

The Breckwoldt Laryngo-reflectoscope

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INTRODUCTION

Although the Breckwoldt Laryngo-Reflectoscope* should prove a useful instrument in the consulting room of the medical doctor - particularly the E.N.T. specialist - the author designed it especially for the speech therapist. The latter would never attempt to treat an articulatory disorder without thoroughly examining the individual's speech mechanism. Why should he ever venture or be forced to handle a voice disorder without having had as much as a look at the individual's voice mechanism?

A voice disorder can never be judged by ear alone; it must be examined visually. The therapist has to learn how to examine the larynx of the voice defective as well as he learns to examine the facial, oral, pharyngeal, dental, etc., condition of the speech defective.

After having studied the anatomy, physiology, neurology and pathology of the voice mechanism, he should be trained in a Voice Laboratory to gain practical experience in the techniques of voice examination, without which any kind of therapy (unless given under the direct and constant supervision of a medical man) might be dangerous.

Once the speech therapist knows not only HOW to look at a larynx, but also WHAT in detail to look for, he will be a great asset to his profession. Cases who come to the therapist and whose voice examination shows organic defects will be referred to a medical doctor. On the other hand the medical man will be able to send to the Voice Laboratory

those voice cases who do not require medical treatment, but are in need of voice therapy. This co-operation between the Voice Laboratory and the medical profession will ensure that voice cases will receive the best possible care.

1. HISTORY OF INDIRECT LARYNGOSCOPY

The first successful laryngoscopic observation known was not the examination of a patient or subject by a doctor, but an AUTO-LARYNGOSCOPY performed, in 1854, by an artist. It was the famous Spanish singer and teacher of singing Manuel Garcia. He was curious about the functioning of his larynx, and using a dental mirror for observing, he was the first person to see the vocal folds of a living human being.

In 1857, the physician Czermak had the idea of performing Garcia's larynx examination with an artificial light. In 1858 he published his laryngoscopic findings (in Sitzungsbericht, math.-nat. wiss. Abt., XXIX, 557; cf. Panconcelli-Calzia: "Quellenatlas", Hamburg, 1940, p.30) and a plate which illustrates an auto-laryngoscopy, the first picture ever published of this type of examination.

Two years later, in 1860, Czermak published his book "Der Kehlkopfspiegel und seine Verwertung für Physiologie und Medizin", Leipzig, (cf. P. -Calzia: Quellenatlas, p.30), in which we find the first illustration of a laryngoscopy performed on a patient.

Since then, except for changes in material and quality of the larynx mirror, head mirror and light, the technique of indirect auto-and hetero-laryngoscopy has remained the same.

The originality of the Breckwoldt Laryngo-Reflectoscope, designed by the author in 1962, lies in the introduction of a transparent mirror which enables both the examiner and the examinee to have an effortless

* The author could have coined a homogeneous Greek word like "antilamposcope" (from antilampo: to reflect light) but preferred to give the instrument the mnemonically more suitable Graeco-Latin name.

and perfect view of the larynx. The instrument combines all advantages of auto- and hetero-laryngoscopy and has therefore multiple uses. It can be operated with a continuous or a stroboscopic light source.

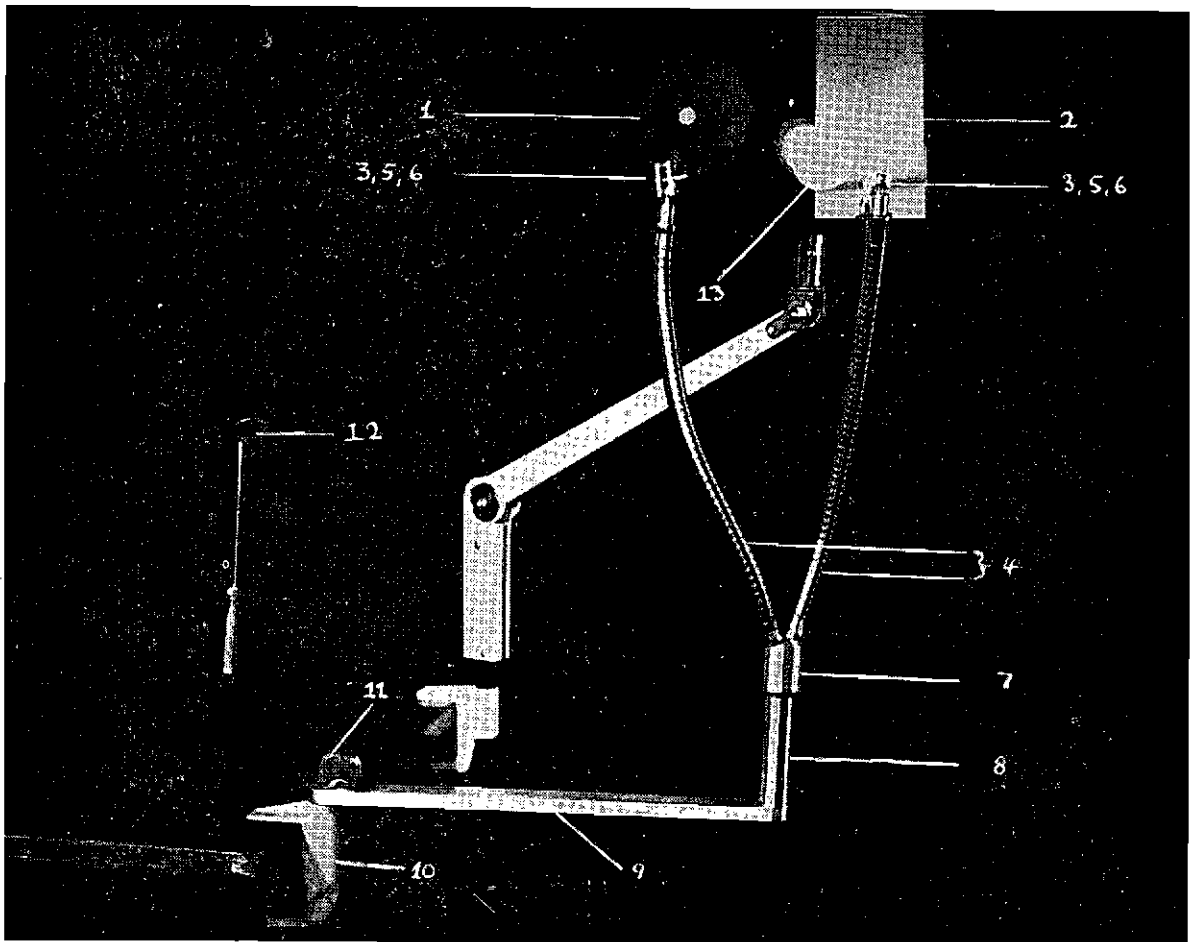
2. DESCRIPTION OF THE LARYNGO-REFLECTOSCOPE

The dimensions of the instrument are made to facilitate the reflectoscopic examination with table and chairs of average height, so that apart from a bright lamp (+ 100 watt)* or a laryngo-stroboscopic lamp** no further equipment is required.

The instrument (cf. Fig 1) consists of:-

- (1) a **reflector** (3½" diam.), of the type of a medical head-mirror, the central viewing hole of which is blocked up;
- (2) a **plane transparent mirror** (3"x6"), of the Mirropane type;
- (3) two **ball joints**, one attached to each mirror;
- (4) two **goose-neck attachments**, (each 12" in length), which are extremely flexible but remain stable in each desired position;

Fig. 1



* The ideal light (i.e. daylight type) is the Burton Lamp (N.1277), made by the Burton Manufacturing Company, El Segundo, California.

** With an adjustment to narrow its light beam the Laryngo-Synchronstroboscope KS 3 has proved ideal in conjunction with the Laryngo-Reflectoscope. The KS 3 instrument is made by R. Timcke, Hamburg, Germany.

- (5) two **ball joints**, one attached to the top of each goose-neck;
- (6) two **joint connectors**, securing the mirrors to the goose-neck;
- (7) a **goose-neck holder** ($1\frac{1}{4}$ " diam., $1\frac{1}{2}$ " high), into the top of which the two goose-necks are attached and the bottom portion of which has a short coarse screw thread projection;
- (8) a **riser block** (1" diam., 3' high) with male and female coarse thread ($\frac{3}{8}$ " diam.) endings to match the thread on the base of the goose-neck holder;
- (9) an **arm** ($13\frac{1}{2}$ " long, 1" wide, $\frac{3}{8}$ " thick), which at one end has an unthreaded hole ($\frac{3}{8}$ " diam.; the centre being $\frac{1}{2}$ " from the end point of the arm) at the other end a threaded hole ($\frac{3}{8}$ " diam.; the centre being $\frac{1}{2}$ " from the end point of the arm), into which the goose-neck holder screws;
- (10) a **C-type table clamp**, suitable to clamp on table top edges of a thickness between $2\frac{1}{2}$ " to $\frac{3}{8}$ ";
- (11) a **wing screw** ($\frac{3}{8}$ " diam.) fitting into the top of the C-clamp and horizontally securing the arm to it;
- (12) a **laryngoscopic mirror**;
- (13) a **light source**.

The instrument can be bent to low positions (cf. Fig. 2) or can be extended by means of the riser block.

The "laryngo-reflectoscope" is stored in an especially tailored box, which keeps each part securely in place and makes shipping possible.

Fig. 2

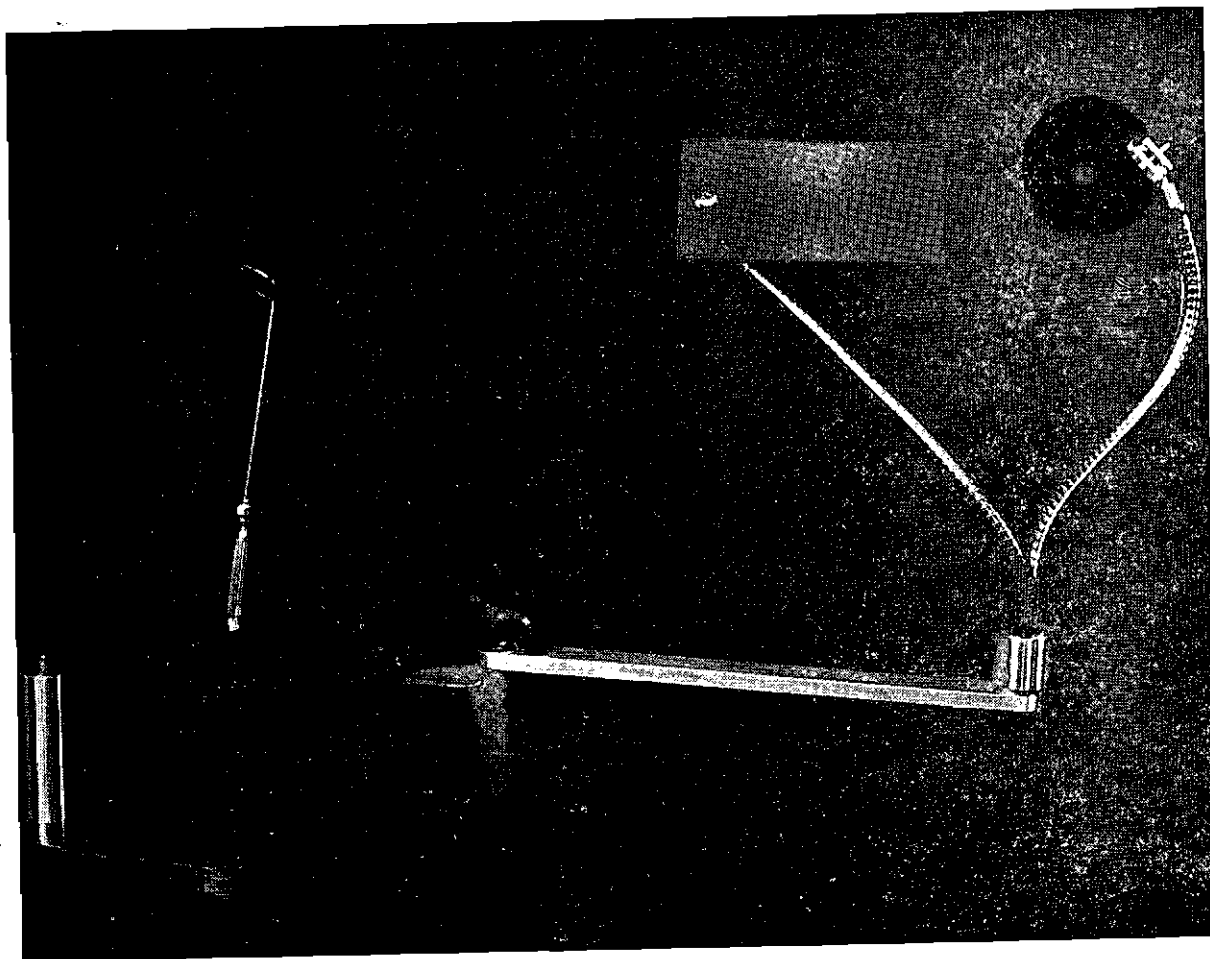




Fig. 3

3. USES

(a) The Laryngo-Reflectoscope is used for **indirect laryngoscopy and laryngostroboscopy**. The reflector, replacing the head band and mirror, gives the examiner more freedom of movement. The transparent mirror, apart from its reflectoscopic use, serves as a protecting shield. (N.B.: For the examination of infection-suspect cases a larger glass shield can be mounted on the instrument).

(b) The Laryngo-Reflectoscope is used to **instruct students of voice science and voice pathology**. It facilitates:

- i. the focussing of light (on himself or a subject);
- ii. the study of his own larynx (cf. Fig. 3);
- iii. the study of his own larynx, while others watch;
- iv. the examination of a larynx, while the examinee has a simultaneous look;
- v. the examination of himself by another person, while he looks at his own larynx at the same time;
- vi. the demonstration of a subject's larynx, while a group of between 6-8 people look on.

(c) It is ideally suited to **show the larynx to certain cases for pedagogic reasons**. Examples are people who smoke, drink or indulge in vocal abuse, from which they will not refrain, unless they are shown the damage they have done to their vocal mechanism. Colour photographs of laryngeal normality and abnormalities are shown to make the subject understand his/her own condition.

People who habitually phonate with hard glottal onsets and cannot reform through auditory or kinesthetic control will, as a rule, benefit from the visual

approach with the Laryngo-Reflectoscope. Professional speakers and singers, vocally handicapped because of undue worry about their voices, who are examined with the instrument, spontaneously become reassured about their larynx.

In his **Sprachheilkunde** (p.161, seq.) H. Gutzmann states that cases of aphonia spastica, both of the adductor and the abductor type, as well as severe dysphemias can frequently improve remarkably, if they are taught the use of auto-laryngoscopic equipment.

4. CONCLUSION

Practical experience shows that, thanks to the transparent mirror and the extreme flexibility of the instrument, the Laryngo-Reflectoscope is a particularly easy to handle, efficient device for voice examination, student training and rehabilitation work.

SUMMARY

The Laryngo-Reflectoscope is an instrument designed for instructing students in the techniques of voice examination and is used for the demonstration of the live anatomy and physiology of the larynx. It is also used to show the larynx to certain voice cases for pedagogic and therapeutic reasons. The instrument can be used with a continuous or stroboscopic lamp.

NOTE

The Laryngo-Reflectoscope was designed by the author and first built in June, 1962. It was shown and demonstrated at the Scientific Exhibits of the Congress of the International Association of Logopedics and Phoniatrics, at Padua, Aug./Sept., 1962, and of the Convention of the American Speech and Hearing Association, in New York, Nov.1962.