An account of a solar and gas speculum : and of an obstinate disease of the ear successfully treated / by J. Togno.

AN ACCOUNT

OF A

SOLAR AND GAS SPECULUM;

AND OF

OBSTINATE DISEASE OF THE EAR SUCCESSFULLY TREATED.

BY J. TOGNO, M.D.

PHILADELPHIA.

FROM THE ECLECTIC JOURNAL OF MEDICINE, EDITED BY JOHN BELL, M.D. ETC.

Philadelphia:

HASWELL, BARRINGTON, AND HASWELL,

293 MARKET STREET.

TO

PROFESSOR HOLBROOK

OF CHARLESTON, S. C.

To you, my dear sir, who first kindly acknowledged the utility of ese instruments, and who from the conviction of experience, so warmly oclaimed their advantages, allow one of your admirers to Dedicate these ges. I earnestly hope you may experience a moment's pleasure from eir perusal, which would be only a small return for the edification I rived from your splendid work on the Reptiles of America.

J. TOGNO.

THE SOLAR SPECULUM.

To the Editor of the Eclectic Journal of Medicine:

I HAVE just read in your Journal for September, the description of Dr. Sharpless's Auriscope. In the total absence of any other speculum for the *inspection* merely of the ear and nose, this instrument has the advantage of portableness; but I beg to differ from your estimable correspondent, as to the many advantages which are by him ascribed to this auriscope.

I shall now inform you of the objections to its use:

1st. There are at least one half of the patients that require to have their ears inspected, who cannot tolerate the pulling of the auricle, much less the introduction of the dilating valves of the speculum.

2d. Whenever it can be tolerated, and an operation must be performed in any part of the *meatus externus*, or on the *membrana tympani*, or in its absence, on any part of the cavity of the tympanum, this auriscope, when it is most required to see what one is doing, could not be used, because it would be in the way of the operator's hand, or the hand would stand in the way of the reflected cone of light. Moreover, in order to hold this auriscope, the operator must employ one of his hands, or have an assistant to hold it for him, which is very objectionable, because the latter cannot hold it so as to enable the operator to see easily and distinctly.

3d. The patient must be placed in the sun, in order to allow its rays to fall on the mirror of this auriscope. Therefore, even in the most favourable exposure, the aurist cannot command the direct rays of the sun in his office, and consequently the patient must be taken out of doors in the sun to examine the parts to be treated. In this case, and being out in the sun, *no practitioner needs an auriscope of any kind*, because the direct rays of the sun in this situation can be directed in the *meatus externus*, by simply inclining the head of the patient, and allowing him to rest, on another chair, the hand opposite to the side to be inspected. But this exposure is not very pleasant, either to the operator or to the patient, especially when the thermometer in the sun stands at 100° or 120° F.—I know it from actual experience, acquired before I constructed my solar speculum, which I have had in daily use for more than two years; and its positive advantages were witnessed by Dr. Sharpless many months ago. But more of this by and bye.

But if there be no sun visible, or at night for instance, how is the doctor going to employ his auriscope? Is it not at such a time useless?

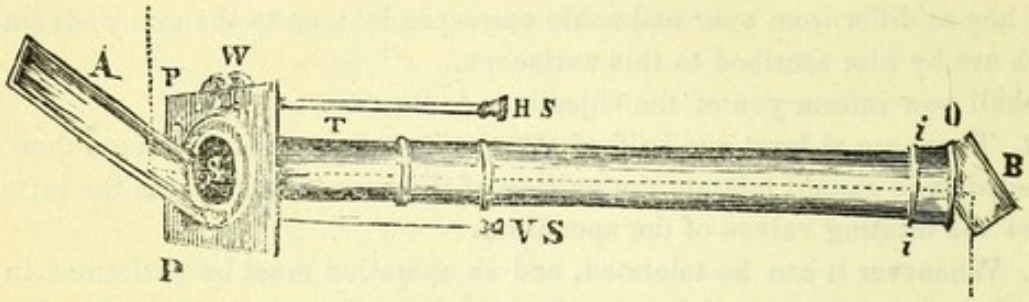
In conclusion, such an auriscope cannot be used in a great number of cases; the patient must be under the sun's rays as well as the instrument; it is useless when it is *most required*, that is to say, when an operation in the *meatus externus* is necessary, because it is in the way of the operator, and he must also employ one of his hands to hold it, in order to direct the light *into the ear* to his own satisfaction.

Allow me now, sir, to introduce to your numerous readers my *Solar Speculum*, and my *Gas-Speculum*, for the inspection of the ear, the nose, the vagina, anus, &c.; in a word, every internal cavity that is in obscurity, and that it is desirable to examine ocularly.

I consider that this speculum is to the researches of the eye in medical matters, and the ocular demonstration of their actual state, what the stethoscope is

to the ear for detecting, by means of sounds, the abnormal condition of the three principal and closed cavities of the body.

One of the windows of my office being situate on the south side of the house, I have the sun from the moment it rises till it sets; and attached to it are shutters which when closed, prevent the sun from incommoding me. In one of these there is a small box, twelve by eight inches, with an opening inside, and a window on the outside, which has fastenings to keep open and shut. In this box is placed my solar speculum, fastened to the chair on which it rests.



This instrument is placed in the box above alluded to, and the vertical plate P P is firmly held perpendicularly by proper fastening in the plane of the south side of the box, so that the mirror A is freely exposed to the sun's rays. This mirror has two movements, one rotatory around the end T of the tube T O, and describes a complete circle with its surface; the other movement is vertical to the plane of the plate P P.—The first movement is produced by a wheel placed at W.—The second by a screw and wheel at S. This latter movement is produced by turning the rod V S, and the former by turning the rod H S.

O B is a second mirror that has also two movements; one rotatory from i to i, describing a circle; the other has a hinge-like motion at O. So that the sun's rays reflected by the mirror A, enter the tube T O; are again reflected by the mirror O B, in a direction either to the right or to the left, up or down; in a word, towards every point.

The light, thus twice reflected, is so pure and mild that all objects are distinctly seen; although by their position, and without the assistance of some such contrivance, they would be in utter obscurity.

Thus we have an instrument with which we can throw a strong cone of pure light into any cavity, in any position or situation the patient may be placed. It does *not* demand the hand or the *attention* of the operator for several minutes, when once the cone of light is directed into the cavity to be examined. It has also the advantage, that while the patient may be placed in utter obscurity, and without his being at all exposed, all the cavities, such as the vagina and anus, as well as the ear and nasal passages, can be inspected with the most perfect privacy.

I think this instrument fulfils all that can be expected and desired from it, namely: simplicity of structure, facility of directing the light in every direction and at all distances, preventing exposure out doors, facilitating the operator's inspection by its light, without its being in his way; and it can be used from sunrise to sunset.

am not aware of any such instrument having ever been invented, and applied to so useful a purpose. It is true, that in the machinery itself there is nothing new, for the movement of the mirror A is precisely the same as that of a solar microscope; but its combination with the other parts of this instrument, and its useful application, I claim as originating with me.

I seldom find it necessary to artificially dilate the *meatus externus* by means

of a speculum, to enable me to see its parietes, or the *membrana tympani*, or the cavity of the tympanum; but whenever I find such a state of things as to prevent me from having a sight of the internal parts, I always have recourse to the common speculum which is used by all practitioners for the inspection of each particular cavity.

In my next I shall trouble you with a description of a *Gas-Speculum;* to be used when it is cloudy, dark, or at night, at which times the surgeon is precluded from making any examination, and is unable to operate.

Very respectfully, J. TOGNO,

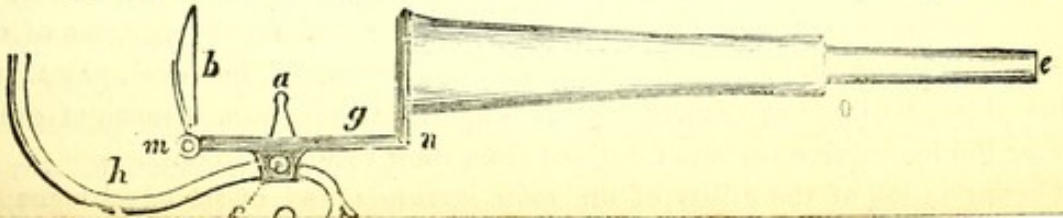
92 *Locust Street, Philadelphia.*

THE GAS SPECULUM.

In my last letter, Dr. Togno writes, I troubled you with a detailed account of a *solar-speculum.*—Allow me in the present one, to convey to your numerous readers, a delineation of a *gas-speculum*, to be used instead of the former, whenever the sun is not visible.

I should have given a description of these instruments long before now; but fearing to publish anything that might be considered premature, I postponed this publication until the present occasion. Being now firmly convinced that they may become of great utility to mankind, as much so, in their way, as the stethoscope, I make them public, in the hope that the faculty at large may experiment on their positive usefulness in the examination of the uterus, the vagina, the anus, the ear, the nasal passages, and especially when ever any operation is to be performed on these parts. I shall be equally thankful to the candid experimenter, either for the confirmation of my views, or for his enlightened and impartial criticism. Science should know no favouritism: truth and utility are its sole object.

I have introduced into my house the gas manufactured by the Philadelphia Gas Company, which is uncommonly pure, without the least particle of smoke. It gives out a very clear and pure light, that does not fatigue the eye in the least. The branch on which the gas burner is fixed, is so made as to enable me to place the whole gas-speculum on it, and to fasten it to this branch by a hand. screw, *f*. This apparatus is composed of a concave metallic mirror, *b*, of the diameter of the expansion of the flame of the burner, which spreads out into the shape of a bat's wings. The mirror is perpendicular to the axis of the truncated cone or tube, *n*, *o*, into which the light reflected by the mirror is concentrated. The sides of this tube are parallel from *o* to *e*, and a portion of this tube slides over the other with a cloth slider, in order to lengthen it, so as to enable the operator to adjust the focus of the lens placed at *e*. Both the mirror and tube are fastened to the same cradle, *m*, *n*; and the plane of these two parts of the apparatus preserve always the same relative position and inclination. The inside of the tube is blackened to prevent any reflected light from the sides confusing the pure direct light from the burner, and that reflected by the mirror.



The gas-speculum moves as a whole, in a vertical manner, at the point *f*, by unscrewing slightly the hand-screw, that fastens the whole cradle; and this movement is in a plane, through the median line of the mirror and flame, and thus the focus of the lens can be directed upward and downward, and projected on the object to be examined. This apparatus affords a pure light, as clear as the sun itself, when twice reflected; and enabling the surgeon to operate at all times, with perfect privacy, by rendering the objects perfectly visible without fatiguing the eye in the least: an advantage that is not possessed by any other kind of artificial light that I ever used, especially when powerful. The flame of the burner, besides, may be diminished at pleasure.

Without entering into a very minute history of the various contrivances which have preceded mine, and which have been resorted to by aurists, in order to illuminate the internal parts of the ear, I shall simply mention the apparatus of Buchanan. That of Kramer, which is essentially the same as that of Buchanan, is the least objectionable. So far back as 1829, I used a similar apparatus; but I soon found it a very imperfect instrument: because the red light of such a lamp imparts to the tissues examined, one uniform lurid red colour, and thus gives a very false and incorrect appearance to the parts, calculated constantly to mislead the observer. I therefore, long ago, discarded its use altogether. The same objection may be made to every apparatus in which the combustible substance that illuminates the parts is a vegetable or an animal oil.

Itard and Deleau have, to my knowledge, no other means of examining the *meatus externus* but the common speculum, which is, properly speaking, but a simple apparatus, to dilate with its valves the orifice of the meatus, and by allowing the light of the sun to penetrate internally, renders its various parts imperfectly visible, the direct rays of the sun being never so good to examine an object, because they dazzle and fatigue the eye. No such objection can be made against my instruments.

In the article *Speculum* of the *Dict. de Med. et de Chir. Pratiques*, I find the following sarcastic paragraph on the frivolous pretensions of those who have, from time to time, made ridiculous alterations, which by the aurist has been exalted into a discovery.—"All the external orifices have exercised the inventive genius of certain surgeons who have modestly thought to assist the progress of science by adding to its already too large instrumental arsenal; some of them, by adding a simple piece of steel, curved in one way rather than another, or a handle, or a particular articulation; while others, by using a plate of four inches, instead of one of three and a-half, believing this an improvement; and by others, more bold and less hesitating, consider these alterations *inventions!*" I feel the truth of this paragraph; and I quote it because it conveys a salutary lesson to the pretensions of inventors. I humbly believe that these instruments are not of the category of those alluded to in the above quotation; and that they are entirely different from anything that has ever been used for this object.

France, it is true, has had her Saissys, her Itards, her Deleaus, &c., justly celebrated in diseases of the ear, by improving the diagnosis, and by the fertility of invention of all kinds of instruments; but still they have never constructed an apparatus for the perfect illumination of the internal ear, to facilitate its inspection while in a morbid condition, and for the purpose of enabling the surgeon to operate knowingly in this organ. I, however, pay them, in this place, a tribute of respect for their superior talent, from a sense of gratitude for the instructive lessons I derived from their valuable labours.

In confirmation of the utility of the *solar speculum*, and of its advantages a

proved to me by the experience of several years' daily use, especially in cases involving the auditive organ and its concealed parts, I shall introduce, in this place, a recent case, witnessed by *two medical gentlemen*, illustrating my views of its great advantage, and clearly showing, by *facts*, that without some such contrivance, it would not have been possible to treat it successfully. Other cases, illustrative of my opinion, and corroborative of this case, could be here related, were it not that I should then go beyond the reasonable limits of a letter.

September 10th, 1838, Mr. James Heilbron, from Charleston, South Carolina, called to consult me about his right ear, in company with my friend, Dr. Duncan, of this place. I learned from the patient that he had consulted on his case from twenty to thirty medical men of eminence, the substance of whose advice was, a recommendation to do nothing for it;—to bear his distressing infirmity with patience; adding that none had any appropriate instrument to examine the auditive organ, in order to ascertain its actual condition. In the course of conversation, I found that the patient was full of alarms—easily excited, but at the same time complaining of no pain in the ear, but merely of a fulness and numbness in the head, a confusion of ideas, a treacherous memory, as well as a want of sensation in the *meatus externus*, and even of the face on the right side. He had a full and sluggish pulse, eyes injected, and laboured under a continual dyspepsia. He was unable to lie down on the left side, because of an arterial beating that would immediately follow in the auditive organ and a fullness of the head on that side. The patient was obliged to sleep upon his back, propped up by several pillows, for, whenever he reclined on the right side, he was subject to hemorrhage from the right ear. Thus his life was embittered, and his malady the continual cause of complaints. There issued from his right ear a continual discharge of bloody, purulent, fœtid matter,which he was obliged to cleanse away constantly; and notwithstanding all his habits of cleanliness and care, the fœtid effluvia of the diseased organ was made evident as soon as he entered my office. On an examination of the ear, with the assistance of my *solar speculum*, I found that the *meatus externus* was full of fœtid matter, which was immediately syringed out with a mucilaginous liquid, and then a large fungous excrescence that plugged the whole passage, and from which the purulent matter oozed out, as well as a caries of the bony part of the *meatus externus*, was made evident. The patient had supposed, and firmly believed that he could hear with this ear; but after this examination, I informed him that he was mistaken with respect to this belief. He still insisted that he did hear. In order to convince him, I then placed my watch at four inches from his right auricle, and asking him at the same time whether he heard it, he answered me in the affirmative. I insisted that he did not hear it, because I knew by the state of the ear, and by the vague expression of the right eye, when the watch was at four inches, the real state of audition of the right organ. The patient was made quite angry by this contradiction, but was soon appeased by my placing the watch on his right auricle, and pressing it against it. He then really heard it; and was only made aware at that moment of the extent of the deafness of that ear, and candidly confessed his error, but not without expressing great surprise and fear at his condition.

The polypus or fungous excrescence was now repeatedly touched with a weak solution of nitrate of silver, by means of a very fine camel's hair brush, and the ear was filled soon after with mucilage of slippery elm bark. The bowels were freely opened several times, and a generous diet advised: but wine and spirituous

liquors were forbidden. The nitrate of silver solution was used in the same manner for several successive days, after the ear had been thoroughly syringed. Every time that the ear was thus syringed, large lumps of matter, of a cheesy consistency, and fragments of thickened and degenerated membranes, as well as portions of the polypus, were forced out. This treatment being continued for a few days, morning and evening, the polypus gradually disappeared, except its pedicle that was located on the anterior part of the *membrana tympani*, which gave it origin. Now that the fleshy mass, which obstructed the meatus and prevented my clearly seeing all its parts, was removed, I was able to make a more minute examination. I perceived again, but more distinctly than formerly, that there was a cavity on the upper part of the bony portion of the *meatus externus;* and that there was a caries not only of this part, but also of the petrous portion of the temporal bone into which the silver probe could be introduced in an inward and backward direction; and evidently this caries led towards the base of the brain. I immediately directed the end of a syringe into the fistulous orifice, and then repeated injections of mucilage were forced into the carious cavity; a quantity of blackish matter, of a cheesy consistence, came out from this cavity. When thus well cleansed, I injected into it a weak solution of hydriodate of potass. After employing these injections for several days, I introduced into the same fistulous orifice an ammoniacal solution of nitrate of silver, by means of the camel's hair brush. This was also continued for several days, with a recommendation at the same time, during the whole treatment, that the ear should be always kept filled up with mucilage, and then plugged with cotton, to protect the sound parts from the corrosive and irritating effects of the morbid secretions. Before two weeks had elapsed, the secretion of the fœtid matter was completely stopped, and the caries of the bone was evidently filling, to judge by its present secretions, with healthy granulations, which soon made their appearance at the fistulous orifice. The ear was still daily syringed with a mucilaginous liquid, but always warm: for the presence of a cold liquid, or cold air, was intolerable, and produced giddiness, and indescribably unpleasant sensations,—so much so, that the patient dreaded even the removal of the cotton plug, in order to operate on the ear. Finding that the healthy sensibility of the parts was returning, in proportion to the disappearance of the morbid sensibility just mentioned, that the whole organ assumed its normal appearance, and still the hearing was only slightly improved, I resolved to probe the Eustachian tube, and to ascertain its condition, by means of air douches. But to my great gratification I found it free, unobstructed, and very sensitive—but morbidly so. I directed through the nasal passages, and also into the Eustachian tube, mucilaginous injections, to allay the irritation of the parts. A few days being elapsed, the whole organ resumed its natural appearance, and audition also was fast returning in the same proportion.

October 15th, Dr. Heilbron is entirely well, and in good spirits, owing to his quick recovery; he remarked to me that had the vexatious events caused by the present yellow-fever that rages in Charleston, occurred previous to my treatment and his recovery, they would have made him so intolerably irritable; that his head and ear would have been affected as formerly, and frequent hemorrhage and discharges of matter from it would have been the consequence. But that notwithstanding all these predisposing causes he feels perfectly calm, and bears these vexations cheerfully; and none of the former bad symptoms have in any manner made their appearance. In compliance with Mr. H.'s request I in-

troduce with pleasure in this place his letter, because the very satisfaction mentioned in it is a sure evidence of his entire recovery. I also embrace the present opportunity of warmly thanking professor Holbrook of South Carolina, and Dr. Duncan of Philadelphia, for their kind assistance in encouraging the patient to persevere in the treatment that was to produce this happy result.

Philadelphia, October 9th, 1838.

Dear Sir,—Being satisfied that you have performed a perfect cure in my case, I deem it useful for the benefit of others labouring under the same complaint, to give you a history of mine from its commencement.

About 3 or 4 years ago after an attack of dyspepsia, in which I could not for some time retain any nourishment that I took, either liquids or solids, I found one morning that my right ear was bleeding profusely. I made use of the various applications generally resorted to in such a case; the bleeding stopped, and a discharge of matter of an offensive nature soon followed. This continued for some time, and a free discharge of blood soon followed it. When it stopped, matter again appeared, and so on in regular succession. I applied to my physician, and also to many others; they all agreed that it was an effort of nature not to be interfered with. I travelled several summers to the Virginia Springs without receiving any benefit; and this year my visit to the Springs only benefitted my general health, but had no beneficial effect on my ear; indeed the bleeding had rather increased, and my hearing in the right ear was almost lost. I had to resort hourly to cleansing the ear, and filling it up with cotton, as it could not be left for an instant without being shielded by cotton from the air. I could not rest on either side, and my pillow was covered nightly with blood and matter. It became very offensive; my mind was distracted, and I was made irritable. In this situation I met here Dr. Holbrook, Professor of Anatomy in the University of South Carolina a gentleman in whom I have the greatest confidence: he recommended to me at once to apply to you, and promised that he would accompany me, stating that you were the best aurist in Philadelphia. Dr. Holbrook was detained and prevented being present at our first appointment, although he subsequently was present, and you both examined my ear, upon which you operated. I was on our first interview, kindly introduced to you by Dr. Duncan of Philadelphia. My fears were realised; for upon examination you found that I had a fungous excrescence in the ear, and that its bony part was carious. Dr. Duncan, then examining it, coincided with you. In placing myself under your care, I was afraid that the operation of extracting the fungous part would be attended with great pain, and that more time would be required than I could possibly spare, but I was agreeably disappointed. I had no pain, I lived as usual, and could attend to my business; even the caustic you applied, which alarmed me so much, did not affect me in the least painfully. Lastly, the probe you applied through the nostrils to the ear, was applied with such dexterity and lightness of hand (for the purpose of ascertaining its condition), that I wish it had been done in the presence of all the faculty. Professor Holbrook, who subsequently examined the ear, is satisfied that I am perfectly restored, as well as Dr. Duncan. My hearing is entirely re-established. I can now hear my watch at one yard's distance, which before I could only hear when pressed upon the ear. I wish that you would publish this case, with a detailed account as you have observed it, since I cannot give a scientific statement of it, and also an account of it in plain language for other individuals.

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* * * * * * * * * * You may rely on it, my dear sir, if I hear of any case of deafness I shall (if I am obliged to walk miles) go to tell the sufferer of the success you have had with me, and recommend him to you. I shall see you again before I leave this place, and thank you personally for the kindness and good feeling shown to me whilst I was under your care.

May God prosper you, and send you as many patients as you deserve for your constant patience and industry.

Washington House, October 9th. JAMES HEILBRON.

Having a personal knowledge of Mr. Heilbron, and the circumstances connected with his case, I feel proud to add my testimony; and allow me, my dear sir, to congratulate you on your complete success in restoring Mr. H. to his hearing.

Yours, with respect,

To Dr. Togno. A. J. H. Duncan.

Observations on this case.—The disease was perfectly cured, without producing any bad consequences, by gradually arresting the discharge, and by curing the caries of the bones; and this contrary to the erroneous opinions given by many physicians, who had been consulted in the case, because they had no appropriate apparatus to examine the ear, and to ascertain its real condition.—They were misled by a general notion of the positive danger that exists, in some cases, of stopping a discharge of purulent matter when coming from the ear, and feared to arrest a symptomatic discharge of puriform matter, when from the carious state of the petrous portion of the temporal bone, by which often the death of the patient may be caused, if it be too quickly or imprudently or injudiciously done, as in many cases related in Dr. Itard's work. We are fully aware of this rash consequence, when the symptoms indicate that the caries has already reached the cavity of the cranium, and of the deadly consequences of an improper treatment by astringents in such a case, as it is but too often practiced.

In this case, on the contrary, the silver *probe* and the *eye* told us the real state of the carious bone, and the total absence of lancinating pains told us the rest. Hence our treatment with nitrate of silver and mucilaginous injections to encourage the discharge, protect the parts from the acrimony of the secreted matter, and restore the tissues to their healthy condition. The result proved that our views were correct. We particularly instance this case, because it emphatically showed how easily the observer may be laid into an erroneous diagnosis, simply from the want of an appropriate instrument to ascertain the real condition of the parts affected. For further information on this interesting subject, we refer the reader to Dr. Itard's learned work on the Ear.