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"Je prends le bien ou je le trouve."

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ARTICLE XVIII.

[Concluded from September number.]

Indigenous Remedies of the Southern Confederacy which may be Employed in the Treatment of Malarial Fever. By Joseph Jones, M. D., Professor of Medical Chemistry in the Medical College of Georgia, and Chemist to the Cotton Planters' Convention of Georgia.

No. 2.

SUMMARY:

Wild Horehound, (Eupatorium rotundifolium.)—Botanical description; geographical distribution; medical operation and uses; extensively employed in domestic practice in the treatment of intermittent fever; medical properties first brought prominently to the notice of the profession, by George Jones, President of the Georgia Medical Society; testimony of Dr. Jones, showing that it serves as an excellent substitute for Peruvian bark; testimony of Dr. Nathaniel Chapman, of Philadelphia, to its value in intermittent fever.

Black Willow, (Salix nigra.)—Testimony of Michaux to its value in intermittent fever.

White Willow of Europe, (Salix alba.)—Chemical composition; analysis of M. M. Pelletier and Caventon; discovery of the principle Salicin by Buchner, of Germany; investigations of M. Fontana, Rigatelli, M. Leroux, upon the different species of Willow; properties of Salicin: medical properties and uses of Willow bark; use of, by the ancients, brought to the notice of the profession in 1763, by Rev. Mr. Stone; testimony of Mr. Stone to its value; testimony of Messrs. James White and Wilkinson; use of by Haller; testimony of European physicians to the value of Salicin.
Yellow Jessamine, (Gelsemium sempervirens.)—Accidental discovery of its value in malarial fever; use of in Western States; testimony of Drs. Cleveland, Nash, J. A. Mayes and others, to its medicinal properties and uses; dose and mode of administration.

Milk Weed, or Root of Man, (Asclepias syriaca.)—Testimony of Dr. Richard S. Cauhorn, of Richmond, Va., to its value in intermittent fever.

Common Salt, (Chloride of Sodium.)—Dr. Seelle Montdezert the first to call the attention of the profession to the value of Chloride of Sodium in the treatment of intermittent fever; testimony of Dr. W. P. Lattimore to the success of M. Piory with common salt in the treatment of intermittent fever; testimony of Drs. Moroschkin and Dr. Hutchinson; dose and mode of administration.

Sal Ammoniac. (Hydrochlorate of Ammonia.)—Testimony of Dr. Felix Jacquot to its value in intermittent fever.

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Cold Water in the Treatment of Malarial Fever.—Use of by Dr. Wright in 1786; practical rules for its use, by Dr. J. Currie, of England; testimony of M. Fleury to the value of cold douches in the treatment of intermittent fever.

WILD HOREHOUND] (EUPATORIUM ROTUNDIFOLIUM. ELL.

Botanical Description.—Leaves sessile, distinct, deltoid, nearly round, obtusely serrate, veined, somewhat glaueous; scales of the involucrem acute. Stem two to three feet high, very pubescent. Leaves opposite, decussate, triplinerved, dotted, slightly scabrous, with somewhat glaucescent, or perhaps more correctly, hoary hue. Flowers in a fastigate corymb. Involucrum ten leaved, five flowered; leaves lanceolate, acute, very pubescent. Corolla white. Stamens very short. Style much longer than the Corolla. Seeds angled, Pappus scabrous, longer than the corolla. Decotions of this, as well as of the preceding species, are used with much success as a tonic febrifuge. I have always suspected this plant to be the E. Marrubium of Walter. It is commonly known through our low country as the Wild Horehound, and its leaves bear mere affinity to the Garden Horehound, (marrubium vulgare,) than those of any other of our species.

Grows in dry pine barrens.

Geographical Distribution.—From New England to Georgia; very abundant in the Southern States. No examination that I am aware of, has ever been made to determine the chemical constitution of this plant.

Medical Operation and Uses.—This plant has been extensively employed in domestic practice, in the treatment of intermittent fever, colds, and in debilitated states of the system.

The medicinal properties of this plant appear to have been first brought prominently to the notice of the profession, by the Honorable George Jones, Esq., President of the Georgia Medical Society, who thus describes its medical virtues: "It serves as an excellent substitute for the Peruvian bark, and indeed, among the planters in or near the sea-board, it supersedes the bark in the cure of fevers. It is tonic, diaphoreetic, diuretic and mildly cathartic, and does not oppress the stomach, as the bark is apt to do—hence it may often be exhibited where the cinchona is inadmissible. It is usually given in the form of infusion: one ounce of the dried leaves, infused into a quart of water, may be taken daily, in doses of from two to four ounces every hour or two. It may be advantageously combined with Peruvian bark, and, though it may sometimes fail of producing the desired effect, I think that it well deserves a station among the articles of the materia medica." Dr. Chapman in his Therapeutics, after quoting the testimony of the President of the Georgia Medical Society, says: "In this sentiment I entirely coincide. My own practice has not afforded me many opportunities of using it, but I distinctly recollect that in Virginia, my native State, it was a common and an efficacious remedy in the cases which have been mentioned—and to these I might add the catarrhal affections, or obstinate coughs—and also as a bitter tonic, in weak and depraved states of the stomach. It was, indeed, in these latter cases that it appeared to display its best powers. The popular mode of using the horehound is as a tea; and sometimes, for coughs, it is made into a syrup or candy." Therapeutics, vol. 2, p 437.
I have employed the wild horehound both by itself and in conjunction with Cornus Florida, in the treatment of intermittent fever, colds, and debilitated states of the system, with very good success. In my native county, Liberty, it has for many years, (as far as I can ascertain from the oldest inhabitants, probably from the first settlement of this portion of Georgia,) been employed extensively as a domestic remedy in fevers and colds.

It may be administered in somewhat larger doses than the preceding species.

BLACK WILLOW. (SALIX NIGRA.)

This willow, which is the most common of the American willows, and the most analogous to the White willow, (Salix alba) of Europe, is found in all the States from New England to Florida, and west, nearly to the foot of the Rocky Mountains.

According to the younger Michaux, the roots of this small tree afford an intensely bitter decoction, which is considered in some parts of the country as a purifier of the blood, and as a preventative and remedy for intermittent fever. The extensive genus of willow, which comprises not less than one hundred and thirty species, which, with a few exceptions, are natives of Europe and North America, is especially worthy of the attention of Southern physicians, since in several of the European species, a principle resembling quinia, has been extracted, and upon a fair trial has been found to possess the properties of quinia. With the exception of the testimony of the younger Michaux, which I have just brought forward, I am not aware that any experiments or medical investigations with reference to the American species have ever been laid before the profession.

WHITE WILLOW OF EUROPE, (SALIX ALBA.)

Although not indigenous to the Southern Confederacy, the White Willow of Europe has been so extensively introduced, that it is worthy of the consideration of physicians as the source of salicin.
Chemical Composition.—According to MM. Pelletier and Caventou, the bark of Salix alba contains bitter yellow coloring matter, green fatty matter, similar to that found in cinchona, tannin, resinous extract, gum, wax, woody fibre, and a magnesian salt containing an organic acid.

These chemists failed to isolate the most important of all its ingredients, salicin, which was most probably mixed with the bitter yellow coloring matter. Subsequently, in 1828, Buchner, of Germany, discovered a peculiar principle, which has since been discovered in fourteen species of salix, and eight species of populus. M. Fontana and Rigatelli, of Italy, discovered this principle shortly after Buchner. M. Leroux, of France, appears to have been the first to accurately investigate its properties. When pure, salicin presents itself as white, shining, slender, inodorous, very bitter crystals, insoluble in ether and oil of turpentine, soluble in alcohol, much more soluble in boiling than in cold water.

According to Merck,* it may be prepared in the following manner:

Dried or fresh willow bark is cut small, and exhausted by repeated boiling with water. The decoctions are concentrated, and, while boiling, treated with litharge till the liquor appears nearly colorless. The dissolved oxide of lead is removed, first by sulphuric acid, afterwards by sulphuret of barium, and after the separation of sulphuret of lead, evaporated, when salicin crystallizes; and is purified by repeated solution and crystallization. From willow bark which is fresh and rich in salicin, it may be obtained by cautious evaporation of the cold aqueous infusion. The oxide of lead removes from the solution gum, tannin and extractive matter which would impede the crystallization of the salicin. It also combines with the salicin, forming a kind of salt, which is decomposed by the sulphuric acid and sulphuret of barium. If the latter be carefully added, neither sulphuric acid nor baryta

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*Turner's Chemistry, 7th ed. p 816.
remain in the solution; and the sulphuret of lead which separates, acts as a decolorizing agent.

**Medical Properties and Uses.**—The ancients are said to have employed the bark of the willow in the treatment of disease; it fell into disuse, however, until 1763, when it was brought into notice by Rev. Mr. Stone, who published in the Philosophical Transactions of the Royal Society of London, an article entitled "On the Success of the Bark of the Willow in the cure of Agues by the Rev. Edm. Stone, of Clipping-Norton, Oxfordshire." Dated April, 25th, 1763.

As his observations are exceedingly interesting at the present time, we shall present a full account of them:

About six years prior to 1763, Mr. Stone tasted the willow bark, and was surprised at its extraordinary bitterness, which immediately raised in him a suspicion of its having the properties of Peruvian bark. As this tree delights in a moist, wet soil, where agues chiefly abound, the general maxim that many natural maladies carry their cures along with them, or that their remedies lie not far from their causes, was so very apposite to this particular case, that he could not help applying it; and that this might be the intention of Providence, he owns had some weight with him. The plenty of this bark furnished him, in his speculative disquisitions on it, with an argument both for and against these imaginary qualities of it; for on one hand, as intermittents are very common, it was reasonable to suppose, that what was designed for their cure, should be as common and as easy to be procured. But then, on the other hand, it seemed probable, that if there was any considerable virtue in this bark, it must have been discovered from its plenty. His curiosity prompted him to look into the dispensatories and books of botany, and examine what they said concerning it; but there it existed only by name. He could not find that it ever had any place in pharmacy, or any such qualities as he suspected, ascribed to it by botanists. However, he determined to make some experiments with it; and for the purpose he gathered that summer near 1 lb. weight of it, which he dried in a bag, on the outside of a
baker's oven, for more than three months, at which time it was to be reduced to a powder by pounding and sifting, after the manner that other barks are pulverised.

It was not long before he had an opportunity of making a trial of it; but being an entire stranger to its nature, he gave it in very small quantities, he thinks it was about 20 grains of the powder at a dose, and repeated it every four hours between the fits, but with great caution and the strictest attention to its effects; the fits were considerably abated, but did not entirely cease. Not perceiving the least ill consequences, he became bolder with it, and in a few days increased the dose to two scruples, and the ague was soon removed. It was then given to several others with the same success, but he found it better answered the intention when one drachm of it was taken every four hours in the intervals of the paroxysms.

He had continued to use it with success, as a remedy for agues and intermittent disorders for five years successively. It had been given to fifty persons, and never failed in the cure, except in a few autumnal and quartan agues, with which the patients had been long and severely afflicted; then reduced, in a great degree, but did not wholly take them off. The patient, at the usual time for the return of the fit, felt some smattering of his distemper, which the incessant repetition of these powders could not conquer. It seemed as if their power could reach thus far and no farther, and he supposed it would not have continued to reach so far, and that the distemper would have soon returned with its pristine violence, but he did not stay to see the issue. He added one-fifth part of the Peruvian bark to it, and with this small auxiliary it totally routed its adversary. It was found necessary also in one or two obstinate cases, at other times of the year, to mix the same quantity of that bark with it, but there were cases where the patient went abroad imprudently, and caught cold, as a post-chaise boy did, who being almost recovered from an inveterate tertian ague, would follow his business, by which means he not
only neglected his powders, but meeting with bad weather renewed his distemper.

One-fifth part was the largest and, indeed, the only proportion of the quinquinia made use of in this composition, and this only on extraordinary occasions; the patient was never prepared either by vomiting, bleeding, purging, or any medicines of a similar intention, for the reception of this bark, but he entered upon it abruptly and immediately and it was always given in powders, with any common vehicle, as water, tea, small beer, and such like. This was done purely to ascertain its effects, and that he might be assured the changes wrought in the patient could not be attributed to any other thing, though, had there been a due preparation, the most obstinate intermittents would, probably, have yielded to this bark without any foreign assistance; and by all he could judge from five years' experience of it on a number of persons, it appeared to be a powerful absorbent, astringent, and febrifuge in intermitting cases, of the same nature and kind with the Peruvian barks, and to have all its properties, though perhaps not always in the same degree. It seemed, likewise, to have this additional quality, viz: to be a safe medicine, for he never could perceive the least ill effects from it, though it had been always given without any preparation of the patient. The tree from which this bark was taken, is styled by Ray, in his synopsis, Salix Alba Vulgaris, the common white willow. Philosophical Transactions of the Royal Society of London, abridged by Hutton, Shaw and Pearson, vol. xii. 1763–1769, p. 1–3.

Messrs. James White, and Wilkinson published strong evidence in favor of the use of the broad-leaved willow in intermittents, foul ulcers and other affections. Dr. Cullen recommends the willow-bark in his Materia Medica, as a substitute for Cinchona. Haller was in the habit of using, with success, a decoction of the bark as a bath to dip infants in. Dr. Closs affirms that the bark of the willow, given in
the dose of a scruple every three hours, has cured many cases of intermittents and bad scorbatic ulcers; numerous other English physicians have testified to its value in intermittents; and its great value as a substitute for Peruvian bark is established beyond all doubt.

The testimony of numerous European physicians shows that the active principle of Willow bark, Salicin, is capable of arresting and curing intermittent fever, and stands next to Quinine as an anti-periodic remedy.

According to Buchner, twelve grains, in divided doses, will generally arrest afever, and Magendie affirms that he has seen fevers cut short in one day by three doses of six grains each.

The dose of the bark in powder is 5ss to 5ij. The infusion or decoction prepared with one ounce of the bark to one pint of water, may be administered in doses of from one to four fluid ounces.

Salicin should be administered in the same manner and to accomplish the same objects as Quinine, but in larger doses; from ten to forty grains may be administered every three hours.

YELLOW JESSAMINE. (GELSEMINUM SEMPERVIRENS.)

According to Dr. Cleveland, of Cincinnati, the value of the Yellow Jessamine in malarial fever was accidentally discovered by a planter suffering under bilious fever, who took by mistake, an infusion of the root of this plant, and was cured, although for a time he lost all muscular power. It has been announced as a speedy cure for intermittent fever, and has been largely used in this disease in the western States.

Dr. Nash, of Norfolk, who has employed it in many cases of fever, affirms that it has produced the most desirable effects, neither age nor sex interfering with its exhibition; and whilst he does not rely solely upon it, in all cases, especially
those of a high grade, he still thinks that it is entitled to rank as a coefficient with Quinine in fevers.

It has been chiefly used in the form of tincture. Dr. J. A. Mayes, who has published a most valuable paper upon the Gelseminum in the Charleston Medical Journal and Review for March, 1857, recommends the following formula for the tincture: "Four ounces of the fresh root clipped small to one pint of diluted alcohol, macerate for fourteen days." Dose for adults from twenty to fifty drops, repeated as frequently as circumstances may require. Dr. Bachelor thus prepares the tincture: "A bottle is loosely filled with the bark of the fresh root, equal parts of whiskey and water are added, and the bark is macerated for fourteen days; twenty to sixty drops of this infusion may be used at a dose, alone or combined with Quinine."

Whether or not the Yellow Jessamine possesses any antiperiodic properties, it certainly possesses valuable sedative properties, and is capable by controlling irregular nervous action, of aiding greatly the powers of nature in fever, and also the action of other remedies. The testimony to its sedative power is unequivocal.

Dr. Mayes affirms that he has never been disappointed in a single instance in obtaining a direct sedative action from the use of the gelseminum; the patient being speedily quieted, although he may have been excessively agitated previous to its administration. Under its influence restlessness is soon succeeded by calm repose, and the excited, frequent pulse tempers down to tranquility. These favorable impressions must be secured, however, by a frequent repetition of the dose, as its effects are not very durable, wearing off in two or three hours. It will be found necessary to administer the medicine in doses of from twenty to fifty drops, according to the severity of the symptoms, every two or three hours, until under the influence of more radical remedies, the disease has been permanently controlled. And his desire by the strong advocacy of this
Confederacy. medicine, is to bring it into notice as an admirable agent for controlling irregular nervous action and bringing about in the system a state of repose favorable for obtaining the full action of other and more radical treatment. Drs. Cleveland, Branch, Nash, Douglas, and others, have, in like manner testified to its narcotic, anti-spasmodic and sedative effects.

ASCLEPIAS SYRIACA. THE ROOT OF MAN. T. PLANT. MILK WEED.

Dr. Richard S. Cauthorn, of Richmond, Va., has given the root of this plant with success in six cases of intermittent fever.

Dr. Cauthorn has used the root in the form of pills, containing two or three grains, sometimes combined with capsicum, sometimes given alone. A cure has followed the use of one dozen of the pills, two having been taken at intervals of every two or three hours. He affirms that the root of this plant produces none of the distressing symptoms which often attend the administration of Quinine.—Monthly Stethoscope, 1858.

COMMON SALT. CHLORIDE OF SODIUM.

Dr. Scelle Montdezert appears to have been the first to call the attention of the profession to the value of Chloride of Sodium in the treatment of intermittent fever; and however fanciful his notion that every paroxysmal fever is cured by the presence of fibrin in the venous blood, which should in the normal state be removed by the process of assimilation, and that the salts of Quinine owe their power of arresting Paroxysmal fever to their ability to dissolve the fibrin present, and that Chloride of Sodium is also capable of arresting paludal fever, because like Quinia it is a solvent of fibrin; we must, nevertheless, award to him great credit for having discovered one of the cheapest and most widely diffused agents that may be substituted for Peruvian bark, and its active principle, Quinia, which are not only very
Joseph Jones, on the Indigenous

[October,
costly, but are liable to adulterations, monopolies, and to final destruction from the wasteful and reckless manner in which these are gathered and prepared for the market.

In his memoir upon the treatment of Intermittent fever, presented to the French Academy of Medicine, July 1850, Dr. Scelle Montdezert declared that from the results observed during several years, with the beneficial effects of Chloride of Sodium in the treatment of intermittent fever, this medicine should share with the salts of Quinia the prerogative of arresting the paroxysms of intermittent fever.

He says that half an ounce of salt administered in half a glass of infusion of Coffee, in the morning before eating, during the apyrexia, will be sufficient to arrest the paroxysm. Its use in this manner should be continued three days.

According to the testimony of Dr. W. P. Lattimore, M. Piorry, who was one of the committee appointed by the Academy to report upon the Memoir of Scelle Montdezert, experimented extensively with the Chloride of Sodium in intermittent fever and confirmed the previous observations. This subject is of so much interest that we present the testimony of Dr. Lattimore to the success of M. Piorry with the Chloride of Sodium in intermittent fever, in full:

"M. Piorry holds that in all paroxysmal fevers the spleen is enlarged; that the anatomical lesion is the cause, the fever only the symptom; that whenever the spleen has a greater length (measuring in a line extending from the middle of the axilla to the anterior superior spenous process of the ileum,) than from 31 to 33 lines, intermittent fever exists. Believing thus, the symptoms for him are zero, while the state of the spleen stands at the other end of the scale, and is everything—percussion (pleximetric) of course, being the experimentum crucis.

"We cannot resist the temptation of here paying a tribute to the skill with which M. Piorry employs percussion in making a diagnosis. With him auscultation is but an infant when compared with its full grown brother percussion. By its aid he interrogates the abdominal viscera as frequently
as the thoracic, and with no less success, for he has brought it to an almost incredible degree of perfection. With his plate of ivory and his flattened fingers' ends he diagnosticates almost everything—tumors of the abdomen, abscesses everywhere, aneurisms, etc. All acknowledge the delicacy and accuracy of his test, while the looker on is lost in admiration, and wonders whether all his senses are not really concentrated in the ends of his fingers, which by constant drumming have at length become the very reverse of tapering.

"Wishing, then, to experiment with salt, a few cases of intermittent fever, (old stagers,) contracted in Algiers were selected as subjects. Behold, then, Priory at the bedside. The patient asserts that he contracted the fever and ague several years since in Africa; that he has frequently been cured, but that the disease has constantly reappeared at the end of fifteen days, or one month at farthest. The type of the fever is tertian. The spleen is percussed and found to be abnormally dull throughout its whole extent; the entire splenic region is sensitive upon percussion, particularly over the dullest points; and each blow is accompanied by marked contortions of the countenance. The sensibility extends but little beyond the region of dulness, which last occupies an extent of fifty-three lines, measuring in the direction indicated above. To this patient a drachm of salicin is administered without producing any change in the dimensions of the spleen. A few minutes subsequently, half an ounce of salt, mixed with a cup of soup is given, and upon carefully percussing the splenic region at the end of four minutes, this organ is found diminished one inch, from above downwards. The next day the spleen is found to be of the same size, but upon the administration of a second dose of salt, it suddenly contracts and measures nearly three quarters of an inch less than yesterday. The resonance throughout the entire organ has increased while the sensibility has diminished. The succeeding day the attack of fever is very slight, and upon giving a third dose
the disease does not return, and when seen six weeks subsequently the patient is still free from his African enemy. Thus we see that a diminution of twenty-four lines in the length of the spleen was the result of the medicament, the fever being cured more effectually than ever before, i.e. the patient had remained free from all relapse for the space of six weeks; one month having previously been the longest period of immunity.

"We have the notes of seven cases of well-marked intermittent fever, in all of which the administration of the Chloride of Sodium was followed by rapid decrease in the volume of the spleen and cure of the febrile symptoms. We also have the record of three cases in which salt was unsuccessfully used. In one of these the sulphate of Quinine effected a cure, in a second it, too, failed, while in the third it was not tried. These were well marked cases of intermittent fever, such as would pass muster in any of our own malarious districts.

"Let it be remembered that most of the fever and ague met with in the Parisian Hospitals, is of long standing, and imported from the malarious districts of Algiers, which generate a form of the disease even worse than that found amid the marshes on the banks of the famed Maumee; that these cases have been treated again and again, have been cured now by the Sulphate of Quinine, now by arsenic, but only to reappear upon the slightest exposure or imprudence, in short to recur as only the shakes can recur.

"We witnessed many of the experiments of M. Piorry, and in the great majority of them the fever yielded to the salt quite as readily as to the salts of Quinia. And as to the theory of M. Piorry, the spleen diminished under the use of the remedy, pari passu, with the febrile symptoms, in every case where the disease was cured, proving that this organ really shows the influence of remedies over this class of fevers; that it is, as it were, a febro barometer, for the diminution of the spleen is a constant phenomenon accom-
panying the cure of the disease, whatever the curative agent employed.

"M. Piorry's method of administering the Chloride of Sodium is to give half an ounce in a cup of thin soup during the apyrexia and fasting. It usually agrees with the stomach perfectly well, but in some few cases we have seen it excite vomiting and diarrhea. Three doses commonly suffice to effect a cure; the first two to be taken on succeeding days and the third after an interval of one day. Should the spleen be undiminished in volume by the first dose, we may be sure that the remedy will not cure the disease, and the same is true of all the anti-periodics. Excepting in rare cases, the diminution of the spleen occurs immediately upon the administration of the remedy, (salt, or sulphate quinine,) and may frequently be detected within one minute, after which the organ remains stationary until a second dose of the medicament be administered."—On the Employment of Chloride of Sodium in the Treatment of Intermittent Fever. By W. P. Lattimore, M.D., American Journal of the Medical Sciences, July, 1852, No. xlvii N. S. pp. 102-104.

The observations of Dr. Moroschkin upon the value of Salt in the cure of ague, agree with the testimony of the preceding observers.

He states that during the prevalence of scorbutus and ague in the Transcaucasian province of the Black Sea, Quinine sometimes entirely lost its powers. When no very prominent scorbritic affections were present he administered one ounce of salt in water in two doses, daily, during the absence of the apyrexia. In patients in whom the paroxysms were incomplete, very abundant sweating followed, the skin resumed its normal appearance, and the various other signs of amendment followed, the disease becoming cured in a few days, and the dose having to be diminished. In cases in which the improvement was only partial, Quinine now became more efficacious. Of one hundred and three cases seventy were completely cured, and the others

Dr. Hutchinson, of Brooklyn, has placed on record twenty-two cases of intermittent fever which were treated with salt:

The dose in which the salt was given varied from eight to twelve drachms during the apyrexia. At first eight drachms were given, but the amount was subsequently increased to nine, ten, and even twelve drachms, in one instance, with obvious benefit. Children required somewhat larger proportional doses than adults.

Mucilage of elm was selected as the vehicle, on account of its convenience; and because it sufficiently disguised the remedy, which was deemed a matter of importance; for it would have lost much of its efficacy, or have been repudiated altogether, had the patients known they were taking simply common salt. The following was the formula used:

\[ \text{R.} - \text{Chloridi sodii. } \frac{5}{ij} ; \]
\[ \text{Ulmi pulv. } \frac{5}{ij} ; \]
\[ \text{Ag. bullientis, } \frac{f}{5} \frac{v}{ij}. \]

Infuse two hours and strain.

This forms a saturated solution. Dose a tablespoonful every two, three or four hours, so that five or six doses may be taken during the apyrexia. It was not deemed necessary to precede its employment by evacuants, because the patients had recently used such remedies during their former attacks, and, moreover, Dr. Hutchinson preferred to use the salt alone, because its real value could thus be better determined. When it is necessary to precede the use of the salt as an antiperiodic, by emetics or cathartics, perhaps there is nothing better for the purpose in ordinary cases than the same remedy administered in emetic doses, which will usually produce also moderate catharsis. In most of the cases the remedy was well
tolerated by the stomach, nausea or vomiting having occurred in but four instances, four cases also had moderate alvine evacuations, unattended with pain. There was considerable thirst in every case, but no other unpleasant effects. When given in the above manner (dissolving it in as small a quantity of water as possible,) it is less likely to disturb the stomach than the same or even a less amount, would in a larger proportion of the solvent. The taste was objected to by some, while others disliked it much less than Quinia.

The following are Dr. Hutchinson’s conclusions:

1. Although inferior to cinchona and its preparations, it yet forms a very good substitute for them in intermittent fever, having failed, as we have elsewhere seen, to produce a speedy suspension of the paroxysms in 31.8 per cent. of the cases only; in a majority of cases, therefore, it may be substituted for quinia.

2. It may be used instead of, and, indeed, preferably to quinia: First, in cases, not unfrequently met with, where the latter remedy is forbidden by the very unpleasant nervous and cerebral symptoms it produces (delirium, tinnitus aurium, cephalalgia, faintness, &c.) an example of which I have recently seen in the New-York Hospital, where sulphate of copper was substituted.

3. It is commended on the score of economy, which is a consideration of importance to the poor, especially, who are now, in a measure, debarred from the use of quinia, by its high price. And fourthly, it is always at hand, whilst quinia sometimes cannot be obtained.

It has been found to be more energetic in curing ague than any of the vegetable or mineral tonics commonly used for that purpose, excepting bark, and should, therefore, be preferred to arsenic, which has been ranked by M. Andral, Prof. Wood, and, indeed, most other authorities, next in value to quinia. And, moreover, I think arsenic should never be used until after quinia and common salt have failed to do good, on account of its unpleasant, and sometimes disastrous consequences to the general system and stomach,
and the increased facilities it affords for using the remedy as a toxicological agent.—Rankin's Abstract of the Medical Sciences, No. xx, 1854, p. 38. New-York Journal of Medicine, March 1854.

**HYDROCHLORATE OF AMMONIA. SAL AMMONIAC.**

Dr. Felix Jacquot has carefully experimented with Hydrochlorate of Ammonia in the Military Hospitals at Rome, with a view to determine its value in the treatment of malarial fever.

The doses employed were from eight to twelve grammes in the day. The experiments were made upon twenty-one subjects with the following results: In six cases the fever was cut short, giving 28 per cent; 1 case presented one paroxysm after the administration of the medicine, that is, 4 per cent. of the whole number; 1 case presented two paroxysms, also 4 per cent; 11 cases, or 52 per cent. presented three or more paroxysms in spite of the medicine; and there were two cases which could not be placed in these catagories, but which were not cut short. It will be seen from these experiments that more than one-half the cases were uninfluenced by the Hydrochlorate of Ammonia, and whilst the six cases (28 per cent.) of the entire number cut short, would appear to show a powerful febrifuge operation, it is only apparent and not real, for according to M. Jacq not more than one-third of the cases submitted to expectation recover spontaneously.

The results of these experiments, as far as they extend, not only show that the greater part of the fevers are unaffected by this salt, but that where the fever is not arrested the marsh cachexia becomes quickly developed and assumes an accelerated course during its administration.

According to this observer, sulphate of quinia succeeds admirably in arresting fevers against which sal ammonium is powerless; and he concludes that hydrochlorate of ammonium bears no therapeutical pretensions in the intermittents

NITRIC ACID.

Dr. George Mendenhall, of Cincinnati, called the attention of the profession to the use of Nitric Acid in the treatment of intermittent fever in 1854: the facts upon which his paper was based was chiefly derived from an Inaugural Dissertation by Dr. E. T. Bailey, of Indiana.

Dr. Bailey states that in the section of country in which he resides, there is a large portion of marshy land, and, therefore, the circumstances are favorable to the development of autumnal fevers. His attention was first attracted to the use of nitric acid in the treatment of intermittent fevers, by noticing its effects in a case of chronic intermittent, which was attended with profuse night sweats, and for which complication he administered the remedy. In this case there had been daily paroxysms for the preceding five days; night sweats profuse, the tongue coated, and the bowels constipated. Nitric acid was given in doses of six drops, diluted with water in the evening; and he was agreeably surprised to find that the paroxysms did not return on the following day; and this circumstance induced him to try its effects in other cases as an anti-periodic. Since that time he has treated over ninety cases of intermittent fever with this article, with remarkable success. Of this number, all recovered promptly except ten; and in every one of these unsuccessful cases, the remedy was discontinued contrary to directions.

Fifteen of the whole number were of the tertian type, and seventy-five of the quotidian. In fifty cases there was no return of the chill after commencing the use of the acid. The others were rarely attended by more than one paroxysm, and
in no case by a third. When the patient had a paroxysm after taking the medicine, it was in every case diminished in intensity and duration.

In Dr. Bailey's practice, this remedy has entirely superseded every other article for the purpose of interrupting the paroxysms of intermittents. His mode of proceeding is to give from five to eight drops of the commercial nitric acid, properly diluted, once in six hours, without regard to intermissions or exacerbations. Cathartics and alterants may be necessary for the purpose of changing certain conditions of the system; but so far as the interruption of the paroxysms is concerned, the acid may be given without any preparation of the system whatever, if we choose to do so. American Jour. of the Medical Sciences, October, 1854, pp 581-582.

Dr. J. C. Thompson, of Arkansas, has recorded in the Southern Journal of the Medical and Physical Sciences, August, 1857, the successful trials of nitric acid in six cases of intermittent fever, in which the customary remedies had failed. In one case in which there was menorrhagia, a powder consisting of one grain of opium and two grains of sugar of lead was given every two hours until the discharge subsided; in two others, blue mass was prescribed in conjunction with the acid, and in the remaining three cases, pills of sulphate of iron, aloes and rhubarb were given in addition to the acid.

He recommends one ounce of the acid to be diluted with six ounces of water; of this the patient is to take one drachm in an ounce of water every two hours during the intermission.

The chairman of the Ohio State Medical Society administered nitric acid successfully in 35 cases out of 36.

Dr. William A. Hammond has added his strong testimony to the value of nitric acid in intermittent fevers, published in the Maryland and Virginia Medical Journal for February, 1861. Dr. Hammond, after presenting the results of the employment of nitric acid, in tabulated form, remarks:

"The table forms the basis of a report made about four years since to the surgeon-general of the army, and has never been published. The cases were treated at Fort Riley, Kansas
Territory, in the post hospital, then under my charge, in a period of six weeks in the summer. Upon referring to the table, it will be seen that in all, forty-one cases were treated, en of these being of the quotidian type, and thirty-one of the tertian.

Thirty-two cases were treated with the nitric acid, and nine with the sulphate of quinia. Of the cases cured by nitric acid, three had previously used quinine without effect, and of those in which quinine had proved successful, nitric acid had been employed without benefit in two, and in one other had to be omitted on account of causing nausea, heartburn, etc.

The average period of treatment before the disease was permanently arrested, was the same with each remedy—three days. The nitric acid was uniformly given in doses of ten drops (properly diluted with water) three times per day, the quinine in doses of eight grains three times a day.

Besides the fact that the nitric acid was equally successful with quinine in arresting the disease, the difference in the cost of the two articles is so greatly in favor of the former substance as to render it an object of importance to make its curative properties more widely known.

Since the foregoing cases were treated, I have very frequently employed nitric acid in the treatment of intermittent fever, and have rarely been disappointed in my expectations of its curative action. In fact, in simple uncomplicated intermittent, I seldom have occasion to use anything else.

In cases of enlargement of the spleen, consequent upon frequent attacks of the ague, the remedy in question has, in my hands, proved very advantageous.

These facts demonstrate conclusively that nitric acid is a most valuable substitute for quinine; and we can readily conceive by a reference to its powerful alterative effects, simulating even those of mercury, that it would be beneficial also in remittent, typhoid and typhus fevers.

Its great cheapness and facility of administration, added to its most energetic and decided effects, should lead at least to an extensive trial of it by the profession of the Confederate States of America.
ARSENIC, (ARSENIOUS ACID.)

The value of Arsenic in the treatment of malarial fever has been celebrated by numerous reliable observers; and the medicine ranks with many practitioners, second only to quinia; we shall not, therefore, enter into any extended examination of its medicinal properties; but shall content ourselves with the presentation of the recent and most valuable investigation of Dr. Felix Jacquot in the Military Hospital at Rome, premising that arsenic exists in the Southern Confederacy, and only needs an effort for its extraction from the earth.

The paper of Dr. Jacquot is a summary of a memoir addressed to the Conseil de Sante des Armees, on the employment of arsenic in the treatment of intermittent fevers in general, and of those of Rome in particular, based upon 282 observations; and we present it without alteration, as it appeared translated in the British and Foreign Medico-Chirurgical Review, vol. xvi, 1855, pp 189 to 191.

"1. Mode of Experimenting.—In order to establish the efficacy of arsenic as a febrifuge, its administration should be limited to those cases which have resisted treatment without the use of quinine. The author of the paper before us has not strictly followed this course, since, giving the arsenic at the outstep in the majority of the cases, he had no means of judging whether the fever was about to proceed steadily with its paroxysms, or whether, on the other hand, it had a tendency to spontaneous disappearance. But as the sulphate of quinia was administered in the same way, it was at least in a position to establish the comparative efficacy of the two medicines. His researches, too, permit him to consider separately the treatment with arsenic alone, and the complete treatment by this remedy, emetics, &c. Arsenic alone cut short the fever only in 8.33 per cent. of the cases, but the complex treatment in 16.66.

But while the efficacy of the arsenic is doubled by the conjoined uses of emetics, the febrifuge powers of the sulphate of quinia are so great, that those of emetics simultaneously em-
ployed are lost, or absorbed in them; thus, the per centage of fevers cut short by sulphate of quinine without emetics is 49.52, and by sulphate of quinine with emetics, 50.47, as calculated in 210 fevers.

2. Formula, Dose, Duration and Use of Arsenic.—The formula used was the following: Arsenious acid, 1 gramme; distilled water, 1 kilogramme. The arsenic is boiled with more than this quantity of water till dissolved, and the latter reduced to the prescribed quantity, some soda being added should the solution be imperfect.

The dose of solution was administered in canella-wine. The author could derive nothing but confused ideas of the proper dose from writers on the subject, nor yet of the rapidity of its action.

3. General Accidents, Tolerance.—Most subjects bear without general accidents, three centigrammes at the outset; yet on the other hand, the tolerance has persisted sometimes in spite of long continued large doses. Out of 72 cases treated by arsenic, he has only noted general accidents six times, never fatal, and only once a source of anxiety. The local and general tolerances are quite independent of each other. The author considers the action of arsenic to be sedative, hyposthenic. In one of his subjects the pulse fell to fifty. General loss of strength, lassitude particularly affecting the legs and loins, have appeared to him the earliest phenomena of poisoning by moderate doses of arsenic; and while he thus differs from those who class it among the tonics, he asserts that it has no tonic operation, even upon subjects suffering under marsh cachexia.

4. Local Accidents, Tolerance.—Out of the 72 cases treated by arsenic, 24 or 25 presented gastro-intestinal accidents. The first dose of one centigramme may cause vomiting and epigastric pain; but, on the other hand, he has seen six centigrammes given by the mouth tolerated; and in others he has seen the arsenic continued for a month without the stomach revolting against it. Although the conditions favorable to the tolerance are not well known, yet he can mention the
smallness of the dose, its ingestion in divided portions, and the quantity, and perhaps nature, of the vehicle. The local accidents are nausea, vomiting, diarrhoea malaise, and sometimes pinchings at the epigastrium, and an insurmountable disgust at the medicine. Either general or local accidents followed, in 31 out of his 72 cases, or in 43 per cent.

5. Autopsies of Individuals treated with Arsenic.—In three subjects examined, nothing was discovered which could be imputed to the employment of arsenic, either in the heart, or in any other part of the body.

6. Degree of the Efficacy of the Arsenic, Comparison with Sulphate of Quinine, &c.—The cases in which M. Jacquot founds his comparison are those which had not received any previous treatment calculated to interfere with the accuracy of his experiments. He thus tabulates his results:

<table>
<thead>
<tr>
<th>SULPHATE OF QUININE</th>
<th>ARSENIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fevers cut short, i.e., which have not presented a single paroxysm from the commencement of the medication,</td>
<td>50.00 13.88</td>
</tr>
<tr>
<td>Fevers which had presented one paroxysm in spite of the medication, but in which the second had been averted</td>
<td>25.71 22.22</td>
</tr>
<tr>
<td>Fevers which have presented two paroxysms, but in which the third has been averted</td>
<td>7.61 12.50</td>
</tr>
<tr>
<td>Fevers which have presented three or more paroxysms</td>
<td>5.23 34.72</td>
</tr>
<tr>
<td>Fevers which cannot be introduced into these categories, but which must be regarded as not cut short</td>
<td>11.42 16.66</td>
</tr>
</tbody>
</table>

The arsenic with or without the emetic has cut short the fever 13.88 times per cent.; the sulphate of quinine with or without emetic, 50. times per cent.; that is to say, the arsenic has been efficacious as one, the sulphate of quinine three times and a fraction. The arsenic with emetics cut short the fever 16.66 times per cent.; the sulphate of quinine without an emetic, 50.47 times per cent.; that is to say, the arsenic has
been efficacious as 1, the sulphate of quinine as three and a fraction.

The arsenic without emetic has cut short the fever 8.33 times per cent.; the sulphate of quinine without emetic, 49.52 times per cent.; the proportion being arsenic as 1, to sulphate of quinine as 5 and a fraction. Lastly, in comparing the cases the most favorable to the arsenic, viz.: those in which it was administered in large doses, three to ten centigrammes, accompanied by emetics, and a diet whose only limit was the appetite of the patient, with the cases least favorable to the quinine, we arrive at the following results:

Fevers cut short by arsenic, - 9.68 per cent.
" " " quinine, - 49.52 "

As respects the cases not cut short, it will be perceived, on referring to the first four figures of the two vertical columns of the table, that in the instance of the fevers treated with quinine, the numbers are smaller and smaller, according as we examine the categories of cases more and more refractory, whilst the contrary is noticed in the instance of the arsenical treatment. The contrast is perfect.

In about 35 cases it was possible to compare the effects of the quinine and arsenic, the two medicines having been administered in succession to the same patient, either for the same fever, or in two separate attacks. In a sixth of the cases, the arsenical and quinine treatment were of little efficacy; in another sixth, the two medications were followed by some success; in the four other sixths, the sulphate of quinine showed itself the most active, or the only active remedy of the two; and one observation furnished a very marked instance of fever resisting the sulphate of quinine, and cured by arsenic. In short, the author concludes that we see more fevers which resist arsenic, yielding to quinine, than we do fevers, refractory to quinine, disappearing under arsenical treatment. He believes, also, that he has established the fact of the greater activity of the sulphate of quinine in the cases which have received no previous arsenical treatment (54 per
cent. cut short,) than in those first submitted to the action of arsenic, (40 per cent. only cut short.)

The general conclusion he draws is, that the sulphate of quinine is not replaceable by arsenic; and especially is this true in respect to the fevers of hot climates, where it is necessary to apportion the dose to the intensity of the malady; under the latter circumstances, we are immediately arrested in the arsenical treatment by the fear of poisoning. In those countries where, from one paroxysm to another, the pyrenia may become more severe, remittent and pernicious, arsenic should not be employed during the endemo-epidemic season.

Confirmation of Results by other Observers.—After mentioning MM. Mayer, Cordier, Pasquier and Gouge, as arriving at similar conclusions to his own, he states that in the Pontine marshes, Dr. Minzi, physician to the Central hospital of that country, has experimented with arsenic in more than 400 cases, giving it to the extent of three centigrammes a day, and at last abandoning it from want of success. M. Salvagnoli Marchetti also, out of 16 cases, found 15 resisting arsenic.

Arsenic in Inveterate Cases and in Marsh Cachexia.—The observations of M. Jacqnot do not encourage recourse to arsenic in inveterate fevers; and M. Cordier also concludes from his experience in Algeria, that it is the more recent and slighter cases which yield most readily to arsenic. In the palistral cachexia he thinks that arsenic may perhaps be used as an alternative, but that it is incapable of replacing iron and other tonics, which it is necessary to conjoin with it.

Relapses.—In preventing relapses, arsenic is inferior to sulphate of quinine. Out of 72 cases treated with arsenic, the relapses were 22 or 20 per cent.—certainly a large proportion. They were less frequent in the cases treated with quinine. The relapses occurred even during the period of administration of the arsenic, which was continued after the cessation of the fever. This was not observed in the instances of the quinine treatment.
**Arsenic in the Ingravescent and Remittent Fevers.**—In five cases it was observed that in spite of and during the employment of arsenic, the simple fever became aggravated remittent, sub-continued and pernicious—*a fortiori*, then, this medicine would have no action upon a fever already of this character.

**Conclusions.**—Arsenic is not for a moment to be regarded as a substitute for sulphate of quinine. It will probably find a limited place in the treatment of indigenous intermittent fevers, but it has absolutely no pretensions against the recent endemo-epidemic fevers of hot countries. We are scarcely authorized to employ it except in the fevers which resist all the preparations of bark. Uncertainty and contradiction reign over almost all points relative to arsenic. It is a medicine which we cannot yet handle with the double certainty of obtaining the effect desired, and of avoiding the dangers connected with its administration.

These results of the careful observations of M. Jacquot, are worthy of most careful consideration by the physicians of the South, on account of the similarity of the field of experiment with a large portion of the South; and they are especially worthy of most careful examination, from their antagonism to the most astonishing results which M. Boudin, of Paris, claims to have accomplished with arsenic in the treatment of intermittent fever. M. Boudin affirms that in 4,000 cases of intermittent fever treated with arsenic, in the hospitals of Marseilles, Versailles and Paris, from 1843 to 1851, he had not had occasion to resort in a single instance to sulphate of quinine; and out of 311 cases treated at Versailles in a period of 32 months, M. Boudin had but 10 relapses.

It may well be asked whether the intermittent fevers of Paris, Marseilles and Versailles do not differ greatly in severity and obstinacy from those at Rome; if it be true that they are far less severe, then the observations of M. Jacquot would express far more truly the value of this remedy to the inhabitants of the rich low lands, swamps and marshes of the Southern Confederacy.
LIGATURE OF THE EXTREMITIES IN INTERMITTENT FEVERS.

I have had no faith in and consequently no experience with this mode of treating intermittent fever. The following summary of a valuable article by Drs. J. DeBrauw and H. J. Braers, taken from the North American Medico-Chirurgical Review, of March, 1859, presents this method of treatment in a strong, and, in fact, the most favorable light which I have yet seen:

"According to Drs. DeBrauw and Braers, the ligature of the extremities is a measure which has been already employed by ancient physicians to aid the treatment of intermittent fever, but has unjustly nearly fallen into oblivion. Already Pinius, (Hist. Nat. xxviii, 6) knew this antiperiodic, as Pittschaft (Hufeland's Journ. ii, 3, pp 47, 48) states, and in Van Sweeten's Commentaries to Boerhaave's Aphorisms, the 'levis brevisque compressis venarum in arbutus,' is strongly recommended as a means to relieve the burning heat of fever. Dr. V. Hildebrand, however, declares the remedy, in his Institutiones Practico-Medice, to be unreliable, and in many respects unsafe, and recommends caution in the use of it. Jos Frank, (Prax. Med. Univ. Precepta,) speaks of it in a very superficial manner, like many others, particularly more recent authors. One of the most enthusiastic commenders of this method is George Kellie, (Duncan's Medical Commentaries, vol. xix,) who, during the siege of Willenstadt, by the French army, in 1793, cured many cases of intermittent fever (which had resisted the use of quinine) completely, by compression of the extremities. Upon this recommendation several physicians in England—for instance, Veitch and Wallich, (Mediz. National Zeitung, July, 1798, and in the Netherlands, (Agemene Vaderl. Letterverfningen, 1808, 5)—tried this method with signal success. Of the more recent communications on this subject, that of Prof. Chladni, (Hufeland's Journal, xlii, p. 133) is worth particular attention. This celebrated savant being attacked in 1813 by an obstinate intermittent fever, used the remedy with much advantage. He discusses it as quite innocuous, and explains its curative influence by the
supposition, that by ligature of the extremities, the return of
blood to the heart, and to the centres in general, is hindered
or partially suspended, and that the full development of one
of the principal symptoms, the chill, being thus interfered
with, an interruption and disturbance of the whole type of
fever takes place.

This method belongs, moreover, to one of the oldest popular
remedies used in Russia, England and France. In Canstatti
Jahresbericht, (Jaborg, 1848, p. 113,) the cure of a quartan
by application of Junod’s boot is mentioned, a fact which
seems to be intimately connected with the subject in question.
According to Jolly, (Dict. de Med. et de Chir., tome xi, part
i, p. 363,) who gives a detailed account of the ligatures circu-
lairedes membres, the ligature should be applied to the four
extremities at the same time, but in such a manner that only
the circulation in the superficial vessels is suspended. Marti-
inet, Robinau, Recamier and Husson, kept up the compression
for not longer than twenty-five to fifty minutes, and com-
menced with it in the cold stage. Jolly recommends taking
off the ligature one by one, at intervals of several minutes, as
by the simultaneous removal of the same, too much blood
would be at once introduced into the circulation.

The most complete information on the subject of his inves-
tigation, the author found in a dissertation of R. V. Baerle:
"De valde multiplici febris intermittentium medicatione
specatum de membrorum majorum circumstrictione tantamin-
ibus in nosocomio academico explorata," Utrecht, 1809. In
this treatise the ligature of the extremities is thoroughly illus-
trated by the report of seven cases, and highly recommended.
V. Baerle commenced the treatment with the administration
of a gentle purgative; the patients were kept in bed, and sub-
jected to a rigid diet during the paroxysm; shortly before
the commencement of the cold stage, the thighs and upper
arms were encircled by ligatures exercising a moderate pres-
sure, which were removed in from six to fifteen minutes, or
later, according to the effect they produced; after Wallich’s
example, he forbade warm drinks during the cold stage, but
Joseph Jones, on the Indigenous

recommended cold drinks in the hot stage. From observations of this kind, the author draws the following conclusions: The ligature of the extremities is a safe and powerful means of assistance in the treatment of intermittent fever; it is not only an adjuvant to other antiperiodics, but also a febrifuge by itself. It cures the febris intermittens simplex and duplex, as well as the quotidiana. In regard to the quartana no experience has been made.

The ligatures must be allowed to remain until the last stage begins; a longer application does not lessen the effect. The method seems to owe its curative property to the disturbance of the usual course of the fever, (Chladni.)

Sometimes the paroxysm is transferred under this treatment from the third day to the second, but generally so that the tertian type is not interrupted, or that a febris duplex is developed. The compression of the extremities is always followed by some increase of the heat and perspiration, the signs of an energetic reaction. After repeated use of this method the fever gradually subsides. Contraindications to it never existed, but may be easily inferred from an examination of the modus operandi of the remedy.

Dr. DeBrauer generally applied compression to the extremities only, but considers the ligature of all four, far more efficacious in obstinate cases, and recommends the method as being capable in some cases to substitute the use of quinine.

In cases of relapse of intermittent fever in which the patients complain of that characteristic pain in the lumbar region, (fifth lumbar vertebrae) against which cups are used without effect, Broers recommends the application of the galvanic current to the mentioned spot as a highly serviceable, though occasionally inefficient means. After the second or third application of this remedy the cachectic appearance, as well as the depressed feelings of the patients, underwent a favorable change. Relapses of the fever, consequent upon a return of the patient into the malarious district, yielded quickly to this mode of treatment, even when
COLD WATER IN THE TREATMENT OF MALARIAL FEVER.

It would be foreign to our purpose to enter into any discussion of the mode of action of water in Fevers, for, as the most universal of all solvents in which the elements of the blood are dissolved or suspended, and as the largest constituents of the solid as well as of the fluid components, and as the great medium of the introduction of the nutritive elements, and of the chemical changes which develope the forces which work the machinery of the human body, as well as of the removal of the products of these chemical changes, water occupies such a prominent position in all the processes of health and disease, that it would be impossible to discuss either its value or its mode of action in fever in the limited space now at my command, and must content ourselves with a few practical observations and reliable testimony to the value of water as an external application, reserving the extended discussion for a future occasion. Now that the old notions with reference to the injurious effects of water and fresh air, have vanished with the progress of medical practice, based upon sound physiological principles, we can scarcely realise the powerful effects of water, in the treatment of fever, without a careful comparison of the symptoms, progress and mortality of diseases before and after its free use.

As an external application, the value of cold water though not unknown and not unemployed by the ancients, was not appreciated by the profession until after the publications of Dr. William Wright* 1586, and especially of Dr. J. Currie,† of England.

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* Formerly of the Island of Jamaica, published an account in the London Medical Journal for 1786, of the successful treatment of some cases of Fever, by the ablution of cold water.
† Medical Reports on the effects of water, cold and warm, as a remedy in Fever.
Dr. Wright first adopted the practice in his own case and succeeding in arresting the progress of the fever after twice applying the cold effusion.

The success of this trial led other physicians to adopt this mode of treatment; and Dr. Currie eleven years afterwards published in Liverpool his valuable Medical Reports founded upon accurate observations of the effects of cold water, which exerted a most beneficial effect in removing the strong and injurious prejudices against the free use of cold water in fevers.

We might adduce numerous testimonies to the value of the external application of water in various fevers, as Typhus, Typhoid, Intermittent, Remittent, and Congestive, from the time of Dr. Currie to the present, but we must defer these for a more extended discussion, having room merely to present a few points of practical interest:

Precautions recommended by Dr. Currie when the Cold Affusion is contemplated.—1. This remedy should never be used when there is any considerable sense of chilliness, although even the thermometer indicate a morbid degree of heat. If the affusion of cold water on the surface of the body be employed during the cold stage of the paroxysm of fever the respiration is nearly suspended, the pulse becomes feeble and fluttering and of incalculable frequency, the surface and extremities are doubly cold and shrivelled, and the patient seems to struggle with the pangs of instant death. Under such circumstances the repeated affusion of a few buckets of cold water would extinguish life.

2. Neither ought the cold affusion to be employed when the heat, measured by the thermometer, is less than, or equal to the natural heat, notwithstanding the patient feels no sense of chilliness. This is sometimes the case toward the last stages of fever when the powers of life are weak.

3. It is also necessary to abstain from the use of this remedy when the body is under profuse sensible perspiration and this caution is more important in proportion to the continuance of this perspiration. In the commencement
sweating, especially, if it has been brought on by violent exercise, the affusion of cold water in the naked body, or even immersion in the cold bath, may be hazarded with little risk, and sometimes may be resorted to with great benefit. After the sweating has continued some time, and flowed freely, especially if the body has remained at rest, either the affusion or immersion is attended with danger, even though the heat of the body at the moment of using it be greater than natural. Sweating is always a cooling process in itself, but in bed it is often prolonged by artificial means, and the body prevented from cooling under it to the natural degree by the load of heated clothes. When the heat has been thus artificially kept up, a practitioner, judging by the information of his thermometer only, may be led into error. In this situation the heat sinks rapidly on the exposure of the surface of the body even to the external air, and the application of cold water, either by affusion or immersion, is accompanied by a loss of heat and a deficiency of reaction which are altogether inconsistent with safety.—Medical Reports, &c. By J. Curry, 1797.

According to the experience of Dr. Currie, if employed on the first or second day with the precautions recommended, the progress of the fever is often checked, but it is seldom successful when applied so late as the third or fourth day, though when administered about the eighth or tenth day, or even later, it moderates the symptoms and shortens the duration of the fever. More recent observations have shown, however, that whilst Typhus fever may be thus cut short, this remedy fails almost universally in arresting Typhoid fever, which runs a definite course and is characterised by as definite pathological alterations, as Scarlet fever, Measles and Small Pox.

When the fever has run on for eight or nine days and the patient is weak, the heat of the water should be only a few degrees below that of the patient, and at this period it is preferable to sponge the body with cold or tepid vinegar and water.
Testimony of M. Fleury to the value of Cold Douches in the Treatment of Intermittent Fever.—M. Fleury in his memoir on this subject presented to the French Academy states that he was led to these researches by the assertion of Dr. Currie, that the accessions of ague might be prevented by the affusion of cold water, and that by its repetition four or five times, the disease might be entirely cured. M. Fleury has employed this means one or two hours before the expected paroxysm in the form of a general douche, and in that of a local one to the region of the spleen.

The ends attained by the above plan he believes to be—

1. A shock exerted on the nervous system, and on the general capillary circulation. 2. The opposing of a vigorous reaction and general stimulation of the surface to the cold stage of the fever. 3. A modification of the circulation of the spleen, combating congestion of that organ. He has pursued this treatment in eleven cases of intermittent fever. In seven of them the disease was recent, and there had been but from three to seventeen paroxysms; quinine had not been administered in any one. In two cases the spleen preserved its normal size; in five it was enlarged—a cure was effected in all. In one a single douche sufficed to cut short the fever. In two others, two affusions were necessary to do so, and to restore to the spleen its natural dimensions. In the remaining four, affusion was practiced three times.

In those patients where two or three douches were used, the effects produced were constantly the same. By the first application the accession was retarded two or three hours, the rigors less violent, and shorter by one-half or five-sixths the time, the heat and headache were equally lessened, and the total duration of the fit was diminished at least one-half.

Age and the type of the fever did not exercise any appreciable influence over the effects of the treatment. Where, however, the volume of the spleen was larger, the time required for the cure was augmented. Four patients had suffered from the disease for from two to eleven months,
having had several relapses, and resisted the action of sulphate of quinine, and presented the anæmia, emaciation, anorexia, &c. seen in those who have long been affected by ague. Three douches were required in two of these cases, and five in one other to remove the fever, but from eight to eleven were necessary to cause the splenic engorgement and the cachectic symptoms to disappear. In one case the liver was very greatly enlarged, but this condition disappeared by perseverance with the affusions.

M. Fleury arrives at the following conclusions: 1. In the treatment of recent intermittent fever, simple and with little or no engorgement of the spleen, cold douches may be substituted for quinine.

2. In the treatment of old-standing ague, where several relapses have occurred, and there is considerable enlargement of the spleen, or of the liver, with a cachectic condition, cold affusions are to be preferred to quinine, for they cut short the fever, restore the viscera to their natural volume, and remove the cachexy more safely than quinine, the latter in large doses, not unfrequently acting injuriously upon the nervous system, or on the digestive organs.—(Bulletin des Academ. and Lancet.)

Ranking's Half Yearly Abstract of the Medical Sciences, No. vii. Jan. to June, 1848, p. 68.

Diphtheria.

The following practical observations upon the treatment of Diphtheria, are taken from a very interesting paper read before the New York Academy of Medicine, by Dr. James Wynne. After giving an elaborate history of the epidemics of this affection, he proceeds thus:

Diagnosis.—It is not a difficult matter generally to give a correct diagnosis in diphtheria, especially when the practitioner is cognizant of the fact that a false membrane has been or is forming. The diseases with which it is possible
to confound it, are angina maligna and croup. In the first of these affections, the medical man has the general symptoms of scarlatina to guide him, and especially the eruption which is absent in diphtheria. In scarlatina, the tonsils are of a bright red, resembling the juice of the strawberry, and the membrane which covers them is simply inflammatory; while in diphtheria the hue is deeper. The exudation in scarlatina is white, opaque, cheesy and easily furrowed; while in diphtheria it is yellowish, tenacious and not easily impressed by the action of a hard body. The inflammatory action in scarlatina is observed at the beginning in all the soft parts of the throat; while in diphtheria it almost invariably shows itself at the commencement upon the tonsils. As the disease progresses, diphtheria manifests a tendency to invade the air passages, which is not one of the characteristics of scarlatina.

The main distinction between croup and diphtheria is to be found in the part affected. In croup the trachea is primarily the seat of diseased action; in diphtheria it is only reached after the disease has made considerable progress. In croup the earliest symptom is stridulous breathing; while in diphtheria the primary symptoms are chiefly observed in the organs of deglutition. In croup the false membrane on the tonsils is not present; in diphtheria, it is an invariable symptom.

Complications.—Diphtheria may manifest a disposition to the formation of a false membrane in other parts than those primarily affected, as the skin, the mucous membrane of the nose, the ears, the lungs, and the anus; or it may prevail coincident with other affections, as influenza, bronchitis, measles, scarlatina, erysipelas, or it may be affected by a particular epidemic condition, in which it becomes complicated with hemorrhage of the nose, skin, and mucous membranes of the intestines or lungs, or a typhoid type of disease.

Prognosis.—When diphtheria is confined to the tonsils, it usually terminates in a restoration to health; but when the false membranes extends to the nasal cavities or the larynx especially if accompanied with grave constitutional symptoms, the patient is placed in imminent peril. Even in favorable cases, the prognosis should be given with much consideration.

Treatment.—The practitioner has three important indications to fulfil in the treatment of diphtheria:
1. To arrest the spread of the pseudo membrane.
2. To alter the character of morbid action, upon which the formation of this membrane depends; and
3. To sustain the patient until these shall have been accomplished.

These necessarily involve both a local and general treatment.

The local treatment consists chiefly in the application of caustic and astringent substances, in one form or another, to the affected part. Of these, the most usual are nitrate of silver, either solid or in solution, chloride of lime, chloride of soda, sesqui-chloride of iron, and hydrochloric acid.

M. Bretonneau almost invariably employed the last of these remedies as a local application in his own practice, with the most marked success. The hydrochloric acid may be employed very nearly of the strength of the dilute acid of the shops, or considerably reduced in strength—dependent upon the severity or mildness of the attack. The best method of applying it is to moisten a small sponge attached to a probang, or a camel's hair pencil with the fluid, and while depressing the tongue with the left hand, to carry the brush forward with the right, until the fauces are reached, when those parts of the tonsils, uvula, or soft palate on which the membranous deposit appears, may be moistened with the fluid, and the instrument withdrawn. The hydrochloric acid should be applied not only to the membranous surface, but to the parts immediately surrounding it, by which means the spread of the membrane is often arrested. The application should be renewed several times a day. Care, however, must be taken not to apply it of too great strength, or too often at the onset of the disease, especially if the symptoms are not of an aggravated character; otherwise the local disease may be enhanced, by the unnecessary injury inflicted upon the surrounding parts. The symptoms often appear momentarily aggravated by the local application, which is not unfrequently followed by an attempt to dislodge the membrane by vomiting. Should this latter result follow, the tonsils and palate will appear as if shrunken in substance, and spotted here and there with a few drops of blood upon the surface formerly occupied by the membrane.

When this does occur, the application may be renewed directly upon the surface of the gland, in order to arrest the
almost invariable disposition of the membrane to renew itself upon the abraded part. As the disease progresses, and the membrane extends towards or into the pharynx, the difficulty in making local applications becomes greatly enhanced; but the practitioner should not hesitate, for fear of inflicting temporary pain, from thoroughly exploring and covering the parts affected with the solution of hydrochloric acid. For the purpose of effecting this, it is often necessary to place the head of the patient upon the knee of an assistant, and with a spatula to depress the tongue and the lower jaw firmly at the same time, by which means a view of the whole fauces may be obtained, and an opportunity afforded of making a thorough application of the local remedy.

Nitrate of silver has been warmly recommended by Trousseau, Guersant and Valleix, in France, and was the application almost universally resorted to in England at the commencement of the epidemic in that country. The usual mode of using nitrate of silver in England was in solution. Dr. Kingsland advised a solution of 16 grains to an ounce of distilled water, and Dr. Hart, 30 grains to an ounce of distilled water. The mode of its use resembles that of the hydrochloric acid.

When the local application of nitrate of silver is made in a solid form, care should be taken that it does not slip from the holder, or break, as in such an event it might fall into the stomach. Such an accident actually happened to M. Guersant, fortunately, however, the stomach rejected it, but this might not always occur, and few medical men would be willing to take so hazardous a risk. Dr. Hauner, of Austria, considers nitrate of silver as the very best local application to the diseased surface, and advises its use in a solution of from a scruple to half a drachm, to an ounce of water.*

Subsequent experience did not confirm the good opinion entertained for nitrate of silver among the English practitioners, and many who were at first loud in its praises came to disuse it altogether. A substitute for this was found in the sesquichloride of iron, which is recommended by Dr. Ranking as being very efficacious in its effects upon the false membrane. He advises its use in the form of a gargle, of the strength of two drachms to eight ounces of

* (Esterre'sche Jahrbuch fur Kinderheilkunde, 1859, vol. ii.)
water, to be applied to the throat by means of a brush.*

In the United States, opinion appears to be divided as to the best local application. Dr. Blake, of Sacramento, has found the greatest benefit resulting from an application of strong hydrochloric acid; a view in which he is sustained by Dr. Bynum and Dr. Thomas, both of whom have had much experience in the treatment of the disease.† Prof. Comegys, of Cincinnati, is in the habit of applying nitrate of silver, either in substance or strong solution in water. Sometimes when the ulcerations are deep, he touches them with strong nitric acid, by means of a brush. In some cases he has employed, with considerable benefit, inhalations of tannic acid dissolved in sulphuric ether, applied by means of a cloth wetted with it, to the mouth.‡ The formula is:

R.—Tannic acid, - - f. 5ij.

Sulph. ether, - - f. 5j. M.

Dr. Jacobi, of New York, who, as physician to the Canal Street Dispensary, which treats a large number of German children, has had a very large experience, says:

"The local treatment consists of cauterization of the membranes and surrounding parts with the solid nitrate of silver, or with strong or mild solutions of the same salt in water, (5ss-j.: 5j ;) of gargles consisting of solutions of (or applying in substance,) astringents, such as tannic acid, alum, sulphate of zinc, or claret wine; in gargling with, or applying such medicinal agents as are known to have some effect on the constitution and tissue of the pseudo-membranes, as chloride of potassium, chlorates of potassa and soda, diluted or concentrated nitric or muriatic acids, liquor of sesquichloride of iron, etc. Astringents will prevent maceration, render the exudation dry and hard, and alter the consistency of the surrounding hyperemic and edematous tissue. It will thus prevent, sometimes, the extension of pseudo-membranes to the neighborhood of the parts already affected, and in some cases may accelerate the expulsion of the membrane as a whole. We have thus seen the best effects from tannic acid, either applied directly to the parts by means of a curved whalebone probang, or dissolved

* Ranking on Diphtheria.
† Transactions of the Third Session of the Medical Society of the State of California, p. 108.
‡ Proceedings Cincinnati Academy of Medicine.
in water as a gargle (5ss-ii: 5i.) Of the tinct. sesquichlor. iron we have seen no particular effect. Cauterization with nitrate of silver we have found to be generally of very little use when applied to the pharynx. Its effect is superficial only, it will form a scurf but will destroy nothing. Destruction of the parts cannot be effected except by forcing the caustic into and below the membrane; this can seldom be done in the pharynx of children, and for this reason cauterization is unavailing at this point, but will prove beneficial, we believe, by confining the process of exudation to its original locality. In cutaneous diphtheria cauterization may be exercised to its full extent, but as these cases are generally attended with extreme prostration, the general treatment will prove both more necessary and successful. If cauterization is to be resorted to, we generally use, and with good effect, more or less concentrated muriatic, or acetic, or nitro-muriatic acid. Where, however, cauterizations are made, great caution is necessary not to mistake afterwards the result of the caustic for pseudo-membrane. This remark is particularly applicable where nitrate of silver has been used.”

Alum, chloride of lime, and calomel are sometimes recommended. When their use is deemed advisable, they may be applied by dipping a brush, or the finger, in the dry powder, and carrying it directly to the affected part, or blowing them through a quill.

Prof. Metcalf advises the use of the bromide of iodine, in the form of two drops to an ounce of the mucilage, or gum arabic, as a topical application. He also gives drachm doses of this mixture internally, with the happiest results.

When there is a considerable accumulation in the nares and behind the velum, the debris and foul secretions may be removed, and much temporary relief obtained by an injection of an infusion of chamomile with a few drops of cresote, which may be best effected by a laryngeal syringe. The syringe of Dr. Warren, of Boston, answers a very good purpose for injecting fluid either into the nares or below the epiglottis. It, however, is liable to the objection that it is likely to produce irritation, by coming in contact with the irritable portion, exactly at the opening of the glottis, which is found by the researches of Prof. Horace Green, to be the seat of sensibility, instead of the epiglottis, as has heretofore been supposed. The common glass syringe, with either a curved extremity or a straight one—dependant up-
on the part to be reached—answers all ordinary purposes, and possesses the advantage of being easily obtained at the apothecaries, and is of slight cost.

For correcting the factor of the secretions, the chloride of soda, in the proportion of one drachm to six ounces of water, may be used with much benefit. Dr. Ranking suggests on the supposition of the presence of some vegetable parasite, the use of sulphurous acid and hyposulphate of soda, in the form of a saturated solution. * "The power of the latter," he adds, "in destroying the fungoid growth of favus, as well as the oidium which infests the vine, I have myself experienced, and I strongly recommend it provided the vegetable origin of diptheria be confirmed by further observations."

Much relief is often afforded by inhalation, especially after the second or third day of the attack. An excellent means of fumigation is to pour boiling water upon catnip, or the leaves of any similar plant, with the addition of a little vinegar, and to allow the patient to inhale the fumes, either by inclosing the head under a blanket, or by applying the mouth to a tube connected with a close vessel containing the materials from which the vapor is generated. The immediate effect of fumigation is extremely grateful to the patient. Dr. Gurdon Buck advises the addition of Labarraque's solution of the chloride of soda, in successive portions of a teaspoonful each, to the liquid used for fumigation. Mr. C. T. Hodson recommends the inhalation of boiling water, to which has been added a tablespoonful of chlorinated lime.

**General Treatment.**—The general treatment must be regulated by the type of the disease. Shortly after the appearance of M. Bretonneau's treatise, a great variety of treatment was recommended by different practitioners, all, however, with a view to arrest inflammatory action. Leeches to the neck, counter-irritation, especially by means of blisters, active mercurialization, and purgative medicines furnished the basis of most of the plans advised. Calomel, especially, obtained great celebrity, and was at one time considered as the most effective remedy in arresting the progress of the disease. It was first prescribed by Dr. Connolly, who was residing at Tours, at the appearance of the disease; and was so efficient in his hands, in minute doses, as speedily to

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*Ranking on Diphtheria.*
find favor with the French practitioners. But, whatever may have been the success attendant upon its administration at that time, it is now found to require great caution in its use.

Blisters are contra-indicated, and so far from furnishing relief, tend to increase the danger by assuming an unhealthy, and frequently sloughy appearance. The bites of leeches often give rise to passive bleeding, extremely difficult to arrest, which greatly reduces the already exhausted energies of the patient. Everything, in fact, which tends to lower the powers of life, or induce prostration, should be sedulously avoided, in the type of disease which at present prevails; and certainly differs from that for which Bretonneau, Conolly and other medical men in France, at that period, were called upon to prescribe.

The type of the disease as it now prevails exhibits a tendency to extreme prostration from the very beginning, and requires a tonic treatment to sustain the patient. The most effectual method of accomplishing this is by means of quinine, the various preparations of iron and steel, stimulants, in the form of brandy, milk punch and wine whey, and a generous diet, consisting of beef tea, Liebig's extract of meat, and a decoction of coffee. Sulph. quinine may be administered in grain doses, conjoined to two grains of the sulph. of iron, repeated as often as the symptoms appear to require—usually every three hours. It is well to alternate this remedy with doses of chlorate of potassa, which appears to exercise a beneficial influence upon the disease of the mouth and throat. Chlorate of potassa may be given in doses of from five to ten grains, in distilled water, or a bitter infusion. Prof. Barker, of New York, advises the chlorate of potassa, in doses from 5ss. to 5j. The chlorate of soda has been recommended with the same intention, but does not appear to be equally efficacious with the chlorate of potassa.

The tincture of the sesquichloride of iron has met with favor among the English practitioners, as a tonic. Dr. Ranking gives it the preference to other tonics, although he frankly admits that it matters but little which of this class of medicines is used, provided the strength of the patient be sustained. "Personally," he remarks, "I give the preference to the tincture of the sesquichloride of iron, not only from the inference drawn from the analogy of its unquestionable usefulness in the more asthenic forms of erysipelas,
but also from the positive evidence of its benefit derived from the experience of several gentlemen in the country, amongst whom I may mention Mr. Dix, of Smallburg; Mr. Prentice, of North Walsham; and Mr. Cowles, of Stalham; each of whom has had unusual opportunities of testing its advantages." The tincture of the sesquichloride of iron may be administered in doses of from eight to sixteen drops in a little water.

Whatever may be the success or ultimate failure of this remedy, its first introduction into the treatment of this disease is undoubtedly due to Professor Thomas P. Helsop, of Queens College, Birmingham, who after repeated trials in his own practice, brought it to the attention of his clinical class at Queens Hospital and the Medico-Chirurgical Society of Queens College. His own success appears truly astonishing. "I have given in this disease," he says, "to an adult twenty-five minims of the London tincture of the sesquichloride of iron every two, three, or four hours, and have conjoined a few drops of dilute hydrochloric acid. I have also applied daily, sometimes twice a day, by means of sponges, a solution of hydrochloric acid, but little weaker than the dilute acid of the London Pharmacopœia, and have always enjoined the regular use of weak gargles of the same acid. This, with the constant administration of stimulants, beef-tea, milk and jellies, has constituted my treatment; and I repeat here, what I have already stated in other quarters, that since I have become aware of the value of this medication, nearly ten months, I have not lost one case." An excellent formula for administering a combination of chloride of potassa and the sesquichloride of iron, is: Chlorate of potassa, from 8 to 20 grains; tincture sesquichloride of iron, 10 to 25 drops; rose-water or orange syrup, one drachm; water, four ounces. Where there is difficulty in administering medicine, the bulk may be reduced by omitting the water altogether, and increasing at pleasure the amount of syrup. The success which has attended the use of this remedy in England warrants a careful trial of its merits at the hands of practitioners in the United States.

Where the disturbance of the secretions appears to indicate the use of mercurial preparations, and they are not positively contra-indicated by the depressed state of the patient, calomel may be administered, in doses of one-tenth of a grain, mixed with sugar, and placed dry upon the
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tongue. Dr. Bigelow has found this remedy valuable in the disease as it prevails at Paris; and Mr. Thompson was equally successful with it at Launcetown, England. Dr. Anderson, of New York, and Dr. Briggs, of Richmond, have employed calomel with marked benefit. It is a question, when calomel and chlorate of potassa are administered conjointly, whether the effects of the potassa do not entirely annul those of the calomel. Dr. Bigelow, as the result of some recent observations, says that although it may retard or prevent the specific effects on the salivary glands, it does not in any way modify its action upon the secretions. It may be well, however, when the effect of the calomel is important, to intermit the use of chlorate of potassa for twenty-four hours, or to alternate the use of these medicines at wide intervals between the administration of the two.

Emetics are serviceable when portions of the detached membrane are lodged in the throat, without being expelled, or when the disease is making rapid progress, and threatens to invade the larynx. The action of the emetic in this instance is frequently to detach the pellicle and dislodge the pseudo-membrane. At the same time that the membrane is thus ejected, the throat is relieved of the foul secretions which might otherwise be received into the stomach, to the great detriment of the patient.

But, whatever treatment may be adopted, the fact should never be lost sight of, that the system is laboring under the influence of a powerful and most depressing poison; and it matters but little, so far as the constitutional treatment is concerned, whether this poison be at first local, and afterwards disseminated through the system, or is from the beginning of a general character, and incidentally developed in the mucous membranes of the air-passages. In the performance of her functions in the eliminations of this poison, Nature requires to be sustained, not only by the free use of the tonics already indicated, but by a liberal allowance of the most concentrated and nutritious articles of diet, in which beef tea, milk, eggs, brandy, wine and coffee stand prominent. When there is difficulty in swallowing, not only these articles of diet, but quinine may be introduced by means of injections; a resort to which should not be deferred until it is impossible to administer medicines by the mouth, but whenever the difficulty of swallowing becomes at all a prominent feature in the complaint. Injections should not be administered in greater quantities than
two ounces at a time, and should not be often repeated; otherwise they will give rise to a local irritation in the rectum, which will prevent their retention. One or more drops of tinct. opii, according to the age of the patient, will greatly aid in the retention of the injection.

After the violence of the disease has been checked, a continuance of the tonic treatment should be persevered in for some time, not only to prevent the sequelae liable to follow, but a recurrence of the attack, which often reappears after an interval of several weeks, especially when the patient is exposed to those depressing influences which are too frequently attendant upon poverty and uncleanness.

On the Treatment of Uterine Inflammation by Nitrate of Silver and other Substitutive Agents. By E. J. Tilt, M. D., M. R. C. P.

In using these agents, we only apply the general principles of therapeutics to the treatment of inflammatory affections of the womb and its associated organs. The utility of a solution of acetate of lead in inflammatory affections of the skin implies similar utility in inflammatory affections of the vaginal mucous membrane; the utility of solutions of borax and of chlorate of potash in affections of the mouth pointed to their trial as vaginal injections; the utility of sulphate of zinc and nitrate of silver in urethral strictures, demonstrated by J. Hunter, Sir E. Home, Laliemand, &c., suggested their employment in uterine catarrh; the sovereign utility in the solid nitrate of silver for the cure of cutaneous ulcerations caused it to be tried in ulcerations of the womb. To whatever mucous membrane these agents are applied, they act in the same way—they substitute a therapeutical irritation, susceptible of being graduated to a morbid irritation, which might uncontrollably compromise the structures attacked—a temporary irritation that tends to become permanent.

In treating of injections, I have already enumerated several agents which act in this way, such as borax, chlorate of potash, acetate of lead, alum, sulphate of zinc, &c. They are generally given largely diluted, but if used in a solid or highly concentrated state, the action of these agents would
be analogous to that of two other important agents, nitrate of silver and tincture of iodine, which are called caustics by courtesy, but are no more caustics than tincture of cantharides. I wish it to be clearly understood that I hold these agents sufficient for the surgical treatment of uterine inflammatory diseases in the large majority of cases, and so does Dr. H. Bennett, although it has been stated that we use strong caustics in ordinary cases of uterine disease. In a comparatively small number of instances, the structures of the womb have been too deeply modified by inflammation or by hypertrophy, are in so low a state of vitality that the above-named agents are insufficient to bring about a cure of the disease. Then I have recourse to another class of substitutive agents, which are undoubted escharotics, for they cause a loss of substance proportionate to the amount of caustic used. Those caustics induce healthy acute inflammation in the tissues underlying the eschar, and, by judicious management of this healthy inflammatory action, the cure of chronic cases is often induced.

The caustics of which I shall treat are, the acid nitrate of mercury, potassa fusa cum calec, potassa caustica, and the actual cautery. At first sight it may seem strange to class together sulphate of zinc and potassa fusa cum calec, but one is justified in doing so, because the substitutive action which I ascribe to a solution of sulphate of zinc is pre-eminently shown in the results of potassa fusa cum calec, which often so raises the vital endowments of the uterine tissues as to promote rapidly healthy nutritive action in tissues which had been diseased for many years.

Such is my mode of practice, and I am glad to find that it accords to a certain extent with the practice of all whose opinion carries weight, and who having in vain tried to cure uterine diseases by nitrate of silver or milder measures, have recourse to one or the other of the strongest caustics. Dr. Fleetwood Churchill depends on nitric and muriatic acids, and on the acid nitrate of mercury, which is also preferred by Dr. E. Kennedy and by Dr. West, and although this distinguished pathologist considers ulceration of the cervix to be a condition of slight pathological importance, when he has to trace out a plan of treatment for his pupils, he has none other to propose than that already long ago carefully laid down by Dr. H. Bennett. The late Dr. Rigby, though adverse to the surgical treatment of uterine affections, admitted that there were certain cases of uterine
ulceration requiring the use of potassa fusa, or potassa fusa cum calc. Dr. H. Bennett prefers potassa fusa cum calc. This is not energetic enough for Professor Simpson, who uses potassa caustica; while the French strongly advocate a remedy older than Hippocrates, the actual cautery.

These comments upon the treatment of uterine inflammation will show that I am an eclectic, and that I use all the valuable agents which I have enumerated in certain cases which I shall specify. Again reminding the reader that I am not writing a treatise, I shall proceed to comment on the use of our principal substitutive agents.

Tincture of Iodine.—It is the ordinary tincture of the Pharmacopoeia which I mean, not the caustic tincture. I shall be brief on this agent, having already mentioned it as a revulsive, and having compared it with others then under discussion. Tincture of iodine seems to act as an astringent when slightly applied to the hypertrophied or inflamed surface of the neck of the womb, but as a vesicant if several applications are made at one and the same time, and as a resolutive it re-applied every third or fourth day. It is much less useful than nitrate of silver as a topical application, but it suits better some idiosyncrasies, and is well borne in diphtheritical inflammation, when nitrate of silver should not be used. The fact that a solution of iodine can be injected into closed cavities and fistulous passages without severely inflaming them, marks it out as the best liquid to be injected into the body of the womb, in the very rare cases requiring such treatment; for it has less frequently given rise to the alarming symptoms of peritonitis, which have very often followed the intra-urine injection of a solution of nitrate of silver. I use one drachm of the tincture to an ounce of distilled water, and inject it by means of an instrument similar to that devised by Mr. Coxeter for injecting fluids into the larynx.

Nitrate of Silver.—"The application of nitrate of silver is a means, under certain circumstances, of subduing external inflammation. Might it not, on this principle, be of service in the treatment of the internal phlegmasia?" Such was the question asked by Mr. Higginbottom in the preface of his admirable little work on "The Lunar Caustic," published in 1826. His question has been answered in the affirmative by a great many practitioners, who have applied nitrate of silver for the cure of inflammatory affections of the mucous membrane of the eyes, ears, mouth, throat,
urethra, the intestines and the rectum. As regards the
mucous membrane of the genital organs, Dr. Sewel, in
1830, strongly advocated its use; and I have no hesitation
in saying that this great agent is quite as useful in curing
the varied inflammatory conditions of the genital organs as
in curing those of the skin. It is often necessary to preface
the use of nitrate of silver by linseed tea, poppy-head, or
other cooling injections, in the same way that Mr. Higgin-
bottom repeatedly inculcates the utility of cold poultices
previous to applying nitrate of silver to the inflamed skin.
If, after antiphlogistic treatment, the solid nitrate of silver
increases too much habitual pains, or causes the ulcerated
surface to bleed for two or three days afterwards, it is well
to try a solution of from forty to sixty grains of nitrate of
silver to an ounce of distilled water. In many cases the
solution is sufficient to effect a cure; it gives less pain, but
it may be necessary to repeat it every third or fourth day.
Sometimes I use a solution of nitrate of silver containing
one ounce of the salt to two or three ounces of distilled
water, as an application to ulcerated surfaces. Chronic
uterine catarrh, or inflammation of the mucous membrane
lining the neck of the womb, which has been truly called
an open gland pouring out mucous from ten thousand folli-
cles, seems to me the most frequent of all uterine diseases.
Without having the slightest abrasion, the mucous mem-
brane lining the neck of the womb and its vaginal surface
may be of a dusky, livid hue, tender on being touched, and
secretion pus. This condition may last for years, but it
generally leads to more or less extensive denudation of
the villi of the uterine mucous membrane, and gives an ex-
coriated appearance to the neck of the womb. Such cases,
with or without excoriation, can be cured by the nitrate of
silver in solution, and every fourth or fifth day, with the
occasional use of the solid nitrate. If the mucous mem-
brane lining the cervix be principally affected, it is often so
obstinate as to render the painting of it with the solution of
little use. The solid nitrate must be freely employed, and
when the cervical canal is usually dilated, I sometimes
leave about one-eighth of an inch in the canal; by which it
will be clear that, so far as my experience goes, should the
stick accidentally break in the cervical canal, it needs give
no alarm. What cannot be removed will cause more pain,
some loss of blood, and perhaps even a return of menstrua-
tion; but the patient may be repaid for greater suffering by
a speedier cure. It has been stated by Nonat that this mode of treatment has caused stricture of the uterine canal in his practice and that of Richet. I have never met with this accident, and I think its occurrence is to be prevented by the occasional passage of the uterine sound for a few weeks after this severe application.

With regard to the treatment of the various forms of ulceration of the neck of the womb, I can add nothing to what has been so well laid down in Dr. H. Bennet's work. Mr. Higginbottom, whose statements with respect to the action of nitrate of silver deserve the highest consideration, affirms that its action does not extend beyond three days after its application; and it is generally received that it is necessary to repeat the use of this agent so soon as the epithelial pellicle has fallen off, or every third or fourth day. In many instances this is the best way of ensuring the most rapid recovery; but I do not recommend the too strict adherence to this precept, as it is often well to leave five, six or seven days' interval between the applications, or we might work as did Penelope, and retard the cure of the case. This, however, is a matter of surgical experience in each individual case.

Whether vaginitis occurs spontaneously or as the result of uterine catarrh, it is best cured by the injection of a solution of nitrate of silver. This is an excellent idea of Dr. Jewel, but if the solution be sufficiently strong to do good it cannot be safely trusted to the patient. The patient being placed on her back, a small glass speculum should be introduced as far as possible, and an ordinary glass syringe full of a solution of nitrate of silver containing forty grains to the ounce should be injected. The speculum should then be withdrawn to the vicinity of the vulva, and the fluid should be left in contact for three or five minutes, after which the speculum is to be withdrawn, and the fluid received in a small cup. Sometimes I apply a speculum of appropriate size, and as I withdraw it pretty freely touch the vagina with the solid nitrate of silver diluted by chloride of silver, as prepared by Mr. Squire. This is a modification of a plan recommended by Ricord.

I recommend these injections where there is evidence of inflammation of the womb, with excoriations of its cervix, in virgins in whom the integrity of the hymen prevents the introduction of a moderate-sized speculum. This plan should be first tried before forcibly dilating or incising the
hymen—an operation which is very rarely required. I have
frequently made these injections in many cases, and I do
not once remember having traced menorrhagia to their ad-
ministration. I mention this as it seems to have often
occurred in the practice of Dr. Fleetwood Churchill. So
many serious accidents have followed the injection of the
solution of nitrate of silver into the body of the womb,
that I prefer using tincture of iodine in solution whenever
intra-uterine injections may be required. In very rare cases
of chronic internal metritis it may even be necessary to ap-
ply the solid nitrate of silver to the internal surface of the
body of the womb, as well as to adopt other modes of
treatment, for an account of which I refer the reader to my
papers on the Treatment of Internal Metritis.*

In follicular inflammation of the labia in eczema and
prurigo pudendum, or pruritus both external and vaginal,
a piece of cotton wool should be soaked in the solution of
nitrate of silver, and carefully rubbed for two or three min-
utes over the diseased portions of the skin and mucous
membrane. I can speak with confidence of this plan, for I
have lately cured several patients who had been suffering
in this way for four, eight, and thirty years. When cases
have lasted so long the pudendal skin looks and feels like
parchment. It was so in the case of a lady in whom the
disease had lasted for thirty years, and I first rubbed in the
solution every day, then every other day, then every fourth
and fifth day, until the skin became soft and pliable, and
the sleep was no longer disturbed in darts of pain flashing
along the nerves. This patient was cured in three months,
and has had no relapse during the last year.

I trust I have said enough in praise of nitrate of silver;
but in many forms of uterine inflammation much more se-
vere agents are required to restore the womb to a healthy
state. This fact is admitted by so many authorities at home,
in America, or in foreign countries, that I am surprised to
find the contrary asserted by Dr. Meigs and Dr. Tyler
Smith. After describing the evil effects of caustics in the
treatment of uterine disease, the latter pathologist, in his
work on “Leucorrhrea,” (p. 203) gives as his opinion that
there is no good which can be effected by the more pow-
erful caustics which cannot be accomplished by the nitrate

of silver, or by other means. It is true that by the prolong-
ed application of the nitrate of silver, loss of substance may
be caused; but this is far less likely to occur with lunar
caustic than the more powerful escharotics. It is also true,
that some practitioners apply the more violent caustics so
lightly that they do not exceed the milder medical action of
the solid nitrate of silver; but in such cases it would be
quite as well to use the safer remedy where a caustic is re-
quired.” And at p. 206, “In applying the nitrate of silver,
the aim should be not to produce any slough or loss of sub-
stance.” Thus it is clearly stated that the slight applica-
tion of the strong caustics is tantamount to the full action
of the nitrate of silver in like cases of uterine disease.

My experience, on the contrary, teaches me that nitrate
of silver is no more a caustic than tincture of cantharides,
as Mr. Higginbottom has long ago asserted. The distinc-
tion that Dr. Meigs draws between the antiphlogistic
contacts and the escharotic action of nitrate of silver, does
not bear examination. Use it as you may the nitrate of
silver does not cauterize. Leave it in the neck of the
womb, it will cause more pain, loss of blood and subsequent
discharge, but no destruction of tissue, unless coagulated
mucus mixed up with epithelial scales and insoluble chlo-
rides of silver can be called such. Even when applied to a
fungous ulcer, the slight loss of substance is rather due to
the friction of a hard body on a pulpy than to the chemical
combination of the neutral salt and the diseased tissues. A
densely hypertrophied neck of the womb might he whitened
with the solid nitrate of silver every fourth day until
doomsday, without much reducing its bulk. Indeed I have
seen such a plan of treatment injudiciously continued for a
year or longer in a case of hysteralgia, the neck of the
womb being healthy and of an average size, and the effects
were rather astringent than caustic, condensing the tissues,
narrowing the cervical canal, and rendering its dilatation
necessary and difficult. Thus, while nitrate of silver may
be repeatedly applied without inducing a loss of substance,
the slightest application of the potassa fus a to the neck of
the womb produces an evident loss of substance; and there-
fore, the two agents, however applied, produce totally dif-
ferent effects in similar cases. This is a question of surgical
therapeutics which can be decided by any experienced
surgeon. Writing on the treatment of stricture caused by
gristly thickening of the urethral mucous membrane, Mr.

1861. ]

Uterine Inflammation.

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Wade records his twenty-five years' experience of the comparative advantages of nitrate of silver and of potassa fusa, and he states: "I cannot let this opportunity pass without again calling attention to the fact, that the effects of the argentum nitratum and of the potassa fusa admit of no comparison, as they are totally dissimilar; that the former, when freely used, from its tendency to cause adhesive inflammation, has often been found to increase the urethral obstruction, whilst the remarkably solvent powers of the latter have no such tendency."*

The too free use of the nitrate of silver to the inodular tissues of the urethra causes urethral stricture, as the too free use of the same agent to the cervical canal causes stricture of the neck of the womb, but without loss of substance. Indeed, if the whole range of diseases in which nitrate of silver is now used be passed in review, it will be found that it always acts by its dynamic, astringent and antiphlogistic properties; whereas escharotics can only raise the standard of vitality of any given tissues by the previous destruction of their superposed surface. I maintain, on the contrary, that there is one good to be done with the more powerful caustics which cannot be accomplished by the nitrate of silver; that is, to shorten the treatment of many cases it which it is at first, judicious to try it. Ulceration of the neck of the womb, on a hypertrophic basis, may doubtless be sometimes cured by the use of the nitrate of silver, but the treatment might be indefinitely prolonged; whereas it can be very much shortened by one or two applications of the acid nitrate of mercury or of potassa fusa. c. calce. When the inner cervix is chronically inflamed, nitrate of silver may enable us to effect a cure; but with that agent however applied, cures are sometimes so tedious that it is well to resort to one or two applications of the acid nitrat of mercury or of potassa fusa c. calce. In fungous and varicose ulceration the nitrate of silver causes the surface to bleed profusely, and does more harm than good; whereas I find that in these cases the acid nitrate of mercury an the actual cautery stop the bleeding and promote a cure. think it right to be sparing of caustics to the neck of the womb in pregnant patients; but I have seen cases similar to those described by Dr. Bennet in which it was necessary.

*Wade, Stricture of the Urethra, 4th edit. p. 117.
to stop an abundant purulent and bloody discharge from a large varicose ulcer, and I have done so with the acid nitrate of mercury, after doing more harm than good with the nitrate of silver. So little are caustic agents and nitrate of silver interchangeable substances or therapeutic equivalents, that I find nitrate of silver in some cases to be positively poisonous, while potassa fusa c. calce conduces to recovery. In diphtheric inflammation of the neck of the womb and of the vagina, nitrate of silver acts as a poison. In a case now under treatment there is a small patch of false membrane on the posterior lip of the os uteri, and around it are numerous ulcerations. Were I to touch them with nitrate of silver they would soon be covered with false membranes. Tincture of iodine would not produce this effect, neither would the potassa fusa c. calce; these, therefore, are the best means of curing this most tedious complaint, and of which I have seen two instances, and Dr. Bennet three, and he would endorse what I affirm of such cases. Occasionally we meet with cases like two I am now attending, in which an extensive superficial excoriation of the neck of the womb bleeds profusely, and for the following two days, even when only touched with the solution of nitrate of silver, which likewise makes the sore more angry. In these cases I have nearly effected a cure by dressing the wound with tincture of iodine or the acid nitrate of mercury.

The profession is more and more convinced of the great utility of caustics in many diseases; were it otherwise, surgery would be deprived of a valuable remedy, and the obstetric art robbed of the only means of curing the most distressing cases of uterine inflammation. Patients would thus have to drag on from year to year their weary load of misery, with the only hope that the cessation of menstruation, by putting an end to the physiological liability of the womb, might also check its liability to inflammation.—London Lancet.

This paper was an appendix to a former, and its object was to solve two main questions: 1. The essential condition or lesion of the limb in this affection. 2. The mode of production of this lesion.

In regard to the first it was maintained that the presence of fibrinous serosity in, with more or less hypertrophy of, the fibro-cellular tissue, is the essential, the sufficient, pathological lesion; that the inflammation, the abscess, the sloughing, etc. are not peculiar or necessary parts of the affection, but common to many diseases, and the result of an eliminative act to rid the system of some blood-poison; that the latter may produce lymphatic and venous obstruction, and hence phlegmasia dolens; but it passes beyond this, giving rise to a distinct disease, such as abscess, pyemia, etc.

Phlegmasia dolens in these cases is a local complication of the general disease, and the general symptoms are but parts of the phlegmasia. There are then two types of this disease:

a. The complicated, in which an eliminative process (inflammation, abscess, etc.) takes place, these being the answer acts of the tissue to the blood state; the epidemic form, in which an effect is produced by a virus, superadded to what occurs in

b. The other class—the uncomplicated—where the blood state does not require any eliminative actions to be performed on the part of the tissues, but where simple obstruction exists, such as pressure by tumor, etc. and simple thrombus; this being the essential, simple, ample disease, all else being superadded and accidental.

It having been shown that venous obstructions produced œdema only, and this plus lymphatic obstruction, (phlegmasia dolens,) the second question as to the mode of production of the lesion in the limb might be stated thus: How can obliteration of the lymphatics produce the peculiar change of the limb in phlegmasia dolens? The lymphatics being obstructed, the three offices of removing waste, of absorption, and of formative power, could not come into play.

It was then argued at length that the amount of lymphatic distribution and fibro-cellular tissue are in direct ratio
—that fibrin is the pabulum of the latter tissue—and that Virehov's views on this point clash with sound doctrine. Lymphatic obstruction being followed by the retention of fibrinous serosity in the cellular tissue, the inference allowed by the foregoing facts was, that one office of the lymphatics is to remove all superfluous material from the cellular tissue; to keep the balance of nutrition there correct; hypertrophy and retention of fibrin in the cellular tissue ensuing upon lymphatic obstruction; and this explanation is confirmed by the behavior of the lymphatics in cases of cancerous ulceration, etc. (When a blood poison is present special tissue actions, as abscess and the like, are superadded.) It was attempted to be shown that absorption by the lymphatics from ulcerated surfaces might give rise to thrombus at the entrance of the thoracic duct into the junction of the jugular and subclavian veins, and thus account for phlegmasia dolens occurring in the upper extremity in cases of disease of other parts of the body, e. g. cancer uteri.—*Brit. Med. Jour. Oct. 20, 1860.*

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On the Termination of Nerves in the Voluntary Muscles of Man and Vertebrate Animals. By Lionel Beale.*

Beale’s researches have already been briefly referred to in our Half-Yearly Physiological Report in the January number. We propose now to consider them more in detail. The paper, we believe, will be published with the drawings in the forthcoming number of the "Philosophical Transactions."

Beale has been led to conclude from recent observations that every elementary fibre of voluntary muscle is abundantly supplied with nerves, which form a network and lie upon the surface of the sarcolemma, with which membrane at least in many cases, the delicate fibres seem to be incorporated. They do not penetrate through the sarcolemma, it is stated nerves never terminate in points, as is now generally supposed, neither can a single elementary fibre of

voluntary muscle be found which is not abundantly supplied with nerve-fibres. The elementary fibres of the tongue and diaphragm of the white mouse are nearly covered with nerve-fibres and capillaries; the *sarcolemma* indeed appears to be principally composed of these structures. The muscular fibres of mammalia and birds receive a much larger supply of nerve fibres than those of fishes and reptiles, but in insects the most wonderful structure exists on the surface of the muscle. In some muscles the entire surface is covered by some long, spindle-shaped, and very large nerve vesicles, which can be shown to be continuous with the nerves. This beautiful structure is completely destroyed very soon after death, and not a trace can be discovered if a little water comes into contact with the muscle.

In mammalia, the nerves are seen to run for a long distance with the arteries, and their ultimate divisions come into very close relation with the capillary vessels.

As the nerve-trunks approach their distribution, each individual fibre divides and subdivides, and the fibres resulting from this subdivision often pursue a very long and complicated course, running for some distance parallel with other fibres derived from different trunks, but it is not possible to follow any one individual fibre for any great distance.

Fine trunks, composed of from three to seven or eight fibres, can often be seen traversing the muscle. The fibres pursue different directions; some dip down between the elementary muscular fibres, some pass over the surface and form with others, from a different source, small compound trunks, while others may be traced onwards for some distance; the individual fibres which gradually separate from each other being distributed to different parts in succession, of several different elementary muscular fibres. When the finest nerve fibres can be seen passing round the elementary muscular fibres, they clearly consist of very delicate flattened bands.

*Of the Oval Bodies or Nuclei.*—Connected with all nerves, in every part of the body, sensitive, motor, vascular, and probably in all animals, are little oval bodies or nuclei, which are the organs by which the nerves are brought into the closest relations with other textures, and from them new branches are developed. The nerves multiply at their distribution by the division of these little bodies, and upon them their action and, in all probability, the manifestation
of the nervous phenomena depend. A great number of these little bodies are associated with perfection of nervous actions, and *vice versa*. They are found very freely connected with the vascular nerves, and are abundant on those nerves near the ganglia from which they proceed, and in the ganglia themselves. These bodies with the nuclei of capillary vessels and those of fat vesicles, and probably other structures with peculiar cells, which alone deserve the name have been included under the term "areolar-tissue corpuscles," (*Bindegewebe-Körperchen.*) As specimens are usually prepared, it is quite impossible to distinguish these structures from each other. Beale believes that the gelatinous fibres, or fibres of Remak are, after all, real nerve fibres, and not a peculiar modification of fibrous tissue, as is now generally believed.

The nerves and vessels, and with them, of course, the oval bodies, may be stripped off from the *elementary muscular fibre*.

*Of the manner in which Nerves terminate.*—The fibres connecting the oval bodies or nuclei form with them a network the branches of which are of course, continuous with the subdivisions of nerve fibres. The arrangement of the network, and especially the number and proximity of the nuclei to each other, differs materially in different localities. On sentient surfaces the meshes are very small and the nuclei close together; but from the complexity and great number of the fibres; from the fact that many fibres which appear to be single can be resolved into three or four individual fibres, and from the circumstances of the network being imbedded in most cases in the midst of fibrous tissue, it is very difficult to describe its exact relations and disposition. However, from the connections of this network with the nerve fibres, it would seem to follow that an impression made upon a given portion of a sentient surface might be transmitted to the nervous centre by contiguous fibres, as well as by the one which would form, so to say, the shortest route, and it is possible that impulses to motion may be conveyed to muscular fibres by a more or less circuitous path, as well as by a direct one.

*Of the so-called Tubular Membrane.*—This is a transparent structure in which the nerve-fibres are imbedded. It cannot strictly be called a membrane, because in many cases several fibres are imbedded in it, and often it is much thicker than the fibres it contains. By examination with high
powers (700 diameters) many fibres which appear to be single when seen by lower powers, can be resolved into three or more, all enclosed in the same transparent tissue. As the nerve-fibres approach their distribution, this transparent structure becomes much spread out. It is intimately connected with nerve-fibres and capillaries, and with them forms a delicate expansion over the muscular fibres, and in other parts. Delicate fibres also, in connexion with the nerves and capillaries, may be observed in it. In some cases this expansion seems to be incorporated with the sarcölemma, and it is probable that in certain instances it is really the structure which has received that name.

Axis Cylinder and White Substance.—Beale has been led to conclude that in consequence of the free division of the axis cylinder and white substance near the point of distribution of the nerve, a single fibre in the trunk of a nerve may carry impressions to or from a much larger extent of surface than is generally supposed. The white substance which surrounds the axis cylinder gradually diminishes, until in the finer ramifications it is impossible to say that a fibre consists of an axis cylinder and white substance, for its general appearance and refractive power are the same in every part, except where the nuclei are situated. Beale considers that the definite characters of the axis cylinder and white substance in the trunks of the nerve may be due to the gradual growth and altered relations of the fibres which occur during the development of the entire organism. In the ultimate ramifications the whole fibre seems to consist of a very transparent and perhaps delicately granular substance, but no tubular membrane, medullary sheath, or axis cylinder can be demonstrated as distinct structures.

Of the Formation of New Fibres.—In connexion with the terminal ramifications, new fibres are being continually developed by the division of the nuclei, and old ones undergo removal. The remains of the latter may, however, be seen in the form of very delicate fibres, in connexion with active nerve fibres. Beale regards much of the so-called connective tissues between the elementary fibres of muscle and in some other situations, as of this nature—as the remains of structures whose period of functional activity was past, and which have been removed, with the exception of this small quantity of insoluble material.

The method of preparing the specimens is then briefly described. Observations were conducted principally on
white mice, which were injected with Prussian blue fluid immediately after death.* Beale concludes his paper, which will be published at length in the 'Philosophical Transactions,' with the following summary of the most important facts elucidated in the inquiry:

"1. That nerve-fibres in muscle and in many other tissues, if not in all, may be traced into, and are directly continuous with, a network formed of oval nuclei and intermediate fibres.

"2. That the organs by which nerves are brought into relations with other textures, and the agents concerned in the development of nerves and the formation of new fibres, are the little oval bodies or nuclei which are present in considerable number in the terminal ramifications of all nerves. A great number of these bodies is associated with exalted nervous action; while, when they are sparingly found, we may infer that the nervous phenomena are only imperfectly manifested.

"3. That every elementary fibre of striped muscle is abundantly supplied with nerves, and that the fibres of some muscles receive a much larger supply than others.

"4. That the nerves lie with the capillaries, external to, but in close contact with the sarcolemma. They often cross the muscular fibre at right angles, so that one nerve-fibre may influence a great number of elementary muscular fibres. There is no evidence of their penetrating into the interior of the fibre."

The paper is illustrated with drawings, most of them magnified 700 diameters.—Brit. & For.Med. Chirur. Review.

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On the Termination of Nerves at their Periphery and in Different Organs. By Jacobowitch.†

This author, from his observations, comes to the following conclusions:

1. That each nerve, of whatever nature, takes origin from

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*The Microscope, in its application to Practical Medicine, p. 63.
†In a Memoir communicated to the Academie des Sciences, May 7th, 1860; see Arch, Generales de Medicine, June, 1860, p. 760.
a nervous cell in the central nervous organs, and terminates at the periphery or in the interior of an organ:

(a) Either in a nerve-cell, and, in the case of nerves of sense, in the nucleus itself;

(b) or in the mass of a cell (dans la masse d'une cellule) in the interior organs in the case of the ganglionic nerves;

(c) or finally, by forming a nervous capillary network where the anatomical differences disappear, the axis cylinders passing the one into the other.

2. That the nervous system, central as well as peripheric, forms a whole which, like the sanguineous system, exists in every part of the organism, penetrating across different parts, and arriving at the ultimate elements without at all becoming lost in a vague or confused manner.

3. That the nervous elements, the cellules as well as the axis cylinders, are always in course of development in the central organs as well as at the periphery.

4. That the part played by the cellules varies, for they either preside over special functions, as in the organs of sense, or subserve the preservation of the organs themselves, as in the case of glandular and nervous organs; the physiological function (properly speaking) of the organs arising from the connexion of these nervous cellules with the central nervous system.

5. That if the anatomical difference disappears in the capillary nervous network, owing to the axis cylinders being confused, the physiological difference remains.—Ibid.

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The transparent border of the tadpole is the best used for observation, and the most recent layer of connective substances between the free margin and the outermost capillary loops is found to be that in which the new vascular formation proceeds. In certain places, blind projections take

place which gradually grow, form an arch, and return to
the original vessel, constituting a new capillary loop. But
these blind terminations are found to pass into fine threads,
and around are seen lying numerous stellate connective-
tissue corpuscles. If the fine threads are in connexion with
the latter, they may be looked upon as processes from
them, and the capillary network as a metamorphosis of
cellular elements; but if such a connexion does not exist,
then the thread-like appendages must be looked upon as
special formations preliminary to the future vessels. The
author addressed himself with proper precautions to ascer-
tain which of these opposite views was the right one, and
came to the conclusion that the vascular outgrowths neither
seek nor avoid the cellular elements. The same animal
was examined several times in the course of two or three
days. On one occasion, these vascular growths were seen
to pass without any other connexion, so as to touch the
other vessels, to widen and acquire nuclei in their walls.
Here and there slight zig-zag curves were seen at their ter-
mination. Some were also seen partly in evident con-
exion with a stellate cell, and in some cases there was un-
doubtedly extension of the cell-processes to the wall of a
capillary vessel; then the cell-bodies were exceedingly dis-
tended, all processes being clearly visible. In the next ob-
servation, the contents appeared to be assimilated, and a
stronger process than the thread-like one was seen. In the
case of two cells so concerned, if the direction of the process
be in the region of a neighboring cell, the same will par-
ticipate in the formation of the vascular wall; but if it be
external to the adjoining cell territories, then the vascular
process takes an apparently isolated course.—*Ibid.*

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*On the Presence of Muscular Fibres in the Varieties of the
Pulmonary Vesicles.* By J. Moleschott.

As is well known, the results of observations concerning
the minute structure of the pulmonary cells have differed
extremely and attracted much attention. In 1845, Mole-

Wochenschrift.*
schott had asserted that their walls contained muscular fibres. Acknowledgment of this was refused by Rossignol, Adriani, Kolliker, Harting, Donders, Reichert, &c.; but Gerlach admitted the fact of their presence, and Moleschott, fortified by this opinion, addressed himself to reverify what he had previously stated. Accordingly, the lungs of the pig, of the ox, and of man were examined, adult animals being found the best. The process is as follows: Portions are to be cut off and macerated in tolerably concentrated acetic acid for some months, then macerated for twenty-four hours in distilled water, and examined, moistened with very dilute acetic acid. In this way the walls of the pulmonary vesicles may be seen to contain smooth nucleated muscular fibres of a somewhat yellowish hue; or they may be seen by inflating and drying the lung, and then making thin sections, which must be left for three or four hours in very dilute acetic acid; and for more complete isolation of the fibres, they should be macerated for half an hour in a weak solution of potash. The first method of preparation best suits the lung of man and of the ox; the second suits best the pig's lung. In the case of the ox lung, fascicles of two, or four, or more muscular fibres in juxtaposition may be seen, but in man, two fibres are but seldom seen united. Moleschott gives minutely the form, situation and chemical reaction of the fibres, as well as of their nuclei, and discriminates between them and other elements, such as fusiform epithelium of small arteries and elastic-tissue cellules, with which they might be confused.—Ibid.

On the Malpighian Corpuscles of the Spleen. By N. Kowalewsky.*

In his observations, the author made use of the spleens of the dog and cat, either in a fresh state, or hardened in an aqueous solution of sesquichloride of iron, as used by Fuhrer and Billroth. According to him, the Malpighian bodies lie in the neighborhood of tolerably large arterial and venous

vessels. They project with their free surface, which is covered with the venous epithelium (the splenic fibres of earlier authors) into the cavities of the cavernous network; the meshes, consisting of areolar tissue, go between the epithelial cells with the Malpighian bodies, and become narrower within them. On each Malpighian corpuscle, beneath the venous epithelium, runs a small arterial vessel which becomes lost on its surface (in a tuft-like manner) in a great number of capillary twigs, many of which allow but a single blood corpuscle to pass. The capillary vessels pass from the surface into the interior of the Malpighian corpuscles, and become larger within, owing to the concurrence of many twigs. After their union in a central vein, this passes out into the surrounding cavernous network to embouchure into a larger vein. Sometimes, but rarely, smaller isolated veins also pass from these bodies in addition to the central vein. The larger central vessels are evidently veins, not only from their emptying into larger veins, but also from their walls being thinner than those of arteries, and from their having the characteristic epithelial cells of splenic veins on their inner surface. The space between the meshes of the cavernous network in the splenic corpuscles is filled with white blood-corpuscles, which only appear to differ from those in the body generally by their being smaller, and having a somewhat clearer outline. This may be from the deficiency of fluid. On ligaturing the splenic artery of a dog, and killing it some days afterwards, it will be found that the central vein of each splenic corpuscle may be seen with the naked eye as a red point on a white ground, and the corpuscles appear enlarged. Moreover, the central vein may be seen very clearly in the spleen in cases wherein some time previous to death the sympathetic nerve addressed to the spleen has been divided.—Ibid.

On the Development of the Follicles of the Ovaries and of the Ovum in the Mammalia. By Otto Spiegelberg.†

The following observations were conducted on the human embryo, as well as on the embryonic and newly-born rabbits, cats, dogs and goats. The author was unable to recognise the

Ammoniæmia. A paper by Professor Jaksch, in the Vierteljahrschrift f. Praktische Heilkunde, 1860, ii. Translated by C. A. Hartmann, M. D., Cleveland, O.

The word ammoniæmia, first used by Prof. Treitz, should be applied to a kind of uræmia arising from putrescent urine containing carbonate of ammonia, being resorbed and introduced into the blood—a condition which must not be confounded with Bright's disease, for it is essentially different from it, although both affections may appear in conjunction with each other. Uræmic manifestations are not developed,
in Bright's disease, before the urineiferous tubes become impervious; but true ammoniæmia is the consequence of urine, in a state of decomposition, being received into the blood; an occurrence which may happen either from a torpid or paralyzed state of the urinary bladder, from dilatation of Malpighi's pyramids and the renal pelvis while the ureters are impervious, or from abscess, tuberculosis and other diseases of the kidneys. The urine has, in this disease, always a pungent, ammoniacal odor; hydrops is never connected with ammoniæmia, but there is a persistent dryness of the mucous membrane of the mouth and fauces; the patient feeling as if every particle of humidity had been dried up by some absorbent. Sometimes this dryness will spread to the Schneidarian membrane, the conjunctiva of the eye, and the ligaments of the larynx, producing hoarseness or aphonia. There is always a strong and well-marked ammoniacal odor in the air expired by the patient; and the same odor is perceived by lifting the bedclothes. A great aversion to meat is never wanting, and violent intermittent chills are of frequent occurrence; while neither convulsive fits, nor croupes, nor diphtheric exudations have been observed during the disease we are treating of, nor have disturbances of the vision been noticed. A constant symptom is a singular grayish discoloration of the face, with progressive emaciation; very acute cases are accompanied by a rapid collapse of the features, and a muscular weakness bordering on paralysis. In such acute cases, vomiting, accompanied or followed by diarrhea, is always present; it seldom, or only for a short time, occurs in the chronic form of the disease. Death is always preceded by a soporous state, lasting from a few hours to several days.

Acute ammoniæmia runs its course in a few (from two to six) days, and terminates, if properly attended to, in recovery; if not, in death. More or less vomiting is usually the first symptom in such cases; often soon followed by febrile manifestations, rapid collapse and sopor.

The chronic form may last weeks, months and years, with temporary improvements and changes for the worse; it can terminate favorably, even after a long time, if recognised and correctly treated; but may induce death in spite of all treatment when its causes cannot be removed. There are always gastric symptoms accompanying chronic ammoniæmia, but they are often mistaken for catarrh of the gastric and intestinal mucous membrane. Symptoms may also occur which simulate typhoid or intermittent fever. On account of these varying symptoms, it is rather difficult to give a good description.
of the disease, and it appears, therefore, better to describe the different forms according to their cause and predominant symptoms, after having mentioned what is common to all the forms, and necessary to the diagnosis.

Most frequently, ammoniæmia is produced by diseases of the urinary bladder — more particularly torpor and paralysis; a morbid condition of the ureters or kidneys but rarely causes it. Torpor of the bladder may develop itself gradually, turning into complete paralysis only after a long time, or it may arise rapidly. Accordingly, the symptoms of ammoniæmia will be either manifest, to a slight degree, but for a long time, so that they are scarcely heeded and easily overlooked; or they appear more suddenly and with great intensity, so as to greatly embarrass both the patient and his physician. The torpor can be induced by some impediment in the urethra or prostate, or by a want of innervation or change in its texture (hypertrophy, catarrh, inflammation, ulceration, carcinoma.) In consequence of the paralysis, some ulcerative or diphtheric process, or gangrene may be produced by the stagnant and decomposing urine in the bladder. The progress of the disease does not, however, depend entirely on pathological changes in that organ, but also on the action of the organs serving to the excretion of ammonia; the lungs, skin, kidneys and intestinal tract; further, in the age and constitution of the patient, as well as on external influences. A sojourn in the country, for instance, proves very beneficial in chronic ammoniæmia.

For a correct diagnosis, the following points must be considered:

1. The degree of torpor or paralysis of the bladder, and the cause of the same. In the chronic form, sensible and motory paralysis are generally developed at the same time. Although there is a large quantity of urine accumulated, distending the bladder above the symphysis, and not unfrequently to the navel, the patient experiences no pain, or some dull, painful sensation, and no inclination to void his urine, unless the bladder be extended beyond the already habitual measure; even then, only this surplus of the accumulation is evacuated; the stagnant quantity remains unchanged, or increases even with the torpor. Acute paralysis commonly produces, in the beginning, violent tenesmus and pain, which decrease when the paralysis has reached a certain height, and disappears with the more developed distension of the bladder.

2. With the torpor and paralysis, and usually before they have been carried to a very great extent, commences the de-
composition of the stagnant urine, and its resorption. It is
evident that the decomposition must be hastened by the pre-
sence, in the bladder, of catarrhous secretions, blood, or pro-
ducts of exsudation. At this stage of the disease, the urine,
be it evacuated spontaneously or artificially, presents a pun-
gent, often distinctly ammoniacal odor, and a mucous or pur-
lent sediment, sometimes mixed with blood. Wherever an
ammoniacal odor is perceivable in recently-voided urine, we
may pretty certainly diagnosticate ammoniæmia.
3. The carbonate of ammonia is eliminated through the
lungs and skin soon after its reception into the blood; this is
proved by the distinct ammoniacal odor of the expired air,
and other exhalations. Where this odor is not very distinct,
the expired air may be tested with humid litmus-paper, or
with a stick of glass, previously immersed in muriatic acid.
The chemical analysis of the blood would, undoubtedly, fur-
nish the best basis for a correct diagnosis; but the patients
afflicted with ammoniæmia are always in a state which does
not admit of the depletion of blood.
4. Gastric symptoms, as already described, are always pre-
sent. The evacuations in acute cases do not, at least not in
the first time, present a distinct ammoniacal odor; but this is
always well marked, when emesis and catharsis appear with
an aggravation of the disease. In chronic ammoniæmia there
may be neither vomiting nor diarrhœa, but rather a tendency
to constipation; the appetite is, however, with very rare ex-
ceptions, disturbed, and a marked aversion to meat present,
such as is not observed in any other disease, even not except-
ing cancer of the stomach. Other gastric symptoms, for in-
stance, a sensation of dull pressure or burning pain in the
stomach, accumulation of gases, bad taste, furred tongue, etc.,
are not characteristic of ammoniæmia. But the dry condition
of the mouth and fauces is important, and may often lead to
the diagnosis when other prominent symptoms are wanting.
The discoloration of the face, the emaciation and collapse of
the features, finally the continuous depression of spirits, which
is frequently explained as hypochondriacal, will serve to
confirm the diagnosis. The effect on the mind of the patient
may grow strong enough to induce the committing of suicide.
In the treatment, strictures of the urethra, which are fre-
quently present, must be removed, and the urine regularly
evacuated by means of the catheter. Milk diet, residence in
the country, generous exercise in the fresh air, are often suf-
ficient, in addition to these means, to restore the patient.
During recovery, a vigorous diet is required, which may be
combined with the use of some acidulous or ferruginated mineral water.

Strictures of the urethra have often been overlooked; I think they alone have given rise to the haemorrhoids of the bladder, that we used to hear so much about in times not long gone. Of equal importance with the strictures are diseases of the prostate in connection with ammoniæmia. Amongst them are, atrophy in consequence of preceding inflammation, general or partial hypertrophy and development of an accessory tumor, pressing on the urethra or the neck of the bladder. They impede, more or less, the evacuation of the urine, cause torpor of the bladder, hypertrophy of its walls, diseases of the ureters and kidneys, and consequently ammoniæmia, which sometimes appears soon, but often only after a long time. The difficulties of a successful surgical treatment, in such cases, render the prognosis rather unfavorable. Hypertrophy of the prostate will often yield to a strong ointment of iodide of potassium applied to the perineum, and combined with the internal use of acidulated waters. With the cautious use of the catheter, and a decoction of secale cornutum, exhibited internally, the already developed torpor of the bladder, and other symptoms, even of chronic ammoniæmia, may be relieved.

A long practiced intentional retention of urine is apt to end in the highest development of ammoniæmia, without any difficulty in, or around the urethra. The greater the change in the textures, following this cause, the smaller is the prospect of recovery.

That stones in the bladder result fatally through ammoniæmia, has been long known to surgeons; the disease I designate by this name is well described, with all its symptoms in their books. It certainly plays a very important part in its connection with urinary concretions. Without an operation death is certain to follow, while success with a surgical proceeding depends completely upon the presence and extent of ammoniæmia. Under the influence of blood poisoned by ammonia, diphtheritic processes and exulcerations in the artificial wounds are unavoidable.

Cancer of the bladder is always, in the end, accompanied by ammoniæmia. Medullary carcinoma of the inner surface of the bladder induces hemorrhage, and thereby decomposition of the urine.

Mechanical obstruction of the ureters, or destructive dis-
cases of the kidneys, lead either to ammoniæmia or ure-
mia. A painful anuria, sometimes relieved by copious dis-
charges of bloody urine, pain and swelling in one or both
sides of the abdomen indicate the primitive cause. If there
is a concretion, the ureter becomes dilated above and around
it, the walls are pushed outward, and the room thus made
allows the urine to pass until the stone, pressed downwards
is again wedged in. Even large concretions may, in this
way, reach the bladder, and as long as the other kidney is
not disturbed in its functions, there is not much danger.
A continued stagnation of the urine in the pelvis of the
kidney may, however, result in decomposition and resorp-
tion; that is, ammoniæmia. Of course, death may ensue
without that—for instance, as a consequence of anuria and
uremia in obliteration of the ureter.
Tuberculosis of the kidneys is also one of the exciting
causes of ammoniæmia. How far abscesses of the same
organs may have the same effect, cannot be at present as-
certained, because they were complicated with diseases of
the bladder, wherever observed with the disease in ques-
tion. The kidneys may be destroyed by extensive ulceration,
ending in death, without one symptom of ammoniæ-
mia. Cancer of the kidneys is also not likely to produce
it.
Another form of ammoniæmia, distinguished by a very
rapid course, arises from the decomposed urine penetrating
into normal tissues. This may happen, for instance, into
the cellular tissue of the peritoneum, by ulcerative rupture
of the urethra, or into the tissue of the abdominal walls
after puncture of the bladder, when the urine was in a state
of decomposition in consequence of previous disease.
There are violent pains, frequent chills, vomiting and fre-
quent diarrhea, ending in sopor and death.
The senile vesical torpor develops itself, without any
demonstrable morbid affection of the bladder or urethra, in
persons about, or beyond the age of fifty. The circums-
stances influencing its appearance and development, are not
always easily determined. It is only certain that this tor-
por arises either from insufficient innervation or from retro-
gressive metamorphosis and fatty degeneration of the fibres
of the detrusor muscle. Patients afflicted with this trouble
cannot pass their urine except with strong abdominal pres-
sure, and then only in a short and interrupted stream. A
complete evacuation of the bladder, if it can be effected at
all, requires a considerable time. With the torpor advanced to a moderate degree, there remains always a certain quantity of urine in the bladder, although the patient thinks it completely empty. Upon strong and continued pressure he is astonished to see the flow commence again. This stagnant quantity of urine augments in proportion to the increasing torpor, and frequently forms the basis of acute chronic vesical catarrh. Under such circumstances, a slight cold, or an intentional repression of urine, are often sufficient to create complete paralysis of the bladder.

This paralysis occasionally occurs as a symptom in other diseases, for instance, typhoid fever. Here it happens especially, when the conscience is disturbed, the sensibility suppressed and the muscles weakened to nearly paralysis; if overlooked, an extensive stagnation of urine follows, commonly inducing vomiting in spite of the unconsciousness. This emesis is only removed by evacuation of the bladder, by means of the catheter. Ammoniemia may also arise during typhoid fever, in consequence of other morbid processes dependant upon the fever, for instance, catarrh of the mucous membrane of the bladder, or croupy exudation on its internal surface. In some cases, however, these conditions are present, without exciting any symptom of ammoniemia.

Next to typhoid fever, acute diseases of the brain such as extensive meningitis and cerebritis, induce not unfrequently paralysis of the bladder. A careful examination here always prevents the development of ammoniemia. But this cannot so easily be accomplished, where the paralysis follows diseases of the spinal marrow, and appears in association with paralysis of the lower extremities.

In vesical paralysis of a peripheric origin, combined with cutaneous adynia, from suspended innervation of the detrusor muscle, I have never observed any symptom of ammoniemia, but this disease occasionally appears under a very obstinate form in conjunction with dysentery. Then secale comutum is the remedy.

In all these remarks there is nothing particularly new: I have only collected and arranged under a system what was well known to Boerhaave, Morgagni, Van Swieten, Stoll, Lentin, P. Frank, Sömmering, and others. That they explained the symptoms they observed as urinary metastases, don’t matter.

Although it was not my purpose to give a complete and
exhausting delineation of the disease, I will add a few conclusions:

1. Uraemia and ammonæmia are different conditions, producing, in many respects, different symptoms.

2. Both appellations point merely to those constituents of urine which mix with the blood, being in the one case urea, in the other carbonate of ammonia. There may be in the blood, besides them, some other elements of urine.

3. Ammonæmia has been mentioned and described, by former physicians, under the names: uroplania, urodilyasis ischuria, paralysis of the bladder, &c.

4. This disease may result either in direct resorption of decomposed urine from the urinary organs, or in absorption of urea changed to carbonate of ammonia, in the intestinal canal.

5. The excretion of the morbid matter thus accumulating in the blood, is effected by exhalation through the lungs, the skin, and the mucous membrane of the stomach and intestines.—Cincinnati Lancet & Observer.

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**On Ringworm.** By Jonathan Hutchinson, of London.

1. True Ringworm, or Tinea tonsurans may be defined as a disease affecting either the scalp or the general surface, in which circular patches are formed, on which the hairs break off short, and a slight, branny desquamation is seen, both hairs and epidermic scales exhibiting under the microscope the sporules and thalli of a fungus.

2. Ringworm in the scalp is rarely seen, excepting in children; but on the general surface is not very unfrequent in young adults.

3. It is contagious, and spreads by contagion only.

4. It is not attended by any peculiar form of dyscrasia, but on the contrary, often attacks children in perfect health.

5. It is much more easily curable on the general surface than on the scalp, owing to the circumstances, that in the latter situation the fungus has obtained access to the follicles of the hairs.

7. A purely local treatment, if efficiently pursued, is always rapidly successful.
8. Epilation, and the use of one or other of the known parasiticides, are the measures of treatment required.
9. There is no real difference between ringworm on the scalp and ringworm on the general surface.
10. Ringworm, although not unfrequently causing minute vesicles, has no true analogy with herpes. — *Medical and Sur. Gazette.*

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*Galvano Cautery in Cataract.* (Academy of Sciences.)

M. Tavignot read a short paper on the application of cauterization by galvanism to the treatment of cataract. The apparatus used by this oculist is Grenet's pedal battery with two appropriate conductors. These consist in two exactly similar ivory rods, terminated at one extremity by a prolongation of the central wire to which is attached the conductor of the battery, and at the other end by a screw to which is adapted a cataract needle about 8 lines in length.

1. The operator holding a conductor in each hand perforates the cornea in two different, but not opposite spots; one puncture corresponds to the transversal, the other to the vertical diameter of the eye. The external puncture is performed first, the inferior perforation immediately after.

2. Pressure of the pedal of the battery with the foot, at once causes each of the needles, when in contact with the other, to glow; by alternately parting and bringing together the points, the anterior capsule may be destroyed with the utmost ease, and the lens itself reduced to a pulp which absorption will soon cause to disappear.

3. The foot being removed from the pedal, electric communication is instantaneously broken off, and the needles, having cooled, are rapidly extracted from the anterior chamber.

The operation is very rapid, moderately painful, and possesses, on account of the perfect immobility of the eye-ball, a remarkable degree of precision. The transparency of the cornea moreover allows the operator to follow distinctly each movement of the instruments, and to measure and regulate their action. — *Maryland & Virginia Med. Jour.*
"Army Medical Boards, for the examination of Surgeons and Assistant Surgeons, have been ordered to convene at Norfolk, Richmond, Yorktown and Manassas.

Candidates for the appointments of Surgeons and Assistant Surgeons will be examined by these Boards, on presenting an invitation to appear before them from the Secretary of War, which may be obtained by forwarding their application, with testimonials of moral character, to the War Department.

Examining Boards will be held at other points further South at a convenient time."

The Board of Medical Examiners, appointed by the Governor of Ohio to examine candidates for the Medical Staff of the army, have adopted the rule that no person shall be appointed Surgeon who has not a respectable diploma, and who has not practiced medicine ten years. A diploma and five years' practice are required for Assistant Surgeons. The examination to be made by written questions and answers.

The prevalent opinion that Army Surgeons have more to do with surgical than other affections is a grievous error, as the history of all campaigns abundantly testifies. Indeed, the danger of being wounded is the least that a soldier should dread. A writer of distinction declares that in an army of one hundred thousand men, there will be ten thousand taken sick in the course of the three first months' service, exclusive of wounds! And the proportion will be still greater in the event of an epidemic! How important it is, therefore, that those who have to treat them should be men of experience as well as of theoretical acquirements. The term surgeon does not imply simply an operator; but one who is fully competent to treat diseases, and to operate when this may be necessary. If reports be true, our soldiers have suffered dreadfully from the inexperience, as well as ignorance, of their medical advisers, and the evils call loudly for the adoption of some plan by which better appointments may be secured. That adopted in Ohio appears to be very good.
MEDICAL COLLEGE OF TEXAS.

An institution with the above title has been organized in Houston with the following Faculty:

Ashbel Smith, M. D., Prof. of Surgery; N. N. Allen, M. D., Prof. of Anatomy; G. A. Feris, M. D., Prof. of Theory and Practice of Medicine; W. H. Gantt, M. D., Prof. of Obstetrics; W. S. Rodgers, M. D., Prof. of Diseases of Women and Children; J. F. Matchet, M. D., Prof. of Mat. Med. and Therapeutics; W. P. Riddell, M. D., Prof. of Chemistry and Mod. Jurisprudence; Thos. E. Brooks, M. D., Prof. of Physiology and Pathology; B. P. January, M. D., Demonstrator of Anatomy.

Opium and Quinine in Puerperal Fever.—Dr. B. S. Woodworth, of Indiana, says: (Cincinnati Lancet and Obs.)

"I have now treated about twenty-five sporadic cases with quinine and opium without any deaths. I am well aware that the number is not sufficient to show the superiority of this treatment over any other, and in an epidemic the result might be different; still I feel so well satisfied with these results that I shall still continue this treatment, and I think it well worthy a further trial on a more extensive scale.

Dr. W. administers, on the appearance of the disease, a powder consisting of two grains of pulverised opium and four grains sulph. quinine every three hours until the subsidence of symptoms.

Prescription for Whooping Cough.—By Dr. Benson:

Ext. Belladonna, - ii. grains.
Tinct. Opii Camph., - iii. drachms.
Aqua Font. - iij. ounces.

Misc. S. One teaspoonful four times a day.—Louisville Journal.

Chlorate of Potassa in Gonorrhoea.—Dr. Irwin, (Med. & Surg. Reporter) thus speaks of this remedy:

"I have found it to be such an admirable remedy that I seldom resort to any other in the treatment of urethral inflammation. My method of using it is as follows: one drachm of the salt dissolved in eight ounces of water, of which an injection is given every hour for twelve hours, at the end of which time, the discharge will have become changed and diminished, allowing the remedy to be gradually discontinued until the second or third day, when the disease will be generally found to have ceased."
Gonorrhea.—In a paper “on the successful treatment of Gonorrhæa and Gleet without copaiba,” by T. W. Cooke; surgeon to the Royal Free Hospital, &c., London,” the author, in the first or inflammatory stage, uses antiphlogistic and antacid remedies, avoiding saline purgatives, and applying cold lotions. In the second stage the treatment (and here comes in what the author lays claim to as the great modern improvement,) he trusts to injections of chloride of zinc, $\frac{1}{3}$ gr. to grs. iii. ad ounce, with generous diet. Under those means he informs us that few are not cured within a week, and he has only encountered two cases out attacks of some thousands in which the remedies had failed.

**Asarum Europaeum a Remedy for Drunkards.**—Dr. Smirnoff states that he has become convinced, from repeated trials, that the *asarum europaeum* well deserves the reputation it has obtained in Russia of being an excellent remedy for the effects of drinking. The influence of a continuous abuse of alcoholic drinks is first exerted locally, but afterwards dyspepsia is produced; and the nutrition and functions of the entire economy, especially of the central portions of the nervous system, becoming interfered with, the blood itself being loaded with an injurious foreign material, the *dyscrasia potat rum* is at last completely established. The *asarum* fulfills various indications, acting beneficially on the alimentary canal in those cases in which the digestive powers are so much at fault. Its aromatic principle confers upon it a stomachic power, and regulates the condition of the intestinal discharges, producing vomiting and purging when given in large doses. Its most beneficial action, however, is manifested on the defective appetite, and by its counteraacting the invincible longing for alcohol. The horrible sensations with which the drinker awakes in the morning, and which compel him to seek temporary and delusive relief from renewed libations, are much blunted and mitigated by means of a glass of strong infusion of asarum and some other nerve—e. g. valerian. Its immediate effect is often to produce vomiting, and sometimes purging; but the painful sensations at the epigastrium undergo relief, and the appetite becomes invigorated. Persons who have been long habituated to alcoholic drinks cannot, however, have these suddenly suppressed with impunity; and in such cases the author gives the asarum in brandy, applying at the same time a blister or an issue to the pit of the stomach. By this means the normal activity of the stomach becomes excited and the longing for alcohol diminished. The author, however, cannot agree with those who would still allow a small quantity of spirits to habitual drinkers, even when the morbid desire for it has become appeased. The continuous use of a decoction of asarum, even when it does not succeed in extinguishing the desire for alcohol, always supports the powers of the patient; and it is remarkable in some cases, in which the individuals have been long accustomed to periodical intervals of drunkenness, ending in delirium tremens, how much longer those intervals will become, and
how much less likely delirium tremens is to recur. The patients themselves are sometimes surprised at the comparative impunity with which they can continue their drinking. The author prescribes three or four glasses a day of an infusion made with three ounces of arsenum root, one ounce of valerian root, and half an ounce of orange-peel, but he does not state the quantity of water employed. In cases of drunkenness, another formula is composed of decoction of arsenum (made by boiling from half an ounce to one ounce of the root), six ounces; tincture of valerian, two to three drachms; Sydenham's laudanum, gtt. xij; syrup of orange-peel, half an ounce. A tablespoonful of this is taken every two hours. He finds from two to five grains of bismuth, taken four times a day, a valuable adjunct. He has also found the following popular Russian remedy of service in cases of drunkenness:—R. Ammon. carb. half an ounce; aceti vini, lbij; oxyymel seill. half an ounce. Two table spoonfuls every two hours.—Med. Zeit. Russlands and Pharmaceutical Journal.

"Mortality from Excision of the Knee Joint.—In a memoir read before the New York Academy of Medicine, Dr. Kraekowitz discusses more particularly the mortality attending excision of the knee-joint, and the objections which have been urged against the operation. He has collected, from various sources, two hundred and thirty-three cases, which give a result of sixty-three deaths and twenty subsequent amputations; the rate of mortality being twenty-seven in a hundred; or, including the subsequent amputations, the ratio of failures being thirty-six in a hundred. Of the two hundred and thirty-three cases, thirteen occurred in the practice of American surgeons. Four of the thirteen patients died, and two were under treatment at the time of the report, with every prospect of recovering a good limb."—American Medical Times.

Excision of the Hip-Joint.—In the statistics of resection of the hip joint collected by Mr. P. C. Price, mention is made of the operation having been done 59 times. Of that number 33 recovered with good and useful limbs and greatly benefitted constitutions; 11 were partially successful—i.e., the patients lived for periods varying from three months to two years, and then died, more from other causes than from a recurrence of the disease which demanded interference; 14 deaths resulted directly from the operation, and in 1 the result was unknown. A fair consideration of the question would show the mortality from the operation to be only 14 out of the 59 cases, or about 23 per cent. Professor Pirrie states in his "Principles and Practice of Surgery," that he was extremely anxious to obtain accurate statistics of this operation, but failed to procure them from some parts of the world where it had been several times performed. So far as he has been able to learn, the operation had been adopted in 70 cases, and death has resulted from it in 25. Sayre, of New York, gives an analysis of 30 cases, of which 20 recovered and 10 died, 4 of the latter within one week after the operation.—Lancet.
abor Obstructed by Hydrocephalus.—Professor Simpson advises that when labor is obstructed by a hydrocephalic head, we should not perforate the cranium and to a certainty destroy the child, but should tap it with the trocar; thus performing in utero the operation most calculated to be of service to it in mundo. Again, when it is a footing case, and the hydrocephalic head cannot be born, he advises, instead of using great traction or endeavoring in this awkward situation to puncture with trocar, to cut across the spine, when the fluid will immediately find exit. Dropsy may occur in the other cavities of the fetus; especially pleuritic and peritoneal effusions.—Amer. Med. Times.

Illumination.—It appears that the difference in the illuminating power of the same gas may vary twenty per cent. when tested at the highest and at the lowest points of the barometrical range in this country, from the effect of the rarefaction of the air alone, without taking into consideration the different densities of the gas at the opposite degree of pressure.—British Medical Journal.

On Saccharate of Colchicum.—That Colchicum is so frequently found inefficient in cases of articular rheumatism and gout, Dr. Joyeux regards as due mostly to the use of an improper preparation. He considers colchicum “as certain a specific in gout and acute articular rheumatism, as iodine in goitre, and iron in chlorosis.” The best and most uniform preparations are the fresh juice rubbed up in the proportion of one to five with sugar, and dried in vacuo; or 2, an extract obtained from the fresh juice by evaporation in vacuo. The former preparation he prefers for internal use, giving, as an average dose, four grammes (one drachm) daily, in ten divided doses, while he employs the extract to rub on the painful parts. Giving such divided doses prevents all irritation of the bowels and diarrhœa, which so many consider as inseparable from the effects of the remedy. Attacks of gout so treated, yield, at the latest, in two or three days; acute articular rheumatism after fourteen to twenty days. In cases of subacute rheumatism, the remedy is not so efficient, though it usually gives considerable relief.—Gaz. des Hospitaux. Maryland & Virginia Med. Jour.

Arsenic in Apoplectic Congestion.—M. Lamare Piequot, physician to the Honfleur Hospital, as the result of ten years’ observation and trial upon between forty and fifty cases, including his own among them, strongly recommends the prolonged use of arsenic as an effectual means of subduing congestion likely to give rise to apoplexy. In very urgent cases in which hemorrhage seems imminent, he precedes its employment by a moderate venesection, but this is quite exceptional. In proportion to the severity and menacing danger of the case, the dose requires to be larger; and although, even after a month, benefit may already result, to be of permanent benefit it will have to be continued for several months.
The more urgent the case, the more tolerant does the system become of the arsenic. The author, regarding apoplexy as consisting essentially in an extensive increase of globules of the blood, employs arsenic as a powerful agent for decreasing these, as well as the plasticity of the blood. It becomes, of course, necessary to assure oneself in a given case of the richness of the blood, for to employ arsenic when the blood is impoverished, would be to do mischief. The author has generally found the dose of one-fifteenth to one-sixth of a grain per diem sufficient.—*Bull. de Therap.*, tome lvii. pp. 193–252. *Ibid*.

On the Efficacy of Digitalis and Quinia in the Treatment of Hemicrania.—Dr. Debout, who has very severely suffered for many years from attacks of hemicrania, testifies to the efficacy of the combined use of sulphate of quinia and powder of digitalis in the treatment of this complaint. The proportions employed are three grammes (about three-fourths of a drachm) of sulphate of quinia, and one and a half gramme of powdered digitalis, made into thirty pills, of which one is to be taken every night at bedtime for at least three months. From the beneficial effects produced on himself, Dr. Debout prescribed the same treatment for several patients, and the results in many cases were equally satisfactory.—*Chemical Gazette*. *Ibid*.

Treatment of Old Fissures of the Anus.—M. Gosselin observes that most of these fissures may be easily cured, whatever be the means adopted. Still he regards forced dilatation as the most expeditious and the most convenient for the patient, while incision best guards against relapse. In many cases he has combined with advantage these two modes. First dilating, and then incising the fissure, which is then easily visible throughout its whole extent. He has observed the fissure and its pains persisting after forced dilatation oftener in women than in men. But besides these fissures thus easily cured, there are others which resist various modes of treatment successively employed, or, when cured, are succeeded by new ones, just as painful as the others. After, in such cases, trying the various means one after another, M. Gosselin resorts to daily dilatation, which he has found attended with good results. The index-finger is passed into the anus daily until the pains after defecation have disappeared or notably diminished.—*Gaz. des. Hop.*, No. 91. *Ibid*.

Honey and Glycerine in Surgery.—Dr. C. F. Moore, Medical Superintendent of Middleton Hospital and Infirmary, says (Dub. Med. Press, Dec. 26, 1860) that several months ago he commenced the use of glycerine to bedsores in bad fever cases, and finding it to excel his expectations, he used it in all cases where a healing dressing was required. It occurred to him, some three or four months since, that honey might
answer as well; and as a very great difference in price exists, that an important saving might thereby be effected by using an equally efficient agent, "as some of the properties of honey previously known to me led me to think it to be. I have now used it in several cases in hospital and private practice, as in ulcers left by scalds, in a wound after the removal of a large tumor presenting some malignant characters from the fascia of the leg in a woman of 70 years of age, in a case in which dead bone was being discharged after injuries to a man's leg, bedsore from fractured thigh, etc. To the readers of your valuable journal I will only now state that it seems especially useful in cases where a tendency is manifest in a wound or ulcer to throw up unhealthy granulations instead of healing kindly. It seems also to protect the skin adjacent by its own conservative agency, so to speak, as well as by correcting the styptic properties of the discharges. In evidence of this latter property, I may state that, in cases which I have treated with it, after having used the more ordinary dressings previously, the honey most unquestionably removed all unpleasant smell from the discharges, itself no small gain. I must observe, however, that honey, when first applied especially, causes some considerable degree of pain, indicating its stimulating effects. In one case I used a wash of tinct. opii and water on first applying the honey dressing, purred over the fine linen which had been applied, saturated with fine clear pure honey. In all the cases, however, the patients themselves soon got reconciled to the pain, considering it indicative of benefit being received from the dressing. It is well, however, to bear this point in mind, especially in cases where a very large surface has to be dealt with, or a patient is very susceptible of or sensitive to pain. In such cases, glycerine, which possesses more soothing surface, might be preferable. In conclusion, I would insist on the necessity of using pure clear honey, quite free from any of the numerous articles said to be used in its adulteration."—Am. Jour. of Med. Sciences.

**Digital Compression in Aneurism.**—M, Mirault, of Angers, related to the Paris Surgical Society the following two cases of aneurism, in which digital compression had been successfully employed:

1. A man, aged 23, exhibited an aneurismal tumor at the bend of the arm, some time after being bled. When admitted into the hospital this tumor was about the size of half an egg. Digital compression was made on the brachial artery, at about the middle of its course, from 11 o'clock, A. M. to 9 P. M., and next day it was resumed from 6 A. M. to 9 P. M. The tumor became more firm, and the compression was employed again at 6 A. M. of the third day; at 8 the pulsations had become indistinct, and at 12 they had completely disappeared. Thirty-one hours had been occupied in making compression.

2. A child, aged 9, having had the trunk of the temporal artery opened, just anterior to the ear, an aneurism about the size of a nut appeared eight or ten days after the accident. Direct digital compression
was employed for five hours on the first day; for ten and a half hours on the second; for eleven hours on the third; for nine and a half hours on the fourth; for eleven hours on the fifth; for ten hours on the sixth; for ten and a half hours on the seventh; and for nine and a half hours on the eighth—making a total of eighty-five hours, at the end of which time the aneurism had become cured.—*Med. Times & Gaz.* Jan. 19, 1861, from *L’Union Med.* No. 1, 1861.

A Substitute for the Catheter.—Sir—Some two years ago, I had under my care a man who had received a fracture of the spine. Inability to micturate was one of the symptoms, and I expected that I should in this case, as I had witnessed in some others, have to use the catheter very frequently. It occurred to me, however, that by pressing over the region of the bladder, the urine might be discharged, and so it proved; for when any fluid collected in the bladder the patient was always relieved by gentle, equable pressure. He never required the use of the catheter, and, though he survived his accident about three months, no urine ever escaped except under pressure.

Your obedient servant,

J. Wearne, M. R. C. S.

Helston, Cornwall, Nov. 1860.

On Iodism.—In a recent discussion on iodism at the Académie Impériale de Médecine, M. Velpeau made the following observations: He had treated about fifteen thousand persons with iodine either externally or internally, but he had never seen anything exactly resembling constitutional iodism. He had observed irritation of the digestive organs, pains in the stomach, dyspepsia, roughness of the throat, irritation of the mucous membrane of the mouth and nose, ptyalism, &c., but he had never seen cases of rapid emaciation, with atrophy of the breasts and testicles, and bulimia, or in short, with symptoms of poisoning. M. Velpeau suggests that the difference of the results observed in Paris and Geneva may be due to the difference in the doses employed, or the varying qualities of the iodized preparations; but whatever may be the reasons of the discrepancy, he has never seen in Paris any cases of what M. Rilliet has called *constitutional iodism*.—*L’Union Medicale*, March 22d, 1860.