

LABOR: UNUSUAL MECHANISMS.—Under this heading are included varieties of labor due to anomalies in presentation and position of the fetus. The mechanisms which are the result of contracted pelvis, or accidents and disease, will be found described elsewhere under appropriate titles.

VERTEX PRESENTATIONS, OCCIPUT POSTERIOR.—There are two posterior positions of the occiput occurring with vertex presentations, viz., occiput right posterior and occiput left posterior. In R.O.P., which is the more common, the occipito-frontal diameter occupies the right oblique of the pelvic inlet, the occiput being near the right sacro-iliac synchondrosis; in L.O.P. the occipito-frontal lies in the left oblique with the occiput near the left sacro-iliac synchondrosis.

Diagnosis.—In posterior occipital positions the back of the child, being turned away from the antero-lateral wall of the uterus, is difficult to palpate, while the small parts are easily felt in front on the right or left side. On auscultation the fetal heart sounds are indistinct and are heard at a point posterior to the centre of a line running from the umbilicus to one of the anterior superior spines of the ilium. When the cervix is patulous the posterior fontanel is felt with difficulty at the back of the pelvis, the sagittal suture following a direction toward the pectineal eminence of the opposite side. If flexion be not well marked the anterior fontanel is easily accessible in front and to one side.

Mechanism.—The uterine contractions often are weak in occiput posterior, probably owing to deficient reflex stimulation, and the first stage of labor may be prolonged. In normal cases descent and flexion occur in the same way as in an L.O.A. Flexion insures the occiput striking the pelvic floor in advance of any other portion of the head; hence this leading part is rotated forward through one-third of the circumference of the pelvis. The anterior shoulder lies opposite the pectineal eminence of the same side as that upon which the occiput originally was placed; as the occiput turns toward the symphysis this shoulder is obliged to swing across the pelvis toward the pectineal eminence of the opposite side on account of the severe torsion of the cervical tissues produced by such a long rotation of the occiput. In some cases, owing to delay in the establishment of good flexion, the anterior rotation of the occiput does not occur until the head is quite low in the pelvis. After the occiput has come under the symphysis the head is delivered by the movement of extension, and the subsequent steps of the mechanism are the same as in occiput anterior cases.

ANTERIOR ROTATION OF THE SINCIPUT.—From all posterior positions of the occiput the vertex must enter the excavation with the wide bi-parietal diameter occupying the sacro-cotyloid diameter of the pelvis, while the narrow bi-temporal lies in the rooky oblique diameter. If the back of the head becomes retarded, owing to the contracted sacro-cotyloid diameter, or if there be some abnormal relation between head and pelvis, an undoing of the flexion results, so that the sinciput descends to a lower level than the occiput, strikes the pelvic floor first and rotates under the symphysis. The occiput now is turned into the hollow of the sacrum, the forces on both sides of the head balance, and we have the position known as "occiput permanently posterior." Delivery takes place by the descent of the occiput along the posterior wall of the canal, which is so much longer than the anterior wall that the leading part cannot reach the vulva without drawing into the excavation a certain portion of the trunk of the fetus. Flexion now becomes exaggerated as the child wedges itself into the pelvis with the sinciput jammed against the inner surface of the symphysis, and the cervico-bregmatic diameter, plus the thickness of the child's thorax, occupying the antero-posterior diameter of the excavation. Considerable power is required to drive the occiput to the vulva, and the uterus labors under the disadvantage of having a lessened amount of fetus within its grasp; at the same time the fetal curve does not coincide with the curve of the genital canal, the leading part pointing backward and tending to plough

into the posterior wall. When the occiput reaches the vulva the perineum is pushed far back and frequently lacerated; the sinciput is released from under the pubis by extension of the head. **Restitution**, or the establishment of the normal relation between head and shoulders, takes place as usual, but it may be noted that **external rotation**, which depends upon the **internal** rotation of the shoulders, is from back to front instead of from front to back. The rest of the mechanism of delivery presents no peculiar features.

CONVERSION INTO A FACE PRESENTATION.—When the flexion is greatly disturbed by delay in the passing of the bi-parietal diameter complete extension may occur and a face presentation result, or the occipito-mental diameter may become wedged across the pelvis and further progress cease.

Prognosis.—As compared with anterior positions the labor is longer in cases of occiput posterior and intervention is more frequently required. The delay is chiefly in the first stage of labor, but the forward rotation of the occiput occurs in the vast majority of cases; according to Bataillard and Varnier, out of 400 cases of occiput posterior at the brim of the pelvis rotation failed to take place in but 6. When the state of things described as "occiput permanently posterior" develops the prognosis for the child becomes serious on account of the long-continued pressure and exaggerated flexion due to the impaction. For the mother there is greater danger of laceration of the soft tissues and she is involved in all the risks incident to long labors and operative interference.

Treatment.—During the last few weeks of pregnancy and early in the first stage of labor the postural treatment may be tried. This consists in having the woman assume the knee-chest position at intervals for as long a time as she can avoid fatigue, in order to allow the head to free itself from the pelvis and the weight of the spinal column to turn the occiput to the front. With the exception of the postural treatment there is nothing else to be done until the cervix is dilated. At the end of the first stage one of three courses may be followed: 1. The case may be *left to nature* when the patient is a multipara with a normal pelvis and fetus, the history of previous labors being favorable. 2. **Manual flexion and rotation:** Under an anæsthetic the whole hand may be introduced into the vagina, the head lifted above the pelvic brim, flexed, and the occiput rotated into an anterior position. Unless an assistant at the same time turns the body of the child by external manipulation the torsion of the neck will cause the occiput to regain its posterior position as soon as the hand is withdrawn. After the occiput is brought into one of the anterior positions the forceps should be applied and the head drawn well down into the pelvis or completely delivered. 3. **Version:** Considerable skill is required to perform manual flexion and rotation; hence the inexperienced obstetrician will find internal podalic version an easier operation for the correction of occiput posterior. 4. In rare cases it might be advisable to extend the head and allow the labor to proceed as a face with chin anterior.

During the natural delivery of a vertex, occiput posterior, the physician should keep watch regarding the maintenance of flexion and, if necessary, make counter-pressure upon the sinciput. If the bi-parietal diameter becomes caught in the sacro-cotyloid so that the head tends to extend, interference according to one of the methods described above is called for. A head low down in the pelvis sometimes can be flexed by the application of reversed forceps, but if forceps be applied while the head is still at the brim the almost invariable result is to bring the occiput into the hollow of the sacrum. Under deep anæsthesia it is surprising from how low a position in the pelvis the head can be lifted and rotated when the operator is expert. The forcible rotation of the head while in the grasp of the forceps is a dangerous procedure although suggested by several writers. Forceps are often required for the extraction of the head after the occiput has become permanently posterior.

FACE PRESENTATIONS.—Face presentations are rarely

found before the onset of labor pains and are caused by conditions which allow or produce extension of the head, such as obliquity of the uterus, coiling of the cord about the neck, deformities of the head or pelvis hindering descent of the occiput, and excessive mobility of the fetus due to small size or to a large quantity of liquor amnii. Face presentations are said to occur once in about two hundred and fifty labors.

Positions.—The fetal denominator is the chin which may lie opposite one of the ilio-pectineal eminences or sacro-iliac synchondroses. The positions are designated as follows: R.M.P., right mento-posterior; L.M.A., left mento-anterior; L.M.P., left mento-posterior; R.M.A., right mento-anterior.

Diagnosis.—The face does not fit well into the pelvis, and consequently the fetus lies higher in the abdomen than in normal presentations. If the chin be anterior the child's chest and extremities are in contact with the mother's abdominal wall and are easily palpated; the heart sounds are very distinct, being heard near the level of the umbilicus on the right or left side. When the chin is posterior, the extension of the head prevents a close relationship between the fetal back and mother's abdomen, so that, as the hand follows down from the breech, the maternal tissues must be more and more depressed to reach the child. Low down the right angle formed by the occiput and back may be noted. On internal examination the high position of the presenting part is detected, and when the cervix is dilated the finger palpates the orbital ridges, nose, mouth, and chin. If the woman has been in labor some time, an extensive caput succedaneum may make it very difficult to distinguish between a face and a breech. In doubtful cases care must be taken lest the eyes be injured by the examining finger.

Mechanism.—As the head descends the extension becomes complete, so that the occiput is pressed against the child's back and the chin is made the leading part. The chin, therefore, is exposed to the forward thrust from the pelvic floor and rotated under the symphysis; the shoulders are now upon the pelvic floor and cannot descend further without rotation into the long diameter of the outlet. The head being the only part free to move flexion occurs, sweeping the occiput over the perineum and delivering in succession mouth, nose, sinciput, and occiput. Restitution and external rotation with delivery of the trunk occur in the same manner as in vertex cases. In chin anterior cases the rotation of the chin may be hindered by the occiput striking the promontory of the sacrum so that the face often descends quite low in the pelvis before turning. From a posterior position the chin must make a long turn, which is possible only through good extension, strong labor pains, and concomitant turning of the shoulders to relieve the torsion of the neck. When extension is deficient or the forces are abnormal, the sinciput may be turned forward and the condition of "chin permanently posterior" be established. Under the ordinary relations of fetus and pelvis delivery is impossible with the chin permanently to the rear, as the distance between the thorax and point of chin is so much less than the length of the posterior wall of the canal that impaction develops before the chin can reach the vulva.

CONFIGURATION OF THE HEAD.—The moulding of the head during face labor produces a flattening of the vertex with bulging of the frontal and occipital bones; consequently the transverse, occipito-mental, and occipito-frontal diameters are increased in length while the suboccipito-bregmatic is diminished. The caput succedaneum forms over the malar region, about the eye and angle of the mouth, producing a very striking, though temporary, disfigurement. There may be an ecchymotic area where the occiput presses against the back.

Prognosis.—The fetal mortality in face labor is much higher than in vertex, being placed at from ten to fifteen per cent. The dangers are the extreme extension of the head and the exposure of the anterior portion of the neck to pressure against the pelvic walls; as the face is a poor dilator the labor is apt to be long and prolapse of the

umbilical cord is favored because of the irregular outline of the presenting part; the frequent necessity for operative interference is also injurious for the child. In neglected cases of "chin permanently posterior" the outlook for the child is wellnigh hopeless. For the mother the prognosis is unfavorable in proportion to the length of the labor and the operative measures required.

Treatment.—At the end of gestation, or during the first stage of labor, an effort may be made to correct the presentation by means of external manipulation. The method of Schatz consists in elevating the fetus from the pelvis, flexing the trunk upon the head and then pressing downward upon the breech; an assistant meanwhile should aid in pressing the occiput away from the child's back. The substitution of a vertex presentation by means of external manipulation is possible only in cases in which the fetus is quite movable and the maternal tissues are lax. If the face presentation is not diagnosed until labor is in progress, every care should be taken not to rupture the membranes until there is full dilatation of the cervix. When the bag of waters is large, owing to the fact that the face does not fit snugly into the pelvic brim, it is advisable to make counter-pressure by introducing the colpo-uter into the vagina. When the face is above the brim with the *chin anterior*, we have a choice of three courses: 1. The *delivery may be left to nature*; this is justifiable only when the patient is a multipara with a history of previous easy labors and when the fetus is not above normal size. Good extension must be assured by making counter-pressure against the sinciput, and the finger or forceps blade may be applied behind the point of the chin when there are signs of delayed rotation. The fetal heart must be frequently examined and the forceps applied whenever the indication arises, but the physician must remember that there is great danger of injury to the child's neck from the tips of the instrument. In leaving a face case to nature the physician takes upon himself a grave responsibility, and it is well to warn the family in advance of the dangers and of the temporary disfigurement of the child's face. 2. **Flexion and rotation.** This is the best treatment in the majority of cases; the flexion gives a vertex presentation, and manual rotation is necessary to correct the posterior position of the occiput. The mode of procedure is the same as that described in the section on "vertex presentations, occiput posterior." After correcting the presentation the forceps should be applied to draw down and fix the head. 3. **Version.** This operation is indicated when the physician desires to alter the presentation, but is unable to perform manual flexion and rotation.

Face Below the Brim, Chin Anterior.—Under these conditions the case may be left to nature; forward rotation of the chin may be delayed and require the assistance of the finger or forceps blade; delivery by forceps may be necessary.

Face Above the Brim, Chin Posterior.—In this position interference always is demanded, the proper treatment being manual flexion which gives a vertex with occiput anterior. After the flexion forceps may be applied if there is a tendency for the extension to recur.

Face Below the Brim, Chin Posterior.—This is a serious state of affairs. 1. Introduce the hand into the vagina, place the fingers behind the chin and attempt to rotate it forward. Some authorities advise grasping the face in the forceps and attempting anterior rotation; this is very dangerous and no one but an expert should attempt it. 2. **Elevation and flexion:** if the uterus is not in a state of tetanus it may be relaxed under deep anæsthesia sufficiently to allow the hand to elevate and flex the head. It often is astonishing how readily the head may be lifted to the pelvic brim, even when low down, provided the patient is deeply anæsthetized. 3. If procedures Nos. 1 and 2 fail *craniotomy* is indicated if the child be dead, but if it be alive the claims of *symphysectomy* must be considered.

BROW PRESENTATIONS.—These presentations are rare and may be looked upon as *partial face*, the head being in an attitude midway between extension and flexion.

Brow labors occur once in about two thousand cases, for the first contractions of the uterus usually complete the extension or flexion.

Diagnosis.—By external palpation the case would have the features of a face presentation; internal examination would show the forehead and anterior fontanel occupying the centre of the pelvic inlet.

Mechanism.—As the attitude of the head brings the largest cephalic diameters into the pelvic planes spontaneous delivery is possible only when the pelvis is roomy and the fetus small. The brow rotates to the front so that the face comes to lie against the inner surface of the symphysis. By a movement of flexion the occiput sweeps over the perineum, then by extension the face is freed from under the symphysis. Spontaneous delivery of brow permanently posterior is impossible.

Head Moulding.—After brow labor the head is somewhat triangular in shape, the occipito-mental diameter being markedly diminished. The caput succedaneum occupies the forehead.

Prognosis.—The mortality of the children is placed as high as thirty per cent. The outlook of the mother depends upon the nature of the labor and the operative procedures involved.

Treatment.—When diagnosed early in labor a brow presentation always should be corrected. When the occiput is anterior manual flexion is the best treatment, as the result is vertex in a favorable position. If the occiput is posterior, extension will give a favorable position of the resulting face presentation, whereas flexion must be supplemented with manual rotation of the occiput forward. When the head has become moulded and the brow presentation tends to recur version should be performed. In an impacted brow case with the forehead anterior a cautious trial of the forceps may be attempted, but craniotomy or symphyseotomy is often necessary. When the head is wedged with the forehead in the sacrum, craniotomy is indicated.

PELVIC PRESENTATIONS.—There are four varieties of pelvic presentations: 1. The breech may present with the thighs flexed upon the trunk and the legs upon the thighs. 2. The legs may be extended along the length of the anterior surface of the child's body. 3. The thighs may be extended and the legs flexed, forming a knee presentation. 4. Both thighs and legs may be extended downward, giving a footling presentation. There may be various combinations of the above.

Etiology and Frequency.—Pelvic presentations are caused by alterations in the relation between the foetal and uterine ovoids. Hydrocephalus and multiple pregnancy may alter the shape of the foetal ovoid; the shape of the uterus may be changed by laxity of tissue, excess of liquor amnii, tumors, contracted pelvis, and placenta prævia. Including cases of premature labor pelvic presentations occur once in thirty deliveries, but only once in sixty if none but full-term cases are included. The higher percentage in premature cases depends upon the fact that before the end of gestation the bulk of the fetus is small relative to the size of the uterine ovoid.

Positions.—The foetal denominator is the sacrum and the positions are as follows:

R.S.A., right sacro-anterior,	} Bitrochanteric diameter in
L.S.P., left sacro-posterior,	
L.S.A., left sacro-anterior,	} Bitrochanteric diameter in
R.S.P., right sacro-posterior,	

Diagnosis.—On abdominal palpation the head is felt in the upper part of the uterus as a large, hard, round, movable body; the depression marking the site of the neck can be detected. On following down the foetal trunk the breech and small parts may be found at the brim of the pelvis. The foetal heart sounds are best heard over the child's back above the level of the umbilicus. On vaginal examination the presenting part is found high up and, if the cervix be dilated, the sacrum, coccyx, and ischial tuberosities may be felt. The depressions between the buttocks and the genital organs often are easy to distinguish. To differentiate a buttock from a shoulder, the finger should be passed into the groin and the absence of

ribs noted. The projection of the heel, the malleoli, and the parallel toes are the marks by which a foot is distinguished from a hand. The presence of the patella enables one to diagnose a knee from an elbow. During the second stage of labor meconium may be discharged on account of the pressure to which the child's body is exposed.

Mechanism.—The first stage of labor may be prolonged as the soft breech seems to be an inefficient irritant to uterine contraction. Often the bag of waters is large and therefore tends to rupture before the cervix is completely dilated. As the breech descends the anterior hip is the lower and therefore rotated to the front under the symphysis; the posterior hip sweeps over the perineum. When both hips are at the vulva there results a lateral curvature of the child's trunk, as the upper portion still is in the axis of the superior strait. The shoulders enter the pelvis in the same oblique diameter as the hips and rotate into the antero-posterior diameter of the outlet. When the trunk is delivered as far as the scapulae, the flexed head enters the plane of the pelvic brim with the suboccipito-bregmatic diameter occupying an oblique diameter opposite to that traversed by the hips and shoulders. The projecting occiput strikes the pelvic floor and rotates to the front, the face looking into the hollow of the sacrum. The head is delivered flexed, the chin, nose, forehead, and, finally, the occiput being born. In rare instances the occiput turns backward instead of forward; the head is now delivered by one of two mechanisms. If flexion is maintained the delivery is like the one already described, except that the face slips out from under the symphysis instead of over the perineum. If the chin should catch upon the top of the symphysis extension occurs until the face comes to look directly upward; in this attitude the occiput is the first part of the head born and the face the last. In some instances the legs extended alongside the trunk act as splints and hinder the descent of the breech by preventing lateral flexion of the child's body.

Prognosis.—The labor is longer and the risk to the fetus twice as great in breech labors as in vertex. The dangers to the fetus lie in the unavoidable compression of the cord between the pelvic walls and after-coming head, in the possibility of an insufficiently dilated cervix causing constriction about the child's neck, in asphyxiation resulting from premature efforts at respiration. Rapid extraction may produce fractures or dislocations of the limbs. Even in good hands a number of children are lost and sometimes resuscitated infants die a few days later from bronchopneumonia due to the inspiration of foreign matter. The prognosis for the mother is not much affected by a breech labor unless artificial extraction is necessary and the soft tissues are lacerated.

Management.—At the end of pregnancy or very early in the first stage an effort may be made to substitute a cephalic presentation by performing external version. If this treatment succeeds, which is rarely the case, pads should be applied to the sides of the abdomen to prevent recurrence of the original presentation. In the management of breech labor the physician must be extremely careful not to interfere unless the indications are clear. During the first stage premature rupture of the membranes must be avoided, for the breech may not cause sufficient dilatation for the passage of the head through the cervix. When the bag of waters is very large, counter-pressure by means of the colpeurynter is a wise precaution. When the second stage is in progress it is well to have a competent assistant present, the forceps ready, a warm blanket for wrapping about the child, and all the conveniences for resuscitating asphyxiated infants. During the descent of the hips the physician should frequently examine the foetal heart. As the presenting part nears the vulva, the patient should be placed in the lithotomy position across the bed or, preferably, upon a table. As the trunk is born it is protected from the action of the cool air by being wrapped in the blanket; as soon as the umbilicus appears, the cord is placed as far back in the pelvis as possible to escape compression.

While the attendant supports the body of the child, the assistant maintains firm pressure upon the uterus in order to prevent the slipping upward of the arms and the undoing of the flexion of the head. If there be delay in the descent of the head, the child should be made to straddle the physician's left arm while the fingers of the left hand are passed up to the child's mouth or superior maxilla and used to maintain the flexion; the fingers of the right hand are placed over the shoulders and traction is made directly downward until the chin reaches the vulva, when the child's trunk is elevated to enable the face to sweep over the perineum. When the mouth has been brought to the outlet there is no need for haste, and the attendant can preserve the soft tissues by slow extraction of the head. Cessation of the pulsation in the cord, or premature efforts at respiration, calls for immediate delivery. The most serious mistake which can be made is to exert traction upon the child's trunk, as extension of the arms and head will probably be the result and the consequent delay in extracting the head be fatal. The vast majority of cases call for nothing beyond counter-pressure over the uterus with support of the trunk and maintenance of flexion.

Impaction of the Breech.—If the breech is low down the finger may be hooked into the groin and traction made. When the finger cannot be employed a gum-elastic catheter can be threaded with a double loop of silk and passed over the groin; the loop is caught with the finger, drawn down, and used to carry back a fillet made of tape or narrow gauze. The traction upon the fillet should be almost directly downward. The forceps also is applied to the breech in cases of impaction, but it is very apt to slip.

Extension of the Legs Along the Trunk.—If this attitude of the limbs hinders descent by preventing lateral flexion, the hand must be passed up and the legs flexed and drawn down.

Extension of the Arms and Head.—Arms extended alongside of the head are freed in the manner described under the head of version and extraction. Flexion of the head can sometimes be re-established by pushing the child upward, passing the fingers up to the mouth, rotating the head into the transverse diameter, and making traction. In cases of delivery of face to the pubes the child's body is swung in a direction opposite to that followed when the occiput is anterior.

Transverse Presentations.—In these presentations the axis of the fetus forms an angle with the longitudinal axis of the uterus. The great majority of these presentations are shoulder presentations and will be treated under that heading. In rare instances the examining finger impinges upon the ventral or dorsal aspect of the child.

Causes of Transverse Presentations.—The causes are much the same as those producing pelvic presentations; alteration in the shape of the uterus from tumors, pendulous abdomen, or excessive amount of liquor amnii, deformed pelvis, and foetal monstrosities are the most worthy of mention. Transverse presentations occur in less than one-half of one per cent. of labor cases.

Position.—Shoulder presentations are described by stating whether the head is right or left and the back in front or behind; hence we have:

- Head to the right.
1. Dorso-anterior.
 2. Dorso-posterior.
- Head to the left.

1. Dorso-anterior.
2. Dorso-posterior.

Diagnosis.—On inspection and palpation the long diameter of the uterus is not longitudinal with the mother's abdomen and the head is felt in one or the other iliac fossa; the heart sounds are best heard below the level of the umbilicus. On internal examination the presenting part is high; the point of the shoulder is characterized by the presence of the clavicle and scapula; the finger may enter the axilla and distinguish the ribs; the arm

may be followed out until a hand is reached. In some cases the hand or elbow is prolapsed.

Prognosis.—Neglected shoulder presentations offer an unfavorable prognosis for both mother and child, for if left to nature the uterus contracts down upon the fetus in a condition of tonic spasm, destroying the child's life and threatening the mother with the dangers of rupture of the uterus, post-partum hemorrhage, and sepsis.

Mechanism.—There are two mechanisms by which shoulder presentations are sometimes spontaneously delivered, but they occur so infrequently that they have not the least bearing upon treatment.

1. **Spontaneous Version.** The uterine contractions gradually force one or the other foetal pole into the superior strait.

2. **Spontaneous Evolution.** The fetus is doubled upon itself until the breech and lower extremities of the child are able to sweep by the head which is delivered last.

Treatment.—All shoulder presentations call for interference. Very early external cephalic version may be possible in some cases, but the usual treatment is internal podalic version except when the uterus is in such a state of spasm that there is danger of rupture; in which event decapitation is the safer procedure.

PROLAPSE OF THE LIMBS.—Prolapse of the limbs alongside of the presenting part may affect the mechanism by producing impaction or faulty rotation. Irregularities in the outline of the pelvic brim constitute a predisposing cause of such prolapse.

1. **In Head Presentations.** One or both hands may prolapse alongside of the head and prevent descent or cause the chin or occiput to rotate into the hollow of the sacrum.

If the diagnosis be made in the first stage of labor nothing should be done until the cervix is dilated. An effort then may be made to replace the prolapsed limb or limbs and the head drawn down by forceps. If replacement or forceps fail version is indicated. The treatment is the same when the foot is prolapsed.

2. **In Breech Presentations.** A prolapsed hand is of very little import; it usually slips up as the breech descends, although that is of little moment as the presenting part is compressible and requires less space than does the head.

3. **In Transverse Presentation.** A prolapsed foot simplifies the performance of version. A hand may be secured by a piece of tape about the wrist so that it can be drawn to one side and prevented from ascending as the child is turned.

Montgomery A. Crockett.

LACHRYMAL APPARATUS, AFFECTIONS OF.—

The lachrymal apparatus consists of two distinct parts—the lachrymal gland, described by anatomists as divisible into an orbital and a palpebral portion, divided by a fibrous septum, which lies in a fossa just within the upper margin of the orbit near to its outer angle, and which has for its function the secretion of the tears; and the puncta, the canaliculi, the lachrymal sac, and the nasal duct, which together form the drainage system of the eye, carrying away the tears from the neighborhood of the inner canthus, where they tend to accumulate after having accomplished their purpose of moistening the conjunctival sac. It is commonly taught that under ordinary conditions the lachrymal gland is quiescent, and that it is only in response to some unusual stimulus that it becomes active and secretes tears. It seems probable, however, that this view is incorrect; for in occlusion of the nasal duct the lachrymal sac soon refills with tears after having been emptied by pressure, even when there is no inflammation of the eye or of the sac to act as a special stimulus. It is held by some that it is chiefly, if not solely, the palpebral portion of the gland which secretes habitually; but, whether this be true or not, there seems to be little room for doubt that, at least when the eyes are open and in use, there is a constant, though slight, flow of tears, which disappear in part by evaporation from the surface of the eye, and in part by evaporation from the mucous membrane of the nostril after