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PHYSICAL STIGMATA OF DEGENERATION.

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Physical degeneration is a morbid impairment of any tissue, fluid or organ, causing a reduction, or tendency, from a higher to a lower form.

This impairment is congenital. Its effect is to hinder the regular development of the tissue or organ, resulting in some malformation or stigma, which tends to separate the individual from his race, family or type. Such separation places the individual in an abnormal or pathological state of being, where in comparison with his immediate ancestors, he is weakened in the struggle for existence and tends toward eventual elimination.

QUESTION OF ATAVISM.

Whether physical degeneration has to do with a regressive anomaly (atavism), or with a pathological lesion produced during the intrauterine period, or during the first days of infancy, is a question as difficult as it is important. Such an inquiry, however, would lead far beyond the purpose of this study.

Thus for instance, microcephaly may be regarded as an atavistic condition, in which the large brain has remained undeveloped. Too many fingers may be considered as an accidental division due to a simple original tendency.

An abnormal number of hairs on the body (hypertrichosis) might be regarded as a return to a lower type; or as a substitute for weakness of skin sensibility, which has not the power to push out the embryonic hairs.

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* Senate Document, No. 187, 58th Congress, 3d session.

HOW VARIATIONS MAY PRODUCE STIGMATA.

It is well known that organisms through greater or less variation, can be eliminated or set outside of their species or family. These variations may be caused by changes in a single organ, which can produce an arrest of development, or lead to the highest development of the organ. Such an organ can be wholly stopped in its growth as the muscle which serves for the movement of the ear in man. Thus it is thought that the maxillary and sternoclavicular articulation is probably a reduced part of the skeleton; so the origin of the tendons has been explained. That is the muscle substance through different mechanical effects became weak, inflammation set in, then disintegration, leading to the formation of a scar or cicatrix; and this process was carried over to the whole mammal kingdom, making the ligaments as former tendonous parts of muscles.

PRODUCTION OF CRANIAL STIGMATA.

It is easy to understand how a microcephalic for simple anatomical reasons, would have a rudimentary mental life, but not so easy where the cranial volume is exaggerated. The volume is not however necessarily connected with the encephalic development. Certain affections may occur during gestation, or early infancy and give rise to inflammation, which causes eccentric pressure. The bones shape themselves according to the adjacent substance in the first period of life, resulting in an abnormal development, sometimes lessening, sometimes increasing the volume.

RELATIVE VALUE OF PHYSICAL STIGMATA.

All physical stigmata vary in their value as signs of degeneration. Those which are the most localized or superficial indicate less serious alterations of the nervous system. Thus the anomalies of the pavilion of the ear are frequent in normal persons.

Stigmata are more serious in proportion as they are more profound and more numerous. But as we rise in the scale of degeneration the physical signs lose more and more their importance are inconstant and more often ab-

sent and seem not to have any correlation with mental troubles. Thus in idiots, cretins and imbeciles physical stigmata are of more value, till we reach the superior feeble-minded, when psychological signs take presidence in significance. The stigmata of degeneration should be distinguished from deformities, coming from mechanical accidents of gestation, congenital amputations, etc. But they are not to be differentiated from certain pathological deformities due to diseases of the last period of gestation, or of early infancy.

We will now give what are regarded by leading authorities, as the physical stigmata of degeneration, as they appear in different parts of the body.

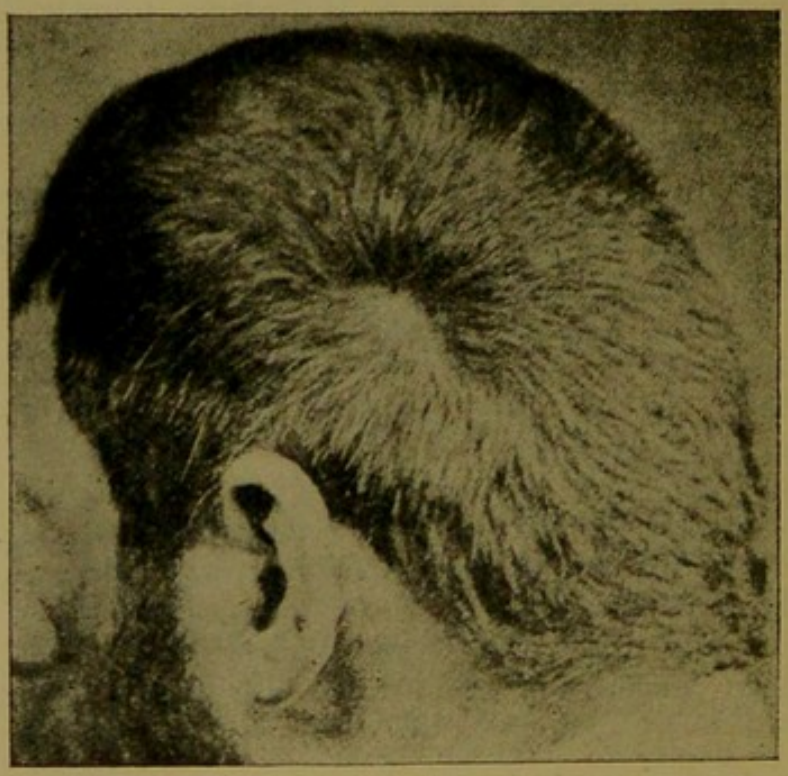

Fig.

CRANIAL STIGMATA.

The slowness of ossification of the fontanelles is frequent in degenerates. Microcephaly is generally produced by an arrest of development of the cranium as a whole. Macrocephaly can be in the form of hydrocephaly. Macrocephaly is more often the consequence of defective development of the osseous system in general.

Malformations of the cranium considered pathological by some authors might be due to defects of development of the sutures. Plagiocephaly or an oblique cranium, can be the result of a lateral decubitus, or it can be produced by the premature ossification of the coronal sutures.

Scaphocephaly is due to a premature soudure of the sagittal suture, making a keel-shaped head, resembling a boat upside down. Acrocephaly (sugar loaf head) is due to the premature synostosis of the two coronal and sagittal sutures. Trigonocephaly is due to a premature synostosis of the metopical suture, having the form of a triangle.

The hairs near the vertex form a little turbillon or vortex (Fig. 1), which is rarely in the median line, but it seldom deviates more than 25 to 30 millimeters. In degenerates, these deviations may be much greater.

The asymmetry of the volume of the cranium usually coincides with the asymmetry of the face, which is characterized by the different orbital capacity and by the unequal projection of the orbital arches and malar bones.

The exaggerated projection of the upper jaw and teeth is prognathism. The lower jaw may be large, as is claimed to be the case in criminals.

The presence of two round bosses (generally developed) is regarded as a symptom of hereditary syphilis. This is called naticephaly. Extreme prognathism can be accompanied with a depression of the root of the nose and a parting of the narines giving the appearance of bestiality with a similar physiognomy.

Another stigma is the lemurian apophysis of Albrecht which consists in the protecting of the angle of the jaw over its lower border

EAR STIGMATA.

The ear seems to have attracted special attention. There is the absence of pavilion with or without malformations of the middle and internal ear. But more often it is partial absence of pavilion. The lobe is sometimes wanting. The stigmata may consist in volume, the ear being too large or too small, or in its direction, as standing out prominently (Fig. 2).

The most numerous anomalies are found in the concha. The root of the helix, instead of rising from the base of the concha projects throughout the whole extent of the cavity dividing it into two cavities. The root of the helix may be doubled, or with the root of the antitragus may form two parallel projections, filling the cavity of the concha.

Sometimes the helix exists only in its ascending part; the outside border of the pavilion is wanting and the navicular fossa is more or less effaced. Often the ear without border is very large.

Fig. 2.

The Darwinian tubercle varies in its position on the border of the helix; sometimes it is double (Fig. 3).

The antehelix can be effaced or form a projection greater than that of the helix. The tragus is sometimes reversed, sometimes doubled.

If the concha is very deep with a small pavilion, the ear has the form of a comet. The lobe sometimes is wanting, as in monkeys. It presents numerous anomalies of volume and form. It may adhere to the cheek (webbed ear).

The form of the ear may vary with age.

EYE STIGMATA.

The eye can have prominent orbital arches. Sometimes the eyes are very near together as in the monkey, giving to the face some resemblance to a bird of prey. Sometimes the eyes are very far apart. The slit between the eyelids may be broad, leaving the eye uncovered, or it may be narrow so that the iris can scarcely be seen. This slit or fissure may be more or less rectangular, sometimes straight, or oblique.

The eyelids may be wanting, or adhere to each other, or to the ball of the eye.

The cartilages forming the palpebral framework may be undeveloped, taking away the support of the lids, and thus causing them to be soft, and in folds and resulting in a congenital entropion (inversion of eyelid). The conjunction may present a permanent vascularization, or an anomaly of a fold of the

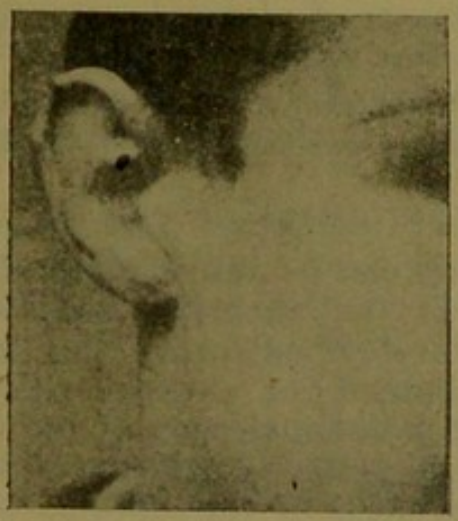

Fig. 3.

conjunction like a membrane over the eyeball, a sort of rudimentary third eyelid. One may observe colored spots, or certain vascular dilatations, or little pimples constituting congenital pterygion (hypertrophy of the conjunctiva).

The eye-ball may project out (pop-eyed), or sink into the orbital cavity and be hidden under the orbital arches and present a sickly or wild appearance.

Another degenerative stigma is an ophthalmia (imperfect development of the socket of the eye). This on account of its close ana-

tomical connection with the brain may be concomitant with, or accompany general cerebral troubles. Sometimes there is a simple reduction or shriveling up of the eye.

The eye-ball may be especially hard and the intraocular tension exaggerated. This sort of congenital glaucoma is due to the same causes which provoke hydrocephalus and a hydro-ophthalmia.

Some of the malformations of the iris are congenital divisions more or less marked in its circumference, the colomba of the iris, or the iris may have several openings (policoria); or it may be pierced at its centre, so that the pupil is displaced (corectopia). There may be a series of indentations in the circumference of the pupil (discoria), or there may be no opening or perforation (acoria). Sometimes the pupil is obliterated by a thin vail, there being defective resorption of the tissue. Another anomaly is the existence of many different colors on the surface of the iris, or absence of pigment presenting a white aspect in this region (albinism).

Asymmetry of the iris is a frequent stigma constituting congenital unequalness of the pupils.

STIGMATA OF THE NOSE.

The nose can be wanting entirely.

Some of the anomalies of the nose are a want of development in its bony frame called nasus aduncus, or excessive development, lateral deviations, absence of septum, atresia of the nasal fossa, asymmetry of the nostrils due to deviation of the septum.

Contraction of the nasal passages, causing troubles of breathing often influence the power of attention and through this the intelligence.

Another stigma is the depression of the root of the nose, or on the contrary the prominence or projection giving a vague impression of a horn implanted there. There is the flattening of the nose, the sinking in of the root; the end of the nose is raised up (snub-nose). The nose may bend to one side throughout its whole length or more frequently, the deviation is confined to the lower part. The nasal passages may be narrow. Here atresia is most often found. A nasal

fistula may persist; or there may be hypertrophy of the vomer alone, which can impede respiration.

STIGMATA OF THE MOUTH.

The mouth can be too large or too small. The coincidence of congenital macrostoma (fissure of the lips) with fibroid cartilaginous preauricular tumors, indicates that these two stigmata are due to trouble of development of the first bronchial arch.

The lips can be too short leaving the teeth exposed as the incisors and canines forming a prolapsus; or too thick forming a sort of cushion on the front of the mouth (normal in negroes). Sometimes the lower lip is completely reversed forming an ectropion.

There may be also extrophy (turning out) of the upper lip; hare-lip, reminding one of certain rodents. Cleft palate often accompanies hare lip. The hare lip follows the deformities of the nose.

STIGMATA OF THE PALATE.

The palate may be asymmetrical, high and narrow, flat-roofed, horseshoe shaped and gothic.

The narrowness of the palate indicates an arrest in development of the upper jaw, involving often irregularities in the teeth. Sometimes the tonsils are absent.

The anomalies of the upper jaw, the palatal arch and the lips are interesting to consider in relation to the embryo of the chicken when one sometimes sees the malformations of the upper bill united with the malformation of the brain.

STIGMATA OF THE TONGUE.

The tongue can present an exaggerated or diminished volume, where in the latter case especially it is connected with difficulties in articulation. It may be too large for the mouth and so project out as in cretins.

Anomalies of form consist in asymmetry in the bifidity of the point of the tongue and of the median fissure of the upper surface, which coincide sometimes with the perforation of the palatal arch, velum and hare lip. One may note certain cysts at the base of the

tongue and in the hyoidean region vestiges of the thyro-lingual canal.

STIGMATA OF THE TEETH.

The teeth may be undeveloped, or prematurely developed, where in the latter case, the first teeth may remain. There may be anomlies in number, volume, form, location and direction. A congenital absence of a certain number, even all in the lower jaw, may occur. The separation or disjunction of the upper and lower incisors should be mentioned.

The erosions of the teeth occur at the time of their formation, and are due to nutritional troubles. In hereditary syphilis the first large molar, in which calcification commences about the sixth month of fetal life, is the most frequently attacked; then came the incisors where calcification begins about the first month after birth.

The teeth are sometimes so extremely deformed as to be unrecognizable. They may be so large as to prevent the mouth from shutting, or so small as to be scarcely visible, or very irregularly implanted, or instead of pointing vertically up and down project forward or backward, or turn upon themselves, or appear as twisted upon their axis.

STIGMATA OF THE TRUNK.

In the neck there may be a goitre more or less developed, accompanying especially mental decay as in cretinism. Sometimes the thyroid gland is wanting.

The thorax may be much inclined forward; this stigma is often connected with scoliosis. The thorax may be greatly compressed laterally and the sternum projected forward; or there can be simple thoracic asymmetry; the thorax may be funnel-shaped. One part may be more developed or differently and unequally developed than the other. There may be depression at the xiphoid (sword-like) appendix, or the borders may be more or less abrupt causing a thoracic and abdominal malformation. There may be a vertical depression extending its whole length like a groove. The volume may be out of proportion to the abdomen. The thorax may be flattened in its different diameters. The

shoulders may droop. An arrested development of important muscles may bring to light the embryonic origin of certain malformations. Among epileptics there is frequently a hyperostosis of development at the external extremity of the clavicle.

In the vertebral column there may be a prominence of the spinal apophyses with a contour resembling that of the monkey. Or there may be deviations of the column, as kyphosis, lordosis, scoliosis; or the spina bifida. There may be a malformation of the coccyx like a rudimentary tail suggesting an atavistic regression.

The pelvis may be narrow, flat and deformed. The breasts may be supernumerary, occupying the latero-mammal, hypogastric or inguinal regions. The supernumerary breast is often a simple nipple, which in turn can be the seat of numerous anomalies.

HERNIAS.

Hernias are frequent in degenerates, all hernias are due to an arrest of development of the abdominal wall, the traces of which are sometimes found in a normal state in animals near to man. Extreme weakness of the abdominal walls is considered as an anomaly in all races.

THE MEMBERS.

The anomalies in arms, hand, legs, and feet are those of form and proportion. Supernumerary fingers (polydactyly), webbed fingers (syndactyly), absence of fingers (extrodactyly) are important anomalies of form. Those of proportion may consist in the arms being too short, or too long (most frequent). In the latter case the span of arms or length of reach is notably greater than the height. Similar disproportions are observed in the lower members. When the legs are too long they are often slender, making the individual resemble a wading bird, a characteristic of infantilism and of the eunuchs. Excessive development in length of legs is observant not only in neurotic degenerates, but in consumptives. When the limbs are too short, they are oftener very thick.

The fore-arm, as compared with the arm, is very long as is normal in lower races.

In epileptics there is a congenital malformation of the ulna.

STIGMATA OF THE HANDS.

The thumb has a double nail. Disproportions of fingers and toes are to be noted (Figs. 4, 8). There may be an absence of a phalanx of a finger, a union of two phalanxes, a short

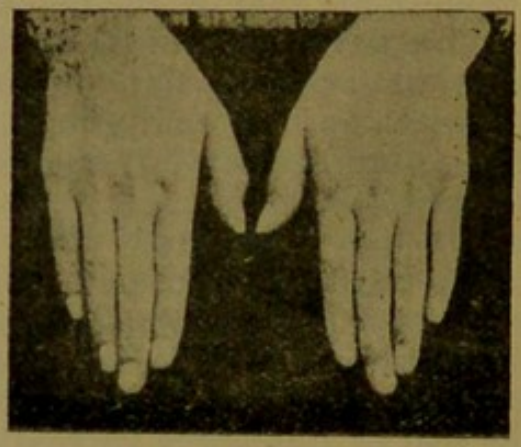

Fig. 4.

metacarpal or metatarsal; or many fingers may be short. Disproportion of the fingers can be very marked. The fingers are compared in length with the middle finger. Thus in the normal hand, the index finger reaches to where the nail emerges from the middle finger, the ring finger

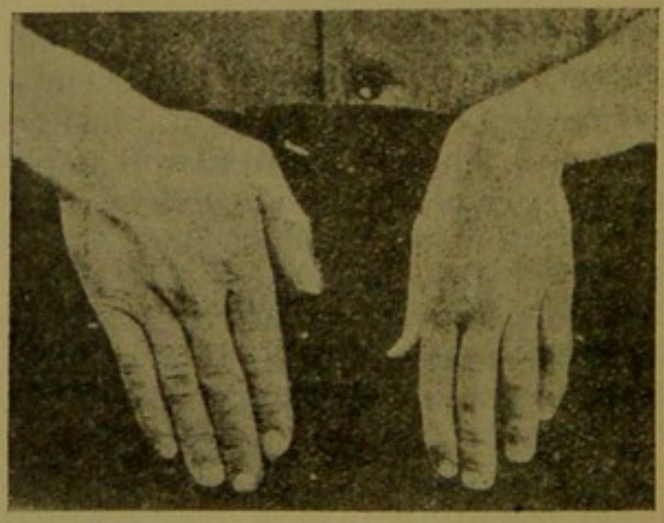

Fig. 5.

reaches to about the middle of this nail; the little finger stops at the last articulation of the ring finger; the middle finger is longer and larger than either the index or ring fingers. In the abnormal hand of de-

generates, all the fingers are often too long or too short. The shortness is more common in profound degeneracy. The most common anomaly is defect in proportion of one or many fingers. Most often the ulnar border of the hand (Fig. 5) is defective; the little finger and the ring finger are too short, or the ring finger has not its normal length compared with the middle finger, while the little finger maintains its proportion to the ring finger. Or the little finger is too short in comparison with the ring finger, already too short. The defect of the little finger is made still more marked where its second phalanx is bent, resembling the little toe. The third phalanx of the little finger may bend towards the ring finger.

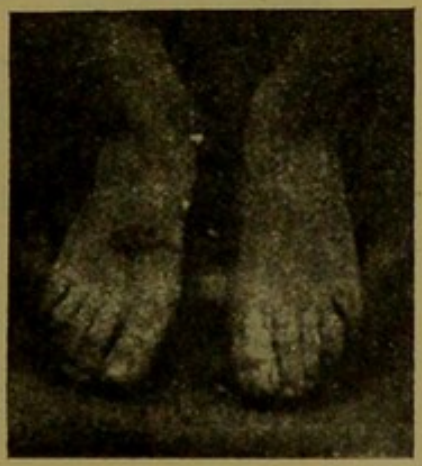

Fig. 6.

Sometimes the ring and little fingers are not only short but very slender; this defect sometimes is accompanied with very marked weakness of the two last fingers, normally more feeble and particularly troublesome for pianists.

The thumb is most often too short, due to the small development of its little phalanx.

The decadent hand in connection with defective ears and eyes may be significant. Sometimes all fingers, except the thumb are united together into one piece, called the claws of the lobster.

STIGMATA OF THE TOES.

Most of the anomalies of the fingers appear in the toes (Figs. 6, 8). If the second toe be shorter than the first, this may be due to

the shoes, since it is not the case with ancient peoples. In epileptics the predominance in length of the second toe occurs in 45 per cent, while in people in general it is 10 per cent. Hammer-like toes and lateral deviations of toes are frequent in degenerates. The infantile foot, where the toes tend to be uniform in length, is found in idiots and imbeciles. There is the club-foot, considered by some as the result of evolution trouble, but by pathologists as the consequence of medullary lesions. Sometimes club-foot is coincident with defective knee-pan, polydactyly and absence of great toe. Deviation outward of great toe (hallux valgus) can be considered as an anomaly of development.

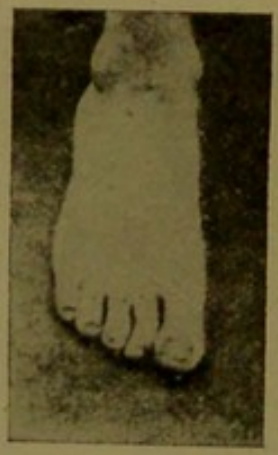

Fig. 7.

Sometimes club-foot is due to injuries of pregnancy. Flat foot appears to be more frequent in degenerates than in normal people.

Excessive volume (meglomelia) or excessive meagerness (oligomelia) of the members quite frequently are anomalies of development.

The thinness of the members is often attributed to the want of exercise, but one finds this as well in children of the alcoholic workman, as in those of the aristocracy, degenerated through other vices, or simply by defective crossing in marriage.

Anomalies of articulation, congenital dislocations of the shoulder, absence of knee-pans, articular laxity, congenital ankyloris lateral deviations of the articulations and knock-knee (genu valgum) are stigmata of degeneration.

STIGMATA OF THE GENITAL ORGANS.

In general sexual characteristics tend to be changed and effaced, and differences between the sexes become less marked in degenerates.

Insufficient development of genital organs is noticeable. Excessive development is usually due to morbid habits or pathological alterations.

The testicles may be very small (micro-orchides) or there may be inguinal or abdominal ectopia, morbid displacement, the different inversions, varicocele, or cysts of the epididymis.

There may be atrophy or hypertrophy of the penis; or swelling at its lower extremity, found mainly in mastibators. There may be torsion on its longitudinal axis, or a tend-

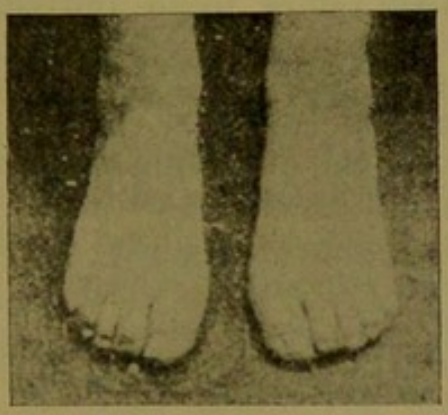

Fig. 8.

ency of the orifice of the meatus, to be doubled or present fistula, or the organ may be imperforated or too narrow, or bent down (hypospadis) or up (epispadis). The prenum is frequently short, and thus may impede coition and fecundation. The prepuce can be wanting, too long, or too narrow, constituting congenital phimosis. The penis can be united to the scrotum by a fold of the skin, forming a sort of vail, like to the membrane in webbed fingers.

The scrotum, in certain degenerates, has a median fissure, a vestige perhaps of arrested embryonic development.

In woman, the labora may be large, simulation a scrotum; a large clitoris can have the appearance of the male organ. Imperforation of the vulva, transverse or vertical closing or partitions of the vagina and double-

ness of its external passage, all these may be present.

There may be congenital atresia of the vulva rendering coition impossible, and absence of vagina or hymen.

DIFFERENCE BETWEEN THE SEXES.

Certain degenerative stigmata unite in one individual the attributes of both sexes. At the end of the embryonic life the embryo is neutral and we cannot say to which sex it belongs. The differentiation begins later.

In the general conformation of the body irregularities appear, such as masculinism, feminism, infantilism, androgynism and hermaphrodism.

MASCULINISM.

Masculinism refers to an individual possessing the fundamental sexual characteristics of a woman, and at the same time certain secondary sexual characteristics of the masculine type, as the development of hairs over the body, small breasts, narrow pelvis, etc.

The masculine woman's head has somewhat similar measurements to the men's, and is much larger than in woman.

The shoulders may be large and pelvis and breasts little developed, there is a strong voice, masculine gait and taste for man's vigorous exercises and habits, and little inclination to feminine pursuits.

FEMINISM.

Feminism in man on the other hand is characterized by masculine genital organs, little developed, feminine attitude and gait, large pelvis, prominent hips, breasts of considerable size, abundance of subcutaneous fat, delicate skin, covered with few hairs, soft voice, morbid emotion and no sexual desires or perverted ones.

ANDROGYNISM.

But there are individuals with only a partial inversion of sex, called androgyns, who are not wholly hermaphrodites. The male or female androgyn shows defect in harmony between the accessory characteristics of the pelvis and hips, breasts and hairy system.

The male androgyn has a large pelvis and developed breasts and no beard. The female androgyn has a narrow pelvis and a little mustache. But these types are distinguished from masculinism and feminism, in that, while the feminine man has large shoulders, the masculine woman has narrow shoulders.

INFANTILISM AND NANISM.

Infantilism is a physical youthfulness manifesting itself only at a certain age of adolescence; there is a retardation of development principally in the organs furnishing the fundamental or accessory characteristics of sex.

Nanism on the other hand is defect of general development. One sees very tall youths who hold the characteristics and trait of infancy, until adult life. This is due to incomplete development of puberty.

Female infantilism is characterized, not only by little development of uterus, ovaries and breasts, but also by complete absence of pubic hairs.

In infantilism the development of the hairs upon the skin is defective. The hair of the head remains fine and downy, the nails are very thin; the milk teeth remain, and second dentition develops slowly, as do the genital organs and voice. All infantiles, whatever their physical development, are intellectually backward.

SKIN STIGMATA.

Certain varied colorations of skin are seen ranging from rose to dark red or violet or chocolate brown. Such are the different noevi due to dilatation of the superficial capillary vessels. Vetiligo, due to pigmentary trouble, may be mentioned; also melanism (change in coloration) albinism and ichthyosis.

There is a frequence of symmetry in the arrangement of the papillary lines on the pulps of the fingers and thumb and a relative frequence of most simple forms.

The hair of the head and hairs on the skin, throughout life may have a languid appearance, an extreme fineness, like on the newly born child. In both sexes the hairs can be

rare and little developed over the parts where they appear at the time of sexual evolution. In the man, hairs may be wanting on the face and chest (feminism), in woman they may reach some development in these regions.

The development of the hairy system in woman may be regarded as a regression. There may be a complete coloration of skin (albinism), or a partial coloration (vitiligo). Or there may be abnormal and superabundant hairs over all the body (polytrichosis) or over certain parts as the lumbar region, or lower limbs (hypertrichosis).

The anomalies of the nails, especially when very thin or in a fetal condition, or absence of nails may be regarded as stigmata.

FUNCTIONAL STIGMATA OF DEGENERATION.

Arrested, retarded or anomalous functions may be regarded as stigmata. Slowness in learning to walk which appears to be connected with retarded evolution of the pyramid is a stigma.

ANOMALIES OF SPEECH.

Defects of speech are stuttering, stammering, speaking through closed nose, open nose, lisping, deaf-mutism, dullness of hearing.

Defects of speech increase with age. Very few children acquire defects of speech in later life. The majority of children with such defects are backward in mental development.

Stigmatism or defective enunciation of sibilants may depend upon hereditary abnormality of location of teeth.

Bradylalia (slow and labored speech) exaggerated rapidity of speech, embololalia, anomalies of voice and nasal sounding voice are stigmata.

ANOMALIES OF MOVEMENT.

Anomalies of movement are tics, tremblings, nystagmus (rotary movement of eye) retardation or absence of regulation of certain reflexes, incontinence of urine, merycism (rumination) which is sometimes hereditary and often manifested by the insane and idiots and in those predisposed to epilepsy and hysteria. Pavy disease and cyclic albuminuria are stigmata.

ANOMALIES OF GENITAL FUNCTIONS.

The anomalies or stigmata of the genital functions are retardation of puberty, of sexual instinct and appetite, genital reflexes and seminal losses.

In degenerate families the stature varies more or less, often tending to nanism in the boys and gigantism in the girls.

The anomalies of menstruation, menstrual deviations, and especially total amenorrhea indicate uterine and ovarian anomalies. Habitual miscarriage is often connected with uterine malformations and uterine infantilism. Absence of lactation indicates also anatomical anomalies, especially insufficient development.

Congenital sexual perversions and especially sexual inversion are stigmata.

SENSORY ANOMALIES.

Sensory anomalies are daltonism (color-blindness) ackromatopsia (complete color-blindness) nyctalopis (day blindness), indicating anomalies of structure.

Defects in acuteness of sensibility, as analgesia and disvernerability are stigmata.

Anamolies of sleep are insomnia, somnolence or prolonged need of sleep and narcolepsy (attacks of sleep).

VASO-MOTOR ANOMALIES.

These are morbid emotions, as explosiveness, often connected with exaggerated reflexes; tendency to blush for the least cause, often on only one side of the face. This may be considered a vascular anomaly of the skin, and is often hereditary.

Vasomotor reactions present frequent variation of temperature in degenerate children, and intense reaction upon slight physical trouble. Susceptibility to eruptive fevers, marked taste for excitants, drooping of the upper eye-lid and rotation of the pupil downward are signs of degeneration.

Left-handedness, a congenital aptitude, infantile symmetry of all movements (synkinesia), the disease of von Wayenburg and a tendency to hemorrhage are stigmata.

One of the most frequent functional stigmata is incapacity of sustained effort.

POST-MORTEM STIGMATA.

There are doubtless a very large number of stigmata hidden during life, which might be brought to light at the autopsy table. They are the congenital malformations of the internal organs. There would be however, great difficulty in distinguishing that which is congenital from that which is due to pathological troubles during different periods of life.

Some visceral anomalies as inversion of the viscera, anomalies of the heart (cyanosis) and its vessels, ectopic (morbid displacement) of the kidney, spleen and uterine deviations due often to arrested development of walls, might be regarded as stigmata. Some consider moving kidney which otherwise may coincide with other anomalies, as a stigma of degeneration. Certain formations of congenital origin, as paraovarian cysts, tumors of Rosenmuller's organ, cysts of Gaertner's canal and dermoid cysts of the ovary may be considered as stigmata.