness and lack of color of the discharge. Among these measures, refrigeration of that portion of the spinal region corresponding to the motor centre of the uterus is of great value. The skin over the junction of the dorsal with the lumbar vertebrae may be sprayed with ether, but not frozen, three or four times a day, for five or ten minutes at a time, or ice-water compresses may be applied. These means are supposed to exert their effect by depressing the activity of the vasomotor nerves. They are to be used only at the time when a menstrual flow is due. In the interim, an auxiliary measure of some value consists in the use of a very brief cold hip bath every night. Frank P. Foster.

AMERICAN CARLSBAD SPRINGS.—Washington County, Illinois.

POST-OFFICE.—Nashville. Hotel Carlsbad. These springs are located in Nashville, a well-built little city of three thousand inhabitants, fifty miles from

St. Louis, Mo. Both the Louisville and Nashville and the Chester and Centralia railroads pass this point. The Carlsbad is a modern hotel with all the approved comforts and conveniences. It was erected in 1893, and is located within the city limits, in a natural park of twenty-three acres, with a lake for boating and fishing. It is well furnished throughout, heated with steam and lighted by electricity. The bath house has separate arrangements for ladies and gentlemen, with porcelain bathtubs and conveniences for steam, vapor, and shower baths. The environs of Nashville are very attractive, abounding in delightful drives, picturesque walks, etc.

The following analysis of the water was made by Dr. Ludeking, of St. Louis:

ONE UNITED STATES GALLON CONTAINS:	
Solids.	Grains.
Sodium chloride.....	10.00
Calcium sulphate.....	65.80
Sodium sulphate.....	33.00
Magnesium sulphate.....	103.70
Sodium carbonate.....	27.40
Total.....	239.90

The water is evidently of the sulphated saline variety. An analysis by W. F. Hillebrand, acting chemist of the Interior Department at Washington, shows the sulphate of soda to be greatly in excess of the magnesium sulphate. According to Hillebrand's analysis, these waters are very similar to those of the Sprudel Mühlbrunn and Schlossbrunn Springs at Carlsbad. They possess potent cathartic and diuretic properties and are undoubtedly valuable for medicinal purposes. They have been found beneficial in most of the conditions for which Americans cross the ocean to visit Carlsbad, viz., chronic constipation, torpid states of the liver, rheumatism, renal and urinary disorders, and eczematous skin affections. J. K. Crook.

AMERICANUS MINERAL WELL.—(Formerly Michigan Congress Well.) Inghram County, Michigan.

POST-OFFICE.—Lansing. ACCESS.—By numerous railroads to the city of Lansing. Under the name of Michigan Congress Water the product of this well has been in use for many years past. The following analysis was made, we believe, by Dr. Jennings, of Detroit:

ONE UNITED STATES GALLON CONTAINS:	
Solids.	Grains.
Sodium phosphate.....	25.04
Sodium chloride.....	183.84
Sodium bicarbonate.....	30.40
Magnesium bicarbonate.....	67.13
Iron bicarbonate.....	3.06
Lithium carbonate.....	0.08
Calcium carbonate.....	85.90
Potassium sulphate.....	12.45
Silica.....	33.00
Alumina.....	Traces.
Sodium iodide.....	Traces.
Calcium phosphate.....	Traces.
Total.....	503.90

This water bears considerable resemblance to that of some of the Saratoga Springs. It retains a uniform temperature of 53° F. the year round. The water is highly recommended in cases of acid dyspepsia, the headaches following alcoholic excesses, etc. It has also been used with good results in lumbago, gout, and various urinary and renal disorders. The water is used commercially. J. K. Crook.

AMMONIA AND AMMONIUM SALTS.—1. GENERAL MEDICINAL PROPERTIES OF AMMONIUM COMPOUNDS.—Ammonium compounds, as a class, are irritant, locally, to a degree greater than that shown by the corresponding compounds of sodium, but less than in the case of compounds of potassium. They tend to be of high diffusion power, and are therefore, when swallowed, quickly absorbed, and hence are free from the purgative tendency of the low diffusion salts of potassium, sodium, and mag-

nesium. Constitutionally they tend to increase the force and frequency of the heart's action and to determine a rise of arterial tension; to excite the respiratory centre in the medulla oblongata, causing fuller and more frequent respirations, and to enhance reflex irritability of the motor tract of the spinal cord—an enhancement leading in poisonous dosage in animals to tetanoid convulsions. General nutrition is not seriously affected by therapeutic doses. In long-continued excessive dosage the heart becomes enfeebled and the quality of the blood deteriorates, with marked impairment of the power of the hæmoglobin to fix oxygen. An important difference between the alkaline ammonium compounds and the corresponding potassium, sodium, and lithium preparations is, that whereas the latter carry their alkalinity through the system generally and into the urine, no such effect follows the ingestion of the ammonium compounds. On the contrary, the acidity of the urine tends rather to be enhanced under ammoniac medication. The explanation of this peculiarity among ammonium compounds is an assumed oxidation of the elements of the ammonium radicle, leading to the formation of nitric acid as one of the products. By virtue of the properties described, ammonium compounds furnish important medicines for restoring or sustaining flagging heart or lung action; for relieving dyspnoea, and for opposing the action of motor-paralyzing poisons.

2. THE AMMONIUM COMPOUNDS USED IN MEDICINE.—These are ammonia, and the following ammonium salts: acid carbonate, acetate, chloride, bromide, iodide, benzoate, and valerianate. In the present article will be discussed the first three only; for the others see respectively *Chlorides*, *Bromides*, *Iodides*, *Benzoic Acid*, *Valerianic Acid*. The nitrate is also official, but for pharmaceutical purposes only.

Ammonia, NH₃.—Ammonia is used in medicine only in aqueous or alcoholic solution, as afforded by the following official preparations of the U. S. P.: *Aqua Ammonia Fortior*, Stronger Ammonia Water. This is an aqueous solution of ammonia, containing twenty-eight per cent., by weight, of the gas. It presents itself as a "colorless, transparent liquid, having an excessively pungent odor, a very acid and alkaline taste, and a strongly alkaline reaction. Specific gravity, 0.901 at 15° C. (59° F.)." (U. S. P.). It is completely volatilized by the heat of a water bath. On bringing a glass rod, dipped into hydrochloric acid, near the liquid, dense, white fumes are evolved. From the volatility of its contained ammonia this preparation is directed to be kept in "strong glass-stoppered bottles, not completely filled, in a cool place." *Aqua Ammonia*, Ammonia Water: "An aqueous solution of ammonia, containing ten per cent., by weight, of the gas." This weaker solution has the properties of the stronger, only not to so intense a degree. Its specific gravity is 0.960, at 15° C. (59° F.). It also should be kept cool, in glass-stoppered bottles, but the precaution to avoid filling the bottles completely is not here necessary. *Spiritus Ammonia*, Spirit of Ammonia: "An alcoholic solution of ammonia, containing ten per cent., by weight, of the gas." This solution is prepared by subjecting stronger water of ammonia, in a still, to a gentle heat, and conducting the ammonia gas thereby volatilized to a receiver containing freshly distilled alcohol. The product is assayed and brought to standard strength by the addition of alcohol. Spirit of ammonia is a "colorless liquid, having a strong odor of ammonia, and a specific gravity of about 0.810 at 15° C. (59° F.)." (U. S. P.). It should be kept in glass-stoppered bottles, in a cool place. *Spiritus Ammonia Aromaticus*, Aromatic Spirit of Ammonia: This is a composite preparation, containing, in 1,000 c.c., ammonium carbonate, 34 gm.; ammonia water, 90 c.c.; oil of lemon, 10 c.c.; oil of lavender flowers and oil of nutmeg, each, 1 c.c.; alcohol, 700 c.c.; and the rest distilled water. It is a "nearly colorless liquid when freshly prepared, but gradually acquiring a somewhat darker tint. It has a pungent ammoniacal odor and taste. Specific gravity, about 0.905 at 15° C. (59° F.)." (U. S. P.). This spirit, like

the other ammonia solutions, should be kept glass-stoppered, in a cool place. But in spite of this precaution, the fact obtains generally with ammoniacal solutions that they lose strength upon keeping, so that a sample a year or more old may be almost wholly without ammoniacal odor. Ammoniacal solutions are incompatible with acids, acidulous salts, and many salts of the metals and earths; ammonia, however, does not decompose calcic salts, nor, except partially, magnesia.

Ammonia is a powerful alkali, and in gaseous form is intolerably pungent, its fumes, if strong, exciting vigorous spasm of the larynx. In strong solution, it is intensely irritant. Either of the official ammonia waters, or the simple spirit will, if of standard strength, excite severe irritation upon incautious inhalation of the fumes, and, if applied to the skin upon cloths so covered as to prevent evaporation, will very speedily cause burning pain and redness, and, after a few minutes, blistering. Prolonged application may lead to ulcerative inflammation or gangrene. Internally, in proper dilution, ammoniacal solutions are locally alkaline so far as the contents of the stomach and bowels are concerned. Also, because of the pungency and volatility of ammonia, they tend to allay nausea and to expel flatus. Ammonia, being of high diffusion power, is readily absorbed, whether taken by swallowing or by inhalation, and then quickly but evanescently exerts the peculiar effects of the ammonium compounds upon the heart, respiration, and motor tract of the cord, as already set forth. Undiluted, the three first-named pharmacopœial solutions of ammonia are so irritant as practically to be corrosive to the mucous membrane of the stomach and bowels. Large doses are, therefore, violently poisonous, capable of causing speedy death, with all the usual symptoms of corrosive irritation. In some cases death results in so short a time as a very few minutes, probably from suffocation through rapidly developed œdema of the glottis. So small a quantity as about a teaspoonful and a half of a strong solution of ammonia, swallowed undiluted, has killed. Dangerous, and even fatal, poisoning has also resulted from inhalation of strong ammoniacal fumes.

The therapeutical uses of ammoniacal solutions are local and general. Locally, according to strength of application, ammonia may be made to serve as a vesicant or rubefacient. To blister, a pledget of lint, steeped in a strong solution, is covered with a watch-glass or wooden pill box to prevent evaporation, and then directly applied. In such way the stronger water of the Pharmacopœia has been used, but this solution is unnecessarily and, unless very carefully manipulated, dangerously strong. If employed, the application should be held in contact with the skin for only three or four minutes, or until the part is well reddened, and should then be removed and a hot poultice applied until the blister rises. It is safer to dilute the stronger water with one-half its volume of additional water. Ammonia is rarely selected as a blistering agent, unless the need for the blister is urgent, when the quickness with which ammonia acts makes it preferable to cantharides. For rubefacient purposes a dash of the stronger water is a very common addition to composite liniments, and there is official in the U. S. P. *Linimentum Ammonia*, Ammonia Liniment, or, as it is commonly called, *volatile liniment*. This preparation is made by mixing seven volumes of ammonia water (not the stronger water) with twelve of cotton-seed oil and one of alcohol. An ammonia soap results, which partly dissolves and partly remains emulsified in the fluid, forming a white viscid mixture. The preparation is saponaceous, yet possesses mildly the irritant qualities of ammonia, and makes a capital liniment for rubefaction. Still a third local purpose of ammonia is to relieve the pain or itching of bites of insects. For this purpose a drop or two of the weaker water, clear or diluted, may be applied to the part. Internally, ammonia may be used, first, to correct the gastric malaise that attends a fit of acid indigestion, or to allay nausea from any cause. For such purpose the aromatic spirit is specially devised, to be given in doses of from one-half