

pathy with the little dabs or cuts that keep a patient dancing constant attendance for months, but believes in radical operative measures that will usually not average more than one treatment per week for from six to twelve weeks, by which time the patient should be cured. Among the operative measures to be adopted are those recommended for intumescent rhinitis, namely, cauterization with acid or preferably the galvanocautery. These are to be done in the way described for that affection. When it is possible to engage a considerable portion of the hypertrophied soft tissues in the loop of a cold wire snare or of the galvanocautery éraseur, it may be removed provided that too much mucous membrane be not sacrificed. Of these methods the cold wire snare is preferable in most cases, as it leaves less scar tissue. In some cases cutting away of a V-shaped piece, as recommended by Kyle, is an excellent operation. In some the spoke shave may be used for removing redundant tissue; in others, particularly when there is a mass of soft tissues pendent from the lower edge of the inferior turbinate, the hypertrophied tissue can easily be cut away with nasal scissors, but in the milder cases the galvanocautery is preferable. In many cases it is important not to sacrifice the mucous membrane; in such, hypertrophies of the tuberculum septi or of the turbinated bodies may often be speedily reduced by the nasal trephine passed beneath the mucous membrane. When the bony tissue is also increased, removal by the nasal burr is perhaps the best operation. It is passed through the mucous membrane and the bony tissue is cut away beneath without the danger of bleeding that sometimes attends cutting with other instruments. When the hypertrophy involves the tissues just in front of the posterior edge of the vomer, linear cauterizations have proven to the author most satisfactory. A number of cases have been seen in which all other obstructions of the nares had been removed and the nasal cavities appeared free, but yet the patient continued to complain of hawking to clear the naso-pharynx, and this was not relieved until the submucous infiltration at the sides of the vomer had been cured by cauterization. In any of these operations local anesthesia and subsequent treatment are carried out, as recommended in intumescent rhinitis. Whenever cutting operations are performed, it is safest to pack the nares with a strip of surgeon's lint, which has been saturated with boric acid and iodoform, to prevent the danger of bleeding which is apt to occur two or three hours after the operation. The packing should be allowed to remain for two or three days, after which it should be gradually removed, or removed all at once if it can be done without giving the patient pain or exciting hemorrhage.

## ATROPHIC RHINITIS.

Atrophic rhinitis is a chronic inflammation of the nares in which not only the membrane but the bony framework undergo atrophy whereby the nasal cavities become more or less enlarged. It is characterized by collection of the secretions which become dried into scabs and adhere to the wall until decomposition takes place, thus causing an extremely offensive odor which is known as *ozæna*. It occurs in all countries and among all classes of people, but is most frequent in young adults, particularly in girls. It is seldom observed before the tenth or after the thirty-fifth year of age.

**ANATOMICAL AND PATHOLOGICAL CHARACTERISTICS.**—In consequence of the atrophy of the mucous membranes or of both the mucous membranes and the bony tissues the nasal cavities become enlarged, sometimes to two or three times their normal dimensions. The atrophy may be confined to the mucous membrane, but usually the bones also are involved and they may be shortened in every direction. The turbinated bodies are most affected, and not infrequently the turbinal bones are entirely absorbed. Shortening of the nasal bones causes sinking in of the bridge and may produce a flat pug, or saddle-shaped nose. The disease is often a sequel of

hypertrophic rhinitis. Moritz Schmidt has observed cases in which part of a turbinal was hypertrophied and other parts were atrophied.

**ETIOLOGY.**—In many cases the causation of the disease cannot be ascertained, but there is certainly a considerable number in which repeated colds lead to hypertrophy which terminates in atrophy. Many have sought to find a specific micro-organism, and Abel and Löwenberg have isolated the bacillus *ozænae* which has been supposed to act as an etiological factor. D. Braden Kyle by repeated inoculations from advanced cases of atrophic rhinitis was unable to discover any specific micro-organism, though various pathogenic bacteria were commonly found, such as the pneumococcus of Fraenkel, Klebs-Loeffler bacillus, Koch bacillus, the bacillus foetidus, and various streptococci and staphylococci. The origin of the disease is not infrequently dated from one of the exanthematous fevers.

**SYMPTOMATOLOGY.**—Commonly the patient's general health is not impaired by the disease, and headache and other nervous symptoms that commonly attend rhinitis are not often present; but as the affection progresses the general health may suffer and eventually pallor, loss of strength, and emaciation, strongly suggestive of tuberculosis, may occur. Often the patient presents the appearance of what is commonly known as the strumous diathesis. The nose is apt to be broad, the nostrils and the lips are prominent, and the whole physiognomy is lacking considerably in expression. There is usually but little discharge from the nose, excepting once or twice a week when the crusts come away; decomposition of the secretions causes a persistent offensive odor, which, although the patient does not recognize it himself, makes him an object of disgust to others. Occasionally this condition is unaccompanied by stench, and in almost any case thorough cleansing may prevent this symptom. Usually there is but little if any difficulty in breathing through the nose, excepting when it becomes blocked by crusts of mucus. The eyes are often weak, the sense of smell is usually lost, and partial deafness commonly exists as the result of extension of the disease to the middle ear. When the process invades the accessory sinuses, the patient may suffer from distressing headaches and neuralgia.

Although there is a tendency to formation of dry scabs and crusts in the nose, occasionally the secretions consist only of a semi-fluid adherent pus or soft purulent coagula. This condition is especially apt to be present during intercurrent attacks of acute rhinitis.

The mucous surfaces are not usually entirely covered by the crusts, and where they are exposed the membrane is commonly pale. Immediately after the scabs have been cleared away and the nares have been washed, however, the mucous membrane is apt to appear congested, though not ulcerated. Secretions are found in the nose in varying quantity and of varying consistence. Those which have remained the longest have a brownish or blackish color; others may be of a yellowish or greenish hue. There may be various patches of pasty or sticky pus, or hard yellowish, grayish, brownish, or black scabs of various size. The odor clings to the crusts after their removal, but after the nose has been kept thoroughly cleansed for a few days it will entirely disappear excepting in very rare cases in which there is persistence of a fetid odor in spite of thorough cleansing. Cases of this sort sometimes result from involvement of the accessory sinuses. In rare instances the disease is confined to one side, but it is usually bilateral.

When the nasal cavities have been cleaned the turbinates may appear as mere shrunken ridges, or they may have been entirely absorbed. Not infrequently the naso-pharynx can easily be seen through the nostrils, and sometimes the orifices of the Eustachian tubes are in sight and the motions of the soft palate are plainly visible. In some cases the atrophy of the bones proceeds more rapidly than that of the mucous membrane, and then folds of more or less congested mucous membrane will be found hanging, particularly from the upper part

of the nares. The process is rarely confined entirely to the nasal cavities, but also involves the naso-pharynx and middle ear, and in many cases the mucous membrane of the larynx and trachea will be found congested and swollen or partially covered by adherent pus. The drying secretions not infrequently lodge in the naso-pharynx or even lower upon the pharyngeal wall.

**DIAGNOSIS.**—The affection is to be distinguished from lupus, syphilis, suppuration of the frontal, ethmoidal, or maxillary sinuses, and from rhinoliths or foreign bodies in the nares. The essential factors in the diagnosis are the offensive odor, the disgusting scabs, the enlargement of the nares with a history of preceding catarrhal symptoms, and the absence of a syphilitic history, and of eruptions or scars indicative of this disease.

Lupus nearly always involves the external surface first, and the ulceration and cicatrization are quite different from the appearances found in atrophic rhinitis; there is very little danger therefore of confounding the two.

Syphilitic disease of the nares is attended by an extremely offensive odor, though different from that of atrophy, the quality being sufficient to establish the diagnosis with those who have seen much of the two diseases. Syphilis usually attacks the septum and causes destruction of bone, whereas atrophic rhinitis causes atrophy of the turbinated bodies. In syphilis there is commonly extensive and marked ulceration, which is not present in atrophic rhinitis. The history of the two is commonly quite different. In doubtful cases the diagnosis may be aided by specific treatment.

Suppuration of the accessory sinuses gives rise to an offensive odor, though somewhat different from that of *ozæna*. An inspection of the parts should make it easy to differentiate sinus disease from simple atrophic rhinitis. In suppuration of the accessory cavities there is usually more or less thickening of the mucous membrane instead of atrophy. The affection is commonly confined to one side, whereas atrophic rhinitis is generally bilateral. In suppuration of the sinuses the nasal cavity may be more or less filled with liquid pus, though usually it does not contain a great quantity, and there is seldom the tendency to the drying of secretions and the formation of thick scabs and crusts which is so prominent in atrophic rhinitis.

Rhinoliths and foreign bodies in the nares give rise to an offensive discharge, but this is unilateral. When the secretions have been cleared away, inspection and palpation with a probe enable one readily to differentiate between these and atrophy.

**PROGNOSIS.**—The disease usually continues for many years, but there is a tendency to recovery about the thirty-fifth year of age. With appropriate treatment the disagreeable symptoms may be promptly removed and the disease may often be cured in from one to three years, though sometimes the patient will have to continue cleansing the nose two or three times a day until middle life. There seems to be some relation between atrophic rhinitis and pulmonary tuberculosis, but this may be only casual; however, the gradual deterioration of health due to the persistent disease in the nose may place the system in a condition for the development of a general or localized tuberculosis. It cannot be expected that the atrophied tissues will be renewed even under the most favorable circumstances, but occasionally this result will be obtained. I have even seen hypertrophic rhinitis following atrophy.

**TREATMENT.**—Of greatest importance is the frequent and careful cleansing of the nares not only for the purpose of relieving the offensive odor, but also in order that the remedial agents may be brought in contact with the mucous membrane. Commonly some alkaline wash is necessary to remove the dry secretion, and for this purpose a solution of equal parts of the bicarbonate and of the chloride of sodium, from a half drachm to a drachm each to the pint of warm water, answers about as well as anything that can be employed; but various combinations of salines and antiseptics are recommended by different authors. The patient should be directed to cleanse

the nares from two to four times daily, using from one to three pints of water, as occasion may require, so that the secretions shall all be removed. When this is done regularly, he will not be annoyed by the offensive odor. The wash may be snuffed from the hand or from a nasal cup, or it may be used with a syringe or nasal douche; but the last two methods are dangerous because water may pass into the middle ear and set up inflammation, resulting in deafness. As a rule it is best for the patient to snuff the fluid from the hand or from a nasal cup made for the purpose. A good instrument for cleansing the nasal passages is the Freer nasal irrigating tube mentioned in the section on simple chronic rhinitis. A powder containing six drachms each of sodium bicarbonate and sodium chloride makes an excellent wash when used in the proportion of one drachm to the pint of tepid water. Rhodes' or Seiler's tablets, from two to four each to the pint, may be used similarly. The patient should attend to the washing himself, but he should be seen by the physician at least once a week during the beginning of the treatment in order that thoroughness may be secured. After the washing the patient may apply to the nares various powders or sprays, and occasionally the physician should make stronger applications. Powders are especially useful when the secretion is thin and free, and the sprays when a tendency to desiccation is marked. The powders may be applied by any simple insufflator. I commonly recommend a glass tube about four inches long with one-eighth to three-sixteenth inch calibre; one end of this is flattened, the other end round. From a quarter to half an inch of powder is inserted into the round end—amounting to from half a grain to a grain and a half; the end of a rubber tube, about ten inches in length, is slipped over the same end, the flattened end of the glass tube is placed in the nose, the opposite end of the rubber tube is taken between the lips, and a quick puff is given whereby the powder is blown thoroughly into the nares. The powders that I have found most beneficial, and which may be variously combined, are made by rubbing up the active ingredients with sugar of milk. For this purpose we may employ yellow oxide of mercury from one-half to three-fourths of one per cent.; iodol 25 per cent., boric acid 10 per cent., aristol from 5 to 8 per cent., gum benzoin or myrrh 25 per cent., berberine muriate 10 per cent., and cocaine from 1 to 2 per cent. The latter must be used guardedly, but when carefully watched it is sometimes an excellent remedy, which by causing paresis of the vaso-motor nerves appears sometimes to induce regeneration of the tissues. Kyle also recommends the nitrate of silver, from 1 to 4 per cent. with stearate of zinc. The sprays are commonly prepared by dissolving various substances in oleum petrolatum album. The drugs most frequently used are carbolic acid from one-half to one per cent., iodine from one-tenth to one-fifth per cent., oil of cloves from one-half to one per cent., oil of cinnamon one-half per cent., thymol one-fifteenth of one per cent., menthol from one to two per cent.; five per cent. of ichthyol has also been highly recommended. It is often desirable after a thorough cleansing of the nares to apply one of these oily sprays and to follow it by the powder. Gottstein's wool tampons sometimes produce excellent results. Moritz Schmidt, Gautier, and Jouslain have highly recommended copper electrolysis by the bipolar method; or the positive pole with a copper needle may be used in the nose alone and the other pole applied indifferently to other parts of the body. In the bipolar method a steel needle is inserted into the lower turbinal while a copper needle is introduced into the middle turbinal, or the copper needle may be inserted into the lower turbinal and the steel needle into the septum, the copper needle being connected with the positive pole. If preferred a platinum needle may be used in place of the steel. The nares having been anesthetized, the needles are introduced and currents of from 3 to 15 milliampères are passed for from five to ten minutes. The treatment may be repeated after a week or two. It is best to reverse the current for about half a minute just before removing the needle in order to



loosen the coagulum that fastens about the positive pole. The current should, however, be reduced to zero before the switch is changed to reverse it, otherwise it will cause the patient a good deal of pain. Meningitis has followed this operation and the cribriform plate has been carelessly perforated. Vertigo, syncope, and orbital neuralgia sometimes follow. Excellent results have been obtained by this treatment in some cases, but in others it has proven useless. Injections of diphtheria antitoxin have been tried but without avail. Vibration massage has also been employed with, it is claimed, good results.  
*E. Fletcher Ingals.*

**NASAL CAVITIES, DISEASES OF: CONGENITAL AND ACQUIRED DEFORMITIES.**—I. DERMATOID CYSTS AND FISTULÆ.—These conditions are congenital or are noticed shortly after birth. They appear at the junction of the nasal bones with each other and of both with the frontal, as rounded tumors (in case of cysts) of variable size, not freely movable but rather adherent to the deeper tissues. They are covered with normal skin, and the centre line is generally on a level with the canthi of the eyes. A trauma of the mass may lead to a fistula or the latter may be congenital. The mode of origin of these conditions is thus explained by Bland Sutton: The rudiment of the nose in the embryo is represented by that process of the primitive skull, known as the fronto-nasal plate, which is separated from the lateral portions of the face by the orbito-nasal fissures. The rounded angles of these plates are known as the globular processes, each one of which forms a portion of the ala of a nostril and the corresponding præmaxilla. These processes fuse in the median line, giving rise to a central piece (philtrum) of the upper lip. Dermatoids are invariably situated in the line of the internasal fissure and are in all probability due to incomplete fusion of the globular processes.

According to Witzel dermatoids in this situation are not to be regarded as "sequestration" growths—*i.e.*, formed by a squeezing off of tissue when the lateral halves of the body coalesce,—but result from the imperfect apposition of the two tuberosities which, projecting from the centre of the face, arising on both sides of the median nasal furrow and approaching each other to complete coalescence, ought to form the cartilaginous nose and septum.

Strictly speaking, a dermatoid tumor is composed only of tissues found in the skin and mucosa. The cysts variously contain sebaceous material, cellular debris, fat crystals, and hairs. Unstriped muscular fibres may appear in the cyst wall. The fistulæ are lined with a fibrous material covered with sebaceous matter. The walls are covered with typical pavement epithelium, while the subepidermoidal tissue shows scattered aggregations of round cells. The deeper layers show connective tissue of low grade, scattered mucous glands, and giant cells.

Symptoms may be wanting, the swelling being noticed only as something objectionable from a cosmetic point of view. Fistulæ generally give off a constant or intermittent discharge of sebaceous or muco-purulent matter, which causes an excoriated area on the surrounding skin.

Treatment calls for the laying open of the cyst or fistula, with excision of the entire fistulous tract by means of a raspatory or sharp spoon. If the fistula branches off the top and burrows beneath the nasal bones, this tract may be cauterized with the galvanocautery. The whole is then allowed to heal from the bottom. The fistula may reopen after it has once healed. Sometimes a plastic operation may facilitate recovery.

Cysts are rare. Birkett, writing in 1900, reported two instances and collected six others from various sources. Since then Krieg has reported two more. Fistulæ, however, are by no means uncommon. The x-ray may help to clear up a doubtful diagnosis.

II. CONGENITAL OCCLUSION OF THE NARES.—Complete congenital occlusion of the anterior nares is an extremely rare condition. Jarvis reports two cases, and claims that they are the first on record. One of his patients was a boy of eighteen, who presented, instead of the dark out-

lines of the nares, cup-shaped depressions about 4 mm. in depth, the barrier being of membranous consistency; one side admitted a very fine probe while the other was absolutely impervious. The other case was that of a girl of sixteen, in whom the inferior meatus on both sides was blocked by bony growths of ivory hardness. At times she had been able to expel a little air through the nose. Krieg has reported a case—probably of syphilitic origin—in a boy of three years.

Congenital occlusion of the posterior nares is by no means uncommon. The barrier may be either membranous or bony (the former being far more common), complete or partial. According to C. H. Knight, the condition may result from (1) exostosis or simple hypertrophy of the osseous structure of the middle or inferior turbinate; (2) a ridge or exostosis from the vomer; and (3) an adventitious bony plate springing from the floor of the nose or from its outer cavity. However, in most instances which belong strictly to this category, the bony plate spreads like a web over one or both choanae, being directly continuous with the palate bone, of which it forms an integral part. Sometimes the obstruction is a deflected vomer which enlarges one choana at the expense of the other. Luschka believes that the bony plate is a continuation of the free border of the horizontal plate of the palate bone; Kündrat, that it is an extension of the vertical portion; both conditions are possible. In some cases the central portion of the barrier appears membranous, surrounded by an irregular fringe of bony spicules projecting inward from the periphery; such cases are naturally attributable to hypernutritive changes. Ingals believes that membranous closure in this region is not congenital, but always the result of syphilitic, diphtheritic, or other disease processes.

*Symptoms.*—These naturally vary according to the degree of obstruction. If the latter is complete at birth, the chances of survival are very few. Difficulty in nursing may be the first thing to call attention to the possibility of the existence of the lesion. If the obstruction is partial, the patients grow up, laboring under all the disadvantages of nasal occlusion, both in its local manifestations and the distal disturbances to which it may give rise. In unilateral occlusion there is often a partial lack of development of the corresponding side of the face and of the vertebral column. By animal experimentation Ziem has shown that these effects are directly due to nasal occlusion of the corresponding side. In infants there is "not only the inability to suckle and the consequent difficulty in obtaining sufficient food, but also the exposure of the bronchial tubes and delicate air cells of the lungs to the constant irritation of air insufficiently moistened, filtered, and warmed." The nose generally secretes moisture, but the secretion is apt to accumulate in an annoying manner. From mouth-breathing the oropharynx is generally dry. The voice lacks its normal resonance. The sense of smell is in abeyance while that of taste may persist though impaired for its finer qualities. The effect on hearing is variable. This function is often perfect. Toynbee contended that under these conditions the act of swallowing would cause a constant suction on the Eustachian tube and thus lead to a depression of the membrana tympani, but such a sequel is by no means constant. In many instances the ease with which the patient will sustain impairment of these three special senses is quite remarkable, and, as Knight observes, in notable contrast with the disturbance following a similar acquired post-nasal obstruction.

*Treatment.*—The barrier must be pierced, the opening enlarged, and the patency thus acquired maintained. In patients of fortitude this may be done under cocaine. For membranous occlusions the galvanocautery will suffice; bony barriers require the trephine or chisel and subsequent enlargement with revolving burrs. The openings should be made as large as possible. Much difficulty may be experienced in keeping them pervious. For some time after the operation pledgets of oiled gauze should be inserted, and after healing has taken place bougies and dilators should from time to time be passed.

III. MALFORMATIONS.—Several cases of congenital median fissure of the nose have been reported; also cases of nasal hemiatrophy. In one instance of the latter the right half of the organ was normal. The median portion was covered with skin, but instead of the left half there was a body 1.5 cm. long by 0.75 cm. wide, and in shape like an elephant's trunk. This process was extirpated, leaving a permanent fistula. The patient was a child of five years. Such cases are among the curiosities of medicine, and each one can be considered only in the light of the problems which it presents.

Malformations of the ala may be congenital or they may result from disease. Various plastic operations have been suggested. One devised by Koenig merits special mention. He takes a flap made up of the entire substance of the auricle and sutures this in place of the defect in the ala. As this flap contains cartilage it heals well.

Outside of the various alar deformities resulting from tissue destruction, especially from syphilis, there may be a simple collapse of the alar cartilages, so that insufficient air reaches the interior of the nose, and the impact of the inspired air tends still more to close the nasal entrance. The condition appears at times to be merely an accentuation of a congenital condition, or it may result from lack of development, or from inactivity of the nasal wings. The whole ala may be affected, or merely the plica vestibuli—*i.e.*, the outer border of the inner nasal opening. There may be a laxity of the entire nasal wall with defective action of the dilator and levator muscles. In the congenital cases it will be found that the part principally at fault is the band of tissue at the junction of the lower lateral cartilage and the bony margin of the anterior nares, its position being noted externally by the depression usually seen immediately above the lower expanded part of the nose. If the middle turbinate becomes enlarged, the entrance to the naris is apt to become smaller.

The main symptom of the condition is nasal obstruction leading to mouth-breathing.

The condition in old persons may often be relieved by the wearing of a delicate tubular spring within the nares to hold the ala in position, or a flat metallic band may be inserted. A similar procedure is often of great benefit in the temporary collapse seen in typhoid fever, pneumonia, etc.; also in tuberculosis involving the larynx. The increased air supply is very grateful to the patient. In young persons an effort should be made to restore the tone of the dilator ala muscles. Practice in stretching these will increase their activity. The lubrication of the interior of the nares with some unguent carried on the finger will stretch the parts and assist in the recovery of their normal tension. In other words, we should apply the principle of massage.

IV. FRACTURE AND DISLOCATIONS OF THE NASAL BONES.—Fractures of the nasal bones constitute about one per cent. of all fractures. They may be simple, compound, or comminuted. Both bones are generally involved. The injury may also affect the perpendicular plate of the ethmoid, but the vomer generally escapes. The fracture may also extend to the nasal processes of the superior maxilla; the cribriform plate of the ethmoid is, fortunately, rarely involved. It may also involve the zygomatic arch or extend to the frontal sinuses, thus possibly opening a portal for septic infection of the meninges. Occasionally the lachrymal bone is involved, with obstruction of the tear duct. Very often the nasal bones are not really fractured but simply separated from their attachment to the superior maxilla, or the bones may become separated from each other; this separation may allow the bones to remain in perfect apposition, or they may be depressed.

The causes of this class of injuries are blows and falls. It has been said that displacement in the infant may come from the pressure of burying the nose against the breast or in the pillow.

The exact lesion produced varies according to the direction of the trauma. If it is from below, the brunt of

impact falls upon the septum, while the nasal bones may escape. The triangular cartilage is detached from its bony surroundings, including the nasal spine of the superior maxilla. Here there is merely swelling of the septum, which may run on to abscess with not much external deformity. If the trauma is from the side, both bones may be dislocated laterally, while their internal borders remain in contact. If it is from in front, the nose is flattened, the inner borders of the bones are driven outward and tilted so as to form a sharp ridge on either side of the nose. Perhaps the most common form of injury is a transverse fracture about the middle of the bones, driving back the lower fragment or possibly both bones backward between the nasal processes of the superior maxilla, thus leaving a depression instead of the normal nasal convexity. Unless the upper half of the bone is distinctly driven in, the perpendicular plate of the ethmoid generally escapes.

The symptoms are epistaxis, deformity, and marked swelling. The latter may extend to the cheeks and eyelids. From the direct results of the trauma or from forcible blowing of the nose immediately after, there may be a subcutaneous emphysema with crackling on pressure. The latter condition on the forehead (when the nose has not been blown) is an evidence that the frontal bone has also been fractured. More or less ecchymosis quickly forms. The swelling may mask the exact nature of the injury. The nose may retain its normal shape or be but part of a diffused swelling. In the latter state, bony crepitus is elicited with difficulty; it may possibly be obtained in minor cases.

Diagnosis is made from the foregoing conditions and from careful digital examination. It is to be remembered that many of the so-called "broken noses" have never been actually fractured. Rhinoscopy should never be omitted. In doubtful cases the x-ray may accurately determine the relative positions of the various bony structures.

Treatment calls for the restoration of the bony parts to their normal contour and for the adoption of such means as will keep them in their proper positions. The actual relations must first be determined, and for this purpose a general anæsthetic (a little chloroform) is often necessary. The under surface of the nasal arch should be carefully probed for irregularities. In many cases the bony parts are easily replaced and only a cold compress is required. In more difficult cases an instrument, such as a metal catheter (female) or the closed blades of a dressing forceps should be introduced into the nares and the bones elevated to their proper level, while their position is regulated by the fingers on the outside. The object is to restore the nasal arch. If this can be done and the patient is a self-controlled person who will let his nose alone, the above measures are all that is required. Instruments should be covered with light rubber tubing. It is better, as a rule, to dispense with external splints and plugs in the nares. The emphysema requires no treatment. Epistaxis is treated in the usual manner. Firm union results in from two to three weeks.

If the bones should show a tendency to fall in again, they may be raised by the insertion, within the nose, of an india-rubber dilator, introduced empty and then filled with water, or a piece of rubber tubing may be used. Plugs and splints are generally useless because they rest on the floor of the nose, while the trouble is higher up, and thus is not reached by them. If the nasal bones show a tendency to separate, we may make a plaster splint by having the patient lie flat while several layers of a plaster bandage are moulded over the nose, the ends being carried out on to the cheeks. The ends carry tapes which fasten behind the head. Thus the apparatus is well worn at night. Another serviceable material is gutta-percha, which may be cut to the general shape of the part, covered with antiseptic gauze and then rendered malleable by insertion in hot water. It is then accurately fitted to the nose and secured by tapes. Block tin, thin copper, and aluminum may be used in the same way. These splints may be padded with cotton to exert