

The baths are used with success in rheumatic and gouty troubles and the waters are taken internally for liver and kidney disorders, chronic constipation, and cutaneous diseases. The high altitude and invigorating mountain air recommend the location as a resort for broncho-pulmonary affections. There are excellent facilities for camping, hunting, and fishing in the vicinity.

James K. Crook.

LAKE VIEW HOT SPRINGS.—Lake County, Oregon. POST-OFFICE.—Lake View. Hotels in the town. ACCESS.—Via Southern Pacific Railroad to Ager, Cal., and thence by stage. The springs are located one mile and a half south of Lake View, and four miles northeast of Goose Lake, one of the largest bodies of fresh water in the West (50 miles in length, with an average breadth of 15 miles). The elevation is about 5,000 feet above the sea level, and the surrounding country of a mountainous character. The climatic conditions are very favorable. We are informed that the water has a temperature of 164° F., and flows at the rate of about 500 gallons per hour. A partial analysis by Dr. Parnell, post surgeon at Camp Warner, Ore., in 1869, showed the presence of iron, soda, sulphur, magnesia, and other mineral ingredients. The water is said to be beneficial in numerous complaints, especially rheumatism. The attractions at this place afford excellent inducements for the establishment of a first-class health resort.

James K. Crook.

LAKWOOD.—The village of Lakewood, formerly known as Bricksburg, and situated in Brick Township, Ocean County, N. J., has attained a world-wide reputation as a winter resort for pleasure and health; and among the physicians of this country it is widely known as a place where the climatic conditions influence most favorably, during the winter and early spring seasons, those people who go there while convalescing from disease, whether acute or chronic.

Reference to the large geological map of New Jersey, accompanying the report of the State Geologist for the year 1881, shows that the village is situated forty-four miles south by west from New York City, nine miles back from the Atlantic coast-line on Squan Beach, and five miles back from the mainland shore of Barnegat Bay; and that it stands upon a tongue of sandy "pine-land" soil which runs back from the latter to a point some two and a half miles beyond Lakewood, has at Lakewood a breadth of a mile and a half, and is inserted, wedge-fashion, between two portions of an extensive "oak-land" district. Both the "pine-land" and the "oak-land" soils are sandy; the "pine-land" being especially so. The geological map just referred to shows us a very large extent of country, triangular in shape, which reaches from the Atlantic coast at Long Branch (twenty miles northeast of Lakewood) almost to the very shores of Delaware Bay, having an extreme length of about ninety miles and an extreme breadth of about forty-five miles. This area is made up exclusively of "oak-lands" and of "pine-lands," in the proportion of about two parts of the former to one part of the latter. The greater portion of the "pine-land" or "pine-barren" soil is to be found in the northern half of this great triangle; so that for this half the relative proportions of "oak-land" and of "pine-land" soils are exactly the reverse of those just stated—that is, the very sandy "pine-lands" are, throughout this northern half, twice as great in area as are the less sandy "oak-lands." It has already been stated that the village of Lakewood is built upon pure "pine-barren" soil, but the "oak-land" predominates over the "pine-land" in the immediately surrounding country. Nevertheless, by far the most extensive region of unbroken "pine-barren" country to be found in the State, comprising an area which may be roughly estimated at no less than four hundred square miles, lies to the southward of Lakewood, and at a distance from the village of less than twenty miles; while the intervening "oak-land" region is intersected by tongues of "pine-land" similar to the

one upon which Lakewood itself stands, but of decidedly greater area than this one. Other strips of "pine-land" country are dove-tailed into the "oak-land" region to the northward. From this account of the geology of the New Jersey southern interior it must be evident to the reader that the soil, for many miles about Lakewood, is of an exceptionally sandy and dry nature.

Its distance back from the coast excludes Lakewood from the category of seaside stations; for, in Professor Smock's appendix to the "Report of the State Geologist of New Jersey" (1881), we read that "the influence of the ocean's waters is felt very decidedly to a distance of four to eight miles from the line of beach or outer coast-line, from Sandy Hook to Cape May," and that the climatic limit of the Atlantic coast belt in Monmouth County "is thought to be four or five miles; in Ocean County" (the county in which Lakewood is situated) "it follows closely the line of clearings or settlements, not going beyond the line of woods or into the forest belt. It is here from four to seven miles wide."*

Of the 3,284 square miles of forest area in the State of New Jersey, Ocean County contains 313,087 acres of forest land; to this and the prevalence of the pine in great abundance in this vicinity the salubrity of the place is greatly due. For decades past the balsam-laden air of pine-woods regions like Aiken, S. C., and Arcachon, France, has been looked upon by physicians as particularly beneficial for their convalescent patients, and Lakewood, which bears such a close resemblance to the former place, owes its reputation primarily to the beneficial influences of the climate upon invalids of various types—not merely those with pulmonary complaints, but that far more numerous class of neurasthenics and convalescents from all acute diseases. In localities where the pines grow a sandy soil may always be looked for. Borings from the many artesian wells in the village proper show strata of almost pure sand down to a depth of six hundred feet below the surface. Consequently the dryness of the soil is one of the most noticeable features of this region. Fogs are rarely seen, and the relative humidity is always low. Government meteorological records for Lakewood are unfortunately wanting. However, the actual thermometric readings for New York and Lakewood will be found to differ to only a slight extent, but the greater dryness of the atmosphere in the latter region conveys the impression that its temperature is noticeably higher than that of New York. At times there are very high winds, and, were it not for the protection afforded by the forests, walking and driving would on such occasions be very unpleasant. Rains occur with about the same frequency as along this section of the New Jersey coast. During recent winters snow has covered the ground for only short periods of time; sleighing can rarely be enjoyed for one week's time, and occasionally an entire winter may pass without any sleighing. There is one peculiarity of the climate which deserves notice. I refer to the fact that a marked lowering of the temperature takes place at sunset and is associated with considerable dampness of the atmosphere. These conditions last for only two or three hours. During the winter months, therefore, invalids should be within doors by sundown.

Originally intended for a health resort Lakewood has rapidly outgrown the dreams of its promoters and has developed into one of this country's most noted winter pleasure and residential resorts. Its population is now 3,200, and it is capable of caring for more than 2,500 transient guests in its hotels and numerous boarding-houses. Luxurious accommodations and an excellent cuisine are afforded by the leading hotels, while for those who prefer a quieter and less expensive mode of life there are many pleasant boarding-houses. The majority of both the hotels and the boarding-houses now decline to accept as guests those who are suffering from pulmonary tuberculosis. Quite recently one of the larger hotels

* These two paragraphs are from Dr. Huntington Richards' article on Lakewood in the former edition of the HANDBOOK.

has increased its attractiveness and usefulness by installing a complete plant for hydrotherapy.

The season begins on October 1st of each year, and by the middle of November all the hotels are open and the cottages full. Daily morning and evening concerts are given at the hotels. The walks around the lake and into the woods are kept in the best condition possible; even after a heavy rain the soil absorbs the water so rapidly that in the course of a few hours it is possible to walk out without getting one's feet wet or muddy. Well kept roads foster the spirit of outdoor life and driving, bicycling, and automobiling are thereby made more enjoyable. Bridle paths add to the charms of the more vigorous horseback exercise, and cross-country riding may be watched at stated intervals each season. Polo games and tournaments prove the most attractive feature of the season and may be witnessed every spring and autumn on one of the finest polo fields in this country. A speedway, one mile and a quarter in length, brings many a gentleman with his trotting horses to the village. Then, besides, there are a country club, a golf club, and facilities for boating on the lake, for bowling, and for lawn-tennis. There is an abundant water supply, chiefly from artesian wells, and the sewers empty into a rapidly flowing stream at some distance outside the village proper.

Lakewood to-day offers every inducement and advantage to parents who wish to bring their children up in the country. There is no lack of schools and churches.

Lakewood is one hour and thirty-five minutes from New York City by rail, and two hours from Philadelphia.

Irvin Honell Hance.

LAMINARIA.—The prepared stipes of *Laminaria digitata* Lam. (fam. *Fucaceae*). This species is a large, foliaceous, olive seaweed, which from a branching and stout foot ("root") sends up a long, terete, strong stem, surmounted by a flat, leaf-like, lanceolate, oval or more or less divided and crispy-margined thallus. It attains a great size, often measuring six or eight metres long, with a blade one metre or more in breadth. Laminaria is not used in medicine, but its cylindrical, and, when dry, horn-like stipes are cut and filed into suitable shapes for tents, for dilating the os uteri and sinuses, which they do by their capacity of swelling exceedingly when soaked in watery fluids. These tents are generally cut in cylinders from 3 to 8 mm. ($\frac{1}{4}$ to $\frac{1}{2}$ inch) in diameter and from 25 to 50 mm. (1 to 2 in.) in length; they are filed and sand-papered smooth, and the ends are carefully rounded. A hole made in one extremity holds the loop of silk for removing it. Its swelling capacity is developed in three or four hours, and often enlarges the tent to two or three times its original diameter. It was introduced into medical use but a few years ago, as a substitute for the sponge tents, which had in a number of instances already shown how apt they were to hold or develop infectious material, and cause chills, septicemia, and even death. Laminaria, in consequence of its close texture, presents no apertures in which such material could be permanently held, and practice has shown it to be much safer.

W. P. Bolles.

LANE MINERAL SPRINGS.—Calaveras County, California. These springs lie thirty-five miles east of Stockton. They are 1,000 feet above the sea level, and are surrounded by hills and valleys clad in forests of pine. The main spring flows from 50 to 75 gallons per hour. The following probably incorrectly reported analysis is said to have been made by the San Francisco Refining and Analytical Association:

LANE MINERAL SPRINGS.	
ONE UNITED STATES GALLON CONTAINS:	
Solids.	Grains.
Iron carbonate	122.00
Magnesium carbonate	38.51
Epsom carbonate (?)	29.76
Alumina	2.01

Solids.	Grains.
Sodium carbonate	8.52
Free sulphuric acid	15.24
Silica	15.20
Potassium carbonate	18.01
Organic matter	2.72
Total solids	251.97

Free sulphureted hydrogen gas, 105 cubic inches.

This water has been in use for several years, and is said to be beneficial in constipation, dyspepsia, chronic malarial poisoning, and in kidney and liver complaints.

James K. Crook.

LANOFORM. See *Formaldehyde*.

LANOLIN.—Under the title of *lanolin*, Oscar Liebreich proposed, to serve as a basis for ointments, the peculiar body that results from the mixture of a *cholesterin* fat with water. The cholesterin fats are peculiar, in comparison with ordinary glycerin fats, in not decomposing, in "taking up" and holding in intimate blending an equal quantity of water, in mixing also with glycerin, and in possessing a high diffusion power. By reason of the latter power, lanolin used as an inunction ointment is supposed rapidly to impress the system with any absorbable active drug substance that may be incorporated with it. Lanolin is obtained from the natural fat of sheep's wool, and such fat, purified and mixed with not more than thirty per cent. of water, is official in the United States Pharmacopœia under the title *Adeps Lanae Hydrosus*, Hydrous Wool-fat. This wool-fat, or lanolin, as it is still commonly called, is a yellowish-white material of ointment-like quality and a faint characteristic odor. It is insoluble in water, but yet will mix with twice its weight of water and still retain its unctuous quality. It melts at about 40° C. (104° F.). It is somewhat sticky, but this quality can be removed by the addition of from twenty to twenty-five per cent. of some ordinary oil, such as castor oil, or of vaseline.

Clinical experience with lanolin does not seem fully to realize the expectation of unusual power on the part of the substance to penetrate the skin, on inunction. Nevertheless, lanolin makes a very serviceable material for inunction purposes, either by itself or medicated.

Edward Curtis.

LAPPA. See *Burdock*.

LARCH BARK.—The bark of the trunk and branches of the European Larch, *Larix europea* D. C. (fam. *Coniferae*), was formerly largely used for its rather mild terebinthinate and astringent properties, and was at one time official in the British Pharmacopœia. It has now almost disappeared from the *Materia Medica*, in favor of the more definite products of that family.

It contains *volatile oil*, *resin*, a peculiar *tannin*, and *larixinic acid*. The turpentine and tannin make larch and other fir barks astringent and stimulating to the renal and bronchial mucous membranes. It is used to a slight and diminishing extent in bronchitis, vesical and urethral catarrh, as well as in purpura and other hemorrhages. A tincture (two and a half ounces to the pint) is an eligible form. Dose, 1 or 2 c.c. (℥. xv. ad xxx.), several times a day.

Henry H. Rusby.

LARD.—ADEPS. "The prepared internal fat of the abdomen of *Sus scrofa* L. (order *Pachydermata*), purified by washing with water, melting and straining" (U. S. P.).

The tissue from which lard is obtained, lying at each side of the backbone and enclosing the kidneys, and which goes by the name of "leaf lard," is washed, chopped, cleaned from connective bands and trabeculae, and then, with a little water, exposed to a boiling temperature until the connective tissue is softened and the fat has run out; it is then strained, and the heat continued until the water is nearly removed and the melted fat is clear and homogeneous, when it is poured out and cooled. If a very fine product is desired, it should be filtered in a hot filtering apparatus.

Lard should be of a soft solid consistency, white, unctuous, with a faint but not at all rancid odor, and a bland taste. Its specific gravity is about 0.932 and it melts at 38° to 40° C. (100.4° to 104° F.). It is insoluble in water and very little soluble in alcohol.

Olein, palmitin, and stearin are the principal constituents of lard, their relative proportions (upon which its consistency depends) varying considerably.

Commercial lard is so universally impure, either being mixed with water or salt, or having a portion of its liquid oil removed, that it is in general unfit for medicinal use, and the apothecary will do well always to prepare his own. Tens of thousands of barrels of cotton-seed oil are annually used in this country for the manufacture of artificial lard.

Ordinary lard rather rapidly becomes rancid and irritating, but if perfectly pure and free from water it will keep, in a cool place, for a very long time. When it is to be used during warm weather, five per cent. of it, or more if necessary, should be replaced with white wax. For pharmaceutical purposes it is scented, as well as preserved, with benzoin, a little of the balsam being tied in a bag and suspended in the melted lard for two hours. Thus treated, it is almost entirely permanent, besides having an agreeable odor.

Lard is an article of food, and is emulsified, like other fats, when taken into the intestines, without any particular physiological action. As an external dressing, it is protective and bland in a high degree, qualities which have given it its popularity as a basis of ointments and cerates. Those of the United States Pharmacopœia follow: A. Benzoinatus, just mentioned, Ceratum, Ceratum Cantharidis, Ceratum Extracti Cantharidis, C. Resinæ, Unguentum, Ung. Hydrargyri, Ung. Mezerei, Ung. Iodi, etc.

LARDACEOUS DEGENERATION. See Amyloid.

LARYNGISMUS STRIDULUS. See Croup.

LARYNX, ANATOMY OF THE.—The larynx, which is the principal organ of phonation as well as the guardian against the entrance of foreign bodies into the trachea and bronchial tubes, is situated at the upper and fore part of the neck. Until puberty it is small and presents a rounded form in front. At about this time in the male there are marked and rapid changes. It becomes nearly double in size and the thyroid produces a prominent ridge in front, called the Adam's apple.

The larynx lies between the base of the tongue and the hyoid bone above and the beginning of the trachea below, and, when at rest, in the adult, is in front of the fourth, fifth, and sixth cervical vertebrae, from which it is separated by the lower portion of the pharynx and the prevertebral muscles. In front, it is covered near the median line by the skin and cervical fascia. On either side there are also the sterno-hyoid, the sterno-thyroid, and the thyro-hyoid muscles with the upper portion of the lateral lobe of the thyroid gland and a portion of the inferior pharyngeal constrictor. Farther back and on the side are the large cervical vessels. At the upper part the larynx is triangular in shape with the apex pointing at the anterior median line, but it approaches the shape of a cylinder and is much smaller below, where it joins the trachea. The hyoid bone, the thyroid and cricoid cartilages, the thyro-hyoid membrane, and the crico-thyroid membrane are easily located and are important landmarks.

THE INTERIOR OF THE LARYNX.—The first portion of the larynx we see when looking from above is the epiglottis situated at the base of the tongue. This varies greatly in shape, size, and position. Its crest may present itself as the arc of a small or a comparatively large circle. It is usually situated in the median line, and is commonly but not always symmetrical; it swings up and down over the superior aperture of the larynx, so that it may be found in any position from the vertical to the horizontal. Immediately below the crest of the epiglottis, is a rounded prominence, the cushion produced by a prominence of

the petiolus together with some fatty and adenoid tissue. The mucous membrane covering the epiglottis is of a yellowish pink color and is more adherent to the posterior surface, in which open the mouths of a number of glands. From both sides of the epiglottis there extend toward the arytenoids, at the posterior portion of the larynx, two folds of mucous membrane, the aryteno-epiglottidean folds, which contain some ligamentous and muscular fibres as well as the cuneiform cartilages. These cartilages show as a whitish nodule in front of the prominence produced by the arytenoid and Santorini's cartilages on either side. At the posterior portion of the larynx, between the arytenoid cartilages, is a space called the interarytenoid space. This is quite extensive during respiration but is much shorter during phonation. Just below the apex of the arytenoids and extending from the front of these to the angle of the thyroid cartilage, below

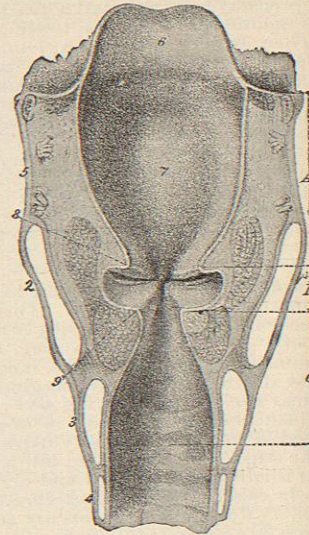


FIG. 3103.—Frontal Section of an Undivided Larynx. The three divisions of the larynx are marked off by the straight dotted lines on the right side of the figure. A, The superior compartment, extending from the aryepiglottic folds to the superior vocal cords (ventricular bands); B, the cavity of the ventricle, bounded above by the superior vocal cord, below by the inferior or true vocal cord, and externally by the elastic membrane of the larynx; C, the inferior or subglottic compartment, extending from the true vocal cord to the inferior border of the cricoid cartilage; 3, edge of the superior vocal cord; 9, edge of the inferior vocal cord. Below the true vocal cord is seen the thyro-arytenoid muscle.

the receding angle of the thyroid cartilage just below the ventricular band and within the insertion of the thyro-arytenoid muscle. Posteriorly there are three sets of fibres; one is attached to the vocal process of the arytenoid cartilage, another to its anterior surface, and the third to the crico-arytenoid capsular ligament. At their posterior attachment there is often seen a slight depression of a pearly white color; this is the tip of the vocal process of the arytenoid cartilage. There is an open triangular space between the vocal cords—the *glottis* or *rima glottidis*. This varies in extent according to sex and age, being about seven-eighths of an inch long in the adult male and about five-eighths of an inch in the female. The width constantly varies as the cords are approximated or separated, and in

the male is about one-half inch at the posterior portion when the cords are separated to their fullest extent.

Through the glottis can be seen the anterior portion of the cricoid and a few of the superior rings of the trachea and at times the whole anterior portion of the trachea as far down as the bifurcation. Below the glottis the space widens and is oval laterally, but gradually approaches a circular form as it extends toward the trachea.

CARTILAGES OF THE LARYNX.—There are five principal cartilages of the larynx, the epiglottis, the thyroid, the cricoid, and the two arytenoid, and two pairs of very small unimportant cartilages, the cornicula laryngis (cartilages of Santorini) and the cuneiform cartilages (cartilages of Wrisberg). The thyroid, the cricoid, and the two arytenoid cartilages are of hyaline cartilage and liable to become ossified with age, while the epiglottis and the four small cartilages are of a fibrous nature.

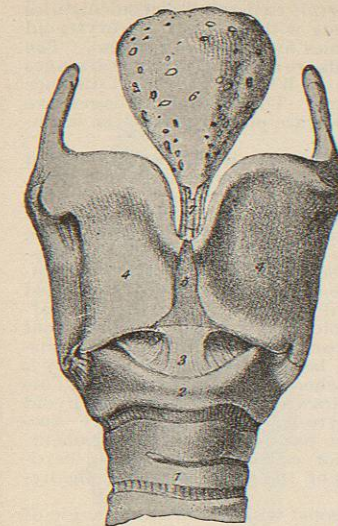


FIG. 3104.—Anterior View of the Cartilages of the Larynx. 1, Upper rings of the trachea; 2, anterior arch of the cricoid; 3, anterior portion of the crico-thyroid membrane (conoid ligament); 4, 4, lateral halves or alae of the thyroid; 5, median portion of the thyroid; 6, epiglottis; 7, thyro-epiglottic ligament. (Luschka.)

The **Thyroid Cartilage**, the largest in the larynx, consists of two large quadrilateral symmetrical plates called alae, which unite anteriorly at an angle of 85° to 95° and form the greater portion of the front and sides of the larynx.

The alae present an external flattened surface, marked by a rather indistinct oblique line, running from the inferior tubercle at the lower anterior border upward, outward, and backward to the superior tubercle at the posterior part of the superior border. This ridge gives attachment below to the sterno-thyroid, and above to the thyro-hyoid muscle, and just below this line are attached a part of the inferior constrictor of the pharynx and the stylo-pharyngeus. The internal surfaces are more or less concave and smooth, and near the angle of union in front are attached the epiglottis, the

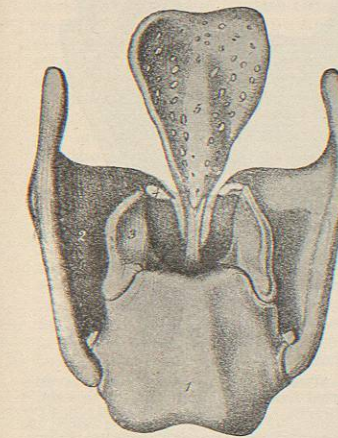


FIG. 3105.—Posterior View of the Cartilages of the Larynx. 1, Broad posterior arch of the cricoid; 2, internal surface of the ala of the thyroid; 3, arytenoid cartilage; 4, corniculum laryngis (cartilage of Santorini); 5, the posterior surface of the epiglottis. (Luschka.)

thyro-epiglottidean and thyro-arytenoid muscles, and the true and false vocal cords. Of the borders, the anterior is the shortest, and, except for a bursa which is sometimes present, is subcutaneous. The upper is somewhat convex except for a well-marked concavity near the superior cornu. The posterior extends above into a long delicate process, the superior cornu, which gives attachment at its extremity to the thyro-hyoid ligament, and terminates below in a short and thick process, the inferior cornu, presenting on the inner side a small oval facet which articulates with the side of the body of the cricoid. The lower border is nearly straight and is notched near the inferior cornu. It gives attachment anteriorly to the crico-thyroid membrane and laterally to the crico-thyroid muscle.

The **Cricoid Cartilage**, much thicker and stronger than the thyroid cartilage, forms the lower and greater part of the posterior portion of the larynx. The anterior portion is rounded and convex in shape and measures vertically about one-fifth of an inch. The external surface at the front and sides is smooth and gives attachment to the crico-thyroid muscles and inferior pharyngeal constrictors. Posteriorly, it rises until its vertical diameter is about three times that of the anterior portion. It also increases in thickness and forms the signet portion of the ring. This shows a depression near the middle on the superior border, on either side of which, looking upward and outward, is an elongated, oval and slightly convex facet for articulation with the arytenoid cartilages. At the middle of the posterior surface is a slight vertical ridge to which are attached a few of the longitudinal fibres of the œsophagus. On either side of this are depressions which are occupied by the posterior crico-arytenoid muscle; and just outside of these are the slightly raised oval facets for articulation with the inferior cornua of the thyroid cartilage. The whole interior surface is smooth and covered with mucous membrane.

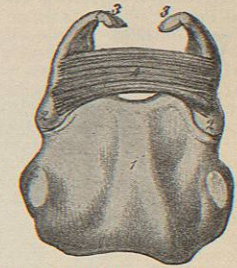


FIG. 3106.—Posterior View of the Cricoid and Arytenoid Cartilages, showing the Attachment of the Arytenoid Muscle. 1, Cricoid; 2, arytenoid; 3, corniculum laryngis; 4, arytenoid muscle. (Luschka.)

The **Arytenoid Cartilages**, two in number, are situated at the posterior superior portion of the larynx, and are the most active of all the cartilages in tuning the larynx for the production of sound. To them are attached the vocal cords and all of the muscles controlling their movements except the crico-thyroid. In shape they are three-sided pyramids and are about half an inch high and one-fourth of an inch wide. They articulate near the outer portion of the base with the facets on the superior surface of the cricoid, and their inner surfaces are nearly parallel. At each apex is situated the cartilage of Santorini. The inner surface, which is the narrowest of the three, is triangular in shape and nearly flat. It is covered with mucous membrane. The anterior surface has a triangular ridge at the junction of the lower and middle thirds, above and below which are concavities. Near the inner end of this ridge

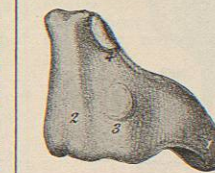


FIG. 3107.—Lateral View (right side) of the Cricoid Cartilage. 3, Articular surface for the inferior cornu of the thyroid; 4, articular surface for the base of the arytenoid. (Luschka.)

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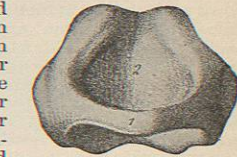


FIG. 3108.—Anterior View of the Cricoid Cartilage. 1, The anterior arch; 2, the posterior arch. (From Luschka.)