

## Bozzini and the birth of endoscopy

G. GHIRARDINI (\*) - F. GOLINELLI (\*\*)

The Twentieth century can be considered as the century of introduction, development and diffusion of endoscopy. This has been possible thanks to the work of several Authors in the 19th century who developed instruments and techniques for this purpose.

The real beginning of endoscopy was in 1807, when Bozzini introduced his «light transmitter (Lichtleiter)». Born in 1779, this physician and obstetrician of Frankfurt was only 27 years old in 1807. Just two years before he had been reprimanded by the medical faculty of Vienna for «undue curiosity», having inspected the interior of the urethra of a living human subject.

In 1807 his work entitled «Der Lichtleiter» was published in Weimar. Bozzini's early death from typhoid in the same year stopped progress in this research field until the second half of the 19th century.

Bozzini's book was introduced by a foreword, in which he said «I had the idea of illuminating the interior cavities of the living animal body». He thought that «it is impossible using chemistry to obtain a substance capable of illuminating the interior of body cavities and thus render them accessible to the eye by means of a straight tube inserted therein». Bozzini designed and described a definitive instrument, after more than one year of experimental work. He sent models to several scientists and doctors, to spread knowledge of the technique and to promote collaborative studies. Most of them did not understand the problem and Bozzini often received the question «How can it be useful to see into the cavities of the living animal body?».

The first part of the book gives a detailed description of the instrument, which is composed of 3 elements: light source, combining a candle and a mirror system, light transmitter, an illuminated speculum without lenses, and a reflexion tube. The largest tube was for big cavities such as the vagina, the rectum and the puerperal uterus. The smallest was for small orifices and the third for the lateral vision (figs. 1, 2, 3).

Then Bozzini described the usefulness of his light transmitter in general and its use for physiological and pathological studies and for surgery, obstetrics and diagnostics in particular. He believed that the general use of the light transmitter

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(\*) Divisione di Ostetricia e Ginecologia dell'Ospedale Franchini di Montecchio Emilia (RE)

(\*\*) Servizio di Anestesia e Rianimazione dell'Ospedale Ramazzini di Carpi (MO)

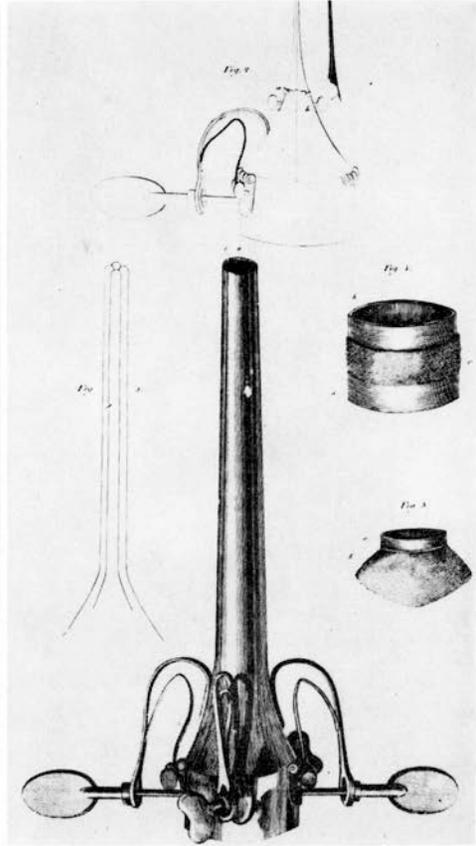
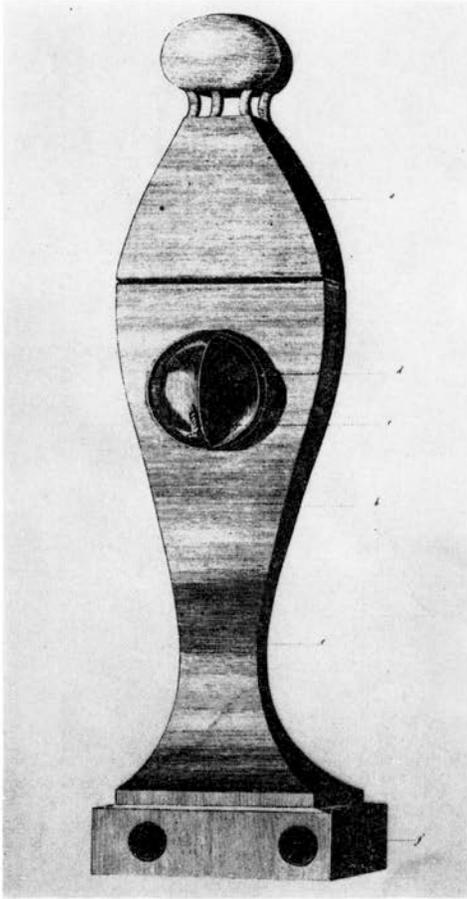


Fig. 1. — Light source.

Fig. 2. — Light transmitter and reflexion tube

would be in increasing information by direct visualization. It could be used to study the action of drugs in various systems.

In obstetrics it allowed visualization of the amniotic cavity, the placenta, the cord and the membranes. After delivery, placental detachment, elimination of lochia and the behaviour of the tubal ostia could be observed. By introducing the device into the vagina changes in the cervix during sexual excitation and orgasm could be studied. The device could be useful in the study of fertility in women.

In the part of the book dealing with pathology the importance of comparing physiological and pathological appearance was stressed.

Bozzini suggested the use of his instrument for the study of vaginal and cervical pathology, of urethral neoplasms in the male and also for bronchoscopy and arthroscopy. In surgery there were uses in the study of uterine tumors and of the urethra and bladder. Endoscopic removal of vaginal and uterine adhesions was

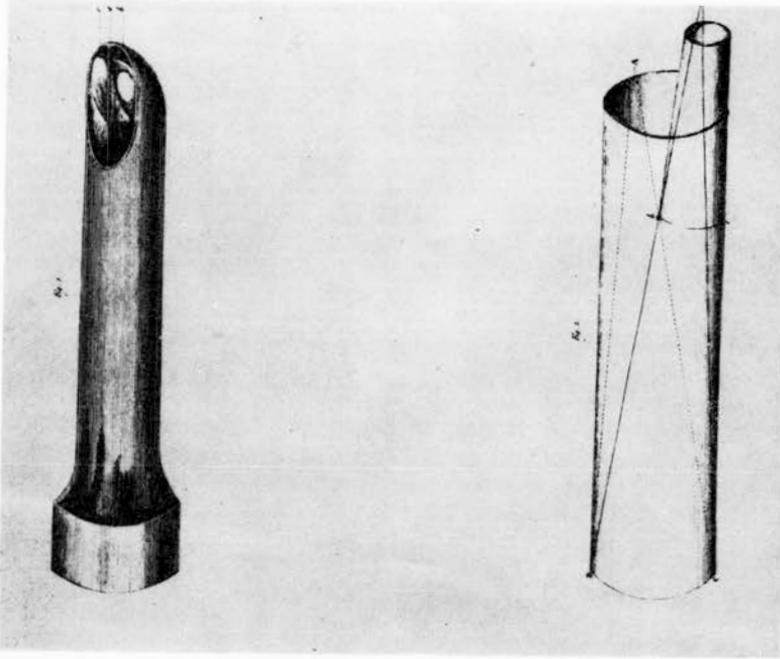


Fig. 3. — Light transmitter for lateral vision.

suggested, as well as removal of uterine polyps and tubal installations. The use in obstetrics lay in the early diagnosis of cord pathology, bleeding areas in the uterine cavity and endoscopic embryotomy.

Bozzini said that all these were possible because visualization is better than finger palpation. He concluded that what the light transmitter would produce depended on its use, on subsequent improvements, on the application of new scientific discoveries and on the attention which scientists would give to the device.

#### REFERENCE

Bozzini P.: « Der Lichtleiter oder Beschreibung einer einfachen Vorrichtung und ihrer Anwendung zur Erleuchtung innerer Höhlen und Zwischenräume des lebenden animalischen Körpers ». Verlag des Landes-Industrie Comptoir, Weimar, 1807.