system of General Assembly, Council, and Secretariat, has, broadly speaking, been followed in the subsequent arrangements. The Committee of the Office International, enlarged as indicated, becomes the equivalent of the General Assembly of all the nations. Under the name of the General Committee of the International Health Organization it will continue to meet in Paris once or twice a year and retain its offices there. Its work will be carried on under its former constitution, with such modifications as may be necessary to fulfil its further duties of advising the League. It will, however, be provided with a standing committee, roughly analogous to the Council of the League, which can meet in the intervals of the general meetings, appoint subcommittees, and arrange for expert inquiries, and it is to have a medical secretary and office at Geneva. The Assembly has allotted some £17,000 to the organization for its first year, and it will continue to receive also the relatively small contributions from the signatory Governments which have hitherto supported the Office International.

It may be noted with satisfaction that the official requirements for the working of the organization laid down by the resolutions of the Assembly are, as international arrangements go, relatively simple. Much latitude has been given to the organization to work out its own procedure as circumstances dictate.

It is true that the system could have been very considerably simplified if we could have envisaged the appointment at Geneva of a superman for international health, possessing a large central office and staff, in position to prosecute inquiries in and demand information from the respective national health offices of the world, and to lay down international rules with which those national offices would comply. But no public health department in any country would be prepared to accept this dictation at the hands of any man, however distinguished. And if they were so prepared, no Government would be disposed to accept such a system. There were, indeed, many indications at Geneva of the intrinsic objection held by the representatives of the constituent nations of the League to any international procedure which suggested servitude to a central bureaucracy.

Common action among nations, for purposes such as we are considering, must depend upon the fullest discussion and consideration of the position of each country—even in such technical matters as quarantine laws or death certification or standards of ships' hygiene—and on willing agreement after such discussion. This means a slow rate of progress, of course, but it is necessary, and the originators of the health scheme have recognized it by making the meetings of representatives of all countries—that is, the General Committee which continues the Office International d'Hygiène Publique—the real basis of the organization; the new additions of standing committees and secretariat being the necessary auxiliaries to its efficient work. Any permanent headquarter officers who are appointed will need ability and experience in handling the subjects for inquiry and giving effect to the decision of the international representative body. But these, after all, are qualities exercised every day by medical officers in every important public health service, no more difficult or complicated than managing the health matters of a great municipality. They require good men, but not Napoleons.

CONCLUSION.

It is permissible, I think, to conclude from this short survey that the International Health Organization of the League of Nations will have before it on its formation a number of important practical matters of hygiene which are ripe for concerted Government action, and already call for an organization representing the official public health services of the civilized Governments of the world; that it will start on these subjects with the advantage of continuing the collaboration which has been obtained in the more limited sphere of the Office International d'Hygiène Publique under the Rome Convention of 1907, and of the preliminary work already done by that Office in several of the subjects awaiting settlement; and finally, that the means and funds placed at the disposal of the organization for meetings, inquiries, and draft agreements, promise to be satisfactory for the purpose.

I think this is quite enough to enable us to wish it a good start and every success on an admittedly difficult road, without prophesying for it a future extension in

many other directions which can be suggested, or must even be anticipated if the League of Nations increases its authority and influence, or if, whether through the League of Nations or in any other way, the countries of the world demand in future a much closer degree of international co-operation for objects such as public health. In any event, the outlook for the organization will largely depend on the willingness of the public health services in the different countries to make use of the present opportunity, and the support which these services in so doing receive from their Governments. One satisfactory part of the scheme adopted by the Assembly should be noted. The League of Nations will have its budget control, a certain power of withholding sanction to action proposed by the organization, the right of sanctioning appointments of paid officers, and of receiving reports, but, apart from these, the general working of the organization, the regulation of its internal affairs, and the appointment of staff is left entirely to the organization itself—in other words, to the public health men themselves.

Here is the opportunity of the public health officers, and it is to be hoped that they will not only be willing to seize it—this may be taken for granted—but will find themselves in position to give necessary time and labour to ensure its success, and be supported in their respective countries by departments which realize that practical international action and agreement is a fundamental part of any good State public health policy. As regards countries within or associated with the British Empire we have every reason to anticipate that this support will be given in the Dominions, India, and Egypt, as well as at home.

As I have said so much about this new organization it is only fitting that I should conclude by reference to a few of those to whom the fact that it has now been established by resolution of the Assembly is mainly due. These preliminary steps have not been achieved without labour. Many of us have worked hard at the matter at the Ministry of Health, and much is due to our French colleagues, M. Brisac and Dr. Bernard; to Dr. Lutrario, the chief of the Public Health Service in Italy; to Dr. Hugh Cumming, now head of the United States Public Health Service; to the Japanese representation; and especially to the principal officers of the Secretariat of the League of Nations and of the Office International d'Hygiène Publique, all of whom originally took part in working out the main lines in 1919 at the London Conference under the guidance of Lord Astor. At the Assembly itself the scheme was fortunate in having such able exponents as the Right Hon. G. L. Barnes, M.P., the delegate for Great Britain, and Monsieur Gabriel Hanotaux, for France; their statesmanship and industry piloted it past the not inconsiderable difficulties inherent in the first establishment of technical organizations by the League, and in the official requirement that resolutions of the Assembly can only be obtained by a unanimous vote of all the nations represented.

A NEW PRINCIPLE IN THE SURGICAL TREATMENT OF "CONGENITAL CLEFT PALATE," AND ITS MECHANICAL COUNTERPART.

BY

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I.—THE PRINCIPLE.

By H. D. GILLIES.

I BELIEVE that the revolutionary principle outlined below, if adopted by surgeons handling cleft palates, will lead to a very great improvement in the results of these difficult cases. My very limited experience does not allow me to make any sweeping statement of facts. I hope, however, that the correctness of this principle will so appeal to the surgeon that he will seldom attempt to repair the hard palate, and never before the eruption of the permanent teeth.

The ideals to be aimed at are: Perfect speech; perfect mastication; normal nasal respiratory function; and, in so

far as a displaced maxilla causes deformity, a normal bony contour. The success of a palate operation is often gauged merely by the completeness of the surgical closure. This should not be so, as it is hoped to show that successful closure of a wide cleft by any of the present-day operations is incompatible with the full attainment of the above ideals.

Speech.

The factors producing perfect speech are a united soft palate, with its musculature intact, and lying in such a position that it can be raised and pressed against the pharyngeal wall, and can control the amount of air for the post nasal space, together with a shutting off of the oro-nasal communication left by the congenital defect of the hard palate. Add to this, but of less importance, a set of teeth in a normal position. How are these factors reproduced in the average result of the three main types of operation at present in vogue—the Brophy, the Lane, and the Langenbeck?

The "Brophy" approximation of the maxilla is usually combined with the "Langenbeck" suture of the soft parts, and the more the cleft is reduced by bony approximation the less is the soft palate displaced forward when sutured, and therefore the better is its subsequent action as to air control. In most operators' hands, however, there is usually some destruction of tooth buds and some permanent displacement inwards of the alveolar arches, and the wider the cleft the greater are these defects of mastication, and to a certain extent of speech and breathing. With this type the best soft palate result is likely to be accompanied by a poor hard palate result, as judged, not by the closure, but by the articulation of the permanent teeth.

The "Lane" type theoretically should produce a good soft palate in addition to a hard palate closure; but too frequently the soft palate is much scarred and tight, and, in addition, lies so far forward in the buccal pharynx that its remaining utility as a speech controller is largely discounted. The hard palate defects of the flap operation are discussed later.

The "Langenbeck" type of approximation frequently results in a good movable soft palate, and a surgical closure of the hard palate; but the wider the cleft the shorter must be the palate, hard and soft, as measured from alveolus to uvula, consequently the new soft palate is in a position anterior to the normal, and by as much as the soft palate is drawn forward its speech control is in proportion adversely affected.

Many of the above defects are frequently counteracted by good orthodontia, massage of the soft palate, speech training, and the natural ability of the patient to overcome obstacles. The majority are not, and the skilled service necessary to these secondary defects is not always available or, if available, effective.

Mastication.

If Brophy were right in his premiss that the width of the cleft equals the spread of the maxillae, then his principle would be correct, but he is not. (See Blakeway, *Lancet*, March 6th and 12th, 1915.) Moreover it is doubtful whether Blakeway's measurements form a true index to the position of the maxilla in regard to the mandible, as a very great percentage, if not all cases of unoperated palates, have perfect occlusion (and so mastication) of all

the permanent teeth except those involved in the alveolar part of the cleft, which in both operated and non-operated cases are displaced. In addition to the tooth buds that may suffer from "Brophy's" wires, the upper teeth are inclined to be displaced inwards by the operation, as performed in this country.

The "Lane" flap taken from the alveolar region most frequently interferes with the normal eruption of the teeth, and in addition the fibrous tissue in the united palate and in the scarred area of the alveolus causes a chronic and contractile force between the two halves of the maxilla, and produces an eruption of teeth whose bite lies well inside

those of the mandible—that is, a narrowing of the maxillary arch as compared with the mandibular.

The same malocclusion frequently results also from the Langenbeck type of approximation, where the same contractile force is in play, to a greater or less extent according to the success of the closure and to the width of the cleft. The earlier the hard palate is closed by the Lane or the Langenbeck type of operation, the greater chance has this contractile factor in producing malocclusion. In any case of malocclusion

of the teeth in an operated palate such a serious defect may definitely be assigned to the result of the operation, and would not have occurred had the hard palate been left alone.

Nasal Respiration.

In all three types there is thus a tendency to an undue approximation of the maxillae. Hence a narrowing of the nasal passages. I think that much of the nasal trouble attributed to palate cases is due to the operation of closing the hard palate, and not to the oro-nasal communication. A secondary factor enters this part of the problem, however, in the deformity of the alae and tip of nose so often present before and after the repair of the accompanying hare-lip. A scarred, immobile, and forwardly displaced soft palate must also have its deleterious effects on the

upper respiratory mucous membrane. I have also observed in many operated cases a dragging upwards and forwards of the pillars of the fauces and of the important tonsil lying between them. It is not inconceivable that much throat and nose trouble lies at the door of this displaced tonsil, deprived of its normal muscular massage, and so, after the manner of "the house that Jack built," at the door of the surgeon who closed the palate.

Appearance.

Hare-lip deformity not being under consideration,

it remains to discuss the effects of the surgical closure of the hard palate on the general facial appearance. Whenever from any of the above causes there is a post-operative and undue approximation of the maxillae, the lip, whatever its other qualities, is liable to be flat, and on a plane posterior to normal. The frontal processes of the maxillae move inwards, and usually backwards, with the displaced bones, and consequently the whole of the lower part of the nose is situated on a plane further back than normal, and gives an appearance characteristically represented in Fig. 1, A and B—an actual case. The cure for this deformity of contour is to be found in the epithelial inlay or buccal skin graft, similar to that described in the writer's book on *Plastic Surgery* (see Fig. 2).

FIG. 1.—Facial appearance of patient following surgical closure of the hard palate. The backward displacement of the lower part of the nose is shown in B.

FIG. 2.—Facial appearance following epithelial inlay or buccal skin graft for deformity shown in Fig. 1.

Other Surgical Methods.

The hard palate may be surgically closed by introducing, between the two halves of the maxilla, sufficient tissue from a distance to make good the defect; the reader is referred to various neck and other flaps, including the writer's "tubed pedicle," introduced into the buccal cavity, none of which are recommended; and to the introduction into the defect of turbinates and septum grafts, of use in the small defects of the war. It is of significance that Mr. Brophy has on two occasions urged the writer to develop the tubed pedicle method to fill palate defects in lieu of his bone-approximating operation.

Treatment Recommended.

The writer and his colleague, Mr. Fry, consider that closure by means of an efficient dental plate is by far the most simple and efficient mode of treatment; it gives least trouble and provides all that is required of a hard palate as regards feeding, speaking, and breathing, and is applicable in some form or other from earliest infancy. Its very nature prevents any interference with the maxillary growth and eruption of teeth, and saves part of an operation whose mortality is not inconsiderable.

Having decided to make good the hard palate defect by a removable prosthesis, the writer suggests that the two halves of the soft palate be united in as far back a position as is possible. It is not presumed to put forward any fixed operative technique on such flimsy grounds, but the two halves of the soft palate have been separated from the

and caused him to evolve the principles enumerated above, which he hopes may alleviate many of the troubles associated with this condition.

Summary.

All unoperated hard palates have normal occlusion of the non-involved teeth.

Nearly all operated hard palates have abnormal occlusion of the non-involved teeth.

Nearly all operated palates have nasal intonation to speech and narrowed features and nasal passages.

Most unoperated adult cases have enjoyed good health.

Most palate cases require a dental plate, whether operated or not.

Recommendations.—(1) Suture soft palate as far back as possible in the pharynx by detachment from hard, making the hard palate defect greater; (2) fill the hard palate defect by appliance from earliest infancy, even at the bottle or breast stage.

Time for Operation.—Lip, early. Palate, before speech development or later.

II.—THE PROSTHETIC TREATMENT.

By W. KELSEY FRY.

The prosthetic advantages of this combined surgical and mechanical treatment for congenital cleft palates are, first, the ease with which restorations of the hard palate can be performed by prosthetic means as compared with the difficulty with which the prosthetist is confronted in the case of the soft palate; and, secondly, the absence of distortion of the dental arch, with resulting loss of masticatory function, which is unfortunately only too frequent

FIG. 3.—Combined surgical and dental treatment of cleft palate. A, Congenital cleft of hard and soft palate. B, Approximation and lengthening of soft palate, which is completely separated from the hard palate. C, Apparatus for the application of skin graft to the raw anterior edge of palate. D, Apparatus by Mr. Fry for stretching soft palate after healing. E, Final result: Hard palate filled with dental appliance; a long movable soft palate which can approximate to pharyngeal wall and give good speech. (Diagrams by S. Hornswick.)

hard and sutured together after producing two raw edges of apposition. This manoeuvre leaves a larger hard palate defect than prior to operation, and to prevent the raw anterior edge of the newly-made soft palate scarring over and so contracting forward, two methods have been practised—one to take a small flap of muco-periosteum from the hard palate leaving it attached to the soft, and wrap it over the raw area; the other to overlay a skin graft (Thiersch), held in position by an apparatus (Fry, Fig. 3). The latter is more applicable to those cases in which the musculo-mucous-membranous remains of a previously and poorly operated palate have been deliberately detached from a surgically closed hard palate, and made to lie in juxtaposition to the pharyngeal wall. The gap between the hard and soft palate is more efficiently filled by the dental prosthetist than is the usual posterior defect of the soft palate by means of an artificial velum; and the muscular and movable portion of the soft palate works with much greater efficiency as regards speech and deglutition in its new position. The congenital type operation results in a muscular movable soft palate sufficiently near the pharyngeal wall to control air and food, having its palatal aponeurosis represented by the posterior border of the dental appliance, and in a hard palate absolutely closed by the rest of the dental plate. The principle of the treatment of the displaced pre-maxilla in double hare-lip cases is one outside the scope of the present article.

If there be any merit in the above principle, the writer wishes to place on record his gratitude for the lessons in facial contour he learnt from Professor H. Tonks of the Slade Art School, and one time war colleague; and especially to Mr. Kelsey Fry for his tactful handling of an enthusiastic surgeon who first wanted to close all traumatic hard palate defects by plastic operations, and later learnt that surgical success was less efficient and far more difficult to come by than the dental closure. This set the writer thinking in regard to congenital palates,

in cases in which the hard palate has been restored by surgical means.

The aims of dental treatment for these cases may be considered under the following four headings:

1. To aid feeding until such time as the surgical operation is thought advisable.
2. To construct an appliance to hold the epithelial inlay in position at the time of operation.
3. To construct an appliance to maintain the surgically restored soft palate in its correct position and, if necessary, to stretch it in a backward direction so as to enable it to make contact with the posterior wall of the pharynx.
4. To construct a permanent prosthetic appliance to restore the loss of the hard palate and, if necessary, the anterior portion of the soft palate.

1. *To Aid Feeding until Time of Operation.*—When the cleft only involves the soft palate and a small portion of the hard palate, it is only necessary, in order to aid the infant in feeding, to use a specially constructed feeding bottle, by which the liquid is projected into the mouth by means of hand pressure. If the cleft is of a more extensive character, it becomes necessary to construct and fit an obturator on to the teat of the bottle, which will thus prevent food being regurgitated through the nose.

2. *To Construct an Appliance to Hold the Epithelial Inlay in Position.*—Various types of appliances may be used for this purpose, depending on the nature of the individual case and on the presence or non-presence of teeth. The apparatus should be constructed before the operation and should be easily removable. It is also essential that it should be easily adjustable, as it is impossible to locate before the operation the exact position of the anterior edge of the soft palate requiring the skin graft. Fig. 3c shows a general type of appliance which may be used for this purpose.

3. *To Construct an Appliance to Maintain the Restored Soft Palate in Position.*—When it is only necessary to maintain the soft palate in its new position an appliance

I have used the bicarbonate treatment here described in a large number of cases, and in 11, most of them private patients, I have been able to follow the course closely. My experience has been that sprue cases having this treatment, in addition to the usual dietetic measures, improve more rapidly than patients having only the