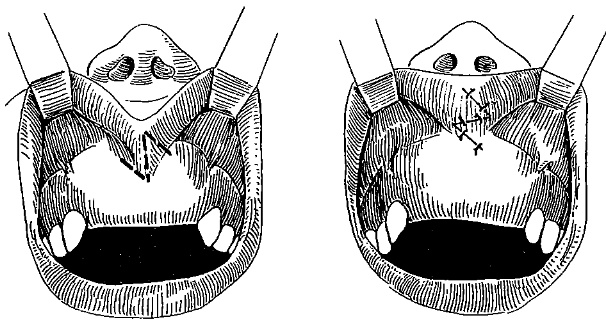
36. *Creating the Upper Labial Sulcus*

ARTHUR von Deilen of Camden, New Jersey, in 1956 set criteria for bilateral cleft lip construction including a *free upper lip.* This involves creation and maintenance of an upper labial sulcus.

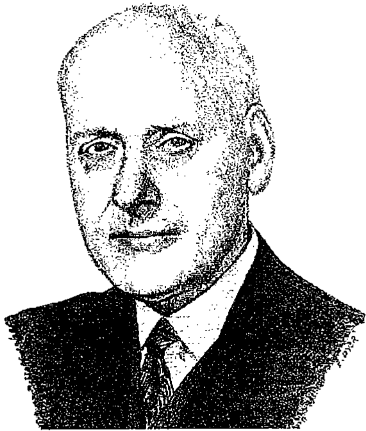
ADHESION

When the upper labial sulcus is bridged by an adhesive band, this can be simply divided—or better, split—and closed with a Z of mucosal flaps as described by many, including Raymond Gola in 1970.



TOTAL ABSENCE OF SULCUS

Techniques that introduce the lateral mucosa behind the prolabium satisfy the development of a sulcus. Methods that accept the prolabium's attachment to the premaxilla, of course, never achieve a sulcus. For such cases several surgeons have proposed methods of secondary sulcus construction.


Johannes Esser

FREE SKIN GRAFT INLAYS

An important contribution to face and jaw reconstruction during World War I was that of Johannes Frederick S. Esser, a Dutchman working in Austria. He conceived the free skin graft inlay for creating a labial sulcus. Concerned about the complications of infection, he made an incision in the skin under the jaw and dissected a blind pocket between the lip and cheek and the mandible without opening into the oral cavity. A stent, covered by a skin graft with its raw side out, was inserted into the pocket, which was closed by suturing the skin over it. Once the graft was well healed, Esser incised along the line of the future sulcus inside the mouth and removed the mold, revealing a well-lined labial sulcus.

There are stories that cloak Esser's name in mystery and contradiction. Joseph Safian recalls observing him in Berlin trying to operate without anesthesia on the cleft lip of a convulsing infant, with the baby in his lap. When questioned about this incident, Esser is reported to have stated abruptly:

> Babies have no feelings.

At the peak of Hitler's power in the early 40's, Esser, who was now working in Berlin, came to the United States and, traveling about in a mobile home, visited various plastic surgeons. Maliniac recalled that, during Esser's visit,

> One could not meet him without liking him.

Yet Lamont remembers that the elderly John Staige Davis had been quite upset by his visit with Esser. Certainly during his call on Safian, Esser revealed his Nazi sympathy by condoning the loss of thousands of lives in the effort to unite western Europe. Just one day after Esser's visit with Safian, an agent of the Federal Bureau of Investigation came looking for him, but he managed to keep one jump ahead of the F.B.I. until his return to Germany.

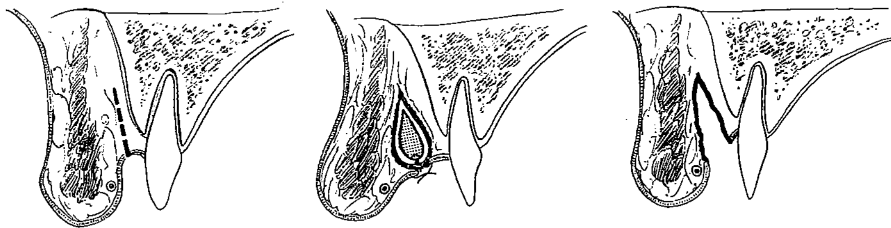
At the end of the 1914–1918 war, most of those who had served as plastic surgeons in the British army returned to their previous specialty. Gillies recalled:

To venture into this rather new field of civilian plastic surgery was certainly a gamble, and as Sir Milsom Rees had kept the E.N.T. post open for me, it was a temptation to return. . . . It meant reassociation with royalty and certain financial success, but the plastic bug had bitten.

By 1922 Gillies had consulting rooms in London at Great Portland Place, Kilner had joined him and private practice was gradually increasing:

One particular group of patients that were numerous about this time were the old secondary harelips who were coming in for buccal inlays.

He simplified Esser's original 1917 skin-burying procedure, and this more direct method has served effectively in bilateral clefts that require the construction of a sulcus. The technique is quite easy. A split-skin graft is wrapped around a gutta-percha mold with its raw surface out. Then an intraoral pocket is dissected between the lip and the premaxilla, the epithelial egg is nested into the pocket and the mucosa sutured over it for several weeks. Then the sulcus "lays the gutta-percha egg," leaving behind a skin-lined cavity.



These grafts are notorious for their 99 percent take. Of course, the fate of the take depends on the raw surface's being outward. I have heard the rotund Professor Kilner relate his favorite inlay graft story. He awakened one night suddenly wondering whether

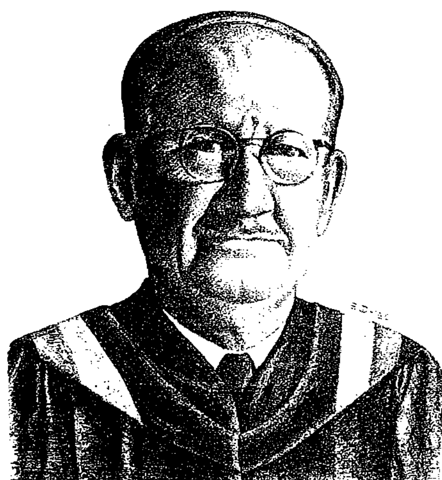
the inlay he placed the day before had been inserted the wrong side out. He tossed and turned becoming more and more suspicious that the graft was inside out. Finally he got up and went to see for certain and was relieved to find the graft correctly positioned.

This procedure is effective. Eventually some contracture is noticed, but in general the skin graft inlay creates a functional sulcus.

EXTENDING SULCUS TO FREE THE NOSE

H. D. Gillies extended his upper sulcus inlay principle to its ultimate in the contracted luetic nose. He used the same principle to free the contracted nose in the secondary bilateral cleft lip.

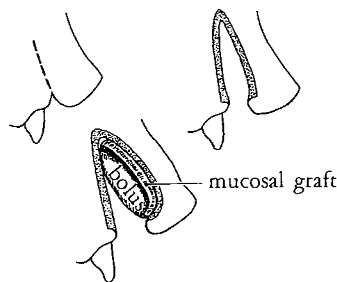
Later, in 1952, A. von Deilen of Camden, New Jersey, described the restoration of a 15-year-old girl with the typical secondary deformities of a bilateral cleft including contracted maxilla following a Brophy-type palate closure. He carried out a prolabium shift into the columella and replaced it with an Abbe flap. He then noted:


Arthur von Deilen

> This girl's face still had a dished appearance, due to the retroposition of the base of the nose. . . . I decided the best way . . . was with an appliance which had a high and thick labial flange. This flange would fit into a manufactured epithelialized pocket anterior to the maxilla and push out the nose and upper lip and close all holes. So I decided to deepen the labial sulcus, free the base of her nose, bring the nose forward and cover all raw areas with a split skin graft. This was done.

The result he showed was a noticeable improvement.

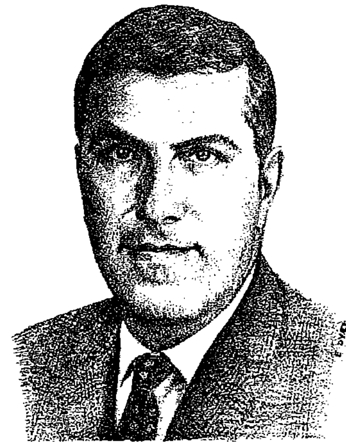
FREE MUCOSAL GRAFT



In 1966, Cosman and Crikelair reported late release of the prolabium from the premaxilla and creation of an upper labial-alveolar sulcus in 12 cases out of a series of 40 bilateral clefts. As they reported:

> Dissection of the prolabium from the premaxilla with a full thickness free mucosal graft to the labial surface leaving the premaxilla area bare was found to be an effective method free of major objections.

FLAPPING THE SULCUS



Alfred Falcone

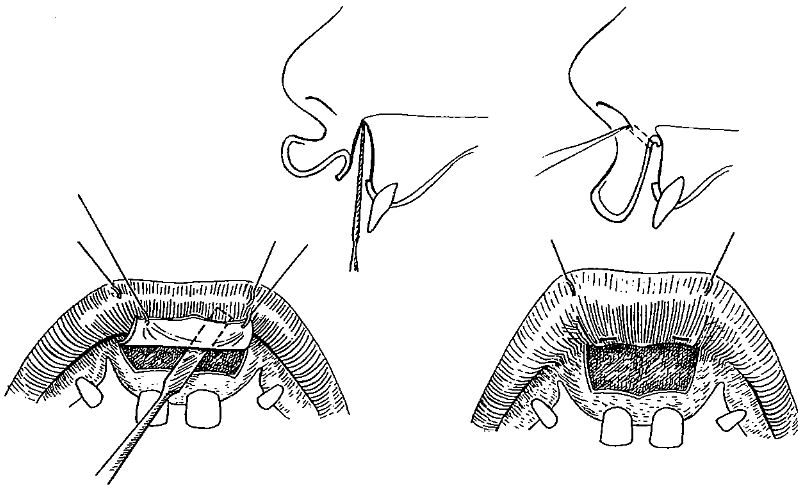
Alfred Falcone of Syracuse, New York, a romanticist with a love of his work, was trained by pioneer Leon Sutton, whom he considers a second father. He recalls such succinct "Suttonisms" as:

> Why is a left sided cleft lip easier to repair than the right? Simply because there are more left clefts and the experience level should be greater.

or,

> One can compare repair of the cleft lip, especially at the point where some of the excess vermilion is discarded, to the government fiscal policies—it seems that when you don't have enough, you end up throwing some away.

Obviously, Falcone resented misuse of mucosa. In 1966 he designed its effective use in the construction of the upper sulcus. The mucosa of the anterior premaxilla was cut free with its base above in continuity with the upper lip mucosa. The lip was dissected from the premaxilla as a pocket up near the nasal spine, and the mucosal flap was turned under to line the lip side of the sulcus. The raw periosteum of the premaxilla was left to re-epithelialize, and it readily does so.

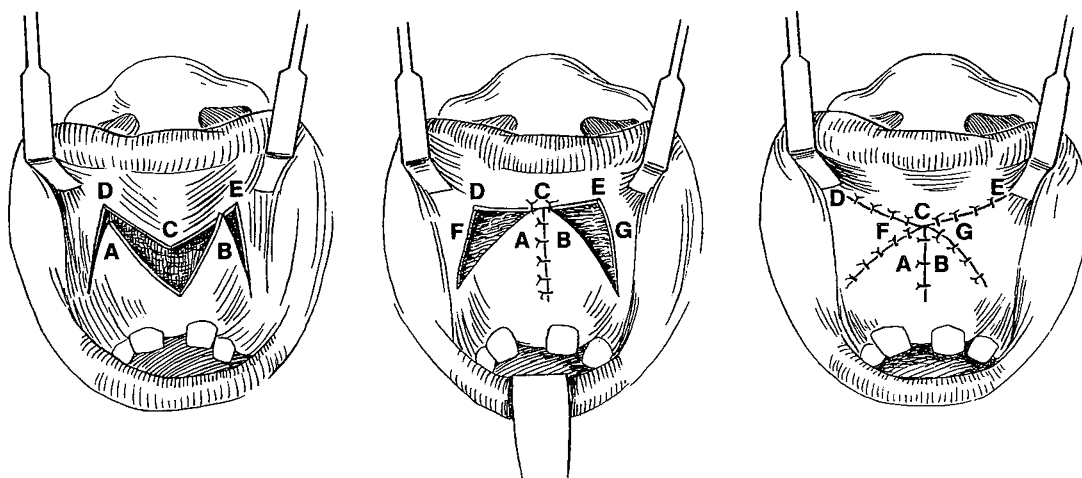


The productive Norfolk team of C. E. Horton, J. E. Adamson, R. A. Mladick and R. J. Taddeo in 1970 suggested preservation of the vermilion parings as flaps of mucosa to line the sulcus or cover the premaxillary raw surface in the primary surgery. This sound and economical gesture at least partially maintains a

Richard Mladick

sulcus. They also stated that, quite apart from the need for a free upper sulcus, if the prolabium remains attached to the premaxilla it can interfere with growth.

Then, in Georgiade's 1974 transactions of the Cleft Lip and Palate Symposium held at Duke University, after a slight rearrangement of the members of the team and one substitution, Richard Mladick (of Yugoslavian extraction but Duke trained), with Horton, Adamson and J. H. Carraway, presented several alternate secondary methods of flapping and mucosa-grafting (MG) the upper sulcus. Each has a possible place in sulcus surgery.



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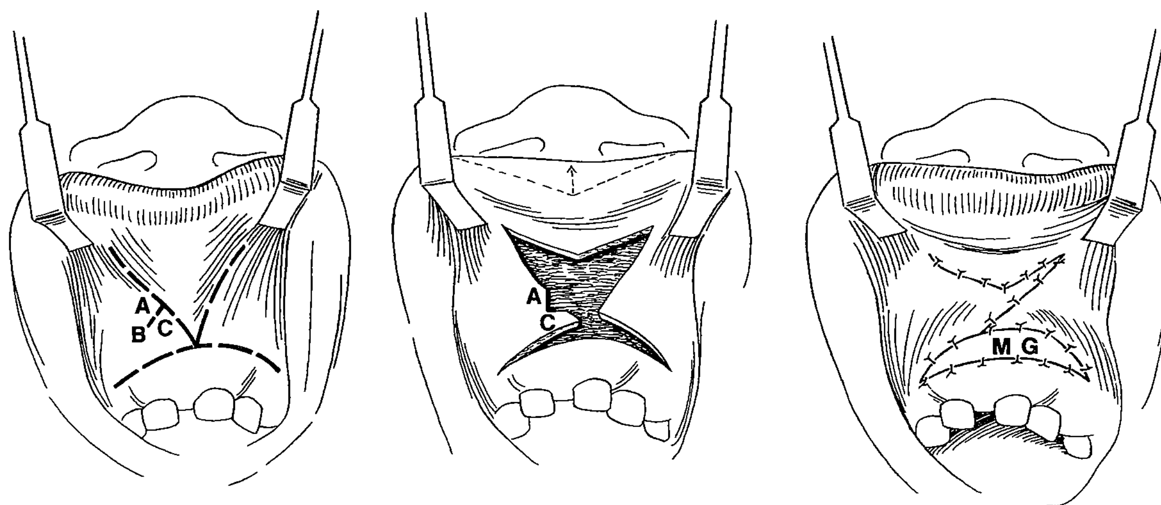
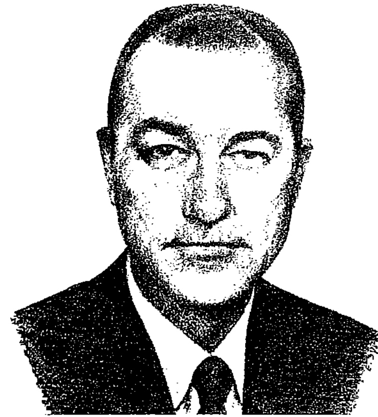


FOR BOTH FREE BORDER AND SULCUS



Joseph O'Malley

Gung ho Joseph O'Malley of Orlando left his practice to serve in the field with the marines in Vietnam. Once, over the mountainous terrain of Ethiopa, he tracked and shot a rare, padded knee goat, the walia ibex, now in the Smithsonian Institution. Just a few months before his tragic end, O'Malley wrote a note in the June 1973 *Southeastern Plastic and Reconstructive Surgeons' Newsletter:*

> Throughout my travels around the world . . . and particularly in Central America, I have found many cases of repaired bilateral cleft lips which present a totally obliterated upper lip sulcus and inadequate vermilion of the prolabium and I have found the vermilion lip roll, a variation of the Abbe flap, to be most useful.

In cases with a whistling deformity and no sulcus or posterior mucosa for the usual roll-down, O'Malley advocated Peterson's altered Abbe. A standard V Abbe flap the width of the prolabium was cut and shorn of its skin, leaving muscle, mucosa and vermilion border. He freed the prolabium from the premaxilla and slid this skinned Abbe behind to line the lip and fill out the free border. The pedicle was divided in 10 to 14 days.

Yet again, it is important to remember that if the primary surgery is designed correctly, an upper labial sulcus will be one of the dividends and only minor revision, if any, should ever be required.