

of disease of the gland are reported in which no symptoms of acromegaly were present. Fourth, pituitary extract administered to patients does not control the disease as does thyroid extract in myxœdema. Last, and possibly most important of all, experimental removal of the hypophysis does not produce the symptoms of the disease in animals.

Disregarding for a moment the evidences in regard to the pituitary gland as the cause of the disease, let us consider the theory that acromegaly is primarily the result of disordered nerve action. The only alternative theory worth considering is that it is due to alterations in the blood supply, either quantitative or qualitative. In estimating comparatively the trophic influence on the tissues of nerve and blood supply, the balance is largely in favor of the blood in regard to the importance of its action. That nervous influences do affect nutrition is undoubted, especially in the case of the muscles and of the skin. It is to be observed, however, that even in these instances the muscles increase in size under stimulation, apparently as a result of the increased action of the muscle fibres and their increased vascularity, rather than as a result of any inherent trophic activity of the nerves supplying them. The muscle fibres disappear after the nerves are cut, not directly as a part of the degeneration of the nerve fibres, but as an indirect and remote result of their loss of function. Atrophies of the skin sometimes occur as the apparent result of nerve lesion, but usually there is only a limited amount of change, such as is seen in the glossy skin of neuritis and hemiplegia; ulcerative processes are in such cases probably the result of germ action from lowered resisting power rather than destructive processes the direct result of nerve lesion. But many of the tissues have a much less rich nerve supply than have the muscles and the skin. The widespread hypertrophies of acromegaly would, if of nervous origin, require for their explanation a trophic influence out of all proportion with the comparatively scanty facts at our disposal in regard to the trophic influence of the nervous system on the organs in general.

The blood supply we know, on the other hand, to be everywhere and always of vital importance in nutritional processes. To say that nutrition is always carried on by the blood supply is a platitude, but in this connection it needs statement. The nervous system, when it affects nutrition through the blood-vessels, does so by changing their calibre. In acromegaly congestions play no part in the clinical phenomena. We are driven to the conclusion that, so far as we know, the hypertrophies in acromegaly are due to qualitative changes in the blood; whether these changes consist in an increased or deficient secretion from the ductless glands, the pituitary or the thyroid or both, it remains for the future to determine.

Facial hemiatrophy is characterized by a wasting of all the tissues of one side of the face. The disease occurs at all ages. Various causes have been assigned, especially injury at the time of birth, blows, abscesses, infectious diseases, and cases have been reported in which it has followed division of the fifth nerve. The mechanism of its production is not apparent, as division of the nerve is usually not followed by it. On the other hand, although undoubted changes have been found in the fifth nerve in cases of apparently spontaneous development, the nerve has in these cases seemed to share in the general progress of the disease rather than to be primarily affected.

Severe neuralgic pains may usher in the disease, or it may begin quite painlessly as a small atrophic spot on the skin of the cheek, much like a sclerodermatous patch. The atrophy gradually involves more of the skin and the other tissues, especially the subcutaneous tissue and the bones. One-half of the tongue and the mucous membranes and other structures of the mouth of the affected side share in the process. The cranial bones are thinned and wasted, the forehead is furrowed, and the whole side of the face hollowed and much smaller than the other side. The hair and beard are thinner than normal.

The changes in the skin may be accompanied by anæ-

sthesia, especially in cases in which the nerve trunks are much affected. Sensibility to tactile and painful impressions and the temperature sense may be retained, however, even when the skin and the other tissues are markedly atrophic. The muscles often show less change than do any of the other tissues. They may retain voluntary power and electric excitability, or may share in the general atrophy. Tears, saliva, and perspiration may be secreted normally on the affected side. The pupil remains normal and there is no change in the fundus of the eye.

The changes are progressive, but may come to a standstill at any time. The disease is not dangerous to life and the changes do not extend beyond the face, which it disfigures in a way very distressing to the patient. All known methods of treatment are quite ineffective. Electricity, massage, and cod-liver oil have been tried without much apparent effect. The relation of the nervous system to the disease is not definitely known.

Hyperostosis cranii, otherwise known as *leontiasis ossea*, is an enlargement of the bones of the head. The rest of the body tissues are not affected. The fact that the bones alone are enlarged brings the disease into interesting relation with the so-called progressive pulmonary osteo-arthropathy. The latter disease consists in an enlargement of the bones of the extremities, so that patients present a superficial resemblance with those afflicted with acromegaly. These patients, however, show no involvement of the head and no thickening of the soft parts; they lack the pads in the palms and soles, the roughening of the voice, the bulbous nose and thick lips of acromegaly, and simply show enlargement of the bones of the arms and legs, and chronic joint affection with creaking, pains, and resulting disability. While there is not always lung disease, as was at first thought, there is always toxæmia from some cause, tuberculosis, syphilis, gastrectasis among others. The changes in both these diseases are inflammatory, the osteitis in the one disease affecting not only the long bones but the joints as well, in the other the change being curiously limited to the bones of the head. Such peculiarities of distribution do not, in the writer's opinion, show that the poisons work primarily on the nervous system. A similar selective action is exercised by rheumatic poisons on certain joints, on the pericardium, the endocardium, at times the skin and meninges in different patients, and in the same patient at different times. The selective action of poisons is sometimes on the nervous system, at other times through the nervous system; but in these diseases there is nothing to show that the action is not on the affected tissues direct. The organs most richly supplied with nerves are not the ones affected, the nervous system shows no special sign of involvement, and osteitis, even though chronic and proliferating, is not a usual accompaniment of any known nerve change.

Two diseases which may be grouped together are *adiposis dolorosa* and *symmetrical lipomatosis*. Both are characterized by enormous deposits of fat; the essential difference is that in one the fat deposits are the seat of severe pains, in the other the nutritional changes are painless. The symmetry of the lesions, and in *adiposis dolorosa* the occurrence of pains, have been supposed to indicate a neurotic basis for the overgrowth of tissue. These diseases are certainly essentially trophic. They are both, however, to be traced to either syphilis or over-indulgence in alcohol; that is, in either case to poisons which are necessarily symmetrically distributed by the blood stream, apart from any intervention of the nervous system. In the case of *adiposis dolorosa* it is still somewhat doubtful whether the symptoms are the expression of a separate disease process or are simply an extreme accumulation of fat and a low grade of neuritis, both common results of chronic alcohol poisoning. Symmetrical lipomatosis is a curious symptom of toxic origin.

Localized hypertrophies of varied distribution have been described. Facial hemihypertrophy is the analogue and opposite of facial hemiatrophy. It is much more rare. It is sometimes acquired, but may be congenital.

Hypertrophy of one-half the body has been described, and so also have hypertrophies of single limbs. One finger may be involved alone. These hypertrophies usually involve all the tissues. Nothing is known of their causation. The affected part may be unduly large at birth and may continue to grow or increase in size, or the enlargement may begin in later life. No cause has been traced for these strange variations from the normal, and in the absence of evidence to the contrary they must be regarded as the result of an innate tendency, possibly but not surely of an atavistic character.

Returning now to the criteria to be applied in distinguishing toxic from functional nervous diseases, we may observe that functional diseases are properly vicious habits set up in the nervous system by irritants or poisons, and are to be distinguished from symptoms due to their direct and continuing action. The poisons of most of the infectious diseases, as well as alcohol and other volatile poisons taken into the body from without, are apparently capable of leaving their impress on the nervous system, causing symptoms which long outlive their exciting cause. The action of toxins on the affected tissues themselves, and their action by indirection through the nervous system, are not always easy to distinguish. The symmetry of the lesions, as already pointed out, usually means simply bilateral diffusion through the blood stream; in the one case to symmetrically disposed nerve structures, in the other to the affected tissues direct. In especial when inflammatory lesions are the result, the chances are much in favor of direct toxic action and against intervening nerve action.

The above considerations warrant the following conclusions in regard to the diseases under discussion, which permit, however, the elements of a provisional classification only.

Acroparæsthesia is a sensory neurosis. Angioneurotic œdema is a sensori-vaso-motor and Raynaud's disease a vaso-motor neurosis. Exophthalmic goitre and myxœdema, including cretinism, are diseases of the thyroid gland; the first is characterized mainly by vaso-motor symptoms, the second with special trophic features when occurring in adolescence. *Hyperostosis cranii* and progressive osteoarthropathy are inflammatory diseases, the first probably, the second undoubtedly on a toxic basis. Acromegaly and scleroderma are trophic diseases, probably of toxic origin; the same may be said of *adiposis dolorosa* and symmetrical lipomatosis, but the poison in these diseases is usually if not always alcohol or the toxins of syphilis. Facial hemiatrophy and the localized hypertrophies are trophic diseases of unknown origin, possibly neurotic. *Henry S. Upson.*

NEW-BORN, PATHOLOGY OF.—The pathological conditions which may be present in the new-born at the time of birth, or which may develop during the first days of extra-uterine life are very numerous and of the greatest variety. These conditions are of great importance, not only from a scientific standpoint, but also from the fact that they may hinder or render impossible the normal delivery of the child, or cause its death either before, during, or following birth; or finally they may affect its after-development, either by giving rise to pathological states persisting throughout life, or by the establishment of such changes that death, though deferred to a later period, ultimately results.

The conditions known as congenital, further those pathological states acquired from the parents, the causes of still-birth, the disease processes incidental to delivery, the pathological conditions and diseases peculiar to the first days of life, are all to be considered in this connection. For convenience these conditions may be divided into the following groups: *Intrinsic*, inheritable conditions, arising either in the individual sexual cells or through germ variation; *anomalies of development*, due to extrinsic causes affecting the mother, abnormal conditions of the fetal membranes, etc.; *infections* transmitted from the parents, particularly from the mother, acquired either during intra-uterine life, or during delivery, or after

birth; *intoxications*, either acquired through the maternal blood, or auto-intoxications developing in intra- or extra-uterine life; *diseases of individual tissues, organs, or systems*, peculiar to the new born, idiopathic, or produced by infection, intoxication, etc.; *new-growths*, developing in intra-uterine life or immediately after birth.

THE AUTOPSY OF THE NEW-BORN.—The methods employed in the autopsy of the new-born differ in a number of details from the ordinary autopsy technique. These differences are dependent partly upon different anatomical conditions, and partly upon certain procedures which are of great importance in the determination of certain pathological or medico-legal questions. In other respects the autopsy methods are the same as those given under the head of "Autopsy" (Vol. I., page 649). The chief points of difference are as follows:

1. *Section of Spinal Cord.*—The spinal canal is opened by cutting through the laminae with the curved bone shears.

2. *Section of Cranium.*—After the removal of the scalp the skull cap is opened in the median line, in the posterior angle of the great fontanel. By means of the curved bone scissors the longitudinal sinus is then opened both anteriorly and posteriorly by cutting through the bone in the line of the sagittal suture. The sutures between the frontal and parietal bones and between the parietal and occipital are then cut through from above, downward to the sides of the cranium, far enough to expose the brain sufficiently for its safe removal. The dura being adherent to the inner surface of the skull cap is cut through and turned back with the bones. The two halves of the frontal bone, the parietal and occipital, are pressed back from the brain at the level of greatest circumference. If the head is to be restored the bones are held back by an assistant while the brain is removed, otherwise the bones and dura are cut through at the level of greatest circumference and removed. The anterior falx is then cut and the brain removed, as in the adult.

3. *Section of Thorax, Neck, and Abdomen.*—A small block of wood is placed beneath the lumbar vertebrae. The main incision is then made in the median line, downward from the thyroid cartilage, dividing just above the umbilicus into two diverging cuts, extending on each side of the umbilicus to the pubis. The abdominal cavity is then opened just below the ensiform cartilage, and the opening extended in the line of the skin incision, passing to the left of the umbilicus. The right flap of the abdominal wall is then lifted and turned over to the right, while the umbilical vessels are dissected from their peritoneal covering and slit open toward the liver and toward the umbilicus. The skin incision passing to the right of the umbilicus is now extended downward through the abdominal wall, severing the umbilical vessels. The flap of abdominal wall between the two diverging incisions is now turned back over the symphysis and the two diverging umbilical arteries are exposed, the urachus and bladder lying between them. The arteries are now exposed by careful dissection, cut through at the umbilicus, and slit open.

The thorax is opened by cutting through the ribs instead of the cartilages in order to obtain more room. This may be done with the bone shears or a dull knife. The thymus gland is first examined and then removed. After the opening of the four heart chambers the ductus Botalli is carefully examined. This is done by extending the incision through the conus of the pulmonary artery and through the wall of the artery. The ductus Botalli is then found and probed. When the thoracic organs are removed with the neck organs, the aorta may be opened and the ductus Botalli opened by means of a probe passed from the aorta into the pulmonary artery. The heart is now removed and examined, the foramen ovale receiving careful inspection.

In many cases it is better to take out the neck and thoracic organs together. When the question is raised as to the child's having breathed after birth, the section should be conducted as follows: After the abdominal cavity is opened the height of the diaphragm is taken.

The opening of the abdomen must precede that of the neck or thorax. Before the thorax is opened the upper air passages are tightly ligatured. The thoracic cavity is then opened, and pericardium and heart are examined. The larynx and trachea are opened longitudinally above the ligature. The neck and thoracic organs are then removed. The thymus and heart are removed. The buoyancy of the lungs is then tested by placing the organs in a large vessel filled with cold water. The air passages below the ligature are then opened. Incisions are then made into the tissue of both lungs, noting the occurrence of crackling sounds, bubbles, and the amount and character of the blood. Cuts are also made into the lungs beneath the water, in order to see if any bubbles arise from the cut surface. Finally the lungs are cut into small pieces, and the buoyancy of the separate pieces is tested. The presence of air in the gastro-intestinal tract points in general to extra-uterine movements of "swallowing." From this it may be inferred that the child was born alive. The swallowed air collects in the stomach and gradually passes down the intestines. In cases in which the stomach appears to contain air or gas the organ should be ligatured at both ends and removed and opened under water.

The lower epiphysis of the femur is examined with regard to the size of the centre of ossification. The knee-joint is opened by a transverse incision beneath the patella, the leg flexed, and the patella removed. Cuts are then made at right angles into the thin layer of cartilage until the greatest diameter of the centre of ossification is cut through. In the case of premature birth the eye may be examined with regard to the presence or absence of the pupillary membrane. The anterior half of the eyeball is removed and fixed in Müller's fluid for microscopical examination.

SPECIAL POINTS TO BE NOTED IN THE EXAMINATION OF THE CADAVER OF THE NEW-BORN.—The external examination of the cadaver of the new-born has for its chief aim the determination of those characteristics which give information as to its age and development. The most important of these points are as follows: The average length of a mature new-born child is 50-51 cm., maximum length 58 cm., minimum 48 cm. Boys are somewhat longer than girls. The average weight of a mature fetus is for boys, 3,310 gm.; girls, 3,230 gm.; maximum weight, 5,500 gm., minimum, 2,500 gm. During the last five months of intra-uterine life the length of the fetus in centimetres divided by five will give the age of the fetus in months. The skin of a mature new-born is not wrinkled but smooth, of rather light color, the fine body hair being visible only on the shoulders. The umbilical cord has an average length of about 50 cm., and is inserted about the middle of the body, being thrown off about the fifth or sixth day. The hairs of the scalp measure 2-3 cm. in length. The great fontanel is about 2-2.5 cm. wide. The circumference of the cranium is 34.5 cm. The pupillary membrane vanishes in the eighth month. The cartilages of the nose and ears are firm in healthy mature infants. The finger nails are hard, horny, and extend beyond the finger tips. The shoulder breadth measures 11-12 cm., the distance between the trochanters is 9-10 cm. The testicles should be present in the firm and wrinkled scrotum (the descent of the testicles should begin during the seventh month). In girls the outer labia meet, but occasionally the inner labia are visible. The centre of ossification in the lower epiphysis of the femur usually measures 2-5 mm. in the full-term child, but in very rare cases it may be absent in fully developed children. It is not present before the thirty-seventh week of fetal life. It appears in the blue-white epiphyseal cartilage as a lenticular mass of reddish or brown color in which minute blood-vessels are distinctly visible. The cranium should be carefully examined for evidence of injury received at birth, "caput succedaneum," hæmatoma, depressions, overlapping, etc. In the judgment of the color, consistence, and moisture of the brain substance it should be remembered that the brain of the new-born is normally rosy-red, somewhat

translucent, and soft. In the examination of the umbilical vessels the thickness of the walls, the contents (blood, pus, thrombi, etc.), infiltrations of the surrounding connective tissue, as well as of the tissue of the umbilicus, should be noted. The lung should be carefully examined for areas of atelectasis or pneumonia. In the case of the heart the foramen ovale and the ductus Botalli (closes on the fourth or fifth day) should receive particular attention. The adrenals should be examined for evidences of hemorrhage; the degree of uric-acid infarction of the kidneys should be noted, and in male infants the spermatatic, renal, and adrenal vessels should be examined for thrombi.

1. INTRINSIC PATHOLOGICAL CONDITIONS OF THE NEW-BORN.—The intrinsic pathological conditions of the new-born are those which arise in the germ independent of any external influence. They may be inherited, existing in either one or both of the sexual nuclei, or they may occur for the first time, in a given family, as a primary germ variation. The inheritance may be either *direct*, or *collateral*, or *atavistic*. The conditions which are inherited are the same as those arising as primary germ variations. From this the principle may be formulated that only those pathological conditions are inherited which originally occur as primary germ variations. In explanation of such variation we are at present limited to the hypothesis that either one or both of the sexual nuclei which combine to form the new individual are abnormal, or that from the union of two normal nuclei a pathological variety may arise, or finally that the pathological variety may be the result of disturbances in the process of copulation.

The most important of the intrinsic pathological conditions of the new-born are certain malformations, such as *polydactylism*, *cleft-hand*, *cleft-foot*, *webbed fingers*, as well as other malformations of hands and feet, *harelip*, *abnormal hairiness*, *elephantiasis*, *ichthyosis*, *albinism*, etc. The majority of the *typical monsters and malformations* may also appear as intrinsic conditions, and are not infrequently inherited. Of these may be mentioned the *malformations of the face and cranium*, *spina bifida*, *atresias of the body orifices*, *transposition of the viscera*, *malformations of the heart and blood-vessels*, and of the *sexual organs*, etc. (see also article on *Teratology*). Further, certain tumors, as *fibromata*, *multiple neurofibromata*, *angiomata*, *lymphangiomata*, *osteomata*, etc., often appear in certain families as inheritable conditions. All of these conditions may be present at birth, though they not infrequently appear in later life.

Abnormal size of the new-born may be explained as due to intrinsic causes. In some cases the weight of the full-term fetus may reach as high as 12,000 gm., the length of the body exceeding that of the normal. An *abnormal size* of individual parts of the skeleton or of the soft structures may also be referred to intrinsic causes. Similarly, *abnormal smallness* of the new-born, of the body as a whole or of certain parts, may be of intrinsic origin.

Struma congenita is regarded by some writers as of intrinsic origin. *Congenital hæmophilia* may be manifested in the new-born by hemorrhage from the umbilicus, under the scalp, between the meninges, or from the body passages (melæna neonatorum). *Deaf-mutism* and *abnormal conditions of the retina* are also congenital conditions, manifesting themselves in the new-born. It must be borne in mind, however, that many of the above conditions may also be acquired as the result of extrinsic injurious influences exerted upon the fetus during intra-uterine life.

2. ACQUIRED ANOMALIES OF DEVELOPMENT.—In the production of monsters and malformations extrinsic injurious influences probably play the chief rôle. Among the most important of such influences may be mentioned trauma to the mother, jarrings of the uterus, pressure, uterine contractions, tumors of uterus or pelvic organs, dislodgment of the ovum, partial separation of the placenta, hemorrhage into the placenta, placental disease, diseased conditions of the uterus or of the mother, disturbance in the supply of oxygen and nutrition, intoxi-

cations, infections, etc. Abnormal conditions of the amnion are also particularly likely to cause malformations of the fetus. Abnormal tightness of the amnion, particularly of the cephalic or caudal end, adhesions between amnion and fetus, etc., cause a great variety of malformations, such as *intra-uterine amputations*, *aplasias* and *hypoplasias*, *anencephalia*, *exencephalia*, *thoracic and abdominal clefts*, *spina bifida*, *phocomelia*, *curvatures of the spine*, etc. Deficiency of the amniotic fluid (oligohydramnios) may also produce various malformations, such as *spinal curvatures*, *club-foot*, *club-hand*, and a great variety of *malformations of the extremities*. Of especial importance are adhesions between the amnion and the surface of the fetus; they are found very frequently in association with oligohydramnios. They may occasion a great variety of malformations, particularly those characterized by a *failure of the body clefts to close*. Through the stretching of such adhesions about the fetal extremities *amputations* of the latter may be produced. Forcible separation of the adhesions from the fetal surface may cause *wounds of the fetal skin*. *Intra-uterine fractures and dislocations* are also caused by amniotic adhesions. An excess of amniotic fluid (hydramnios) may also cause malformations and disturbances of development in the fetus. In the case of twins one fetus may develop at the expense of the other, the latter showing various malformations due chiefly to abnormal pressure. Such abnormalities are especially likely to occur, if in one amniotic sac there is an excess of fluid and in the other a deficiency.

Congenital Fractures.—Not all of the fractures found in the new-born are the results of difficult labor, but a part at least may be referred to trauma affecting the mother. The bones of the fetal head are more frequently fractured than are the long bones. Abortion or premature delivery usually results from such trauma, but occasionally a fetus so injured may be carried to full term and be born alive. At birth the fracture may be in the process of healing or entirely healed. Apparent intra-uterine fractures may be caused by deficient ossification or by disease of the fetal bones (intra-uterine rickets).

Congenital dislocations are not rare. The hip-joint is most frequently affected; more often in girls than in boys. The causes are partly intrinsic, due to an abnormal smallness and faulty position of the joint, as well as a primary relaxation of the ligaments. Extrinsic causes, pressure, poor nutrition, deficient amniotic fluid, etc., play an important part, however, in the production of the condition.

Pathological Conditions Produced during Labor; Caput Succedaneum.—During the birth of the child an oedematous swelling of the loose connective tissue beneath the scalp often forms, as the result of the passive congestion of the parts presenting. The condition is more marked in cases of protracted labor with unusually severe labor pains. The oedema is often accompanied by minute hemorrhages. It must not, however, be mistaken for the true hæmatoma of the scalp. Caput succedaneum has no pathological significance except in extreme cases; ordinarily it disappears within from twenty-four to forty-eight hours.

Cephalhæmatoma Neonatorum.—Occasionally there occurs during birth an extravasation of blood between the periosteum and the bone, leading to a detachment of the former. The extravasation is usually accompanied by caput succedaneum, and becomes more prominent as the oedematous swelling disappears. The condition occurs most frequently upon the parietal bones, less frequently upon the occipital, near the posterior fontanel. The tumor usually reaches its maximum on the third to fourth day. It may extend over the entire surface of the bone involved, but is limited by the sutures. Bilateral extravasations are rare. The tumor is fluctuating, the scalp covering it bluish, resembling a bruise. If the amount of extravasation is large, or if absorption is delayed, the detached periosteum forms bone around the edge of the hæmatoma. In this way there may arise

around the extravasation a wall of newly formed bone, or the latter may become encapsulated by bony plates. In some cases the extravasation becomes purulent. The blood may be absorbed in from four to six weeks, the cavity obliterated, and the bony plates united, so that ultimately there may remain only a localized thickening of the cranium at the site of the extravasation. Rarely there may persist a crater-like depression with a thickened rim.

Hæmatoma of the sterno-cleido-mastoid muscle occurs rarely after prolonged labors, particularly after breech presentations involving traction upon the neck. The swelling of the muscle is probably more the result of a local myositis than of a hemorrhage. Suppuration results very rarely. The condition usually disappears in a few weeks without giving rise to permanent changes.

Fractures, dislocations, and injuries of internal organs may result from difficult or instrumental labor. Rupture of the liver or spleen may occur, or in rare cases of the intestines. External soft parts, as the ears, may be damaged by the forceps. Of the greatest importance are the damages caused to the central nervous system in delivery by the forceps or through turning. Schultzze and Pfeiffer found multiple hemorrhages in the bulb, medulla, and cord in such cases. Degeneration of the ganglion cells also occurs. From the occurrence of such anatomical lesions it is easy to understand the frequent development of nervous lesions in children born in difficult or instrumental labor.

3. INFECTIONS.—According to the views of the majority of writers micro-organisms are not able to pass from the maternal blood through a normal intact syncytium into the fetal circulation. It must be borne in mind, however, that owing to the natural processes of atrophy and new formation of chorionic villi, which occur constantly in the placenta from the earliest stages of its development onward, and which are especially marked during the later months of pregnancy, there are to be found in every normal placenta atrophic or necrosing villi, the syncytial covering of which is either partly or wholly desquamated or is undergoing degenerative changes. Such senile villi form, therefore, points of least resistance to the passage of micro-organisms. The constant presence of such villi in the normal placenta favors the passage into the fetal blood of micro-organisms which may be present in the maternal circulation; in other words, such a thing as a perfectly intact syncytium throughout the entire chorionic surface does not exist normally, and in every normal placenta there are conditions favoring the passage of micro-organisms. There is, however, good reason for believing that the fetal tissues are more immune to many infections than are the maternal, and bacteria having passed the chorion may either fail entirely of producing pathological changes, or remain latent until a later period. The probabilities of the transmission of infection from the mother to the fetus are in direct proportion to the severity of the maternal infection, death of the fetus usually resulting when the disease of the mother is very severe.

Syphilis.—The most common and most important infection of the new-born is syphilis. This may be acquired from the mother through the ovum, from the father through the sperm, or through a later infection from either parent. The chief pathological changes shown at birth are: skin lesions (in about twenty-four per cent. of cases), either papular, macular, or hemorrhagic, bullous eruptions (pemphigus syphiliticus) affecting chiefly the palms and soles; less frequently macular, papular, or ulcerative lesions of the mucous membranes; fibroid hyperplasia of liver (cirrhosis) and spleen; "white pneumonia"; gummatous processes in the lungs, thyroid, thymus, liver, bones, adrenals, etc.; swelling of the mesenteric lymph glands; osteochondritis; obliterative changes in blood-vessels, particularly in the umbilical vessels. The changes found in the bones are very characteristic, particularly those so frequently present in the zone of ossification of the epiphyseal cartilages. The long bones should be split longitudinally, the change

being found most often in the femur, humerus, and ribs. In normal cases there is seen in the bluish, opaque, resting cartilage a layer of proliferating cartilage recognized by its bluish-gray translucent appearance. This is bounded in turn by a narrow white zone of ossification, which separates the cartilage from the bone by a straight or convex line. In the so-called osteochondritis of congenital syphilis the area of ossification is increased, and the boundary line between it and the cartilage is irregular. The area of proliferating cartilage is also increased and may contain medullary spaces which appear as red stripes. Between the zone of ossification and the bone there is a layer of soft yellowish granulation tissue rich in cells. Three stages may be distinguished; in extreme cases the epiphyses may be completely separated by the softening of the yellow layer. Many authors assert that the so-called syphilitic osteochondritis is pathognomonic of congenital syphilis. According to Mewis it is found only in sixty-two per cent. of cases. By other writers the changes in liver and spleen are regarded as the most characteristic and constant signs of this condition.

Tuberculosis.—Though nearly seventy cases are reported in the literature as instances of congenital tuberculosis, in only six cases (Sabouraud, Lehmann, Honl, Ustenow, Auché and Chambrelente, and Lyle) is the diagnosis placed beyond any doubt by both the histological and bacteriological findings. The other cases must be regarded as doubtful or probable, the diagnosis either not confirmed by the demonstration of the presence of tubercle bacilli, or doubtful because of the age of the child, non-exclusion of syphilis, etc. There is, however, no doubt that in acute miliary tuberculosis, advanced pulmonary or genito-urinary tuberculosis of the mother, tubercle bacilli may pass through the placenta into the fetal circulation, either with or without the production of tuberculous changes in the chorion or decidua, and give rise to characteristic tuberculous lesions in the fetus. There is also reason to believe that the fetal tissues possess a greater resistance to the tubercle bacillus, so that tubercle bacilli may be present in the fetal blood without giving rise to tuberculous lesions. At a later period the disease may become manifest, so that the possibility of a latent infection must be considered.

Variola.—It has long been known that in cases of variola occurring during pregnancy the fetus may have the eruption during intra-uterine life, or present it at birth or develop it soon after birth. The transmission to the child does not, however, occur in all cases of variola; further, in the case of twins with separate placentas, one fetus may exhibit the disease, the other escape it. These phenomena have been explained by the hypothesis that the disease does not pass an intact placenta; in the case of twins one placenta may admit the infection, the other not. The stages of the disease in mother and child do not usually coincide, the fetus as a rule acquiring the infection in the stage of suppuration of the maternal eruption. The occurrence of variola during the earlier months of pregnancy usually causes death of the fetus and abortion; in the later months the child often survives.

Scarlatina.—Since adults rarely suffer from this disease, there are but few recorded observations (eighteen in all) of its transmission to the fetus. The child at birth may present the eruption. In other cases of scarlatina of the mother, the child may be born without showing the disease.

Measles.—The recorded observations of the transmission of measles to the fetus in utero are very few. In maternal measles during pregnancy the fetus may or may not be affected.

Typhoid Fever.—The child usually dies in cases of maternal typhoid during the early months of pregnancy, but may survive in cases which occur in the later months. The typhoid bacilli can traverse the normal as well as the abnormal placenta. Since the typhoid bacilli pass directly into the fetal circulation, intra-uterine typhoid is of the nature of a general septicaemia, the classical intestinal lesions are not present. Infection of the fetus

does not, however, always occur in maternal typhoid. Blumer has reported an apparent undoubted case of congenital typhoid, which is of very great importance as indicating a latent infection. The child was born four and a half months after the recovery of the mother from typhoid. On the ninth day it died, after having presented symptoms of hemorrhages from gums and vagina, petechial eruption of skin, slight fever, and convulsions. The autopsy findings were cloudy swelling of organs, presence of phagocytic endothelial cells in the heart, lungs, liver, kidneys, adrenals, pancreas, and uterus. Typhoid bacilli were recovered from the lung, spleen, umbilical cord, bile, and large intestine. Alimentary infection was excluded, the child being breast fed, and the short period between birth and beginning of symptoms made extra-uterine infection very improbable. The case is unique as showing a long period of latency.

Typhus Fever.—Only one case occurs in the literature of a probable case of intra-uterine infection with typhus. The five- to six-months-old fetus showed black, irregular petechiae and small vesicles over the body. The spleen was enlarged, the mesenteric glands and Peyer's patches were swollen.

Recurrent Fever.—In a small number of cases the transmission of the disease from mother to fetus has been observed. Albrecht found the spirillum present in the blood of two cases. He regarded it as most probable that the spores and not the spirillum passed the placenta.

Malaria.—This disease is also sometimes transmitted to the fetus, which may be prematurely born living or dead, or come to full term. Moncorvo saw four undoubted cases of the transmission of the plasmodium. The new-born child may have fever and enlarged spleen. The autopsy findings are those characteristic of the disease, pigmentation, acute congestion of the spleen, etc.

Cholera.—A small number of observations occurs in the literature, of cases showing the transmission of the cholera bacillus to the fetus. The occurrence of a hemorrhagic endometritis in this disease favors the passage of micro-organisms through the placenta. Death of the fetus usually results from the changes in the placenta and decidua. The fetus may show hyperaemia and hemorrhages of the internal organs, intestinal inflammation, etc.

Influenza.—According to Townsend an intra-uterine infection of this disease occurs.

Pneumonia.—In a few cases the transmission of the pneumococcus from the mother to the fetus has been observed.

Meningitis.—In two cases the meningococcus has been shown to have passed from the mother to the fetus.

Erysipelas.—In children born of mothers suffering from erysipelas there may be present a desquamation of the epidermis. The streptococcus is not infrequently transmitted to the fetus, the infection being manifested in a condition of general sepsis rather than of erysipelas. The so-called erysipelas neonatorum is an affection usually acquired during the early days of extra-uterine life.

Sepsis.—The staphylococcus and the streptococcus are probably frequently transmitted from the mother to the fetus, though the published observations of such intra-uterine transmission are not numerous. The cases reported as congenital empyema, pleuritis, peritonitis, endocarditis, pericarditis, meningitis, abscesses of internal organs, and certain skin conditions show the frequency of such transmission. The occurrence of puerperal sepsis in the mother, or of intercurrent pyogenic infections gives rise to such transmission; but in certain cases the infection of the fetus appears to be cryptogenic, a perfectly healthy mother giving birth to a sick child which dies soon after birth, the autopsy findings being a streptococcus pleuritis, peritonitis, etc.

Bacillus Coli Communis.—This organism is also transmitted from the mother to the fetus, producing in the latter a general sepsis, or a localized infection, such as peritonitis, pleuritis, internal abscess, etc.

Parotitis Epidemica.—According to Müller this disease

may be transmitted to the fetus. It is possible, however, that the case described by Müller was one of pyogenic infection.

Anthrax.—The fetus may be infected in utero, or may escape the disease. In the former case the fetus may be still-born, or be born alive and apparently well, dying from the disease a few days later.

Leprosy.—A congenital infection is claimed for this disease, but it has not yet been proved.

4. INTOXICATIONS.—According to Ahlfeld those poisons are capable of being transmitted from the mother to the fetus which occur in the maternal blood in the form of gases or in solution, providing that such changes have not been produced in the maternal blood as to render diffusion impossible. It is to be noted, however, that even in those cases in which transmission of poisons from mother to fetus occurs, the effect upon the fetus is often very different from that upon the mother. In the case of many poisons, particularly the vegetable alkaloids, the effect upon the fetus is of a much less intense degree. In the case of animal experiments, strychnine and morphine have been found to affect only slightly the fetus, the undeveloped fetal nervous system appearing to possess a certain insusceptibility to poisons which have an intense action upon the highly developed nervous system of adults. In the case of certain mineral poisons the fetus also appears to possess a relative immunity. Inasmuch as the germ cells cannot be regarded as existing in the reproductive organs of the parents wholly independent of the bodily conditions of these individuals, since they must assimilate food from the lymph and discharge their metabolic products, it must follow that diffusible poisons in the body of either parent must be absorbed by the germ cells and so cause pathological changes in their protoplasm. This is well shown in the case of children born of fathers showing lead poisoning or alcoholism. It may be taken as a general principle that intoxications affecting the general metabolism of either parent are very likely to cause deterioration of the germ cells.

Carbon monoxide and illuminating gas may cause death of both mother and fetus. A number of observations have been reported in which the mother recovered, but death of the fetus resulted.

Chloroform passes directly into the fetal blood, a few whiffs given to the mother being evident in the blood from the umbilical vessels. The fetus is, however, very insusceptible to chloroform, even in cases of deep and prolonged anaesthesia of the mother. If in such cases asphyxia of the fetus occurs, it is probably to be referred to other conditions of the delivery than to the chloroform.

Alcohol.—The sexual cells may be affected by the intoxication of either parent. The new-born of chronic alcoholists very frequently show malformations, and later psychical disturbances. This is particularly the case in maternal alcoholism during pregnancy.

Chloral hydrate in medicinal doses has practically no effect upon the fetus; in chronic poisoning of the mother the effects are similar to those of alcohol. **Morphine** in ordinary medicinal doses does not affect the fetus, even when given to the mother for some time. Chronic morphinists may bear healthy children, but these are very likely to show psychical disturbances in later life. Occasionally the offspring may show signs of chronic morphinism. That the drug passes through the placenta is shown by the action upon the fetal heart. **Digitaline** and **atropine** are said to produce marked and lasting effects upon the fetus. As mentioned above, the effects produced by **strychnine** are slight. Fatal poisoning of the mother may cause the death of the fetus or it may be born alive prematurely.

Plasmains and Toxins.—That many poisons produced in the maternal body by micro-organisms pass through the placenta into the fetal blood and produce pathological effects cannot be denied. Numerous clinical observations support this view, though the actual demonstration of such passage has not yet been made. Likewise,

the poisons of certain auto-intoxications of the mother, nephritis, etc., affect the development of the fetus.

Mineral Poisons.—The passage of mercury into the fetus has long been known, and advantage has been taken of this knowledge in the hope of curing fetal syphilis. Chronic mercurial poisoning is well borne by the fetus.

Lead.—In chronic lead poisoning of the mother death of the fetus and abortion usually result, although in some cases the child may be born alive. In this case the child is under-developed and very often dies soon after birth. In chronic lead poisoning of the father the spermatozoa are undoubtedly affected, inasmuch as children from such fathers show characteristic changes which without doubt are to be ascribed to the lead poisoning. The bones of the cranium undergo changes in form which may interfere with delivery. A large proportion of the children of fathers affected with plumbism die before term; of the children born alive few pass the age of puberty.

Phosphorus may cause the death of the fetus with the occurrence of fatty degeneration of the liver and multiple ecchymoses as in the phosphorus poisoning of adults. **Arsenic, copper, and silver** also pass the placenta. Copper and mercury are said to accumulate in the placenta; lead on the other hand does not.

5. DISEASES OF COMMON OCCURRENCE IN THE NEW-BORN, IDIOPATHIC OR ACQUIRED, AFFECTING CERTAIN TISSUES, ORGANS, OR SYSTEMS.—**Asphyxia Neonatorum.**—The fetus at birth may exhibit a condition of apnoea and cyanosis. This may be due to a congenital malformation of the heart or blood-vessels, atelectasis, "white pneumonia," catarrhal or croupous pneumonia, hydrothorax, thoracic tumor, congenital struma, or disturbances of the circulatory and respiratory centres. In normal births the respiratory centres are stimulated by the increase of carbonic acid and decrease of oxygen in the blood, in addition to certain external stimuli. As a result of such stimulation respiration is inaugurated. If placental interchange is rendered difficult or impossible through the compression of the umbilical vessels or prolonged uterine contractions, there may occur intra-uterine respiratory movements of dyspnoic character. As a result the lungs become filled with amniotic fluid and asphyxia follows. Asphyxia may also be produced by the occurrence of rapidly succeeding uterine contractions. Dyspnoic movements are not produced, but from the rapidly increasing venosity of the blood there results a paralysis of the respiratory centre. The cessation of placental circulation through birth of the child is therefore not followed by respiratory activity.

Albuminuria Neonatorum.—According to Virchow, Dohrn, Hofmeier, and many other writers the urine of new-born children almost always contains a varying amount of albumin, hyaline casts, and epithelium. Such findings have been associated with the uric-acid infarct. They cannot be regarded as pathological as they are found in wholly healthy children. The albumin usually disappears after from eight to ten days. The cause is not known but is referred to the increased metabolism after birth, imperfect formation of glomeruli, changes in blood pressure and in the character of the blood. The pressure in the renal arteries is increased after birth. This fact may explain the albuminuria and the desquamation of epithelium. **Pathological albuminuria** occurs in rare cases of congenital nephritis. The amount of albumin is always greater than that found physiologically.

Anasarca Neonatorum.—This condition may be found in cases of still-birth in association with hydatid mole. The oedema of the fetus may depend upon a maternal dropsy, obstruction of the umbilical veins, malformations or disease of the fetal heart, absence of the thoracic duct, fetal nephritis, syphilis, oedema of the placenta due to syphilis, leukemia, etc. Fetal anasarca is often associated with hydramnion. In some cases the skin of the fetus shows an elephantiasis-like thickening. In the majority of cases of fetal anasarca the child is still-born; in those cases in which it survives birth the increased

size of the fetal body may render delivery more difficult. (See also *Edema neonatorum*, in article on *Edema*.)

Fatty Degeneration of the New-born.—Acute fatty degeneration of the liver, heart, etc., of the new-born is not infrequent. It is explained by decreased oxygenation and increased metabolism of albumin depending upon any of the causes leading to asphyxia, also infections and intoxications. Fatty infiltration of the liver is often associated with fatty degeneration of this organ. The condition occurs most frequently in cachectic and poorly nourished new-born suffering from circulatory or respiratory weakness.

Gangrena Neonatorum.—Symmetrical gangrene may occur in congenital syphilis. Further, symmetrical, diffusely spreading, or localized gangrene (noma) occurs in the new-born as the result of certain infections, diphtheria, measles, etc. A variety of organisms have been found in these cases.

Gonorrhœa Neonatorum.—The new-born is very frequently infected with the gonococcus during birth. An intra-uterine infection may also occur. Usually the conjunctiva, vulva, vagina, and urethra are involved, but there may occur also gonorrhœal peritonitis, pleuritis, pericarditis, endocarditis, meningitis, arthritis, etc. It is very probable that the majority of the cases of peritonitis occurring in the new-born female are of gonorrhœal origin. The presence of a coincident vulvitis or ophthalmia favors strongly the gonorrhœal origin of the peritonitis. (See also *Gonorrhœa*.)

Hæmorrhage of the New-born. Umbilical Hæmorrhage.—Hæmorrhage from the cord may occur at birth, either from laceration, from disease of the vessels, or from imperfect ligation. Fatal hæmorrhage may occur from injuries to the cord before or during birth. In other cases of more rare occurrence there may take place a constant oozing from the umbilicus itself or from the properly ligated stump. Such hæmorrhage is most likely to occur between the fifth and fifteenth days. The children affected are usually cachectic or under-developed. Congenital hæmophilia, syphilis, abnormal composition of the blood, imperfect coagulability, failure of the normal retrogressive changes in the umbilical vessels so that these remain distended and patulous, vascular ectasis, etc., are causes adduced. In some cases no adequate cause can be discovered. Cachectic conditions of the mother are regarded as predisposing causes.

Hæmatemesis and Melæna Neonatorum.—Hæmorrhage from the gastro-intestinal tract occurs occasionally in the new-born without other appreciable symptoms, and has therefore been regarded as an essential pathological condition. Hæmophilia, syphilis, congestion of the gastro-intestinal tract, ulcerations of stomach or intestines, infection, etc., are the chief causes adduced. According to von Preuschen melæna neonatorum is secondary to the occurrence of cerebral hæmorrhage resulting from delivery. It is known that under other conditions certain diseases of the brain give rise to secondary hæmorrhages in the stomach and intestine.

Hæmorrhage of adrenals is of relatively frequent occurrence in the new-born. The cause is not clear, but traumatism during birth, thrombosis of the adrenal vessels, infection, and marasmus are supposed causes.

Hæmorrhage into the kidney may result from thrombosis of renal vessels.

Hydrocephalus Neonatorum.—Congenital hydrocephalus is an accumulation of fluid within the ventricles of the brain. The cranial bones, not being united, yield to the internal pressure and are separated, the frontal, parietal, and occipital bones become expanded and thinned. The cerebral convolutions become flattened, the hemispheres finally being spread in thin laminae on either side, the thickness of the brain substance decreasing from the base to the vertex. The membranes usually become thickened. The head becomes greatly enlarged, soft, and fluctuating. The cause is not clear; the condition by some being regarded as an inflammatory process of the arachnoid, by others as due to stasis, caused by obstruction of the veins of Galen or of the sinuses. (See *Hydrocephalus*.)

Icterus Neonatorum.—A slight degree of yellowish color is of such frequent occurrence in the skin of the new-born that it must be regarded as physiological. In strict usage the term icterus neonatorum should be applied to this condition alone. According to Frerichs the icterus is due to a fall of pressure in the liver capillaries, thus favoring the entrance of bile into the blood. By others the condition is explained as due to the excessive destruction of red blood cells and an increased production of bilirubin which is absorbed. The dilatation of the blood-vessels may cause obstruction of the bile capillaries. According to Birch-Hirschfeld the jaundice is due to compression of the biliary capillaries by the dilated vessels in Glisson's capsule. As a result of the venous congestion the connective tissue of the capsule becomes œdematous, this also aiding in the compression of the vessels. According to Ziegler the icterus is caused by resorption of the bile pigment not only in the liver, but also from the meconium which is absorbed and carried back to the liver. The physiological icterus neonatorum is characterized by a diffuse yellowish pigmentation of the tissues and a deposit of bilirubin in various organs and tissues, especially in the kidneys.

Pathological icterus of the new-born may be caused by sepsis (in the majority of cases), syphilis, malformations of the biliary passages, new formation of connective tissue about the bile ducts, patency of the ductus venosus, acute hepatitis, etc.

Myotonia Neonatorum.—In the early weeks of life the child may be affected by persistent, painless, muscular spasms without increased excitability of the muscles or nerves. In this respect it is distinguished from tetanus, for which it is often mistaken. It is to be regarded as an exaggeration of the physiological hypertonia of the new-born (pseudotetanus). The anatomical basis consists of degenerative changes in the anterior roots and cells of the anterior horns; the exciting causes are gastro-intestinal disturbances, congenital syphilis, etc.

Ophthalmia Neonatorum.—Catarrhal or purulent conjunctivitis is of frequent occurrence in the new-born. The great majority of cases are of gonorrhœal origin, but it must be borne in mind that other organisms (streptococcus, staphylococcus, etc.) may also cause the disease, as well as the use of too strong antiseptic solutions. (See *Conjunctiva, Affections of*.)

Pemphigus Neonatorum.—The condition of the skin characterized by the formation of blebs or bullæ in the epidermis occurs in a great variety of forms, and its pathology has been variously described. The etiology of the affection is not clear. Some of the cases described under this head are of syphilitic origin, others are due to an infection with the streptococcus. The form described as *pemphigus acutus contagiosus neonatorum* is probably a distinct disease of bacterial origin. In certain congenital cases there appeared on the second day a general pemphigus eruption over the palms, soles, and mucous membranes, the fluid of the bullæ being at first clear, later becoming slightly bloody. Bacteriological examinations have been negative; syphilis and all ordinary causes of pemphigus being excluded, the condition is regarded as due to an intra-uterine intoxication. (See *Pemphigus*.)

Pneumonia.—Catarrhal pneumonia occurs very frequently in the first few days of life. In the case of premature births over forty per cent. of the deaths are due to this condition. In eighty per cent. of cases born at term the infant is poorly developed, with congenital weakness of the respiratory tract. The so-called "white pneumonia" is due to congenital syphilis. Pneumococcus pneumonia may be acquired during intra-uterine life as well as in the first weeks of extra-uterine life.

Rachitis.—Congenital rickets is rare. Its etiology is not clear. The condition is associated with hydramnion and hydrocephalus. Premature birth usually takes place. Congenital rickets presents a pathological picture similar to that of extra-uterine rachitis. Two forms of fetal rickets are described, *rachitis micromelica* and *rachitis annulans*. The true rachitic process is to be distinguished from the disease of the primordial cartilages, the so-called

chondrodystrophia fetalis, which is associated with cretinism. (See *Rachitis*.)

Sepsis Neonatorum.—Sepsis of the new-born is one of the most frequent and important conditions of this period of life. The streptococcus, staphylococcus, pneumococcus, bacillus coli communis, typhoid bacillus, gonococcus, etc., are the exciting causes. The organism may be transmitted from the mother during intra-uterine life, or acquired through injury received during delivery, through infection of such wounds after birth, or through the stump of the umbilical cord. The latter mode of infection is very common. Cryptogenic infection may occur. The skin of the new-born possesses much less resistance to the entrance of micro-organisms than the skin of adults; the primary seat of infection in infants often being a small localized purulent process in the skin, of relatively slight importance.

Struma Congenita.—The condition of congenital enlargement of the thyroid is regarded partly as inherited from mother or father, partly as an idiopathic or endemic disease. The thyroid may present a simple hyperplasia or cyst formation. Delivery may be rendered difficult. The infant may die after birth from the result of compression of the trachea. The condition is of relatively frequent occurrence in the Tyrol.

Uric-acid Infarction.—In the kidneys of the new-born infant there is almost always present an accumulation of urates which appears as glistening, golden, or yellowish-red lines converging toward the papillæ of the pyramids. The urine in the pelvis of the kidneys also contains an abundance of urates. Microscopically the collecting tubules are found to be filled with dark granular masses which on the addition of acetic acid dissolve, uric acid crystallizing out. An albuminous framework is usually left behind. This condition is termed uric-acid infarction. It is most marked after the second or third day, but may be present up to the seventy-sixth day. It usually disappears promptly, but if persistent may lead to irritation of the kidney and nephritis. It was formerly believed that such infarctions occurred only in children breathing after birth, but it has been shown that they are found also in still-born children. The cause is not known. Changes in metabolism following birth, defective oxidation, inability of the urine of the new-born to dissolve the acid, are among the causes adduced in explanation of the phenomenon.

Tetanus Neonatorum.—Tetanus is one of the earliest and most fatal diseases of the new-born, occurring with greater frequency in the first and second weeks of life than at any other age. The infection occurs through wounds received during delivery or through the stump of the cord. The favoring conditions are: uncleanliness, atmospheric and climatic conditions, primary pyogenic infection, etc. In nearly every case evidences of inflammation and suppuration are found in the umbilical vessels.

Thrombosis.—Thrombosis of the adrenal, renal, or spermatic veins may occur in the new-born. Hæmorrhage (so-called hæmorrhagic infarction) of the adrenal or kidney may result, and in the male infant gangrene of the testicle and scrotum. Such thrombosis may be the result of traumatism during delivery or septic infection. In anæmic and cachectic infants there may occur marantic thrombosis, affecting most frequently the left renal artery. Hæmorrhage and necrosis of the kidney result.

Sclerema Neonatorum.—See *Edema neonatorum*, under *Edema*.

6. NEW GROWTHS.—The most common forms of new growths affecting the new-born are the congenital *fibromata*, *neurofibromata*, *angiomata*, and *lymphangiomata*. Birth-marks, vascular, pigmented and hairy naevi, moles, warts, etc., belong to this class. Special forms of lymphangiomatous tumors occur in the tongue, lips, and neck (*macroglossia*, *macrocheilia*, *hygroma colli congenitum*). *Elephantiasis-like* growths may occur locally or form diffuse thickenings in certain regions. *Lipomata* of the neck, back, and axillary spaces are not rare.

Congenital teratoma, representing either a monoger-

minal or bigeminal inclusion, are relatively frequent. They may be found in any part of the body, but are especially common on the head, in the mediastinum, kidneys, ovaries, and testicles. Congenital *rhabdomyomata* of the heart, kidney, etc., are to be placed in this class. The most frequent malignant tumor of the new-born is the so-called *embryonal adenocarcinoma* of the kidneys (*mixed sarcoma*). Such growths are most probably derived from inclusions of the myotome and are to be classed with the teratomata (*malignant teratomata*). The most common epithelial tumors occurring in the new-born are *papillomatous* growths of the larynx, and cystic tumors of the kidneys, liver, and ovary. Adenomata of the adrenals and kidneys have been described. Carcinoma has also been found in the new-born in a number of cases (carcinoma of the liver, kidneys, stomach, and intestine). Cases have been reported by Jacobi, Wedl, Brown, Friedrich, Ritter, and others. Cystic tumors of the pineal gland, cholesteatomata, dermoid cysts, and teratomata of the brain and meninges have been described.

Aldred Scott Warthin.

NEW MEXICO.—New Mexico has climatically the same features as Colorado, and in a less degree those of Arizona. The State runs from the Raton range, which divides it from Colorado, for 390 miles south, to the boundary line of old Mexico. On the west is the main range of the Rocky Mountains or backbone of the continent, separating it from the State of Arizona. Its eastern boundary ranges with the great State of Texas. New Mexico is for the most part a high plateau rising to 7,000 feet at Santa Fé and dropping to 3,500 feet in the lower Pecos valley. The general tendency of this high plateau is to drop from the northwest corner toward the southeast. As it is on the leeward side of the main range, the winds from the Pacific Ocean are dried for the most part before reaching it, so that there is very little winter rain and only a light snowfall. What rain there is falls, as it does in Colorado, principally during the months of July and August, and New Mexico does not have the well-marked double rainy season of Arizona. The winter precipitation falls usually between January 1st and April 1st, though in the Pecos valley region this period is somewhat extended and the rainfall is heavier than the average for the State. The winter rains or snow-storms are marked by almost parallel curves of from one to seven inches of precipitation. These curves are outside the mountain lines, where, of course, the precipitation is greater. They are caused by the diffuse or diverting influence of topography on the aqueous currents borne to New Mexico from the south Pacific Ocean across Arizona. "The summer rains," writes Captain Glassford, "are otherwise influenced, and the higher precipitations appear upon the levels west of the Canadian River and upon the Cañon course of the Pecos, which includes Las Vegas and Fort Union. At this point the fall reaches seventeen inches. The lowest summer precipitation is found in sections most favorably influenced by the winter rains. The minimum is found in the southwest."

It is very much to be regretted that, in spite of the climate being the chief attraction of New Mexico to the travelling invalid, it is almost impossible to get full and accurate meteorological data concerning the various resorts, and the observations that are reported are usually for only a very short period, and the humidity and wind have very seldom been recorded. Many have written in general terms of the fine climate, but have failed to give the facts about the local topography, aspect, and soil of the towns. Unfortunately for health purposes, on the lower elevations the towns are usually situated upon an adobe soil in the river bottoms. However, the literature being such as it is, we will proceed to discuss the more important places available for health seekers.

In travelling by railway from Colorado into New Mexico, as the descent is made on the southern slope of the Raton range, one notices that the air is warmer and the sunshine more brilliant. However, the elevated towns in the northern portion of New Mexico are very