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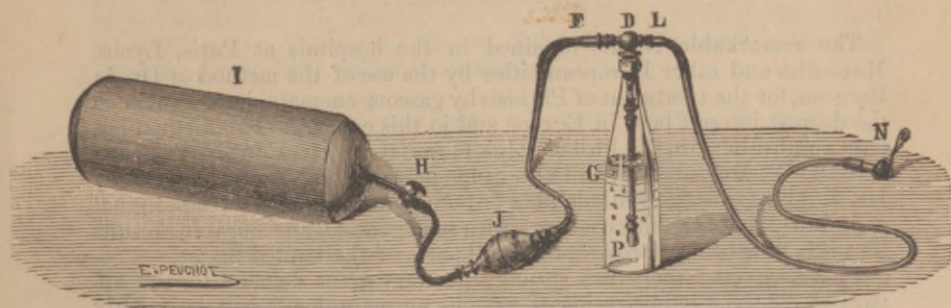
NEW APPARATUS

-FOR-

TREATING CONSUMPTION

BY GASEOUS ENEMATA,

ACCORDING TO THE METHOD OF DR. L. BERGEON.



COMPLETE FOR THE TREATMENT OF THE

Diseases of the Respiratory Organs.

PULMONARY PHTHISIS,

ASTHMA,

INFLAMMATION,

BRONCHITIS,

BRONCHORREA,

PULMONARY CATARRH,

BLOOD POISONING.



The Apparatus as shown above is modeled after that of Dr. V. Morel. It is thoroughly well made, durable, and guaranteed to be as complete and efficient as the original.

James W. Queen & Co.,

Makers of Scientific Apparatus,

Price, in Neat Case, \$10.00.

924 CHESTNUT ST., PHILADELPHIA.

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NEW APPARATUS

NOTICE ON

DR. L. BERGEON'S METHOD OF TREATMENT
OF
CONSUMPTION, Etc.

The remarkable results obtained in the hospitals at Paris, Lyons, Marseilles and other European cities by the use of the method of Dr. L. Bergeon, for the treatment of Phthisis by gaseous enemata, have awakened the deepest interest both in Europe and in this country. This method has been applied here, in the Philadelphia Hospital, by Dr. Edward T. Bruen and Dr. W. McLoughlin, and also in his private and hospital practice by Dr. J. Solis-Cohen, of Philadelphia (who imported the first of the original apparatus brought to this country), with such generally encouraging results that it is now being introduced into all parts of the United States.

In consequence, there has sprung up a very great demand for the apparatus for the administration of gaseous enemata, for it will be readily understood that a remedy which holds out a hope for immediate relief and improvement in a disease so prevalent in all parts of this country, and hitherto considered almost hopelessly incurable, must at once be desired by every physician.

While it is too early, in this country at least, to claim that it is a curative agent in Phthisis, the results gained both here and in Europe prove that marked and astonishing improvement often follows the use of this method when properly carried out.

In order to supply the demand for a first-class apparatus for this treatment, we have gotten one up, modeled on that of Dr. V. Morel, which we have in our possession, and have examined thoroughly, and we have no hesitation in claiming that we have succeeded in placing on the market the most complete and scientific apparatus of this kind made in this country. Our apparatus is used by some of the best physicians in Philadelphia.

We have permission to use the following opinion :

PHILADELPHIA, April 20th, 1887.

The apparatus for administering gaseous enemata by Bergeon's method, made by Queen & Co., of Philadelphia, is equally satisfactory in operation with the French apparatus of Morel, from which it has been modeled.

J. SOLIS-COHEN.

The apparatus for administering this treatment is in some respects quite simple, and has been improvised by physicians and some dealers. In fact, quite a variety of forms have been put on the market. We believe, however, that a careful examination of ours will demonstrate that it is far superior to anything which is gotten up in this way. We not

only have the original apparatus, but have been in a position to benefit by the experience of those physicians in this city who have been the first to use the treatment, and have perfect confidence in saying that with our apparatus the treatment can be followed more exactly according to the original methods than with any other made in this country. We have spared no expense in getting up special moulds and patterns, so as to have the apparatus as perfect and convenient as possible, in order that physicians who have had no opportunity of examining into the method may rest assured that with our apparatus they can administer the treatment with perfect confidence.

We are in a position to fill orders promptly, and will be pleased to give any information in our power in regard to it. Accounts of the use of this method in this country will be found in the *Medical News*, April 2d, 1887, in the *Therapeutic Gazette*, April 14th, 1887, and in the *Poly-clinic* for April, 1887, which we reprint.

TRANSLATION OF FRENCH PAPERS OF DR. V. MOREL.

As there has been considerable demand for the original papers of Dr. Morel, in regard to the Bergeon Treatment, we have had translated and reprinted the pamphlet, *Nouveau Traitement des Affections des Voies Respiratoires et des Intoxications du Sang par les injections rectales gaseuses*, by Dr. V. Morel.

This we will furnish at twenty-five cents per copy (post paid).

Complete apparatus for the Bergeon Treatment of Consumption, etc., modeled upon that of Dr. Morel, furnished with pure rubber cylindrical gas-bag or reservoir, improved rubber bulb, with rubber valves, the whole apparatus furnished in the most improved style, packed in neat case, price, \$10 00.

The above apparatus is complete, and includes the apparatus for the production of Carbonic Acid Gas, as well as the apparatus for injection, as shown in Figs. 1 and 2. Our improved wash-bottle attachment is so arranged that it will fit any mineral-water bottle.

Complete instructions sent with every apparatus.

In ordering, parties unknown to us should send cash with order. When this is not done, the apparatus will be sent C. O. D., provided a partial remittance equal to one-half the amount is sent.

JAMES W. QUEEN & CO.,

MAKERS,

924 CHESTNUT STREET, PHILA.

CAUTION.

We would call the attention of purchasers of this apparatus to the fact that at least the first, and, if possible, the two or three succeeding operations, should be made by a careful physician, in order to avoid the accidents which might occur from administration without correct medical diagnosis of the effect.



[REPRINTED FROM *The Medical News*, APRIL 2D, 1887.]

THE TREATMENT OF AFFECTIONS OF THE RESPIRATORY
PASSAGES AND OF BLOOD-POISONING BY GASEOUS
ENEMATA.

*A Clinical Demonstration before the members of the Philadelphia County Medical Society
at the German Hospital of Philadelphia, March 30th, 1887.*

BY J. SOLIS-COHEN, M. D.,

PRESIDENT OF THE SOCIETY.

It is now some years since Dr. L. Bergeon, lately professor in the Medical School of Lyons, commenced a series of experiments in the treatment of pulmonary consumption, by injections of hydrogen sulphide in small quantities, propelled by currents of recently prepared carbon dioxide (carbonic acid gas of the old nomenclature). On the 12th of July of last year, he communicated his results to the Académie des Sciences,¹ and on the 20th of August to the Congress of the French Association for the Advancement of Sciences. On the 19th of October, Professor Cornil read a paper on the subject before the Parisian Academy of Medicine.² The beneficial results claimed therein have been confirmed by a number of French physicians, and have been favorably commented on by Dr. J. Henry Bennett, of Paris. A letter from Dr. Bennett in the *British Medical Journal* for December 18th, 1886, so strongly impressed me that I wrote to Paris at once for an apparatus, having previously procured a pamphlet on the subject by his pupil Dr. V. Morel, of Lyons, who devised the apparatus which will be used before you; and from whose pamphlet³ I have obtained most of the information that I propose to communicate—much of it in his own phraseology.

Mr. Kyner, of the Polyclinic, has made for me and for some of my friends, a number of apparatus imitated from this one of Morel, which answer just as well, and which can be procured for ten dollars, less than one-half the cost of the imported one.

I have them in use in this hospital, in St. Joseph's Hospital, in the Home for Consumptives, in the Hospital of the Polyclinic, and in private practice. While unprepared, at this early date, to express a positive opinion as to the value of the method in curing consumption, I do not hesitate to state that sufficient evidence exists to demonstrate its value as a legitimate therapeutic measure; and I have invited you to a clinical demonstration because it is of importance that those of you who have not had access to the original sources of information should see how the ad-

¹ Comptes rendus July 12th, p. 176.

² Bull. de l'acad., 2 me. sér. xvi.

³ Nouveau traitement des affections des Voies Respiratoires et des Intoxications du Sang par les injections gazeuses, d'après la Méthode du Dr. L. BERGEON. Paris, 1886.

ministrations are made, in order that you should not submit yourselves to unnecessary disappointment should you feel disposed to give the method a trial, as I believe you should do. As you will see, the process is simple, but requires some precautions which necessitate the presence of the medical attendant at the first few administrations.

The principle upon which the treatment is based is that the disastrous results of pulmonary tuberculosis are due to septicæmia set up by absorption of the noxious products of suppuration in ulcerous lesions in contact with the atmospheric air; and that repeated prolonged bathings of the suppurating surfaces with a safe antiseptic agent, controls the suppuration and gives the lesions an opportunity to undergo cicatrization. When an attempt is made to administer such an agent by inhalation, the quantity required to produce the desired effect is so large that it is poisonous to the individual. The same may be said of administrations by the stomach, or by the subcutaneous connective tissue. Dr. Bergeon, reasoning on some experiments reported by Claude Bernard in 1857,¹ has found that certain antiseptic agents, of which he has found hydrogen sulphide the best, can be administered in sufficient quantities by the rectum with impunity, provided that care is taken not to introduce too much at a time. Claude Bernard demonstrated that when a toxic or medicinal agent is introduced into an organ at a distance from the arterial system—the digestive tube, for example—it could not penetrate into the arterial system because it becomes eliminated before it can reach that system. It has to traverse the portal system, the liver, the hepatic veins, and the pulmonary tissue; during which transit it may be eliminated in the liver by the bile, or, if volatile, in the lungs by exhalation. To demonstrate this point, Bernard rapidly poisoned a bird by inclosing it in a bell glass containing hydrogen sulphide; and then he injected a syringe of the gas into the veins of a dog with impunity; and, with like impunity, a solution saturated with hydrogen sulphide into the rectum of a dog. In both these instances the gas was detected in elimination within a few seconds by blackening a paper saturated with plumbic acetate and held before the muzzle of the animal; and elimination had ceased at the end of five minutes. Hence he came to the conclusion that this substance could be safely introduced into the digestive tube or into the veins, provided care be taken not to introduce too great a quantity at a time.

The first experiments of Dr. Bergeon were made on animals with chlorine, turpentine, ether, ammonia, and bromine; but these agents had to be abandoned because they soon produced a violent inflammation of the rectum, and even points of sphacelus in the mucous membrane. On the other hand, a mixture of carbon dioxide and sulphuretted hydrogen was thoroughly tolerated when these two gases were pure and completely deprived of admixture with atmospheric air. In their union, the carbon dioxide plays somewhat the part of an inert agent, and attenuates the irritant properties of the hydrogen sulphide. Sulphur is well known as a powerful microbicide long recommended in pulmonary disease. Carbonic acid gas is likewise rapidly absorbed by the venous system, and rapidly eliminated by the lungs, provided it is injected slowly and in small quantity. The good effects of carbonic acid gas in pulmonary phthisis, in asthma, and in other affections, have long been known to the

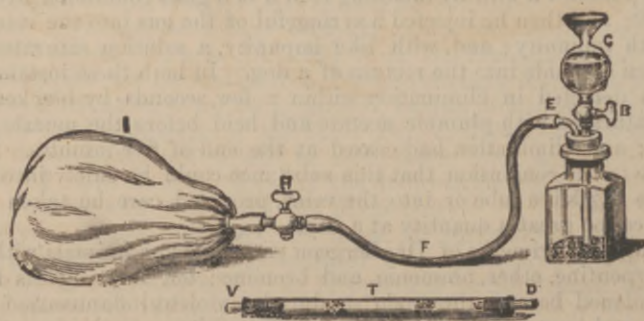
¹ Leçons sur les substances toxiques et médicamenteuses.

profession, as I had occasion to refer to some twenty years ago in the first edition of my little *Treatise on Inhalation*, and in which I referred, likewise, to some experiments made by Dr. James Collins and myself. In addition to this, the anæsthetic effect of carbonic acid gas may have some influence in preventing colic of the intestine in the introduction of the gas, and in subduing irritation in the pulmonary tract in its elimination. Those of you who, like myself, have been practising medicine in Philadelphia some twenty-five years or more, may remember the experiments as to the anæsthetic effects of carbonic acid gas made by the late Dr. Demmé, at that time Demonstrator of Anatomy in the Pennsylvania Medical College.

Dr. Morel's apparatus for administering gaseous enemata is based on the principle that a current of carbon dioxide passing over certain gaseous or volatile substances produces a disassociation of the gaseous elements, and drives them forward with it. It is necessary to produce a pure carbon dioxide; and then to pass it through a medicated liquid or over a volatile substance, and to force this gaseous combination into the intestine without permitting any reflux into the reservoir of carbon dioxide.

The carbon dioxide is prepared by dropping a solution of dilute sulphuric acid (200 grammes of sulphuric acid to the litre of water) on sodium bicarbonate. Chlorohydric acid was used in the earlier experiments, but a portion always escaped with the carbon dioxide, and produced irritation of the rectum and kidneys.

FIG. 1.



Carbon dioxide generator and reservoir.

Glass tube, containing volatile medicament between two tampons of cotton.

T. Medicament.

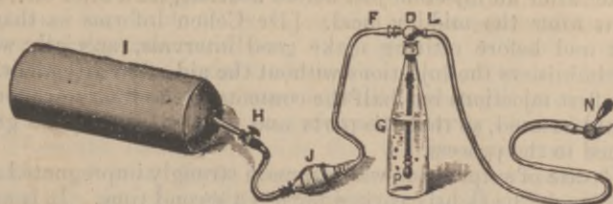
V. D. Connections.

The apparatus for generating the carbon dioxide (Fig. 1) consists of a square bottle in which three tablespoonfuls of sodium bicarbonate are placed. The bottle is hermetically closed by a rubber cork with two apertures, through one of which a glass tube extends to the bottom of the bottle, the upper portion (C) being expanded into a funnel and reservoir for the dilute sulphuric acid, beneath which is a glass stopcock (B) to regulate the descent of the liquid. The second aperture in the cork is filled with a curved glass tube (E) for the escape of the gas, and this exit

tube is prolonged by a section of rubber tubing (F) for attachment to a rubber bag (I) of six litres capacity, in which the carbonic acid gas is to be collected. The mouth of this bag is furnished with a stopcock (H). The sodium bicarbonate being placed in the bottle, the cork is inserted, and the stopcock of the sulphuric acid reservoir is closed. This reservoir is then filled with the dilute sulphuric acid, say four ounces, and the stopcock is turned so as to allow the acid to drip on the soda. The carbonic acid gas is evolved immediately, the activity of the disengagement being controlled by the stopcock. A little gas is allowed to escape into the atmosphere, so as to drive off the atmospheric air in the bottle. Meanwhile the reservoir is rolled tightly so as to drive out all the air it contains, as far as possible, and is then attached to the exit tube for the gas and allowed to become filled with the carbonic acid. It is then removed and its stopcock is closed. It must be removed before the stopcock is turned, in order that pent-up gas in the bottle shall not break the apparatus. This is one of the points to which the physician must direct the attention of his nurse before entrusting the patient to the attendant. Another point upon which stress must be distinctly laid, is the rolling of the bag to prevent retention of atmospheric air.

The gas is now ready for use. The reservoir (I) is attached to a hand-

FIG. 2.



ball aspirator (J) with check valves at each end (Fig. 2). This is attached to a metallic T tube (D) passing through a cork which is intended to be placed in the neck of a bottle containing the medicated solution, preferably a highly charged natural sulphur water. The vertical portion of the tube is furnished with a double valve (P) to prevent aspiration of the liquid through which the carbonic acid gas bubbles, and contains an orifice at the top for the escape of the gas into the distal horizontal branch, to which is attached a tube (L) connected with a nozzle (N) for introduction into the rectum. As this tube could not be made here in time to supply me with the number of instruments I required, Mr. Kyner, Superintendent of the Polyclinic, has imitated the contrivance at my suggestion by two glass tubes placed in the cork just as in the cork of a modified Wolf bottle, the longer tube being supplied with a valve to prevent regurgitation. It answers equally well with the original. This T branch is placed in a bottle three-fourths filled with the sulphurous water—in this instance the Red Sulphur Spring water, of Virginia—and the aspirator is worked two or three times to drive out the atmospheric air in the bottle, another point to which the physician must emphatically direct the attention of his nurse. The nozzle is then inserted into the rectum of the recumbent patient and the injection made slowly. All clothing must

be loose. With the hand on the abdomen, the amount of distention of the colon is noted, and when this is marked, or when pain is complained of, the process is suspended until absorption takes place, as manifested by relaxation of the tension; and then the process is resumed. Fifteen to twenty minutes are consumed in the process of driving the six litres of carbon dioxide through the sulphur water. The sulphur salt—*e. g.*, sodium sulphide—is decomposed, hydrogen sulphide being formed, a portion of the carbon dioxide taken up to form sodium carbonates.

The only modification of the process I have permitted myself (for I deem it due in justice to Dr. Bergeon and Dr. Morel to test their method of administering the gas in their own way) is to place the mineral water bottle in a bath of warm water, which renders the injection more grateful. Within four minutes, sometimes within one, the sulphuretted hydrogen can be perceived in the breath, and be detected by paper saturated with plumbic acetate. It is prudent to have a bed-pan at hand in case there should be a call to stool. The injection should not be made upon the full stomach. This may produce emesis, it is said. You want all the room possible in the abdomen to prevent pressure upon a distended stomach and upon the diaphragm.

Three or four hours after a meal, or just before one, is the best time for injection. Two injections are given daily. I have found three hours after breakfast and three hours after supper the best periods. My patients have slept better after an injection just before bedtime, than after one, three or four hours after the midday meal. [Dr. Cohen informs us that before breakfast and before retiring make good intervals, especially when the patient administers the injections without the aid of an attendant.]

At the first injections but half the contents of the reservoir of carbonic acids should be used, so that the parts and the system may be gradually accustomed to the process.

If the bottle of sulphurous water remain strongly impregnated after the injection, it may be tightly corked for use a second time. It is not necessary to have the bowels moved before an injection. Hæmoptysis and the presence of the menstrual period do not contraindicate the process. Indeed, Dr. Bergeon has seen amenorrhœa relieved during this treatment, even when that condition had failed to yield to the ordinary methods of treatment for that special condition.

When the pulmonary lesions are extensive, and, in consequence, elimination of the gas takes place slowly, the injections must be made very slowly, or they will produce sensations of fullness in the thorax and in the abdomen.

Now, as to therapeutic results. All published observations recount rapid amelioration of the suppurative phenomena; a marked diminution in cough, expectoration, dyspnoea, and night-sweats being noted within two or three days. Similar prompt improvement, with reduction of temperature, has been noted in some of my own cases, not in all. Some of his more than 200 patients Dr. Bergeon considers cured. These, he states, no longer expectorate, and present no other stethoscopic evidences than the dry sounds due to cicatrized or cicatrizing cavities, or to cicatricial bands consecutive to old lesions. Some of them have been able to resume laborious occupations, and to ascend several flights of stairs many times a day without injury to their respiratory apparatus, or loss of the ameliorated condition which had been secured. Some who considered themselves

cured at the end of a few weeks, abandoned treatment, despite the advice of Dr. Bergeon, and underwent recurrence. It is, therefore, important that the treatment should be continued for some months, until all the pulmonary lesions have been cured, lest incompletely cicatrized surfaces undergo suppuration afresh, and reproduce septicæmia. They should be renewed from time to time, even after apparent cure, and especially upon any reappearance of cough, expectoration, fever, or emaciation.

Not only are pulmonary lesions said to be cured by these enemata, but pharyngeal and laryngeal tuberculous ulcerations are said to undergo cure likewise, and that without any topical applications whatever, simply from the contact of the gas in its elimination from the lungs.

Of the cases treated under my own supervision I have as yet little positive to state. With a single exception, they have done quite well so far, and some of them are very pronounced cases—cases that I have had no hope of benefiting very greatly by any treatment with which I am more familiar. One of my patients insists that she is well, but she is not. Some of these cases are here for the purpose of receiving the treatment in your presence. They will answer for themselves that they are better in several ways. Hope of recovery has much to do with this, but not all. I went through a similar experience more than twenty years ago with inhalations of oxygen in phthisis. Hope buoyed the patients up until they found that oxygen had not the power of curing them, and then some of them, I fear, sank all the sooner for the disappointment. In the present instance the prospect is better, the treatment being more in accord with scientific principles, despite the awkwardness of the method. Try it, gentlemen, and within a few months Philadelphia will be able to prove whether this treatment is to be regarded as a novelty of the moment, or whether it has the therapeutic value that has been claimed for it. In the one instance, it is hardly to be supposed that your patients will have been injured; in the other, they will have had all the advantage of an early resort to a beneficial agent.

Should it be desired to administer some volatile medicament, as iodoform, carbon sulphide, eucalyptol, or the like, the bottle of mineral water is replaced by a bottle of common or distilled water, and between the T-tube and the injection-pipe a glass tube is inserted, in which the volatile substance has been introduced between two tampons of cotton. (Fig. 1, V, T, D.)

In addition to pulmonary phthisis, the following diseases are said to be usefully treated by this method, the therapeutic principle being the same in all of them: asthma, whooping-cough, bronchitis, pulmonary catarrh, typhoid fever, the eruptive fevers, puerperal fever, and general septicæmia. If this be true, the list can be extended. As stated by Dr. Morel, the gas acts on the mass of infected blood in the right cavities of the heart, and upon its entire transit through the ramifications of the pulmonary artery, so that the venous blood is disinfected in its course to the pulmonary alveoli and reënters the branches of the pulmonary veins in a purer condition.

[REPRINTED FROM *The Medical News*, APRIL 2D, 1887.]

THE TREATMENT OF PULMONARY DISEASES BY GASEOUS ENEMATA.

A Preliminary Report.

BY EDWARD T. BRUEN, M. D.

ASSISTANT PROFESSOR PHYSICAL DIAGNOSIS, UNIVERSITY OF PENNSYLVANIA, AND ONE OF THE PHYSICIANS TO THE PHILADELPHIA HOSPITAL.

IN the Philadelphia Hospital for the past seven weeks, the treatment of various forms of pulmonary disorders by the use of carbonic acid gas impregnated with sulphuretted hydrogen has been practiced, according to the plan inaugurated by Dr. Bergeon, of Lyons, and described by Bennett.¹ In carrying out the treatment upon a considerable number of cases, much care and attention to detail have been necessary. Dr. McLaughlin, Resident Physician-in-Chief of the Hospital, and Dr. Taylor, the Resident Physician in charge of my wards, have devoted a large share of their time to secure the proper administration of the gas, and owing to their valuable assistance it has been possible to give the attention necessary to a careful trial of the treatment.

The twenty-five cases of phthisis chosen on which to make a trial of the gas, included mostly patients suffering from advanced lesions, nearly all associated with cavities, marked bronchial catarrh, and some laryngeal lesions. At this time we are engaged in making a series of critical observations in reference to many essential features bearing upon the permanent value of the treatment, such as the best mode and frequency of the administration of the gas, the quantity and quality to be employed, and the effect upon the sputa, including the bacillus of tuberculosis. Our investigations into these subjects are still in progress; moreover, time is necessary to secure a proper estimate of the permanent beneficial effects of the treatment upon the lesions in the lungs. This report is, therefore, preliminary in character, and designed simply to record the results thus far secured.

The histories of the cases under treatment have shown that the element of suppuration, as it occurs in the pulmonary cavities, and in the bronchial passages, has been positively and promptly antagonized. The temperature has been reduced in a few days, and within two weeks has frequently been brought to a normal point. In grave cases with advanced pulmonary lesions, the temperature has continued to rise a degree or so above the normal standard, but during the period of treatment in more than twenty cases, the temperature chart has always been positively modified.

¹ British Medical Journal, December 18th, 1886.

Together with the reduction in temperature has followed the cessation of night-sweats in most instances, and in all this symptom has been markedly lessened. In cases in which evidences of bronchial catarrh have been present, such as râles and copious muco-purulent expectoration, the râles have disappeared, or have been decidedly decreased, and in nearly all instances the digestive system has been favorably affected, the tongue has become clean and natural, the appetite has increased, and also the ability to assimilate and appropriate food.

In most cases the gain in weight has been progressive and considerable, and the nervous symptoms incident to phthisis decidedly influenced for the better, and a more cheerful disposition secured. The immediate effect of the introduction of the gas upon the pulse has been to lessen it by fifteen to twenty beats, and the respiration *temporarily* increased. The pulse-rate has subsequently been proportionate to the general condition of each individual case.

The effect of the treatment upon cases of bronchitis associated with emphysema has also been tried and the bronchitic element conspicuously modified.

A woman *æt.* forty entered the Philadelphia Hospital February 5th, with entire consolidation of the left lung of the variety frequently described as catarrhal or broncho-pneumonia. She had taken cold in December, 1886; had previously been a healthy, rather stout woman. The following symptoms, as abstracted from the clinical history, were present: Abundant muco-purulent expectoration, more than a pint in twenty-four hours; profuse sweats; pulse 120, temperature ranging from 100° to 103°; anorexia, with coated tongue, and inability to receive and appropriate food. After treatment with the gas, administered twice daily since February 10th, she now seems to be convalescent. The temperature is normal, pulse 90, appetite excellent, and flesh increasing. The apparent beneficial effects were noticed within the first week, but it was four weeks before the patient was free from fever. The appetite improved within a few days from the first employment of the treatment, and simultaneously the nervous symptoms, such as hysterical tendencies and excitement, disappeared. In this instance all treatment, except the gas, was suspended. At this date the physical signs of pulmonary lesions seem to be disappearing, and the lung seems to be approaching the normal condition once more.

Four other cases among the group seem deserving of special mention. One of these is a case of basic cavity, involving almost the entire left lower lobe. In this case the effects of the gas treatment upon temperature, sweating, appetite, etc., were conspicuous, and the gain in flesh the first four weeks was two pounds per week, but during the last two weeks there has been a loss of two pounds, although the other symptoms continue to improve.

Another case, also one of basic cavity, with marked pleural thickening, copious muco-purulent expectoration, but without other pulmonary lesions—in a word, a case suitable for treatment by the introduction of a drainage tube. The same good effects were noticed, yet although this case has been under treatment for several weeks, the temperature still remains somewhat above normal, and the secretion of pus in the cavity evidently continues, showing that some additional measures, such as those which may tend to secure perfect drainage, are still required.

Another instance is one of pneumo-thorax localized to the lower zone of the chest by adhesions of the lung. In this case constant cough, entirely preventing rest, night-sweats, elevated temperature, anorexia, and loss of flesh, were all marked. The gas treatment has been employed four weeks. The patient's condition has steadily improved, hectic and night-sweats and cough have ceased, and there has been a total gain of ten pounds. The patient takes daily exercise with freedom, and marked improvement in the pulmonary lesions can be recognized.

Finally, in the most sadly diseased case of the group, a man forty-five years of age, five feet ten inches in height, with cavities in both lungs, profuse bronchial catarrh, and weight reduced to 100 pounds, the progress of the disease has apparently been arrested, and although the lesions are too advanced to make it possible for him *ever* to leave his bed, yet the relief of the distressing symptoms of fever, hectic, cough, and expectoration have certainly been manifest.

Summary.—1. In nearly all cases lasting effects have been secured in the reduction of temperature, suspension of night-sweats, lessened cough and expectoration, and in some all physical signs of bronchial catarrh abolished.

2. Temporarily reduction of pulse-rate fifteen to twenty beats, and temperature one-half a degree to one degree during the administration of the gas.

3. The amount of gas introduced into the bowel has varied from three quarts to a gallon at each injection. It has been introduced very slowly, from fifteen minutes to half an hour being demanded by the operation. The administration has been practiced in most cases twice in the twenty-four hours. No injurious effects from the gas have as yet been observed.

4. Administration of the gas in different amounts and varying degrees of concentration is now being practiced, and also investigations into the characteristics of the sputa.

5. In only one of the cases of phthisis the effects of the gas have been entirely negative.

6. In cases of phthisis complicated by intestinal lesions, experience is still insufficient to make it possible to state positive results.

7. The ultimate value of the treatment can certainly only be established by time. The probable mode of action would seem to be antiseptic, and by reducing suppuration and the relief of the attending serious symptoms, the patient is permitted to gain by food, exercise, and general treatment. Thus far, the value of the gas seems to be that of a useful therapeutic measure, rather than a curative plan of treatment.

8. The method of preparing the gas for use in the hospital is as follows: The carbonic acid gas is passed through a solution of chloride of sodium and sulphide of sodium in twenty-two ounces of water. The proportion of the salts has been increased in some cases, and some trials of other combinations are being made.

THE ADMINISTRATION OF GASEOUS ENEMATA.

A large share of professional and public attention has quite recently been directed to the administration of gaseous enemata for the treatment of blood poisoning and of affections of the respiratory passages. "The object in view is to supply to the venous circulation an antiseptic, such as hydrogen sulphide, in sufficient doses to be effective, a result impossible when supplied directly to the arterial current, a plan which would poison the patient. Hydrogen sulphide inhaled in far less than sufficient doses would suffocate the patient; taken by the stomach it would produce other serious results. Administered by the bowels, however, and entering the venous current already deteriorated by organic refuse, it is quickly eliminated by the respiratory tract, which thus becomes subjected to its beneficial local antiseptic effects without subjecting the system at large to injury, as when thrown into the arterial current. In other words, the parasite is killed, without killing the individual. Its beneficial effects in phthisis are explained by the action of the gas on the suppurative and septic surfaces, and not by any influence on the bacillus tuberculosis; the consumption proper, the exhaustion, being due to the suppuration and to the consequent septicaemia, and not immediately to the bacillus, which, while it produces the destruction of tissue, does not produce the morbid phenomena. The method of administration utilizes the discovery announced by Bernard in 1857, that toxic materials introduced into the economy through an organ at a distance from the arterial system could not penetrate into the arterial system because it is eliminated before that system can be reached. Volatile substances are eliminated by the pulmonary alveoli."—*Cohen: Trans. Phila. Co. Med. So., Med. News, March, 1887.*

On July 12th, 1886, Dr. Bergeon communicated to the French Academy of Sciences the results of several years' investigation into the method, and Professor Cornil also presented later a paper on the subject. The forms of apparatus at present in use are based upon designs furnished by Dr. V. Morel, of Lyons.

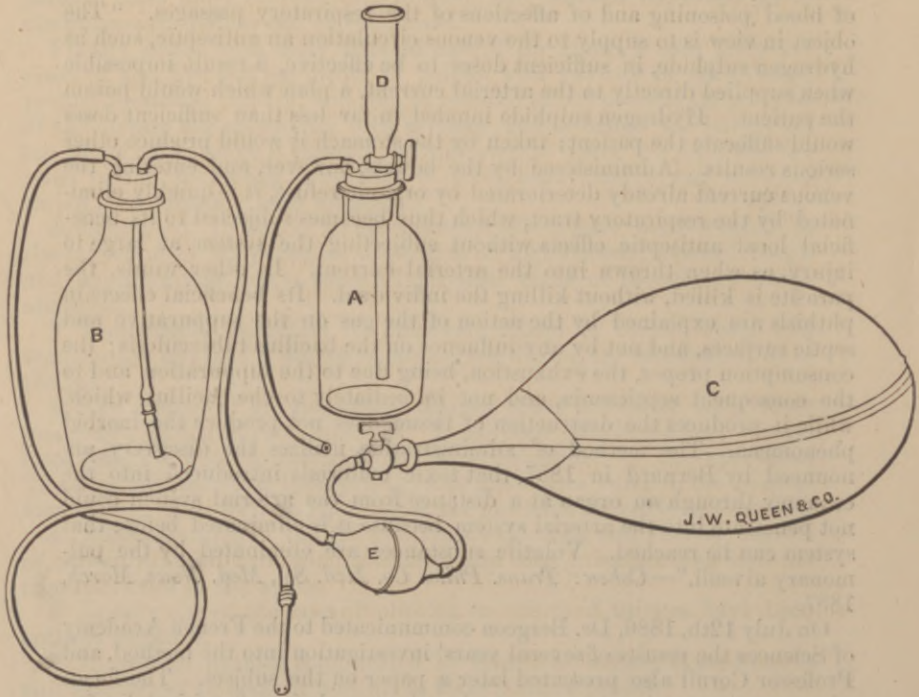
Various antiseptic gases and vapors have been tried, but abandoned on account of local irritant action, but a mixture of carbon dioxide (carbonic acid gas) and hydrogen sulphide (sulphuretted hydrogen) is entirely harmless when properly used and completely deprived of atmospheric air.

Since the object of this article is entirely practical, it will not be necessary to discuss the physiological action or the therapeutical theories involved. There will simply be presented descriptions of the more recent forms of the apparatus and of the method of use.

The apparatus exhibited in the accompanying cuts was designed by Mr. J. A. Kyner, superintendent of the Polyclinic, in imitation of one of Morel's apparatus lately imported by Dr. J. Solis-Cohen.

The apparatus as constructed by Mr. Kyner is now in use at the hospital of the University of Pennsylvania, German Hospital, Home for Consumptives, and by quite a number of private practitioners, and the form is now manufactured by Messrs. James W. Queen & Co., of this city.

The apparatus consists of a generator, a reservoir, a bulb apparatus for injection, and a vessel for holding the sulphur-water. To generate the carbon dioxide, put one avoirdupois ounce of sodium bicarbonate and one fluid ounce of water into the wide-mouth jar; close the jar with the rubber stopper carrying the funnel-tube and short delivery-tube. Fill the funnel with dilute sulphuric acid, made by adding four fluid drachms of



strong acid to four fluid ounces of water. By means of the stop-cock on the funnel-tube, allow about a teaspoonful of the acid to run into the bottle so as to generate sufficient gas to expel the air in the bottle. Then having rolled the reservoir tightly to exclude all air, connect it by means of the rubber hose to the generator, and continue the slow addition of the acid from the funnel-tube until the reservoir is filled. The quantities above given for charging the generator will be found about sufficient to fill the reservoir. Dr. Bergeon recommends that the acid be prepared at the bedside, but Mr. Kyner has used it entirely successfully after being kept six hours in a heavy vulcanized rubber bag such as is now furnished; but Dr. Bergeon used a lighter bag, which had not the power of resisting diffusion. This probably explains the difference in results. When the reservoir is filled it is detached from the hose and the stop-cock immediately closed.

To administer the gas, the reservoir is attached to the free end of the syringe bulb; the wash-bottle, being about three-fourths filled with sulphur-water, is stood in a basin of warm water, and closed by the rubber

ning the administration, darken lead acetate paper, and will continue to smell of gas for an hour after the process is discontinued. It may be well to remark that metals, especially silver, are readily tarnished by the sulphur gases.

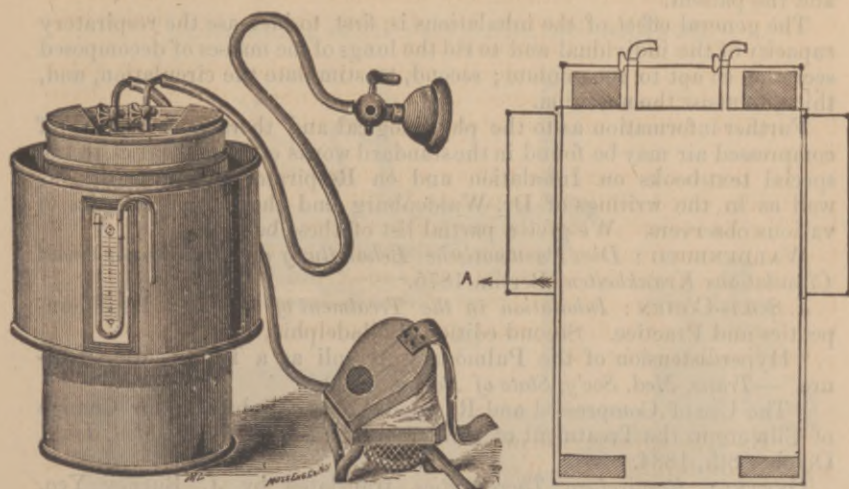
The method has, up to the present, been used upon about one hundred cases in this city without any untoward effects, so far as known, except in one or two instances, one of which was due to a leaky bag, and another to incorrect administration.

It is, perhaps, too soon to decide positively on the therapeutic value of the new method, but it seems in the experience in this city to have the special quality of diminishing night-sweats and improving the appetite.

"In Bergeon's cases, the trifling expectorations of those apparently practically cured continued to contain bacilli. This fact may be taken both for an indication that the immediate danger in phthisis is less from the bacilli than from the septicæmia which they set up, and as an indication that this protective treatment, when successful, should not be discontinued until the general healthiness of the tissues is sufficiently restored to resist the further development and sustenance of the bacillus tuberculosis."—*Cohen: loc. cit.*

N. B.—The apparatus shown on page 14 does not illustrate that which we are now furnishing. We furnish that shown in the illustrations on pages 6 and 7, modelled more closely upon that of Dr. Morel.

THE COHEN-RICHARDSON COMPRESSED AIR APPARATUS FOR THE THERAPEUTIC ADMINISTRATION OF INHALATIONS OF COMPRESSED AIR IN CASES OF INSUFFICIENT EXPANSION OF THE CHEST AND DEFICIENT OXYGENATION.



The attention of physicians is called to a new and comparatively inexpensive apparatus for the administration of inhalations of compressed air, specially designed to render the treatment available even to the poor.

The value of this treatment of pulmonary diseases, especially chronic bronchitis, asthma, chronic pleurisy, and the various forms of consumption has long been recognized in Europe, where institutions specially devoted to Pneumato-therapy have long been established. But in America resort to these methods in the management of disease has, until recently, been quite limited. Doubtless the high cost of the apparatus formerly used has contributed to this comparative neglect.

We are now prepared to supply an improved and cheapened apparatus, the result of experiments by Dr. S. Solis-Cohen and Charles H. Richardson, of our own house, at a price which places it within the reach of every physician and most patients. Dr. Cohen has had it in use for four years, and finds it perfectly efficient.

The apparatus consists of a small gasometer, an outer cylinder holding water, and an inverted inner cylinder, which is filled with air and rises and falls according to the quantity it contains. This is the principle of Waldenburg's large apparatus.

The air supply is kept up by a small foot bellows. This is the original feature.

The pressure is determined by weights properly graduated, some of which are placed at the bottom of the inner cylinder to secure stability

(also an original feature), and others which may have to be removed to change pressure are placed on top.

The accessories consist of the bellows, necessary rubber tubing, a two-way stop-cock, and mask to cover the face of patient.

If desired to medicate the air, a Wolff bottle containing a volatile medicament in water is employed, and interposed between the apparatus and the patient.

The general effect of the inhalations is, first, to increase the respiratory capacity of the individual and to rid the lungs of the masses of decomposed secretion so apt to accumulate; second, to stimulate the circulation, and, third, to assist the nutrition.

Further information as to the physiological and therapeutic effects of compressed air may be found in the standard works on Therapeutics, in the special text-books on Inhalation and on Respiratory Therapeutics, as well as in the writings of Dr. Waldenburg and the journal articles of various observers. We give a partial list of these below:

WALDENBURG: *Die Pneumatische Behandlung der Respirations und Circulations Krankheiten*, Berlin, 1875.

J. SOLIS-COHEN: *Inhalation in the Treatment of Disease*. Its Therapeutics and Practice. Second edition, Philadelphia, 1876.

"Hyperdistension of the Pulmonary Alveoli as a Therapeutic Measure."—*Trans. Med. Soc'y, State of Penna.*, 1880.

"The Use of Compressed and Rarefied Air as a Substitute for Change of Climate in the Treatment of Pulmonary Disease."—*N. Y. Med. Jour.*, October 8th, 1884.

OERTEL: *Respiratory Therapeutics*, translated by J. Burney Yeo, London, 1885.

"An Improved Apparatus for Administering Inhalations of Compressed Air."—*Trans. Phila. Co. Med. Soc'y*, 1884-5.

S. SOLIS-COHEN: "On the Value of a Proper Respiratory Diet in Phthisis."—*Medical News*, Phila., August 1st, 1885.

"Artificial Climatic Effects for Stay-at-Homes."—*Phila. Med. Times*, February 6th, 1886.

"Inhalation of Compressed Air as an Aid to Nutrition in the Treatment of Pulmonary Consumption."—*Trans. Med. Soc'y, State of Penna.*, 1886.

"Pneumato-Therapy."—*Therapeutic Gazette*, January 15th, 1887. Reprint, Detroit, Mich., 1887.

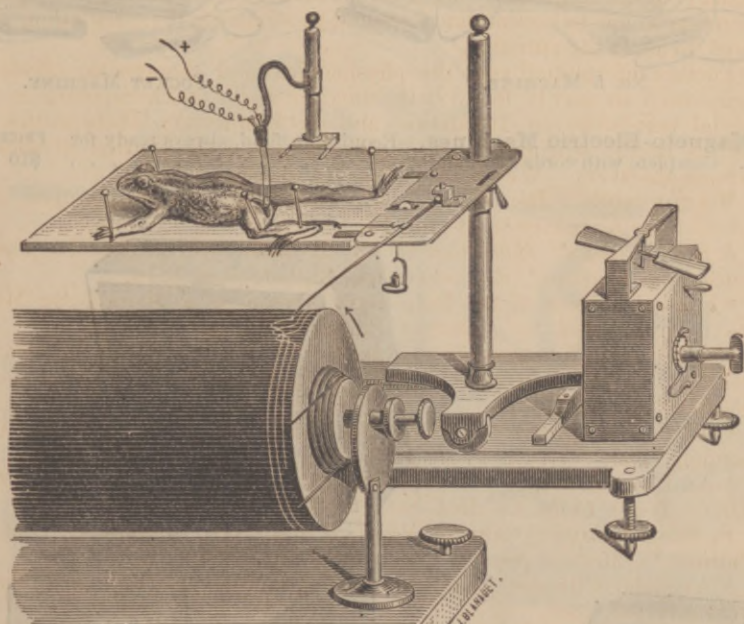
PRICE.

1 Cohen-Richardson Compressed Air Apparatus,	\$20 00
1 Gauge for above,	2 50
1 Stop-cock for above,	2 50
1 Mask,	2 00
1 Bellows,	4 00
12 feet rubber tubing,	1 50
Stand,	
	<hr/>
	\$32 50
	<hr/>
Special net price for apparatus complete,	\$30 00
Extra masks per dozen,	18 00

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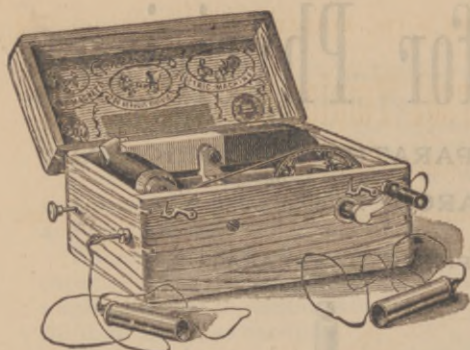
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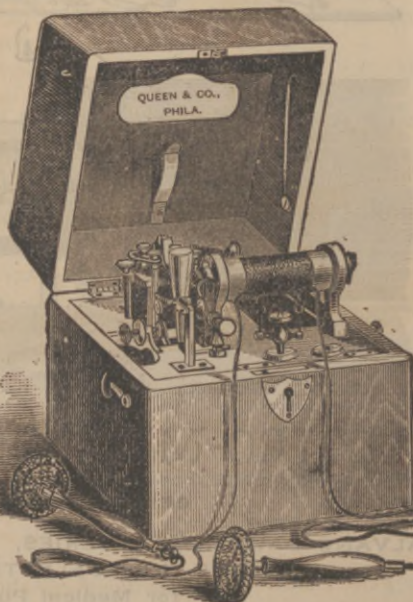


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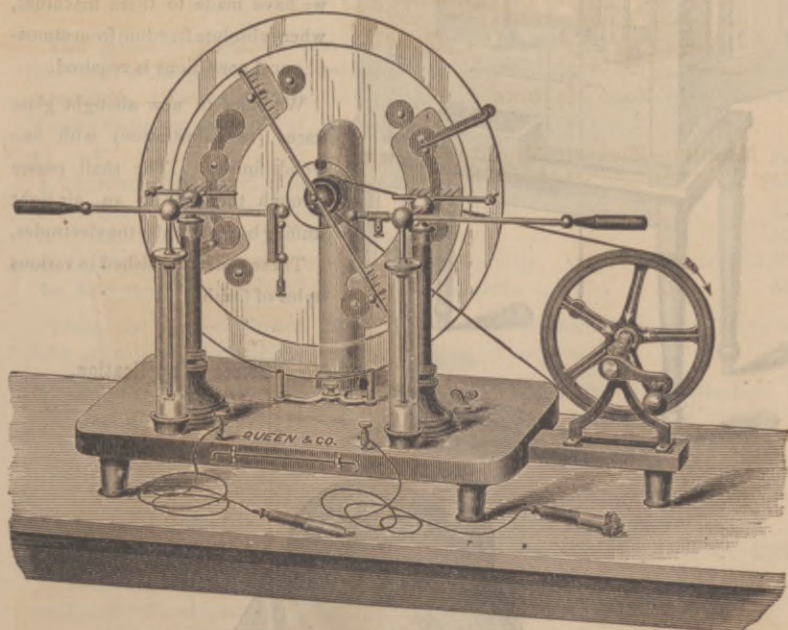
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This Battery is very simple and convenient.
Full directions with each machine.
- No. 2. Medium, for family use. Generally ordered by physicians for patients, 15 00
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Hard Rubber Cells, extra, 1 50

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This is a new design, in which the electrical arrangement is the same as in the original Tæpler-Holtz Electrical Machine, now so celebrated; but the mechanical arrangement has been *much simplified*, made more rigid, and the adjustments are much more convenient.

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FOR PHYSICAL USE the above attachments are a great advantage in the illumination of Geissler Tubes, etc.

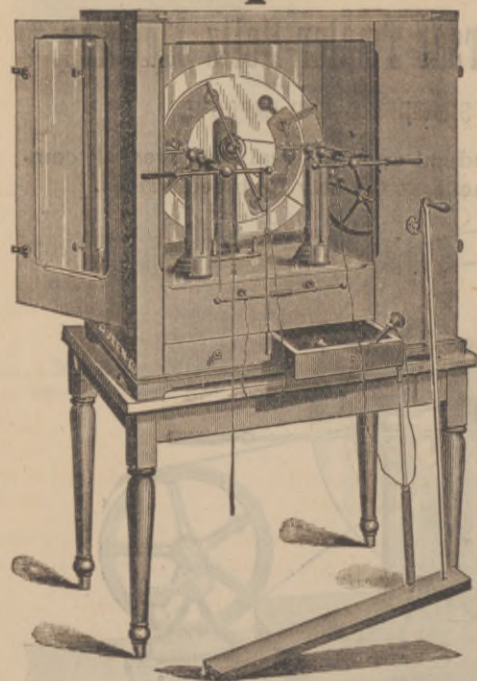
This machine has a finely polished black base and pillar, rubber supports, with necessary motion for adjusting combs to plate; back plate, with adjustable supports for rendering it parallel; iron driving-wheel, with very rigid bearings, and arrangement for tightening belt, also movable feet to fit an uneven table.

The simplified methods of manufacture enable us to put this on the market at the following low prices:

865 A, 16-inch Revolving Plate,	\$50 00
866 B, 22-inch " "	65 00
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We have just been able to get these machines out in practical form, after a great deal of time. Double-plate machines, with the same diameter plates, made to order.

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We desire to call attention to a new and most necessary addition we have made to these machines, where absolute freedom from atmospheric conditions is required.

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1200. Auzoux's Dissected Model of the Eye; the most perfect and accurate ever made. The material is Papier-Maché, and the whole is accurately dissected so as to be taken apart, showing successively the Sclerotic and Choroid coats, and Cornea, Retina, Iris, Pupil, Crystalline Lens, Aqueous and Vitreous Humors, the Muscles, Nerves, and Blood Vessels, colored as in the natural eye, with full descriptive pamphlet,	\$30 00
1201. The same cut vertically,	30 00
1202. The same as 1200, but of German manufacture,	25 00
1203. Human Eyeball, enlarged size. Can be taken to pieces, and then shows the cornea, iris, crystalline lens, vitreous humor, and the coatings, including the results of microscopic examination upon the retina,	6 50
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1. Skeleton, articulated with wires,	\$35 00
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3. Do. do. do. fine quality,	50 00
4. Do. do. do. extra fine quality,	\$55 00 and 60 00
4a. Skeletons, disarticulated, in boxes, best French,	50 00

These are the best French Skeletons, are well bleached and cleansed, very carefully articulated, and furnished with brass ring for suspension.

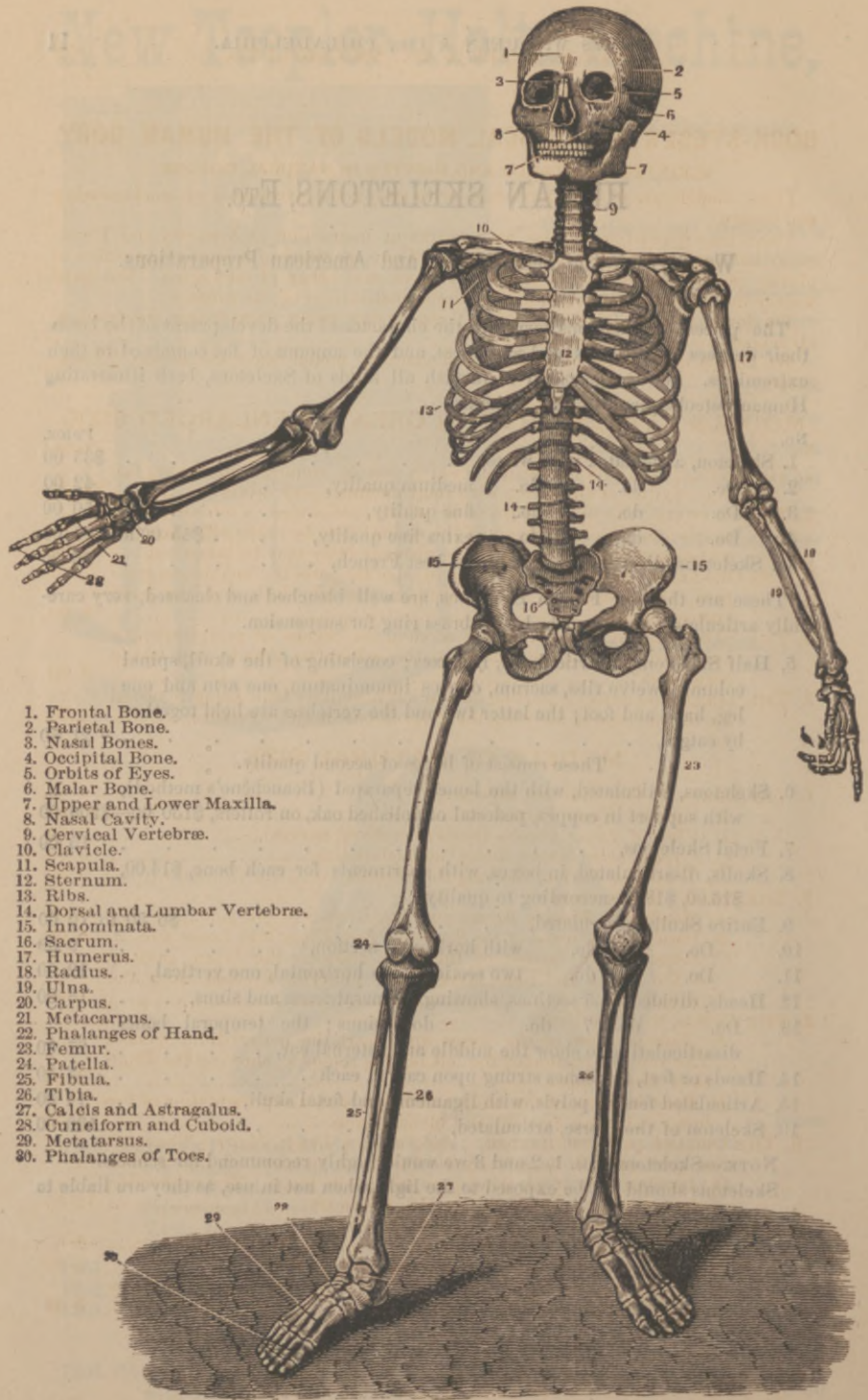
5. Half Skeletons, disarticulated, in boxes; consisting of the skull, spinal column, twelve ribs, sacrum, one os innominatum, one arm and one leg, hand and foot; the latter two and the vertebræ are held together by catgut, 21 50

These consist of bones of second quality.

6. Skeletons, articulated, with the bones separated (Beauchène's method), with support in copper, pedestal of polished oak, on rollers, \$150 00—\$200 00
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9. Entire Skulls, articulated, \$6 50 to 10 00
10. Do. do. with horizontal section, 9 50
11. Do. do. two sections, one horizontal, one vertical, 12 00
12. Heads, divided by 5 sections, showing the nasal fossæ and sinus, 18 00
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14. Hands or feet, the bones strung upon catgut, each 3 50
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3. Nasal Bones.
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5. Orbits of Eyes.
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7. Upper and Lower Maxilla.
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9. Cervical Vertebrae.
10. Clavicle.
11. Scapula.
12. Sternum.
13. Ribs.
14. Dorsal and Lumbar Vertebrae.
15. Innominata.
16. Sacrum.
17. Humerus.
18. Radius.
19. Ulna.
20. Carpus.
21. Metacarpus.
22. Phalanges of Hand.
23. Femur.
24. Patella.
25. Fibula.
26. Tibia.
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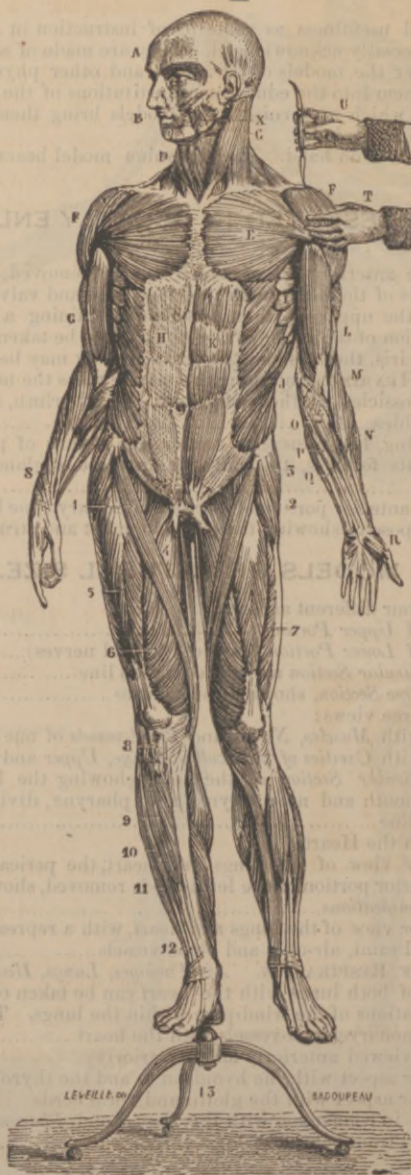
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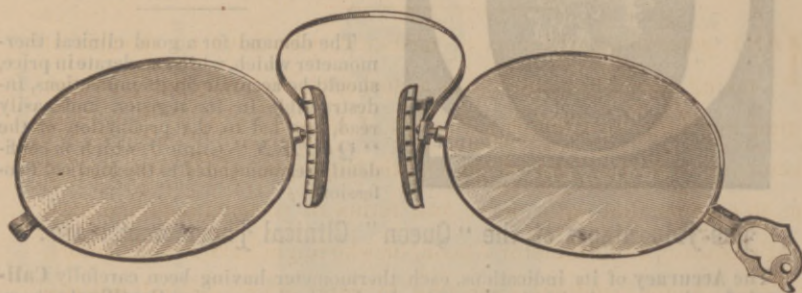
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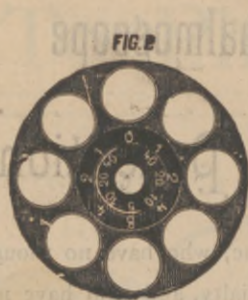
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Student and General Practitioner.

MANY general practitioners of medicine, who have no thought of taking up Ophthalmology as a specialty, and who have neither the time nor desire to attempt a mastery of its more difficult and subtle refinements, feel the need of an Ophthalmoscope, which will enable them to examine the optic nerve and retina of patients suffering from Bright's Disease, or Locomotor Ataxia, or who might have Brain Tumors, etc., etc. Again, students expecting to enter upon general practice desire some acquaintance with diseases of the eye, a thing impossible to attain, in the present state of Ophthalmology, without a practical acquaintance with the use of the Ophthalmoscope. But, heretofore, there has been no good and cheap Ophthalmoscope available for those who did not expect to derive the larger part of their income from the treatment of ophthalmic disease. Of late years, many improvements have been made in the Ophthalmoscope—such as the adoption of the "Rekoss Disk," with "spring catch," the "tilting mirror," etc., which made it much easier to obtain a satisfactory view of the interior of the eye; but these improvements were confined to the costly instruments with great series of lenses, of no possible use to the general practitioner.



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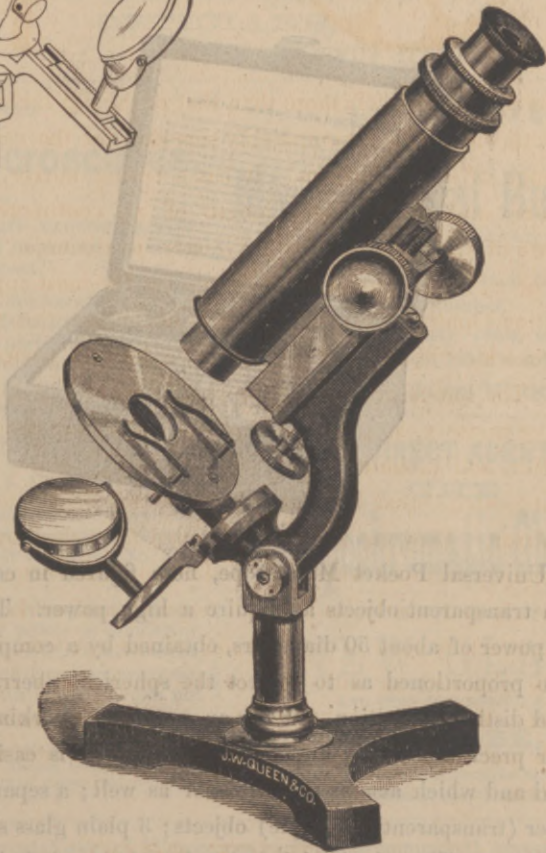
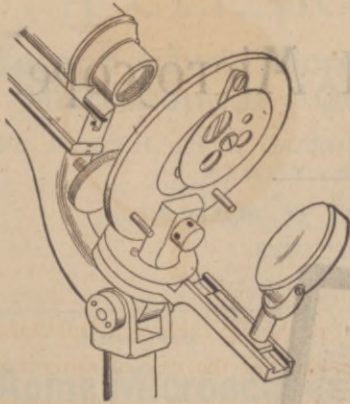
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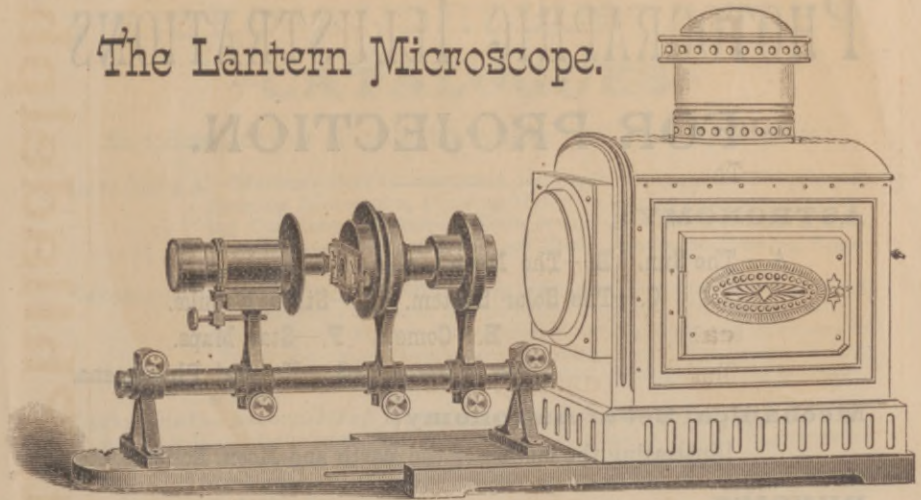
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