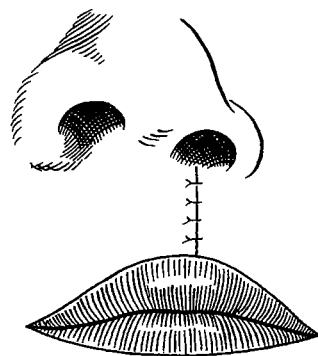
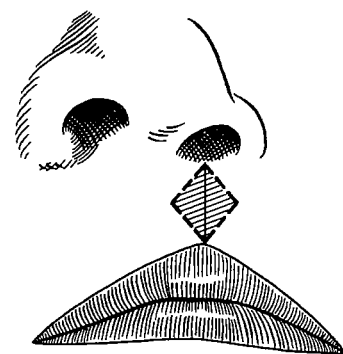


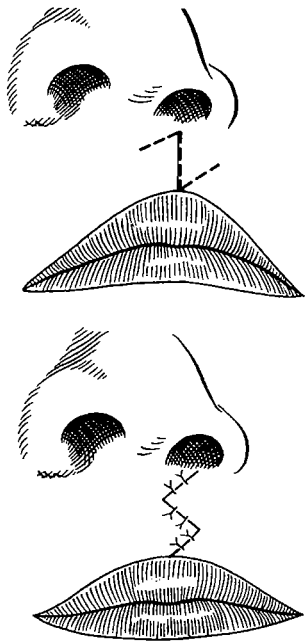
## 43. Secondary Correction of a Straight-Line Closure

THE most common secondary deformity of a straight-line closure is vertical contracture of this line with peaking of the vermillion and notching of the free border. A popular method of correcting a straight-line lip scar was for many years a diamond-shaped excision which, upon closure of the opposing angles, increased the vertical length of the lip while narrowing the width. This principle was popularized by Rose and later Thompson and occasionally is used in some clinics even today.

For instance, at Johns Hopkins Hospital about 1944, John Staige Davis, one of America's pioneer plastic surgeons, straight as a ramrod, although in his 80's, was preparing to do a secondary cleft lip procedure on a 13-year-old girl. Lamont of California recalls:

I had long ago learned how to be a good observer. I had spent a couple of years in St. Louis before World War II. . . . Dr. Davis sat at the head of the patient and made the appropriate markings with gentian violet. The incisions on each side of the scar were to be a modified diamond, which was supposed to lengthen the distance between the base of the nose and the vermillion. . . . As Dr. Davis prepared to lower the blade of the scalpel toward the lip, his intention tremor became apparent and suddenly he stopped and turned over his shoulder and asked, "Dr. Lamont, what would you do for this case?" "Dr. Davis, I have been observing your preoperative measurements, Sir, and whatever it is you plan to do I hope that someday I am able to do it half as well." He turned back to his surgery, the tremor disappeared as his scalpel made a precise incision down the lip, and the operation had begun. It was during the suturing that he again turned toward me and asked, "Do you have any plans for lunch?"





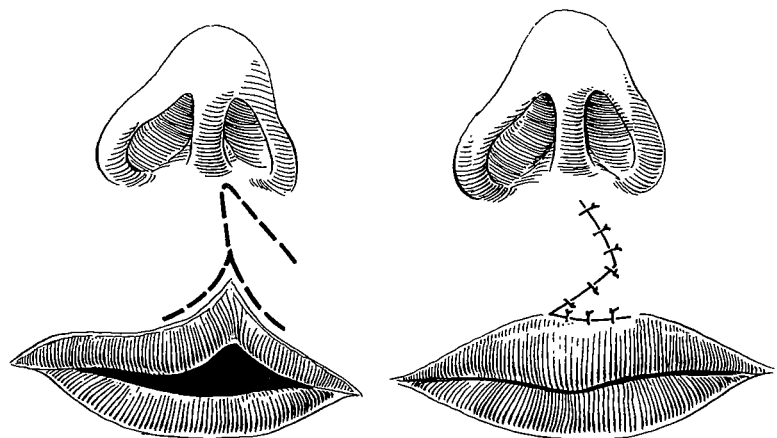
## Z-PLASTIES AND OTHER TRANSPOSITIONS

A more popular method of dealing with this contracture today involves excision of the vertical scar and the use of some kind of Z-plasty. This solves the problem of the straight-line contracture and shortness of vertical height but at the cost of an unnatural scar crisscrossing normal lines of the lip. There was a time when such violation of principle was acceptable, but the sophistication of this surgery has progressed.

## GINESTET

The dynamic and forthright Jean Gustave Ginestet, founder of the maxillofacial center in Foch Hospital, was a pioneer in secondary deformities of clefts.

For a more severe peaking contracture, referred to as the "chapeau de gendarme" deformity, Ginestet advocated an oblique flap based inferiorly to be transposed into the defect along the mucocutaneous line after the vermilion retraction has been released. When the cupid's bow has been destroyed, this procedure offers a possible means of contracture correction, but beware of creating a long lip.

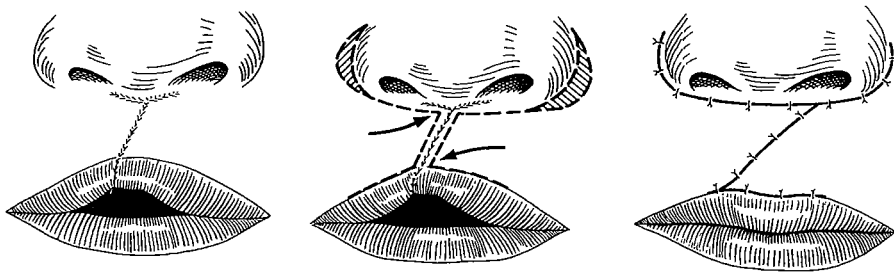


## A BIGGER Z

Another dexterous maxillofacial surgeon of l'Hôpital Foch, Paris, is L. C. Merville, who has carried on the secondary cleft work of Ginestet. He has the skill to handle delicate instruments and the ability to develop corrective procedures. In 1966 he described the sliding of full-thickness lip flaps in the form of a Z for correction of a straight-line contracture and shortness of the lip. To facilitate his advancements and to remove subalar scarring, he used circumalar crescent excisions. Although an improvement over the original primary scarring in the case demonstrated, in principle this approach produces an unnatural zigzag and possibly even excessive vertical lip lengthening.



L. C. Merville

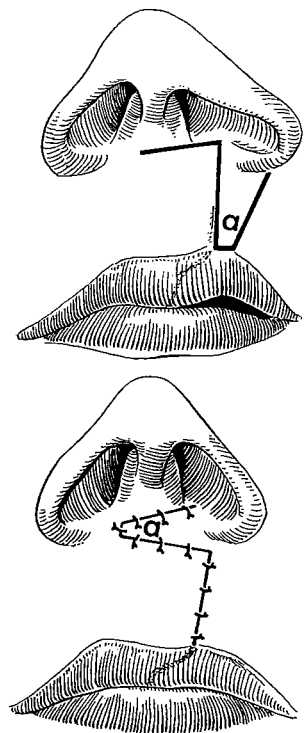


## TRAUNER

In 1955 in Stockholm, Richard Trauner presented a secondary transposition he termed a Z-plasty of interchanging flaps at the entrance of the nose for reoperation of unilateral clefts. This enabled him

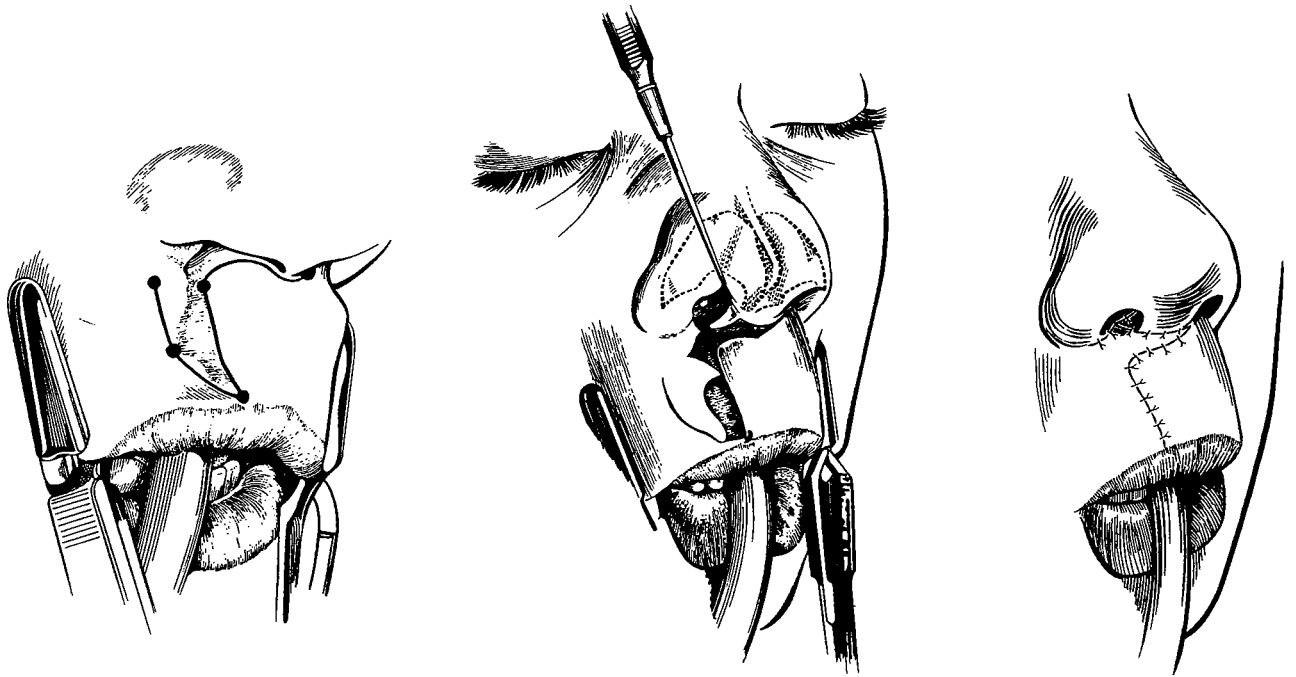
to draw the lateral end of the alar wing upwards if it lies too far downwards . . . lengthen the lip at the line of the cleft on its upper border, lengthening at the same time the columella on the side of the cleft and narrowing the entrance of the nostril.

This approach was used first as a secondary procedure and then primarily by Trauner and copied by others.



## WYNN'S WAY

Sidney Wynn's use of the vertical scarred flap for transposition high in the rotation incision under the columella is similar to the Trauner design and has aspects of the rotation-advancement principle which are beneficial in partially correcting the straight-line deformity.



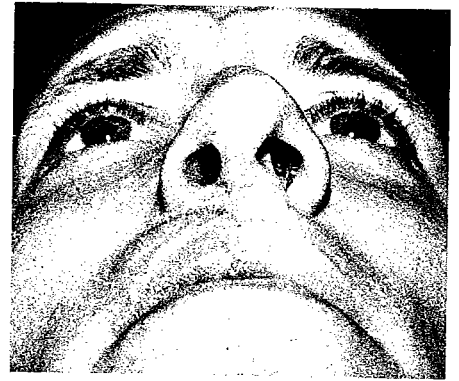
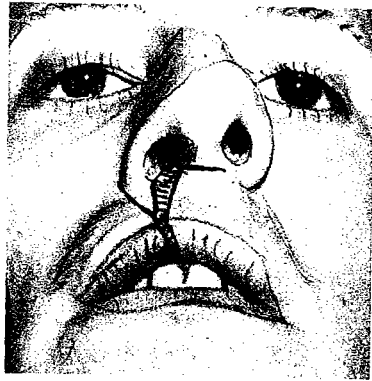
*Claude Dufourmentel*



Claude Dufourmentel of l'Hôpital St.-Louis, tall and aristocratic with the air of an English gentleman, a second-generation plastic surgeon and the 1975 host-president of the International Congress in Paris, has long been interested in "harelip sequelae." In 1974 he forwarded a report of a case illustrating his rendition of the principle of medial transposition of a lateral vertical flap. As he kindly explained in English,

Of course, this has to be adapted to each case and combined with several other technical procedures.

The principle is an asymmetric Z plasty which lengthens the distance between the apex of the nose and the lip, on the cleft side, and shortens the transverse width of the nasal threshold. The lateral vertical flap, cut on the external side of the scar is shifted into the opening of the horizontal incision of the naso-labial angle.



Thus the foot of the ala nasi is elevated and rotated inwards and no contraction of a vertical scar of the floor of the nostril can develop.

Z-plasties across the natural lines are contraindicated unless scars are already present. Each case must be considered from its specific aspects. Of course, the transpositions of Trauner, Marcks, Wynn and Dufourmentel are high in the lip and therefore less noticeable. In the straight-line scar, whether the mucosal peaking be moderate or severe because of vertical shortening, if there is still sufficient cupid's bow present, the rotation-advancement principle will serve better as a secondary maneuver.

#### A SECONDARY LEMESURIER

Straight-line closures in which the cupid's bow has been destroyed partially may offer the best opportunity for the use of the Hagedorn-LeMesurier principle. The cupid's bow is gone, so now the construction of an artificial one is justified. In most cases, however, the design of a LeMesurier as a secondary procedure would call for too much additional excision of tissue and too much tightening of the free border of the lip. Yet, in certain cases, probably incomplete clefts originally, there is still a relaxed full-bodied upper lip which can afford a LeMesurier operation and will be benefited by it.

In this specific case, operated on in 1956, there was enough cupid's bow vestige left for use of the rotation-advancement principle as a secondary procedure. Yet the transverse retention stitch mark scar transgressing the potential column line on the

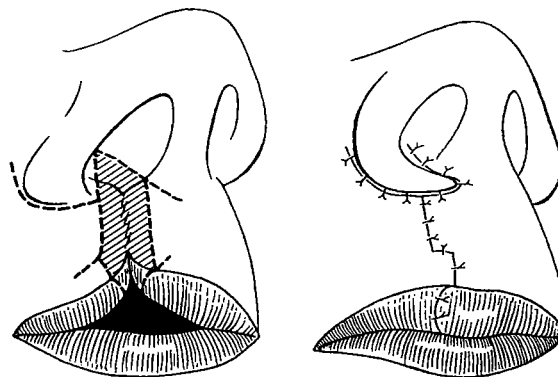




cleft side required excision, and this then created a natural LeMesurier design which produced an artificial cupid's bow and a reasonably natural result.

In 1968 J. L. Grignon of Paris improved the standard LeMesurier procedure for secondary corrections of unilateral clefts by adding an exaggerated alar advance which he clings to with bulldog tenacity. He refers to his combination as a

double locking transposition of a quadrilateral flap with an external rim as in the LeMesurier, for the inferior part of the lip . . . disinsertion and forcible rolling up of the ala nasi, with a locking into the sub-columnar notch, for the nasal region and the region below the nose. . . . The results obtained, going back over a period of 7 years . . . and after a study of a series of 125 operations, have been judged sufficiently interesting. . .



## A SECONDARY TENNISON

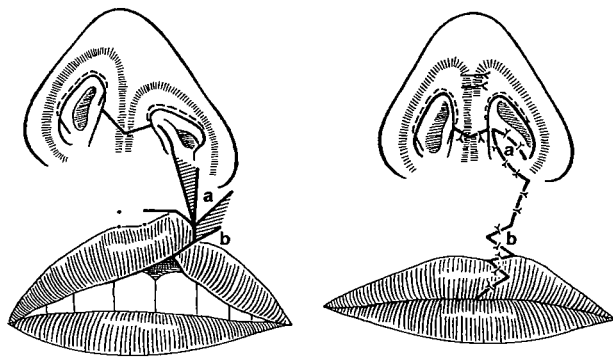
Although many surgeons probably use the Tennison procedure for secondary correction of the lip, publications on this seem to have been sparse. Leave it to the Russians, even if they do not call it that. . . .

In 1966 M. V. Mukhin and A. P. Agroskina, of the Stomatology Department of the Kirov Military Medical Academy, Leningrad, noted,

After cheiloplasty carried out in children at an early age for congenital clefts, some inaccuracies. . . , though little perceptible in the first years, become increasingly conspicuous in a child of eight or ten. Such deformities develop even after completely successful cheiloplasty.

They prefer a one-stage operation for repair of upper lip, columella and ala nasi, and their general design seems to consist in modifications of Trauner and Marcks' secondary flap for the nose and Tennison's for the lip.

*There must have been something wrong with the primary cheiloplasty*

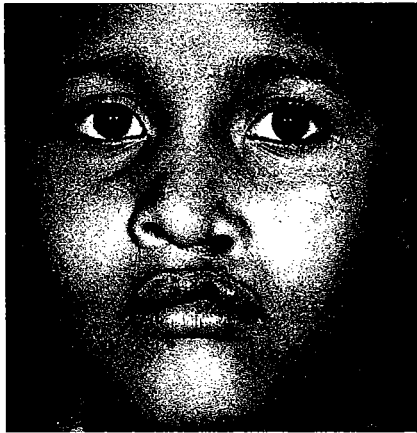


## SECONDARY ROTATION-ADVANCEMENT

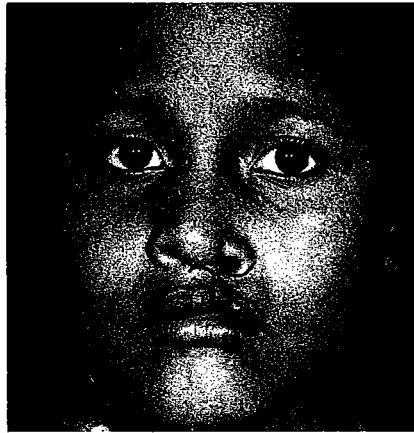
Crude straight-line cleft lip closures without finesse often leave the natural landmarks of the cupid's bow. In that event use of the rotation-advancement principle can be effective. In 1960 I noted the availability of this principle secondarily:

When a cleft has been closed previously by the crudest paring of the edges without destruction of the cupid's bow component the result may be inferior but is amendable by the rotation-advancement principle. A more radical paring of the edges will have destroyed the natural vermilion portion of the cupid's bow leaving the dimple and skin curves present but askew. Here repositioning of this element may be achieved by scar excision, rotation and advancement. . . . In fancier methods where all vestige of the cupid's bow has been ravaged then the advancement portion of the . . . principle is still available for nasal correction. Gillies more than once has expressed his approval of the rotation-advancement principle in secondary cleft lip correction stressing its value in the nasal distortion.

This eight-year-old girl from Panama had a straight-line closure in infancy, healing with what seemed to be little more than a preliminary adhesion. Scar excision was followed by rotation with a back-cut and advancement of flap c into the columella. The alar base was freed from the lateral advancement flap and from the maxilla and flap l was inserted into the vestibular defect. The cleft side alar cartilage was lifted and sutured onto the septum. Mucosa, muscle and skin closure of the lip was standard.



8 years old



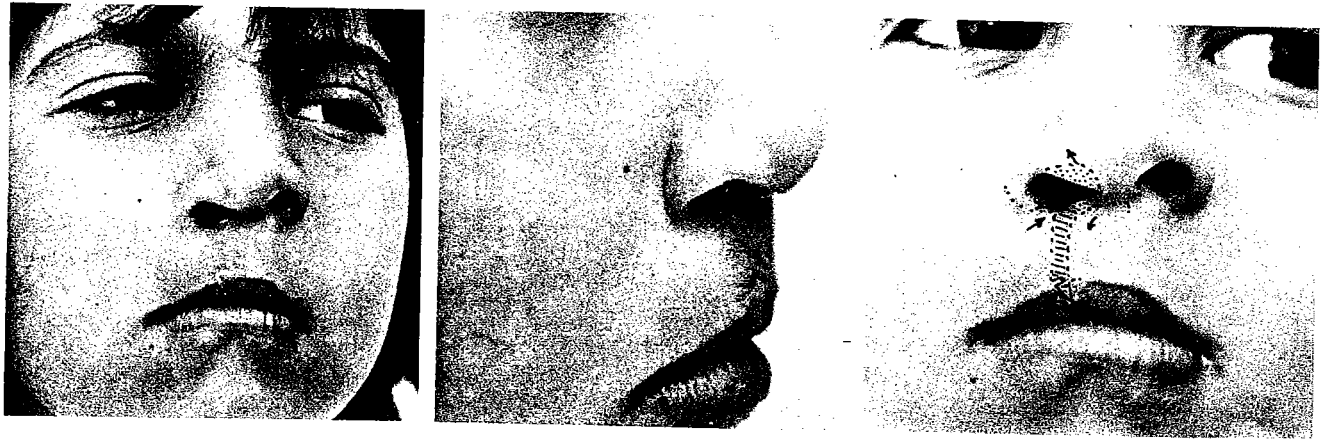
10 days PO

This 19-year-old girl from Ecuador had excision of her straight-line scar and a rotation-advancement of her lip. She also had a cleft lip rhinoplasty and Silastic sponge implants under her alar base and in her chin.





This cleft was closed primarily in Ecuador in a straight line which widely scarred the skin, partially ruined the cupid's bow and flattened the dimple.



Secondary nasal procedures used included columella lengthening on the cleft side along with alar cartilage lift with nylon suture to the septum, alar base advancement across the nostril sill, denudation of alar rim web and transposition of this flap into the weakened area in the tip. Secondary partial lip scar excision followed by rotation and advancement did give better balance but did not achieve the result of which a *primary* rotation-advancement is capable.



7 years

This patient is reported to have had a wide complete cleft which partially separated after a simple straight-line closure. The width of the primary scarring and stitch marks magnified the problem, making complete eradication of all scars quite impossible. Partial scar excision with rotation and advancement of the lip improved the nasal base, the lip conformity and the cupid's bow.



Here is a standard use of the rotation-advancement principle carried out by University of Miami resident Richard Greminger, following what seems to have been an inadequate straight-line closure in Cuba but with minimal scarring.



## INTERNATIONAL CONFIRMATION

Among several surgeons who have pointed out the value of secondary rotation-advancement were the French surgeon Merville in 1962, Pitanguy of Rio in 1963 and Rees and Converse in 1966. Also in 1966, Muir and Bodenham in *Modern Trends in Plastic Surgery* noted,

If the primary operation was simple, these cases can often be improved by applying the Millard rotation advancement technique, thus swinging the alar base into normal position and, at the same time, lengthening the columella on the cleft side.

In 1966 Onizuka of Tokyo, when discussing revision of cleft lip secondary deformities, said,

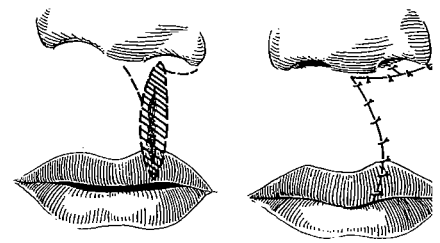
Millard's technique can give good results if adequate tissue is available in the upper lip.

He advocated rotation-advancement plus the Tennison inferior triangular flap

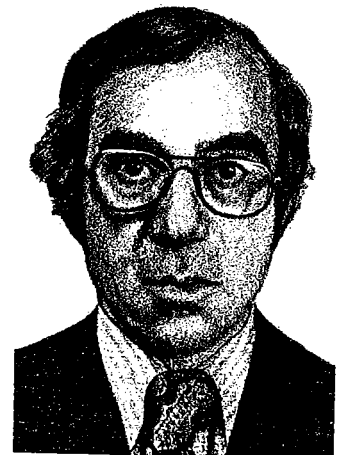
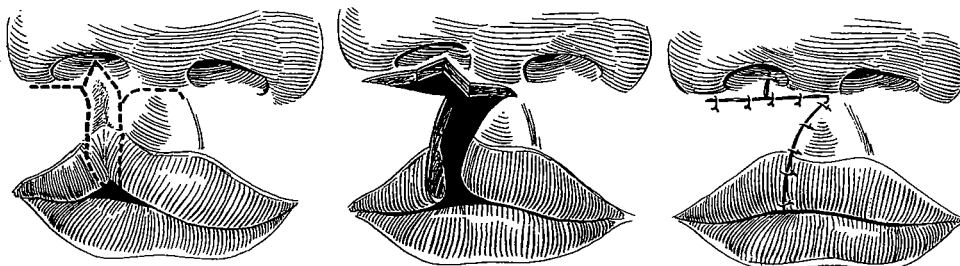
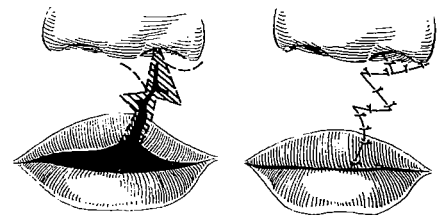
(a) When scar is wide and irregular. (b) If there is paucity of tissue in the lower portion of the upper lip. (c) When the height of the upper lip is too short.

In 1968 Canadian Saul Hoffman with Wesser, Calostypis and Bernard Simon of New York's Mt. Sinai Hospital endorsed the rotation-advancement principle in secondary unilateral cleft lip deformities. They described the ideal case:

The philtral scar on the cleft side is short and the cupid's bow is pulled up toward the nostril. The nostril floor is wide and the ala is displaced laterally and downwards. . . . This is the ideal indication for its use, but, as we have demonstrated, other primary repairs have not precluded this type of secondary correction.



oops!



Saul Hoffman

In describing their use of rotation and advancement, they stressed its advantages as to conservation of tissue in face of already existing deficiency, absence of rigid adherence to pre-operative measurements due to the variability of the cases and proper realignment of the orbicularis oris muscle to eliminate distortion frequently seen during lip function.

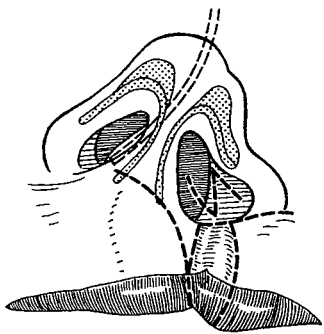
In 1969 Wilkie of Vancouver referred to

. . . the recent availability of the Millard cleft lip operation, which can be used with as excellent results in secondary cleft lip deformities as in primary repairs.

It was Tessier's feeling in 1969 that

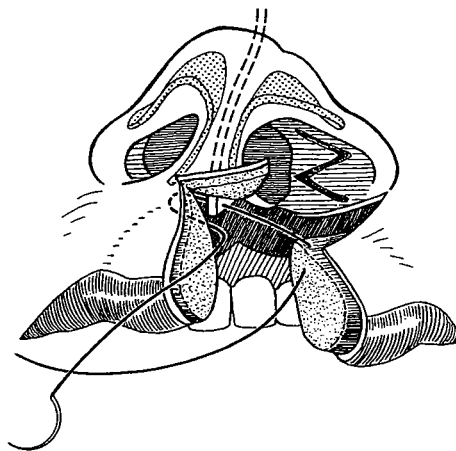
The Veau and Brown procedures, all linear, are easily transformed into a Millard or Petit. To the contrary, the Tennison and even more so the LeMesurier, with their imbricated incisions, can hardly even undergo later correction.

*but Petit  
is like  
Tennison?*

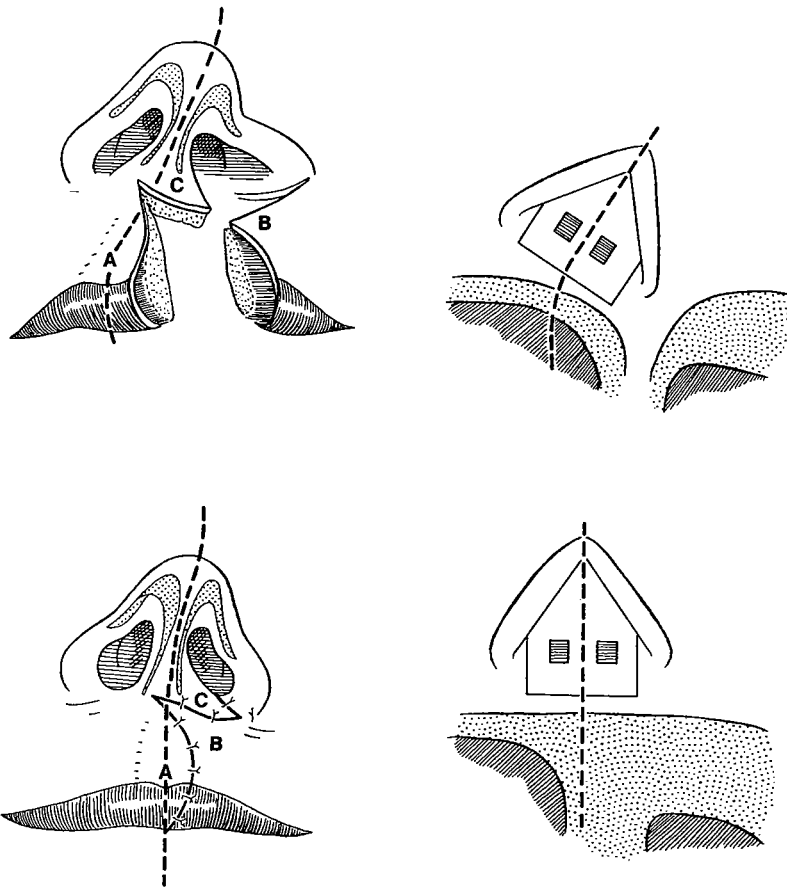


In January 1970 Henrik Borchgrevink of Oslo indicated his pleasure with the application of rotation-advancement in secondary unilateral deformities. He makes several important points in the *Cleft Palate Journal*:

Further, the key stitch can provide a considerable straightening of the columella and reshaping of the nostril, especially if one does, simultaneously, a little work to the deviating anterior septum and a Z-plasty inside the ala. . . . I feel that the muscle closure in lip repair, especially the key stitch, should be done with non-absorbable sutures: I always use supramid.



[The drawings] show how the rotation-advancement operation . . . in my opinion and experience, can provide a soft tissue platform for the cleft-side alar base almost eliminating the disadvantage of the cleft side bony defect. This, together with the reduction of the columella deviation, tends to counteract the tilting of the nose.

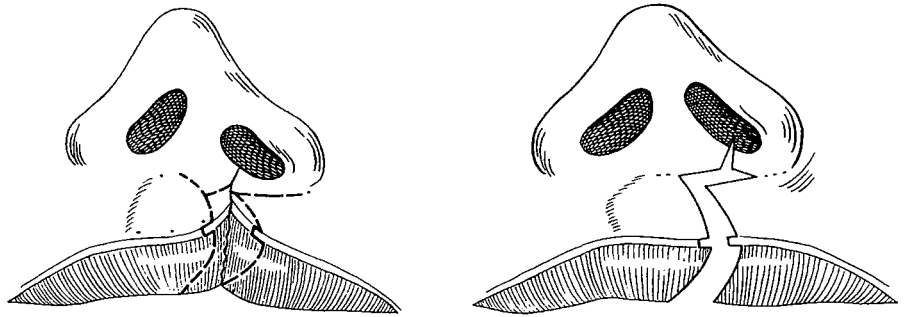


This is Borchgrevink's graphic comparison of the secondary lip and nose to a quaint little cottage sitting askew on a Norwegian slope threatening to topple into the fjord, which, after rotation and advancement, sits straight, safe and sound.

In 1971, Igor A. Kozin wrote in *Acta Chirurgiae Plasticae*, Since 1965 the modification of Millard or a Z-plasty has been used at the surgical department of the Moscow Scientific Institute of Cosmetology for correction of the residual deformity in the upper lip after linear cheiloplasty.

Then, in a kind personal note in 1973, Kozin added,

I have operated on more than 200 adults with secondary deformities of the lip using your method with several additions. Results of the operation in most cases have been pleasing.



The more radical the straight-line closure, however, the more destruction there is of natural landmarks, especially the cupid's bow. Of course, the effectiveness of the rotation-advancement as a secondary procedure is reduced. Yet, even when the straight-line closure has destroyed a portion or all of the bow, the rotation-advancement principle can still be of some value in reducing the wide nasal floor and aligning the flared alar base. The natural cupid's bow can never be resurrected, but it can be simulated by the Gillies cupid's bow operation.

#### TIGHT LIP

Of course, radical paring of the cleft edges, as in so many early straight-line designs, not only destroyed the cupid's bow but created a side-to-side tightness which compared unfavorably with the conformation of the lower lip. A case having this result deserves the introduction of new tissue in the form of the lip-switch flap.