In response to a note of inquiry, my friend, Dr. Eugene Foster, member of the American Public Health Association, and President of the Georgia State Medical Association, kindly furnishes me with the following communication:

AUGUSTA, GA., Nov. 23, 1883.

DEAR DOCTOR:—In reply to your letter of the 22nd, asking my experience in treating strictures of the urethra by your multiple wedge principle, I beg to submit the following answer: I have treated sixteen cases of close organic stricture by your method (several of them of years' standing), and every one of them successful. Your plan of treatment has, in my hands, proven itself all that you claim for it. I am amazed that surgeons generally have not tested its merits, and long since given you credit for your valuable suggestions.

Very truly yours,

EUGENE FOSTER.

(Signed)
To Dr. Jno. S. Coleman.

CONCLUSIONS.

In the foregoing paper the following are the principal precepts that have been advocated.

First: That in the treatment of organic strictures of the urethra, urethrotomy whether internal or external, and also the method by division, are attended with serious risk to the patient on account of hæmorrhage, pyæmia and uremia.

Second: That strictures treated by these methods are no less liable to recurrence than those treated by gradual dilatation. Indeed, unless followed by persistent dilatation they are subject to early relapse.

Third: That gradual dilatation of urethral strictures, though of slower progress in the beginning, is almost entirely free from danger, more permanent in its results, and upon the whole the shortest and most perfect method of cure.

Fourth: That in the treatment of tight urethral strictures the *Multiple Wedge Principle* devised by the writer, viz.: That of introducing side by side and one at a time successively a number of filiform bougies, whether applied to the interrupted, or the continuous method, offers to the surgeon the easiest, safest and best method for effecting the solution, or *absorption* of the inodular tissue, and for removing the obstruction.

NOTE.

In the discussion of the above paper, as reported by the *Medical Record* of New York, "Dr. Sayre thought it somewhat strange that the author of this paper claimed to be the originator of the Multiple Wedge System, since, to his personal knowledge, this system had been in use in Bellevue Hospital, New York, for at least twenty years."—To me, it is passing strange that my friend, Prof. J. W. S. Gouley, a member of the staff of Bellevue, and, the author of one of the best monographs on "Diseases of the Urinary Organs," should not have appreciated a system which, according to Dr. Sayre, had then been in use *in the hospital* for eleven years. That he did not do so is manifest from the following language in his letter to me of date Dec. 9th, 1874: "I have

myself wedged in two and sometimes three of these bougies side by side, and have thus rendered otherwise impassible strictures amenable to ordinary dilatation. Three years ago, I had some probe-pointed whalebone bougies made very small (capillary) for the first two inches from the vesical end and thence increasing gradually to Nos. $\frac{1}{2}$, 1, 2, 3 and 4, so that I could accomplish more dilatation with a single bougie at one sitting than I could with two or three ordinary whalebone capillary bougies introduced side by side." (Italics mine.) I claim to have made the Multiple Wedge Principle a system for the treatment of tight, close, otherwise impassible strictures; to have given it a name, and, to have been the first to make it known to the profession.

Whewell says: "Names record discoveries."

SPECIFIC TREATMENT OF DIPHTHERIA AND CROUP.

BY GEO. A. LYNN, M.D., MONONGAHELA CITY, PA.

Read to Section on Practice of Medicine and Materia Medica of American Medical Association, May, 1884.

The efforts of many earnest workers in the medical profession, have of late years been directed toward investigating and seeking to isolate the causes of disease. And the tendency is to ascribe the cause of a class of diseases to the presence in the human body of a contagium, spore, or morbid germ, producing zymosis, with more or less intense disturbance of general nutrition, with or without local lesion of the solids.

As yet none of these have been satisfactorily determined. And while this work is necessary to the advancement of medical science, yet it would be of little avail to the human family to isolate, classify, and describe a morbid element, so long as we have no antidote for it, or means of protecting the human body from its ravages.

Prof. William Pepper, in his address on medicine, delivered before this association at Richmond in 1881, said: "It is clear that if we possessed a perfect antidote for the poison of a zymotic disease, our medicinal treatment would resolve itself into the administration of that antidote in suitable doses and forms, with due regard to the state of the digestive organs.

It seems yet presumptuous to hope that we shall ever possess such antidotes for the acute infectious diseases as we have for syphilis and malaria. But I cannot omit a passing reference to the remarkable results that have recently been observed to follow the use of large doses of bichloride of mercury in diphtheria."

After stating that the subject was brought to his notice, by a paper I read before the Washington County Medical Society, and published in the Transactions of the State Medical Society of Pennsylvania for the year 1879,—he gave a notable example of the efficacy of the treatment in a desperate case of diphtheria under his own observation, in which the result was highly satisfactory. And added, "The

extraordinary tolerance of such large doses of bichloride of mercury, and the rapid and progressive improvement from so desperate a state, makes me regard this as one of the most remarkable cases I have ever witnessed."

The object of this paper is to show the proper method of using the bichloride of mercury as a specific in the treatment of diphtheria. The mere use of a remedy does not necessarily constitute its use as a specific. For instance if one should attempt to control a malarial fever with $\frac{1}{4}$ grain doses of sulph. of quinia given two or three times a day it would most signally fail, and he might say that he had tried the remedy and it had failed in his hands.

So in using the bichloride of mercury as a specific in diphtheria, the dose, time of giving, and stage of the disease, are as important as the remedy itself.

Without entering into a discussion of the pathology of the disease, I may point out what seems to have escaped the notice of most writers on diphtheria, that there are two distinct stages in the disease; one the disease proper which lasts from three to five days, and terminates in the full development of the membrane and the generation in it of a deadly poison, the other, the effects of the absorption of this poison, which is generated in the membrane ONLY, and not in the blood, but when absorbed in sufficient quantity destroys the red corpuscles of the blood. Patients do not die in the first stage of the disease (except in the croupous form) but only from the effects of the poison absorbed from the membrane.

Taking this view of the case to use the bichloride as a specific:

1st. It must be given in the first stage of the disease.

2d. It must be given in large doses, frequently repeated.

The effect of large doses of this remedy, given in the early stage of the disease, is to reduce the temperature, relieve pain in the head, back, and limbs, unlock the secretions, lessen the soreness in the throat, in time, to relieve the nausea and vomiting, restore the appetite; and most of all, it prevents the generation of the poison in the membrane; in mild cases it checks the formation of membrane at once, and causes what is formed to speedily disappear.

Now, as I claim that the greatest virtue of this medicine consists in its preventing the generation of the poison in the membrane, the absolute necessity of giving it early in the disease becomes evident.

It will take physicians a long time to find out the value of this remedy, if they persist in only trying it after everything else has failed, and their patient is in a moribund condition; yet even in such cases, I have known it to prove successful. Prof. Pepper's case, quoted above, if not utterly hopeless, was at least one that very rarely recovers under ordinary treatment.

In using a medicine of so great power, the manner of exhibiting is of some importance. It is best given in solution, so that when excessive nausea is present, the dose may be gradually lessened and the time shortened, giving the stomach a chance to dispose of it, and at the same time keeping up full

treatment. By ordering the druggist to make a solution of the bichloride in alcohol of the strength of gr. j to f. 5j, and dispensing from this, the weighing of a grain and fractional parts of a grain is avoided. Next in importance is a pleasant vehicle in which to give it; this we have in elix. bismuth and pepsin, or elix. of pepsin. Pepsin itself has a good influence in the disease, and is said to have the property of softening the membrane.

In a mild case of diphtheria, I give a child 3 years old $\frac{1}{16}$ of a grain, or in a malignant case $\frac{1}{12}$ of a grain of bichloride of mercury in a teaspoonful of elix. of bismuth and pepsin every 3 hours. To an adult I give from $\frac{1}{12}$ to $\frac{1}{8}$ of a grain every 3 hours.

The manner in which this dose is borne in a bad case of diphtheria is a matter of surprise to a physician using it for the first time. It rarely disturbs the stomach, and soon allays existing nausea. I have never seen it produce pytalism, and it seldom acts on the bowels more than is desirable. I generally order carbonate of magnesia to be given the first night, and after that the action of the bichloride keeps the bowels open. Under this treatment, when commenced early, in an ordinary case the patient will be convalescent by the end of the third day, but in more grave cases, the medicine should be continued to the end of the fifth day—it rarely needs to be given longer.

Thus far, I have been speaking of cases where the treatment has been commenced at the very first appearance of the disease; no tonic or sustaining treatment is needed, and the results are uniformly good; but where the disease has made considerable advancement, and the poison of the membrane is already being absorbed, as may be the case, before the physician is called, the result may not be so satisfactory, and brandy and iron should be added to the treatment.

If we assume that this treatment is no better in results than the general method in vogue, still it has many advantages that strongly recommend it.

There is but one medicine to be given, and there need be no confusion or mistakes. No washes or gargles are needed; no swabs or probangs to be thrust down the throat to strangle and frighten the patient, and make him wish he was dead and at peace; no steaming; no atomizing; none of these—only a teaspoonful of not unpleasant medicine and two or three hours' rest. While I hold that the corrosive chloride of mercury, given in large doses in the very early stages of diphtheria, is a specific, because, when so used, it prevents the generation of the poison in the membrane, and soon arrests its formation, yet membrane is often formed before we are called to the case, or before the remedy has had time to stop the process; and in this case, it may involve the windpipe, or may be primarily formed there, causing diphtheritic croup; and a new danger arises from mechanical obstruction, for which the corrosive chloride gives no relief.

The difficulty of breathing is common to all kinds of croup. It is as great for the time being in simple croup as it is in pseudo-membranous or diphtheritic croup. For this and other reasons it is held by good

authority that the dyspnoea of croup is not due in the main or even in great degree to the mechanical obstruction of membrane in the windpipe, but is rather due to the spasmodic condition of the glottis, and of nervous origin. It is for the relief of this dyspnoea that we resort to tracheotomy, at all times a dangerous operation, and in diphtheritic croup almost hopeless. In any kind of croup the operation, if successful, only enables the patient to breathe. Its effect on the disease is rather to aggravate than otherwise. If we had a remedy that would control and relieve the spasmodic condition of the glottis in croup we would have little need for this operation. And I think we have this in the chloride of gold. A few years ago I was using the chloride of gold, as recommended by Niemeyer in his practice, in some obstinate cases of hysteria, and observed that it had marked effect in nervous affections of the air passages, and was thus led to try it in a bad case of diphtheritic croup, of which I will give a brief history.

In the afternoon I was called to see a child five years of age suffering from a severe attack of diphtheria in advanced stage, it then being the third day of its sickness. Pulse 120, quick, small; temperature 104; respiration 40; tonsils covered with heavy membrane; glands of the neck swollen; tongue heavy furred; breath fetid; nausea and vomiting. From the breathing of the child I apprehended invasion of the larynx.

I ordered one-twelfth of a grain of corrosive chloride of mercury in a teaspoonful of elix. bismuth and pepsin every three hours, with instructions if the child grew worse to send for me.

About 3 o'clock in the morning I was called up, with the information that the child was much worse, and had croup. If this statement was true it made the case nearly hopeless, and I determined to try the effect of the chloride of gold.

Taking with me a solution of the strength of a grain in an ounce of water, I went to see the patient. As reported I found the child much worse,—almost asphyxiated from croup,—lips livid,—checks flushed,—dusky red,—and unable to articulate. I ordered twenty drops of the solution of the chloride of gold,—dropped in a glass with a little water,—and given every hour till some relief was obtained. The bichloride of mercury to be continued. In the morning I was agreeably surprised to find the patient very much better,—breathing easy but still having croupous cough. Continued the chloride of gold in the same dose every three hours. The next day the child was still better, asking for food, and quite relieved of croup. The chloride of gold was then withdrawn, continuing the bichloride of mercury.

From this on, the child improved steadily and in three or four days was convalescent.

Since then I have used the chloride of gold in all cases of croup. In simple croup it acts as a specific, and nothing else is needed, and but few doses of this.

The chloride of gold should be given in solution in distilled water. As it is very deliquescent and difficult to weigh, I direct the druggist to dissolve the contents of a 15 grain bottle,—as it comes from

the manufacturer,—in 15 drachms of distilled water, and dispense from this solution.

A caution is necessary in administering,—not to use a spoon,—on account of the strong affinity the preparation has for metals, especially for silver. I direct it dropped in a glass with a little water, and as it is almost tasteless there is no difficulty in taking it. The dose may be from $\frac{1}{50}$ to $\frac{1}{20}$ of a grain every one to three hours.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

ON THE ACTION OF DIGITALINE.—M. Kaufmann has been conducting a series of experiments with this drug in the laboratory of M. Chauveau, the results of which he gives in the *Revue de Médecine* as follows: (He used principally the larger animals, viz.: dog, sheep, ass and horse, for his subjects.)

1. In animals that are in good health, digitaline does not produce diuresis, either when given in large or in small doses.
2. Used hypodermically or administered in powder by the stomach, it produces a diminution in the quantity of urine, and an increase in the quantity of urea.
3. Administered by the stomach in a liquid form and weak dose, it diminishes the secretion of urine and of urea.
4. It does not produce diuresis except in certain dropsies due to affections of the circulation.

GENERAL CONCLUSIONS.

1. Digitaline acts as an energetic local irritant.
2. The general effects are best shown when the solutions are passed into the veins, the trachea or the stomach.
3. The subcutaneous and intra-muscular injections produce a reactive fever.
4. Digitaline produces a slowing of the pulse with a small dose, a slowing followed by an acceleration with a moderate dose, and an acceleration with a strong dose.
5. The inhibition of the heart is due to a bulbar and intra-cardiac excitation of the moderating system, and the acceleration is due to a central and peripheric paralysis of the same system.
6. It raises the intra-cardiac diastolic and systolic pressure, and consequently increases the mechanical work of the heart.
7. It increases the energy of the cardiac contractions and increases the volume of the waves.
8. During the inhibition the cardiac contractions are often associated by twos or threes.
9. During the acceleration the heart beats are regular.
10. In a weak dose, the pulse becomes stronger. In a strong dose, it is strong at first and then becomes weaker.
11. The pulse often takes on the dicrotic or tri-crotic form.