

How many parents, otherwise most kind and thoughtful, allow accumulations of water in the cellars of their homesteads! They wonder at the poor health of the household, and talk about the providence of God being somehow the cause of the difficulty, whereas it is owing to their own ignorance or willful violation of health laws.

Again, how many adults and how many children are daily submitted to the rebreathing of the air that has been used many times in the school-room, workshop, store, warehouse, kitchen, or parlor?

Men seem to forget that pure air in plenteous streams is needed for the perfect health of man. Go into our public assembly rooms, our courts of justice, or our churches, from the external air, and see if you are not oppressed by the noisome vapors, which the folly (or crime, as it seems to me we may sometimes call it) of our public authorities compel our people to breathe, often to their infinite injury.

The time will come when our descendants will look back with horror and disgust at the thought that such a building as the Boston Court House should have ever been built, and still more at the fact that, notwithstanding the annual and piteous complaints of sufferers, who are among our noblest citizens, and who are engaged in the most important public duties, the city authorities should steadily refuse to grant any change.

THE MIND.

A healthy mind in a healthy body is always considered the richest boon bestowed on man. When one can use his mind for real mental work, as he would a sledge-hammer in physical labor, then, and not till then, is a man in perfect health. And in order to have this stalwart condition, he must have all the bodily organs go on smoothly, and without his being aware of any of them save in their regular performance of necessary functions. How many have this delightful state of feeling?

Owing to several causes, among which may be cited as prominent our institutions, the inventions of modern times, enabling us and rather leading us to work *heroically*, and finally our exhilarating atmosphere, etc., almost all the community, young and old, *overwork*, and the result is that our children break down at school; our middle-aged finish their labors, or some have to rest for months, perhaps, when without such overwork their minds could have continued active for an indefinite period of time; others become prematurely aged.

We have thus glanced at the skin, the digestive system, the thorax, and the head, and we have hinted at some few of the evils now pressing upon us all, and causing injury to the public health. We believe that the scientific sanitary culture now going on will either overcome or greatly alleviate them. We have forbore all allusion to other tendencies, which, if followed with reason, elevate, refine, and physically improve both sexes, but which used unreasonably and immorally are likely to bring not only unutterable mischief and sorrow to the violator of law, but woe upon their descendants.

We have accomplished our purpose if we have led even a few minds seriously to reflect upon the importance of having among all nations well-devised sanitary organizations, which, beginning with the individual himself, will endeavor to teach him the rules of health, and afterwards will guard him from various dangers to

which he may be exposed from his own neighborhood, from the State, the nation, or from mankind, outside of his own people.

LITHOLAPAXY.

AN IMPROVED EVACUATOR.

BY HENRY J. BIGELOW, M. D.

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THE operation for the complete removal of a stone at one sitting, by crushing, has been as successful as its most sanguine advocates could have hoped. Several years may still be needed to determine precisely its relative value; but in the mean time it has been abundantly proved that the bladder tolerates long operations, provided the fragments of the stone, which are the principal cause of inflammation, be removed,—and that fragments need no longer be a source of inflammation. Although several cases of litholapaxy have terminated fatally, the cause of death was not the usual one after such operations: it was not an inflammation of obscure origin, connected with previous disease of the bladder or of the kidneys. The few deaths that have occurred were due to mechanical injury, which, with greater experience in operations of this kind, will doubtless, in the future, be avoided.

It has been remarked by more than one writer, that the new lithotripsy requires even more care than was necessary in the old method by short sittings. This is true. Each repeated act of crushing or of evacuation is obviously liable to its own casualties, and we must add to this liability any that may arise from the gradual abatement of the operator's vigilance. It was once an object, in persuading surgeons to forego their traditional prejudices, to show that the new operation was safer than they supposed; but this being now generally conceded, it is at present important to insist that it should be attempted only by practiced lithotritists, or by a beginner only after familiar practice upon the cadaver. I know no other surgical operation in which a little want of skill or of care is so insidiously liable to fatal accident. The skill here is of a particular kind; and though a surgeon may use a knife well, it does not follow that he also uses a lithotrite well. Before considering this instrument, however, let us examine the evacuator, or "wash-bottle."

It was an alteration of this instrument that made litholapaxy possible, and led to the discovery of the tolerance of the bladder. This was the enlargement of its tubes from the size of the common catheter to the largest the urethra will admit without injury. In evacuating a small stone the smaller of the new large catheters (26 or 27 French) works well enough; but in order to evacuate a considerable stone with comfort either to the surgeon or to the patient, we need a catheter of from 28 to 31, and for its introduction it is often well to enlarge the meatus, which is the narrowest part of the urethra. I cannot but think that the preference of some operators for the curved tube I at first employed is connected with their previous familiarity with curved catheters. And yet when a curved evacuating-tube is in position, its entire curve is in the bladder; and in the manipulation of the instrument there exists the disadvantage of not seeing, as readily as with a straight tube, where its point lies. The orifice, in either case, is on the side of the extremity, and

there is perhaps a quarter of an inch of tapering solid metal beyond it, necessary to make its introduction easy, and to keep the bladder from obstructing it.

The large evacuating-tube being the essential instrument in the new operation, a vacuum produced by almost any apparatus will draw fragments through it. Certain principles, however, observed in their construction, will make them more convenient and efficient.

An apparatus I early employed consisted of a stiff bulb and Clover's trap, attached to the large catheter by a short elastic tube. The combination was a good one; for the elastic tube allowed the bulb, when in use, to be bent down to the level of the bladder. The bulb could also be laid on its side, and, by further depression, reversed; which brought the catheter tube to the top. It then remained only to open a trap at its lowest point and the fragments remained where they fell.

This arrangement, placed in a stand, is practically the evacuator I still use.

A strong bulb or bottle is here a very desirable substitute for the former slender one.

In the glass trap at the bottom of the instrument, the fragments are kept out of the current at a point distant from the catheter. After entering at the top of the bulb, they settle at once to the bottom and remain there undisturbed.

If fragments are drawn through the tube with the force and rapidity that are given to the current by a strong elastic bottle, a few inches added to the length of the route are of no consequence. A short and curved elastic tube (here five inches long, but which I have varied from two inches to two feet) between the bottle and the catheter makes it possible to move one without the other. It relieves the surgeon and protects

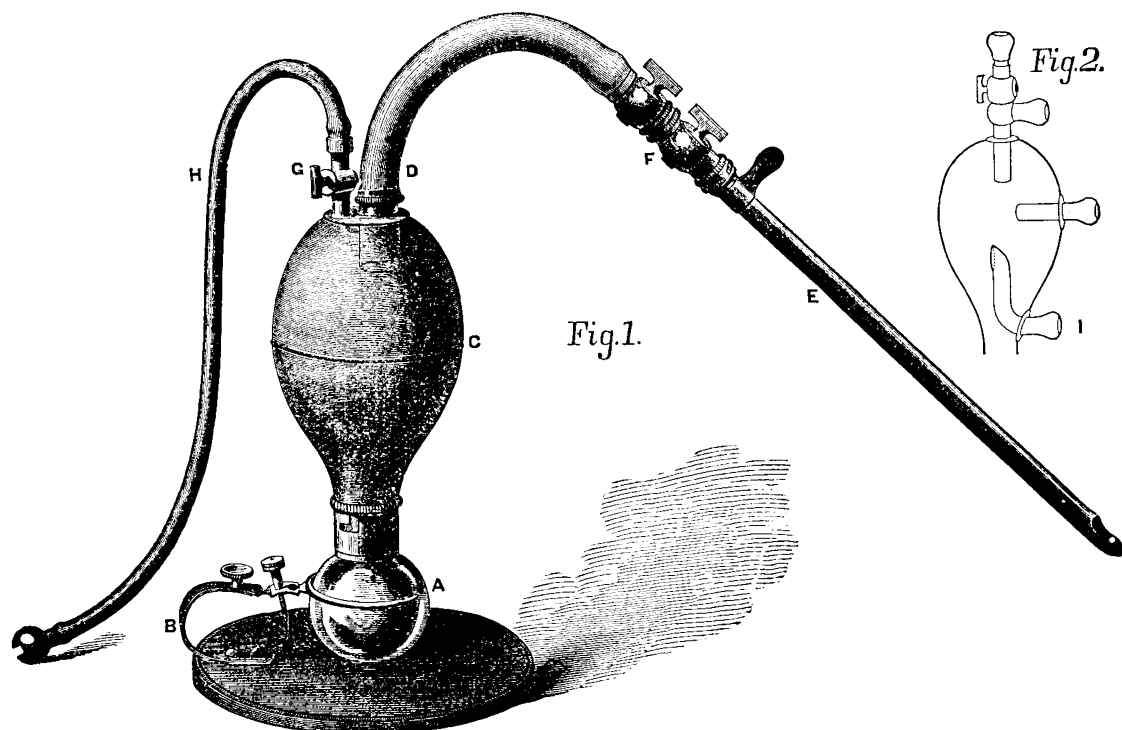


FIG. 1. — A. Glass trap, forming, with the screw-catch B, which supports it on the stand, a ball-and-socket joint.

C. Elastic bulb or bottle.

D. Elastic tube, five inches long. One end is attached to E, the evacuating catheter, and the other is continued into the bulb to form a chamber above its orifice.

F. Coupling between the cocks of the evacuating catheter and the elastic tube.

G, H. Small hose for air and water, with a movable attachment at G.

FIG. 2. — Diagram of a bulb used for experiment.

(TIEMANN & Co., New York.)

the patient. The surgeon can explore the bladder in search of fragments, without having to move the bulb which weighs a pound or two; while the jar of pumping does not reach the bladder. The discomfort to the unetherized patient resulting from this jar is a serious objection to the rigid attachment of the bulb of water to the catheter. It should have a support of its own, placed upon the table or bed between the patient's legs, which may be separated a little, as in the case of the introduction of a catheter or a lithotrite. The surgeon's hand, instead of supporting the water bottle, is then supported by it.

The bulb, when thus near the level of the bladder, acts as a siphon. This is desirable. By experiments you will find that the difficulty of suction increases as the bulb is held higher than the evacuating-tube. It is very marked in Clover's instrument. There is great

advantage in keeping the bulb low, near the level of the bladder.

The evacuator thus described works very well. I have used it in most of the operations you have seen. Its imperfections are that if, by accident, a little air gets inside the bulb, this has to be uncoupled to get rid of it, and a few drops of water may escape in coupling and wet the bed. By a simple expedient I have remedied these inconveniences. In the instrument I here show you, air can be removed, or water withdrawn from the bulb, or added to it, without a drop being spilled. Indeed, the operation would be absolutely dry, did not a sensitive bladder occasionally contract and squeeze out a little water by the side of the lithotrite or catheter, in spite of the elastic band I usually tie around the penis to prevent it. When this happens, it is perhaps best not to try to stop it.

In this instrument, the large evacuating tube at the top of the bulb extends an inch or more downward into its cavity. A space is thus formed where any accidental air collects, but cannot pass to the bladder. This space is emptied at will, through another elastic tube or hose, a little more than a quarter of an inch in diameter, placed by the side of the first. The arrangement is a very simple one. Through this small hose, which can be attached and detached in a moment, the turbid contents of the bulb may be replaced by clear water, without unfastening it from the catheter; or the contents of a tumbler can be transferred to the bladder, and back again, absolutely without loss of water and with the elimination of all the air. With one end of the apparatus in the bladder and the other in a basin, the operator, even while he is evacuating the fragments, can vary the volume of water at will and put it where he pleases. The catheter, and the elastic tubes, large and small, are each provided with a stop-cock.

If, before using the lithotrite, the surgeon desires to add or withdraw water from the bladder, this may be done through a common sized catheter coupled with the bulb,—thus obviating the necessity for a syringe, and rendering this part of the operation as dry as the rest.

Instead of the metal ball-and-socket joint in the stand of my former instrument, I have substituted another, of which a strong glass trap forms the ball. This is supported in a metal socket, which allows all necessary motion, or fixes it upon the flat disk.

The operation is as follows. Before a catheter is introduced, its stop-cock must be closed. The urine is drawn through a small catheter and replaced by water from the bulb. The lithotrite is then introduced, and the stone is crushed. A large catheter is next passed into the bladder, to evacuate the fragments. If, during the pumping, the bladder indicates, by repeatedly stopping the catheter, that its parietes are hanging loose and acting as a valve, it should be distended by a little water injected from the bulb. This water is retained in the bladder by closing the cock of the catheter; while the bulb is replenished through the small hose.

When the empty evacuating catheter is first introduced, a few bubbles often rise from it, and are caught in the bulb by elevating it. But when the current is established, air takes care of itself, and goes to the trap in the top of the bulb. In fact, there is none, unless by accident. By opening all the cocks, and compressing the abdomen, it is easy to drive air out of the bladder through the bulb as far as the basin.

In pumping you need move only a couple of ounces of water between the bladder and the bulb, backward and forward, gently, without a jerk, once in a second or two. The tube is advantageously held just off the floor of the bladder,—a little higher at first, when the debris clog it, and lower down when only a few fragments remain.

As regards the amount of time necessary for an operation under ether, take as much as you please; precisely as you do in an amputation or excision. I usually add to the evacuation a thorough sounding. This requires more time. Some operators leave a few fragments in the bladder, to make the sitting shorter, but I doubt the expediency of doing so. Great care is essential,—also practice. Learn from a good instructor how to pass instruments, large and small, curved and

straight, with absolute facility, upon the dead body, before practicing upon the living. Notwithstanding an occasional assertion to the contrary, I assure you, that, if you can introduce with ease into the bladder of a dead subject, not empirically, but with a reason for each movement, a common tin sound bent successively into a variety of different irregular curves, (and a few hours' intelligent practice, based upon anatomical considerations, will enable you to do this,) you will handle a catheter adroitly in any difficult case upon the living subject, and avoid the accidents that sometimes follow the introduction of common instruments, such as laceration of the mucous membrane and false passage; you will also be able to deal skillfully with obstructions from strictures or the irregular walls of an enlarged prostate. Certain accidents with the lithotrite, however, deserve special consideration.¹

THE COMMITMENT OF THE INSANE.²

BY BENJAMIN CUSHING, M. D.

THE public mind has lately been excited on the subject of the commitment of the insane to asylums. It was thought that personal liberty was not sufficiently guarded. An application signed by the "next friend," notice to the mayor or selectmen, and a certificate, signed and sworn to by two physicians, were enough, in Massachusetts, to warrant the superintendent of an asylum to receive and hold in custody one charged with insanity. In some States much less is required.

¹ The evacuator of Thompson illustrates the objections mentioned in the text. Latterly (*Gazette Hebdomadaire*, Oct. 31, 1879), Thompson has arranged a single cock to do the duty of two in closing the lower bulb orifices to keep the bed dry. But the instrument is virtually the same. (1.) The bulb, or bottle, like Clover's, is above the catheter, so that the water has to be drawn up into it, and, if the cocks happen to be simultaneously opened for a moment, it will all run into the bladder and distend it. (2.) Its weight must be supported by the operator, or rest upon the catheter. (3.) Being rigidly fixed to the catheter, it communicates the jar of pumping to the bladder; this old "short connection" thus retained between catheter and bulb, upon which Thompson insists, yielding, so far as I can discover, no equivalent advantage. (4.) Lastly, the mouth of the catheter enters low down, into the narrowest part of the bulb. Consequently fragments, after rising into the bulb, with the current, must, on their way to the glass trap, again crowd in front of the catheter; and thus debris are needlessly returned to the bladder. It would be better, if it be desired to connect the catheter low down, to prolong it a couple of inches inside the bulb, and to let the fragments escape at a higher point, where the cavity is wider, as is represented in the lowest tube of the annexed diagram. With such an instrument I experimented some time ago. (Fig. 2, I.) This arrangement also keeps the contents of the trap quiet, and there is no return of fragments.

But even an imperfect or inconvenient apparatus may suffice to empty the bladder. The only feature of an evacuator absolutely essential to rapid lithotry is the large catheter I have elsewhere described, which Thompson has adopted without change. It is this that enables his instrument to evacuate. The want of this large catheter (in combination with good suction and a trap) was fatal to the success of previous instruments, and to all attempts at the immediate evacuation of any considerable amount of debris. With such a catheter, Clover's instrument could have evacuated the bladder slowly, and might have led, in the face of traditional prejudice, to the discovery of the tolerance of that organ, and of lithotry at a single sitting. But the catheter of Clover's instrument was too small, being only 21 French (12 English), beyond which the English scale did not go. Its eye was also defective. The new method was impossible to those who were using this small catheter. They could not empty the bladder of all its fragments, and therefore knew nothing of its great recuperative powers after the complete removal of this source of irritation. Authorities agreed that evacuating catheters were worthless. When Otis directed the attention of surgeons to the fact (see a paper by R. F. Weir, *New York Medical Journal*, April, 1876,) that the capacity of the average urethra was very nearly 33, rapid lithotry was made easy. Sitzings were lengthened from a few minutes to an hour or two.

² Read before the Dorchester Medical Club.