mended to be taken at regular hours. A blister has been applied to the chest, and certain medical treatment, as indicated by the symptoms, adopted, and under the influence of this treatment the patient has frequently got well. Quinine I have found to be one of the most useful remedies; it improves the appetite, it tends to check the nocturnal perspirations, and acts as a general tonic; but many patients cannot take quinine, especially those who suffer from gastric derangements, which have to be specially treated before it is administered. Iron in some form or other is indicated at some time. The perchloride I hardly ever prescribe, as it destroys the teeth in time, however careful the patient may be. I prefer the syrup of the phosphates, the citrate of iron and quinine, or of ammonia and iron, or dialysed iron.

I think in the present day there is a great tendency to ride hobbies. One gentleman does little else except recommend the use of certain inhalers, another prescribes a particular remedy. I believe that the physician who is most likely to cure his patient is the one who, having satisfied his mind as to the exact condition of his patient, does his utmost to find out what has brought on the complaint, and having found out the cause, is firm, and if possible compels his patient to avoid it. By avoiding the cause of a disease much is done toward the cure. We should always keep in mind that great benefit is frequently derived from the great altitude treatment of phthisis in suitable cases, as by such treatment the patient is supplied with air pure and rarefied, and receives many other benefits. Sea voyages are also beneficial in certain cases, but at present I am not dilating on these two modes of treatment, but am endeavouring to prove that the physician who makes good use of the knowledge which we already possess of the treatment of phthisis may feel pretty confident of success in the majority of cases, even without sending any away from our own country. Meanwhile, whilst utilising this knowledge, we should watch with care the discoveries which are constantly being made by our friends the bacteriologists and others, and earnestly hope that some day a method will be found by which this disease may be stamped out, as small-pox can be now, and thus the lives of thousands may be saved.

THE ELECTRIC ILLUMINATION OF THE MALE BLADDER BY MEANS OF THE NEW INCANDESCENT-LAMP CYSTOSCOPE.[1]

By E. HURRY FENWICK, F.R.C.S.,
Assistant Surgeon to the London Hospital; Surgeon and Pathologist to St Peter's Hospital for Urinary Diseases.

From the very commencement of the century, endoscopy has attracted the attention and the efforts of the medical profession. Since Barrini, of Frankfurt, introduced his "light conductor" in 1805, various instruments have been invented for examining the interior of the bladder and urethra. Practically, however, the attempts have hitherto proved unsatisfactory, for all endoscopes have failed from insufficiency of illuminating power. Twenty-five years ago Bruck, of Breslau, a dentist, conceived the brilliant idea of utilising a loop of platinum wire, maintained at a white heat by means of a galvanic battery, as the source of light. The conception was carried out, and a monograph written upon it. The instrument was tried at the Vienna Hospital, but proving a failure, it was discarded, and the attempt forgotten. In 1877 Dr. Nitze grappled with the same problem, and Leiter, the well-known instrument maker of Vienna, was entrusted with its solution. After ten months of expensive and indefatigable labour, Leiter constructed an electric endoscope, by means of which the bladder could be effectively examined.[2] The instrument was, however, encumbered by the necessary apparatus for conveying currents of cold water around the endoscope to prevent overheating. It was hampered by a large Bunsen battery and rheostat, and it was, furthermore, complicated, costly, and capricious. On the introduction of the incandescent lamp, Dr. Nitze and Mr. Leiter proceeded to work independently of each other, and the result has been, in each case, the production of endoscopes simplified by the employment of the smallest Swan or Edison lamp ("mignon" lamp) as the illuminating power. These instruments were finished in 1887, and were brought by their respective makers before the German Surgical Congress at Berlin.[3] Having used both varieties upon a series of normal and pathological bladders, I have brought them here this evening to show how simple, safe, and successful these cystoscopes are as compared with their progenitors of 1862 and 1879-1880. Moreover, as they have not as yet, I believe, attracted the attention of the profession in England, I venture to describe their construction, to demonstrate their capabilities and defects, to lay down a few rules for their use, and to critically compare the merits of each.

The Construction.—The three essentials of the construction of both varieties of the electric cystoscope (Nitze's or Leiter's) are practically identical: 1, a catheter (Fig. 1 AK) of No. 22 gauge (French) in size, with a sharp elbow; 2, a terminally placed incandescent lamp (Fig. 1 L); 3, a window (Fig. 1 P or F), closed by a prism, placed near the bend of the elbow to refract the entering rays, so that they pass along the tube (Fig. 1 *Tf*) to the observer's eye.

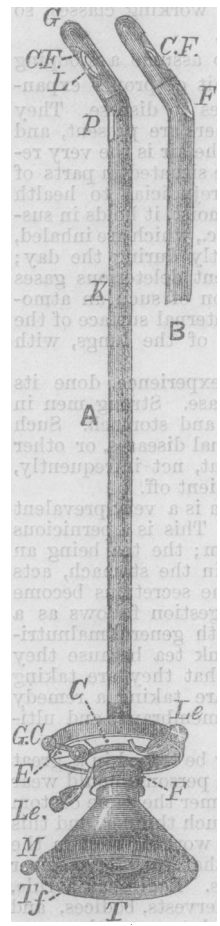

Fig. 1.—The two forms of Leiter's electric cystoscopes, A and B.

These points are worthy of a detailed description.

1. In Leiter's cystoscope the catheter is built up of two insulated metal tubes slipped one inside the other. The inner ("telescope") tube (Fig. 1 *Tf*) terminates abruptly at the prism P. Both tubes serve as the conductors of the current between the battery and the incandescent lamp.

2. The smallest incandescent lamp ("mignon" lamp) (Fig. 2 L) occupies the end or tip of the cystoscope. It is enclosed in a screwed-on silver hood (Fig. 2 G), which has on one side an elliptical aperture (Fig. 2 CF) fitted with a plate of rock crystal for the transit of the rays of light. But here notable and important differences exist in the two varieties: (*a*) in Leiter's cystoscope (Fig. 2 L) the carbon filament burns within its small glass globe, and is protected moreover by the windowed hood (Fig. 2 G). In Nitze's instrument the carbon filament burns within the hood and lacks a globe; (*b*) the lamp which Leiter uses is a removable and a cheap globe (three shillings) (Fig. 2), which, if it is burnt through, can be replaced in a minute by another, by merely unscrewing the hood. But the lamp which Nitze employs is an integral part of the instrument, being permanently enclosed in the end or tip. If, then, the filament be burnt through, the entire cap must be unscrewed and be sent back to the maker for repair, at an outlay of ten shillings; (*c*) moreover, in Leiter's lamp the filament is longer, and gives a brighter and larger source of light; (*d*) the elliptical window (Fig. 2 CF) is larger and affords a greater egress to the light.

3. The window (Fig. 1, P or F) in the bend of the elbow has an arrangement of reflectors and a prism.

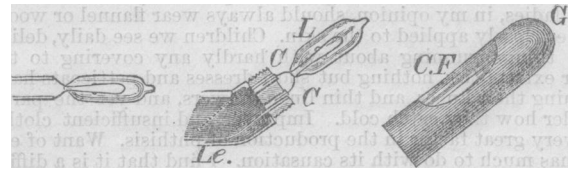

Fig 2.—Shows (1) the lamp; (2) the lamp (L) adjusted; and (3) the silver hood (G) for the lamp (in Leiter's cystoscope).

4. Each instrument possesses a "key" or "kick-over" (Fig 1 GC) for turning on or off the current.

5. A small portable four to six-celled battery with carbon-zinc

[1] Abstract of a demonstration of the instruments before the Medical Society, January 23rd, 1888.

[2] *Wiener Med. Presse*, 1879, No. 2?.

[3] Dr. Nitze, *Verhandlungen der Deutschen Gesellsch. für Chirurgie.* Congress, xvi, 1887, p. 177; Dr. Brenner (for Leiter), p. 89, *ibid.*

plates and chrom-sulphuric acid, supplies a current of four to six volts intensity.

This is the construction of the electric cystoscope which will prove most often of use, but another form (Fig. 1 B) is made, both by Nitze and Leiter, for examining the posterior upper wall of the bladder. In this, both the light and the window are placed upon the convexity of the bend, and not in the concavity.

Certain objections might reasonably be made to the use of the cystoscope.

1. *Breakage of the Lamp.*—It might be supposed that the mere contact of the urine with the lamp would crack the glass. Such an accident as that would be fatal to the use of the instrument; but happily it is rendered impossible by the closure of the aperture in the hood by means of a plate of rock crystal 2 millimètres thick. These lamps have burnt for thirty hours under water without a flaw. I have tested these plates with over-anxious roughness, and have only succeeded in cracking one by forcible finger and thumb pressure. Such violence could never be encountered in the bladder.

2. *Burning of the Mucous Membrane.*—The cap or hood, with its contained lamp, becomes very hot if exposed to the air; but when it is under water the heat is rapidly absorbed and the cap remains quite cool. This is exactly what happens in the bladder, for the urine carries off the heat of the lamp as fast as it is formed. When I first began to use the instrument my patients complained of a subsequent burning sensation, which I attributed correctly to awkward manipulation of the end, in keeping the lamp resting on or pressed against the bladder wall. "They may be burnt for an hour in a male bladder, holding 7 ounces of fluid, without perceptibly raising the general temperature" (Brenner).

Capabilities.—By means of the electric cystoscope every part of the vesical wall can be examined in as brilliantly illuminated a condition as if it were viewed in direct sunlight. Figs. 3 and 4 show the light thrown upon the floor and anterior wall of the bladder, and represent fairly well the direction of the rays emitted from the end of the instrument.[1]

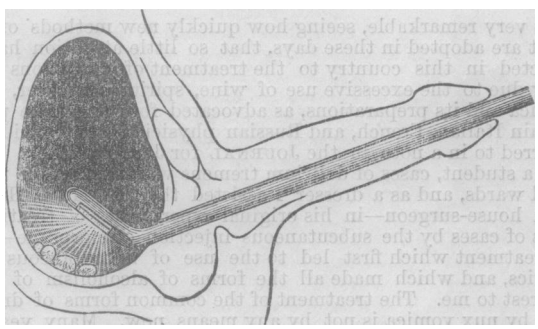

Fig. 3.

As an example of the power of the light, I quote from my notes of a case of right renal hæmaturia which I examined with the cystoscope. "The trigone and base of the bladder appear of straw or sandy colour; and not, as one would suppose, of a rosy or reddish hue. The slit-like orifices of the ureters are clearly visible, and a drop of blood would be apparent if it were entering the bladder. Here and there, this sandy-shore-like surface is relieved by a maroon coloured vessel which courses arborescently across the field; the entire picture reminds one of the optic disc."

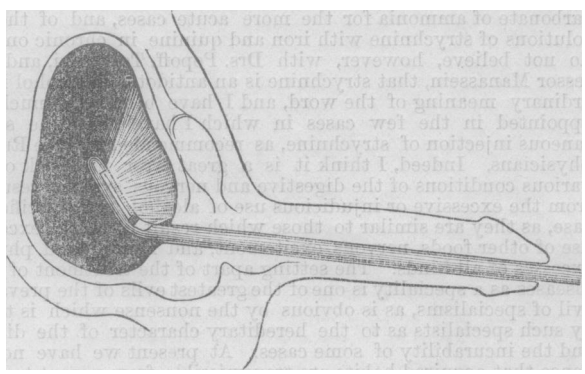

Fig. 4.

[1] From Leiter's catalogue, as are the other diagrams. In Figs. 3 and 4 the black area is incorrect; it is introduced for the sake of contrast. The entire bladder is lighted up more or less.

A fair number of cases are already recorded in the literature of electric cystoscopy. Dittel has examined cases of chronic cystitis. Finger has investigated gonorrhœal cystitis. Foreign bodies, stones, vesical tumours (16 cases); diverticula, and other obscure vesical diseases, have been discovered by its means, and subsequently verified by operation; but this is not the place either to discuss or add to these results.

What advance has the cystoscope of 1887 made upon that of 1880?

1. The water-cooling apparatus is dispensed with.
2. The cumbersome Bunsen battery is replaced by a small plunge battery of four cells.
3. Little accumulators which slip into the pocket may be used (these are not always reliable).
4. The instrument is one-third cheaper.
5. It is not complicated, and requires no special knowledge for its manipulation.

What are the deficiencies of the electric cystoscope?

1. It cannot be used in irregularly enlarged or carcinomatous prostatic cases.
2. It is difficult to work in contracted bladders.
3. Hæmaturial urine causes a red fog to appear around the light and obscures everything.
4. Stricture of the urethra arrests its introduction until dilatation has been effected.

Rules and Directions for the use of the Cystoscope.—Place the patient on his back with his legs bare. Cocainise the urethra and bladder, or anæsthetise the patient. Make certain that the bladder contains at least six fluid ounces of clear urine; a greater quantity is better. If the urine be bloody, wash out the bladder, and substitute clear water for the murky medium. Regulate the light of the lamp so as not to fuse the filament with an unnecessarily strong current. Do not start the light until the lamp and elbow are well within the bladder. Let the manipulation be gentle and purposive. Do not keep the cap in contact with the wall. Let the instrument remain for half a minute after the current has been shut off, in order to cool the hood completely before you withdraw.

That the cystoscope of either maker will become rapidly popular, and be largely employed in the diagnosis of urinary diseases, may be argued from the simplicity, safety, and success of the instrument; but it is indeed difficult to predict accurately its future rank. It will obviously replace the large collection of instruments or procedures which attempt the diagnosis of the source of hæmaturia and pyuria; for the ureteral orifices are clearly exposed to view. Its use will tend to limit the size and number of vesical papillomata by enabling us to detect and remove these and other growths in their very infancy. It will, moreover, afford us a clearer insight into the physiological and pathological conditions of the vesical mucous membrane, and allow us to control our clinical observations and speculations by direct visual research.

In conclusion, I can only regret that the conception and completion of this brilliant innovation emanate from our Austrian *confrères*, rather than from an English source. I must gratefully acknowledge the kindness of Mr. Leiter, and his agent in London, Mr. Schall, of Wigmore Street, for their prompt and courteous assistance.

THE Annual Report of the Imperial Navy of Japan, compiled by Takaki Kanehiro, F.R.C.S.Eng., the Director-General of the Sanitary Bureau of the Navy Department, shows that the authorities have learned to appreciate the economy and the value of sanitation. A large proportion of the navy effective suffered, until very recently, from kak'ke, due, it is believed, to the bad quality of the food supply. Since improvements have been introduced into the commissariat department, cases of sickness among the sailors have decreased to the extent of 1.37 per 1,000 men—a very considerable saving, amounting in the aggregate to a daily average strength of 708 men, and an economy of 73 lives. Some very elaborate tables are given of the diseases and of the results of treatment, some of which bear favourable comparison with our own.