

rectum. It is usually much increased by violent movements or jolting, as in riding. Secondly, *frequency of micturition*, which may or may not be diminished by rest in bed. Thirdly, *hematuria*. The presence of blood in the urine is intermittent. The water may be of a wine-red or smoky color, or the blood may be contained in the last few drops of urine passed. Hemorrhage is likely to appear after exercise or jolting. When these important symptoms are present, inquiry will often discover a history of previous attacks of renal colic, or of the appearance of gravel in the urine.

As confirmatory symptoms may be mentioned, sudden stoppage of the stream in the midst of micturition, caused by the stone falling against the urethral opening, and in children an elongated prepuce, owing to constant pulling in the effort to relieve pain felt at the head of the penis.

A bimanual examination between the hand over the pubes and the finger in the rectum will often reveal the presence of a stone of any size.

The diagnosis is rendered complete by a thorough exploration of the bladder with a sound. For this purpose a metallic instrument should be used, with a short beak curved to an angle of about 135°, which, by allowing freedom of motion in the bladder, makes a much more thorough examination possible than with an ordinary curved catheter. Sometimes a stone that evades the sound may be caught with the lithotrite and its presence thus demonstrated. The lithotrite also affords the most accurate method of determining the size of a stone; and by dropping it and seizing it again several times the dimensions may be measured in several diameters. When a stone is caught in the lithotrite, it should be firmly held and the instrument with the stone in it should then be used for a further search, to determine whether more than one stone be present.

It is well during an exploration, especially in a difficult case, to vary the amount of water in the bladder, as a concretion, difficult of detection in a full bladder, may be easily found in an empty one, and *vice versa*.

Occasionally it happens that in a sacculated or otherwise misshapen bladder a calculus will evade detection by most thorough and skilful sounding. For these cases Professor Bigelow has pointed out the value of the litholapaxy pump and tube. The current of water searches out and brings the calculus to the tube with a characteristic click which cannot be mistaken or overlooked.

Examination by the sound may be rendered difficult by stricture of the urethra, which if not passable for an instrument of fair size will require dilatation, divulsion, or urethrotomy.

Enlarged prostate may greatly increase the difficulties of sounding, both by the resistance it offers to the entrance of the instrument and by reason of the sacculation of the bladder behind the prostate in which the stone may escape detection. This source of error is usually to be avoided if a sound with a short beak be used and so rotated that the point sweeps the base of the bladder. To accomplish this manœuvre the handle of the sound or searcher must be well depressed between the thighs, as otherwise its point catches on the floor of the bladder. The finger in the rectum may materially assist in this investigation. A bar at the internal urethral orifice may cause difficulties similar to those incident to an enlarged prostate.

Sacs and diverticula of the bladder occasionally make the detection of a stone by the sound alone very difficult, though often a careful search will finally carry the instrument into contact with some part of the calculus.

Extreme sensitiveness will often make an examination impossible without the aid of an anæsthetic.

The sources of error which must be considered in sounding are prostatic concretions, rough projections of the bladder wall, which may be covered with phosphatic deposits, and new growths which may be similarly incrustated.

A practised touch will usually lead to a decision between these conditions. The grating over a prostatic concretion is felt before the bladder is reached, and in a

case in which the doubtful sensation is felt within the bladder, a conclusion may usually be reached by the passage of a lithotrite and grasping of the stone if one exists.

Prophylaxis.—Soft phosphatic stones are, as has been said, dependent usually upon a local condition of inflammation of the bladder, and any treatment, by irrigation or otherwise, which reduces this inflammation lessens the chances of stone formation. Uric acid and oxalate of lime stones, on the other hand, are of constitutional origin, and indicate faults of assimilation and tissue change which are in a degree amenable to constitutional treatment.

When a tendency to uric acid formation is evinced by the appearance of crystals in the urine, or by any symptoms indicating a gouty diathesis, efforts should be made to counteract this tendency by strict attention to the patient's habits with regard to food and exercise. Sugar in every form is harmful in these cases, as are also all fatty articles of food, and these should accordingly be avoided. Over-indulgence in stimulating, highly seasoned dishes should be interdicted. Wine should be given up, and if the stimulant effect is needed, spirits, largely diluted, should be preferred. Systematic exercise should be taken—if possible, sufficiently violent to excite moderate perspiration, and the skin should be cared for by regular bathing and vigorous rubbing. If the patient be constipated, his bowels should be regulated, and this may well be done by a morning glass of Friedrichshall or Carlsbad water. Thompson recommends a long course of saline waters for these patients with uric acid tendencies, and regards their effect as due to a stimulant action on the liver. Whatever the *rationale* of their use, they are of undoubted benefit when a constipated habit exists.

Lastly, general tonics, such as strychnine and quinine, may be of great service when the general health is debilitated. Alkaline diuretics, by correcting the over-acidity of the urine, relieve local symptoms; but without the addition of general treatment the acidity returns quickly upon their disuse.

Treatment.—After the formation of a stone too large to pass through the urethra, its removal can be accomplished only by some mechanical expedient. The solvent action of alkaline or other remedies has never been shown to destroy a stone that had been proved to exist.

The choice of the operation appropriate to each case is to be decided both by the character of the stone and by the condition of the urinary organs.

Children stand the operation of litholapaxy very well. Occasionally the small size of the urethra makes this operation impossible, but, except in these cases, it is to be preferred to lithotomy.

The crushing of stone—lithotripsy—became a recognized operation in 1824 through the efforts of Civiale, who, although operating with inferior instruments, obtained successes which demonstrated the possibility of pulverizing stones with instruments introduced through the urethra.

After that time the operation was greatly improved in technique, and largely displaced the earlier operation of lithotomy. (For the history of its development, see under the head of *Lithotripsy*.)

In 1879 Prof. Henry J. Bigelow published a paper introducing the operation of litholapaxy (lithotripsy at one sitting, rapid lithotripsy), and so quickly did this procedure gain in favor that within a year or two of the publication of his first article it was a generally established practice; and the old operation of lithotripsy, without complete evacuation, had become a thing of the past.

Professor Bigelow showed that the tolerance of the bladder to instrumentation is much greater than had been supposed, and demonstrated the fact that there is less danger in an operation, even long and tedious, which results in the complete evacuation of a stone, than in the usual short and repeated sittings for its more gradual removal. In short, he proved that the greatest danger of lithotripsy is not from the use of instruments, but from the subsequent irritation of the mucous membrane by

the fragments left in the bladder. To facilitate the rapid crushing and removal of stones, he also introduced improved instruments, which will be described under the head of *Litholapaxy*.

With these instruments it is now possible to dispose of many stones that would formerly have been thought beyond the reach of lithotripsy, and it suffices to say that litholapaxy should be employed in all stone patients, except in cases falling under the following exceptions:

1. A very large and hard stone may resist every attempt at crushing.

2. A stone may have as a nucleus a foreign body, such as a piece of necrosed bone or a bullet, too hard to crush and too large to come through a tube.

3. An encysted stone may be out of reach of the lithotrite.

4. Some writers consider that stricture of the urethra may prohibit litholapaxy. This cannot often happen, for strictures, however close, yield readily to divulsion, which may be immediately followed by the crushing and evacuation of the stone. We have so often seen these two operations successfully done together upon an etherized patient that we cannot but think this the best practice. While it economizes time, it saves the patient much needless manipulation. When an impassable stricture exists, perineal section followed by perineal lithotripsy must be done.

5. The small size of the urethra in children may prevent the passage of instruments.

6. Hypertrophy of the prostate may occasionally render the passage of the lithotrite impossible and render lithotomy necessary.

7. False passages may exist, which so interfere with the introduction of instruments that the dangers of the operation are greatly enhanced, and the question of lithotomy is to be entertained.

8. The hip may be ankylosed in a position which interferes with the use of instruments.

In any of these exceptional cases, a cutting operation may be required, and a consideration of the various methods of performing such operations will be found under the head of *Lithotomy*.

Arthur T. Cabot.
Hugh Cabot.

BLADDER-WRACK.—*Sea-wrack*. *Kelp-wares*. *Black-tang*. The plant *Fucus vesiculosus* L. (fam. *Fucaceæ*). This peculiar coarse sea-weed grows in the greatest abundance on the rocky Atlantic shores of both this country and Europe. At low tide it covers the rocks thickly with its prostrate greenish-yellow fronds, while, when the tide is full and the plant is enabled to float by the aid of its numerous air vesicles or "bladders," it covers the bottom with a forest of weeds. This is one of the plants which have been most extensively employed in the manufacture of kelp. It has also been considerably used in medicine as a deobstruent and alterative. Neither its composition nor its properties have been made well known, and its value is problematical. It contains one-fifth per cent. or more of iodine, in combination with potash. Rarely, considerable quantities of tannin have been observed in it. It has been loudly proclaimed as an agent to reduce obesity, and proprietary articles sold for this purpose are said to contain it. The dose is 2 to 15 gm. (3ss. to iv.). Most manufacturing

houses prepare both fluid and solid extracts. The dose of the latter is 0.3 to 2 gm. (gr. v. to xxx.).
H. H. Rusby.

BLADON SPRINGS.—Choctaw County, Alabama.

POST-OFFICE.—Bladon Springs. Hotel and cottages.

ACCESS.—Via Mobile and Birmingham Railroad to Carson Station, thence twenty-nine miles by hack to springs; also, by Mobile and Ohio Railroad to Buckatunna, Miss., thence twenty-eight miles by stage or hack; also by steamer from Mobile, Tuesday and Saturday service. There is also a bi-weekly south-bound steamer service from Demopolis. The springs are four miles from the steamer landing on the Tombigbee River.

For upward of thirty years the Bladon Springs have been a favorite resort for the best people of Alabama and the neighboring Gulf States. The steady influx of visitors of late years renders it necessary to keep the hotel open all the year.

The location is about eighty miles from the Gulf as the crow flies, and about one hundred and seventy feet above tide water. The climate is mild and equable, the mean annual temperature being 75° F. The nights are delightfully cool, averaging about 65° F. after eight o'clock during July and August. The surrounding country is hilly and heavily wooded with pines, and excellently adapted for thorough drainage. The resort offers abundant inducement for those wishing to escape the rigors of a Northern winter. Game is abundant during the fall and winter months, and it is said that deer are killed within a mile of the hotel.

We are indebted to Dr. Showalter, of the Springs, for the following analyses:

ONE UNITED STATES GALLON CONTAINS:

Solids.	Vichy Spring.	Branch Spring.	Sulphur Spring.	Old Spring.
	J. L. & W. P. Riddell. Grains.	J. L. & W. P. Riddell. Grains.	J. L. & W. P. Riddell. Grains.	R. P. Brumby. Grains.
Sodium carbonate	46.33	41.21	34.93	32.89
Magnesium "	.61	.65	.65	1.36
Calcium "	.87	2.14	2.42	2.75
Iron "	.49	.23	.76	.62
Calcium sulphate	2.25	2.79	2.96	...
Iron	...	...	...	.24
Sodium chloride	...	...	...	7.69
Strontium	...	...	...	.32
Silica	...	...	...	2.10
Organic matter	2.26	1.90	1.25	...
Crenic acid	...	...	...	.75
Hypocrenic acid	...	...	...	.60
Total	52.49	48.88	42.97	48.72
Gases.				
	Cubic inch.	Cubic inch.	Cubic inch.	Cubic inch.
Carbonic acid	65.44	59.20	52.88	32.56
Sulphureted hydrogen	...	...	.56	...
Chlorine	1.84	1.84	1.84	...
Total	67.28	61.04	55.28	32.56

The waters are of the alkaline type, quite plentifully charged with carbonic acid. They are useful in chronic indigestion, in syphilitic cachexia, in advanced nephritis, in diabetes mellitus, and in rheumatism.

James K. Crook.



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