These tumors are not easily confounded with any other variety of tumor, as the vertebral laminæ may be felt to be ununited in every true case of spina bifida. Rare instances of congenital hernia dorsalis, cysts, adipose and honey-like tumors (Honiggeschwülsten), are reported as curiosities in medical literature, as having been met with upon the spinal column, and calculated to mislead one into regarding them as cases of hydrorrhachis. The extraordinarily rare condition of intrafœtatio, a fœtus within a fœtus, where a large formless tumor with a few bones is found situated upon the sacrum, has naturally no analogy whatever to the condition under consideration.

Therapeutics.—Surgeons have tried countless varieties of methods with the hope of bringing about a diminution of the tumor, and closure of the spinal canal. The almost invariable failure of all surgical procedures is due to the fact that the inner wall of the sac is formed by the spinal arachnoid membrane, and that any injury of this membrane is apt to produce meningitis, which cannot be limited to the sac. The tumor has been repeatedly punctured with exploring trocars and pierced with needles after forming valvular openings in the integument. Lately *Gaupp* presented a boy seven years old, who had a hydrorrhachis the size of a child's head, which he had cured in the first few weeks of infantile life by puncturing it eight times. After the first puncture, the fissure of the vertebræ could be distinctly felt, but the gap rapidly diminished, and finally closure took place in ten weeks. All the parts constituting the vertebræ are now present in this boy, but the spinous processes are somewhat flattened. Excision, with the subsequent use of compression by quills or small wooden rods, has been tried. *Chassaignac* treated these cases by puncture and injecting iodine, as in a hydrocele, and the pediculated variety has been tied off. Finally, constant, steady pressure upon the tumor by a hair pillow has been tried, but, although this method caused great pain and convulsive twitchings, it did not effect a single cure. All experimenters have been obliged to acknowledge that their efforts have failed, nay, still more, that meningitic symptoms, which are always followed by death, came on immediately after the operation. Though the prognosis of hydrorrhachis is at best very unfavorable, most children dying even without operation, still, owing to the rarity of this condition, statistics upon this point are scarce, and it is therefore difficult to determine which of the two courses it is best to pursue.

The most rational treatment, it seems to me, is to protect the sac from all kinds of injury and pressure, by a soft, cup-shaped pad which will only rest upon its margin, and which is secured to the body by elastic straps. If the hydrorrhachis is complicated with congenital hydrocephalus, as is frequently the case, then no other means

should be adopted than that just described, for every diminution and compression of the tumor causes tension within the head.

C.—*DISTURBANCES IN THE NERVOUS FUNCTIONS.*

A number of functional diseases of the nervous system are probably only symptomatic of morbid alterations of the brain and spinal cord, if we may judge from the analogy between their individual phenomena and those of diseases whose pathological alterations are known. The corresponding morphological or chemical alterations of the nervous centres, however, have not yet been demonstrated, which is attended with great difficulty on account of the circumstance that most of these nervous diseases terminate favorably, and *post-mortem* evidence, therefore, is rarely attainable. As the demonstration of the cerebral morbid processes has not yet been accomplished, we have no other resource but to assume that the brain and spinal cord are in a normal condition, and to delineate symptomatically the individual phenomena, with their acquired denominations.

(1.) Eclampsia Infantum (Convulsions).—Convulsions in children have long been well known, even to the laity, and form an important class in the diseases of children. They are known by many names: tremor of the head, silent tremor, silent wail, shudderings, spasms, and cramps. These all refer to the same disease, and are characterized by general or partial clonic twitchings of the muscles, and generally caused by some other febrile disease. Consciousness is almost or wholly gone, particularly when the convulsions are general. The single attack cannot be distinguished from an epileptic attack, but epilepsy is characterized by its chronic course and unexpected recurrence, and freedom from fever. From chorea, eclampsia is distinguished by the fact that the muscular contractions in the former continue incessantly throughout the day, and even for several weeks before the affection is relieved, and that the general condition is not affected by it. As regards the period of life at which convulsions most frequently occur, childhood, up to the completion of the first dentition, is the most common; still, even older children, who at an earlier age have suffered from eclampsia, are attacked with violent convulsions at the commencement of an acute attack of an exanthema, even of an angina, or from an overloaded stomach. The milder, partial tremors in most instances last for several days, and reoccur frequently, especially in young children, in consequence of disturbed digestion. The general convulsion, to which alone the term eclampsia ought to be restricted, is not a protracted affection, it being either terminated in a single attack, or, after several paroxysms, always at certain intervals.

The following symptoms are those generally seen in children under one year, who are attacked by the milder form: The child sleeps with half-closed eyelids, the ball of the eye is turned upward, and nothing but the white sclerotica can be seen through the palpebral fissure. The muscles of the face, during sleep, are contracted in various manners, whereby it may seem as if the child were smiling (risus sardonicus), or, as some astute nurses say, "The child is playing with the angels." The breathing is rapid and irregular, sometimes superficial, and sometimes again accompanied by deep sighs; the limbs tremble and twitch, the hands are clinched, and the lower extremities, with the toes sprawling, are contracted against the body. From a restless sleep of this kind, the little one now awakes, frightened, with a cry, and manifests its discomfort by kicking, curving and twisting of the whole body. After expelling some intestinal gas, often with stools of green mucus, and very offensive, and sometimes vomiting, rest and general perspiration, as a rule, ensue, but often restlessness remains for some time. This condition may last many days, and recur several times a day at short intervals. Most of the children become feverish, and, owing to defective nutrition and constant muscular action, the face becomes emaciated and pointed. The more serious form, the true eclampsia infantum, manifests itself as follows: Generally the severer symptoms do not come on at the very beginning with the greatest intensity, but are usually preceded by the class of symptoms already detailed, which also vary according to the age of the child. Obedient, good-natured children become wilful, morose, choleric, are apt to be attacked by muscular twitching during sleep, gnash their teeth, and wake up frightened, with an anxious cry. The eyeballs are rolled upward, the lids are not completely closed, the angles of the mouth are contracted into an unpleasant risus sardonicus, and the general state of the system is always somewhat perturbed. The patients are suddenly attacked by the paroxysm, both when asleep and when awake, and it is impossible to distinguish it from an epileptic fit.

They suddenly become completely unconscious; squinting or an unsteady rolling of the eyeballs sometimes comes on, butusually the eyes are fixed and staring. The facial muscles are attacked by the most varying twitchings; sometimes a smile plays over the face, and sometimes again an expression of anger or displeasure, which, conjointly with the exposed teeth, gives the patients an appearance of beastly ferocity. The jaws perform various acts, such as masticating, snapping, etc., accompanied by gnashing of the teeth. Fluids poured into the mouth excite very imperfect acts of deglutition, and the greater part flows out again. By this time the convulsions have involved almost all the muscles of the body. The muscles of the back are in a state of tonic contraction, or are affected with tetanic twitchings; the extremities perform the acts of striking, thrusting, or twisting; the respiration becomes very irregular, and, in consequence of spasm of the glottis, may stop altogether. After a few whistling inspirations, the breathing is suddenly suspended, and death may ensue in a few minutes, if the spasm does not subside. As an effect of the impeded respiration, we may have bleeding from the mucous membrane of the mouth and nose; but the bloody froth that is usually seen between the lips is oftener due to injuries of the tongue or mucous membrane, which frequently occur during the snapping, biting movements of the jaws, or may be produced by the numerous attempts of the relatives to prevent them. The heart contracts very rapidly, but not unrhythmically. The stools and urine frequently pass off involuntarily. The temperature of the skin on the body is normal, on the extremities is apt to be diminished, and, toward the end of the attack, a perspiration usually breaks out. The sensibility of the skin is so completely abolished that the patients cannot be roused to consciousness by any means, not even the most painful irritants, and they often hurt themselves during their convulsive movements.

The entire train of symptoms here presented is hardly ever observed in one attack; some of them may be absent, without making the paroxysm a mild or an incomplete one.

Such an eclamptic fit lasts for only a few seconds, or, at the most, minutes; paroxysms that last longer than this are due to serious organic lesions of the brain, and should be distinguished from eclampsia. A similar condition ensues after the termination of the convulsions as after an epileptic fit. The patients are semi-comatose and exhausted, the fever increases, the eyes become injected, cerebral symptoms supervene, the appetite is gone, and nurslings will not even take the breast.

Formerly, when the antiphlogistic treatment was much more liberally employed in children, a distinction between eclampsia cum hyperæmia and cum anæmia was made, and the therapeutic measures were accordingly distinct. In the former, phlebotomy and subsequently leeches were used; in the latter, these remedies were not employed. Now, when abstractions of blood are not so much in favor, this distinction is of less value; in fact, we have learned that pale, anæmic children are as liable to be attacked by convulsions as robust and plethoric ones.

Theoretically we distinguish, in addition, (1), an *idiopathic*, i. e., an eclampsia issuing directly from the brain; and (2), a *deuteropathic*, i. e., one reflected to the brain from a diseased organ. Practically, this

distinction is often impossible, and we remain uncertain, even after a long observation of the case, which kind of eclampsia we have to deal with. The autopsy alone can clear up this obscurity.

Etiology.—(1.) *Idiopathic eclampsia* may be produced by mechanical compression of the head during delivery, by pathologically demonstrable alterations in the brain, particularly tuberculosis, or by nutriments and medicines, as spirituous liquids and narcotics, acting directly upon the brain, and by insolation. Children with a soft occiput are more disposed to convulsions than others, a detailed description of which will follow in the article on rachitis; they may, however, also originate from direct cerebral irritation, for example, from pressure from without. Mental over-exertion is also advanced as a cause, but it is certainly the rarest of all the causes. Violent fright, great anxiety, and vehement outbursts of anger, are perhaps the most probable ones.

(2.) *Deuteropathic* or *sympathetic eclampsia* is by far the most frequent form, and the intestinal canal the source from which reflex convulsions oftenest arise. The intense irritability of the primæ viæ in all ages of life furnishes the greatest opportunities for them. They may even be occasioned in the first few days after birth, by the retention of the meconium, but at this age there may always be a suspicion of a mechanical injury to the head during the act of delivery.

There is also a peculiar, chemical, unexplained cause, namely, the milk of a wet-nurse, who, shortly before, had been subjected to some mental excitement. Instances have been reported of children, previously perfectly healthy, having been attacked, soon after taking such milk, by short but violent convulsions, which terminated in sudden death; and at the autopsy no cause whatever could be found. These cases, however, are so rare, in comparison with the many cases in which such mental excitement on the part of the wet-nurse is not followed by such results, that this supposed cause has been justly doubted. On the other hand, however, those evil effects, produced by an artificial nutrition, from which intestinal catarrh follows, and in the train of which milder and more serious cerebral irritation must sooner or later ensue, cannot be doubted. These have been seen to occur with their greatest intensity at the period of weaning. Such children suffer first from flatulence and colic, afterward are attacked by a diarrhœa of green-colored and fetid stools, and vomiting; they become very restless and feverish, and, finally, convulsions ensue. In other cases the latter are not preceded by diarrhœa, but, on the contrary, by constipation and loss of appetite. In older children, indigestion and the irritation produced by worms merit particular consideration.

An additional cause, and one that deserves to be well attended to,

is found in the *eruption of the teeth*. This process is generally complicated with digestive disturbances, and hence these may be regarded as the prime cause of the convulsions. But there occur cases in which the digestion is entirely undisturbed, and the reflex convulsions therefore have to be explained by other causes than the inflammation of the mucous membrane alone. To authorize the opinion that dentition is the cause in any case, the child must be in one of the five periods of dentition. The mouth will then be reddened and hot, the mucus is often secreted in less quantities than in the normal state, one or the other cheek is dark red in color, it is very restless, and bites at every thing that comes near the mouth, even the nipple of the wet-nurse. Eclampsia, originating from dental irritation, belongs to the serious forms, and often leaves behind it partial paralysis and imbecility.

A third principal cause of convulsions is the *breaking out of an acute febrile disease*, particularly an acute exanthema, where the convulsions in children seem to be analogous to the chill of fever in adults. These eclampsiæ are attended by very little danger, are of short duration, and rarely followed by pernicious consequences. This cause may be conjectured with tolerable certainty when eruptive diseases, which the child has not yet experienced, happen to prevail epidemically, and the prodromata of such an exanthema have manifested themselves. If it be measles, there will be cough, sneezing, and lachrymation. If scarlatina, there will be angina, with difficult deglutition. If small-pox, persistent headache, pain in the back, and violent fever. Often, however, no prodromata at all are observed, and only the course of the disease explains the cause of the convulsions. Among the acute diseases to be mentioned, besides the acute exanthemata, are pneumonia, intermittent fever, and fever following injuries and operations and simple anginæ. A male child was once placed under my care who suffered two or three times every year from intense angina, and in the first day of the illness an eclamptic fit invariably took place which was not distinguishable from epilepsy. I finally extirpated both tonsils, and the eclampsia, or, as the afflicted parents supposed, the epilepsy, has not recurred during the last two years.

Finally, cases are also reported, especially by the older writers, of convulsions said to have originated after the rapid healing of *profusely-discharging eruptions*. Some remarks have already been made, when on the treatment of acute hydrocephalus, concerning the connection between the latter and humid eruptions of the head, and it cannot be denied that, in the rapid healing of external suppurations, the internal organs, and consequently the brain, are subject to the danger of becoming inflamed. On the other hand, we must also acknowledge the fact that

many hundreds of cases of impetigo disappear rapidly, either spontaneously or by treatment, yet the children remain as well as before.

The *inheritability* plays a certain *rôle* in the etiology of this disease. The parents, as a rule, have suffered from this affection, and the mothers, in particular, are hysterical and repeatedly afflicted with hyperæsthesia. *Bouchut* relates the history of a family of ten persons, all of whom suffered in their youth from convulsions. One girl of this family married, gave birth to ten children, and nine of these suffered from eclampsia.

Course, Termination, and Progress.—Partial muscular contractions, the so-called convulsions (Fraisen), may be protracted for many days during an acute affection, without very greatly augmenting its danger. The genuine eclampsiæ, however, are mostly completed with a single attack, and the very first eclamptic fit may terminate fatally, or the morbid process that caused it may become fully developed on the following day, thus removing the cause for sympathetic convulsions. Those induced by gastric irritation are relieved by vomiting, expulsion of flatulence, or diarrhœal stools; those depending upon toxæmic causes never return after the acute exanthema, scarlatina, roseola, or variola has once broken out.

As has been observed on a former occasion, this kind of convulsions is seldom fatal; nevertheless, it always gives reason for the conjecture that the disease following will be strongly developed and run its course with violent symptoms. In general, the rule may hold good. The younger the child the more critical will be the prognosis.

According to my experience, those convulsions due to dentition and complicated with intestinal affections—excepting those, in fact, depending upon actual cerebral disease, which almost always lead to death—offer the worst prognosis. Such children die either in a fit or are attacked by hydrocephaloid disease and perish. Others live invalids from permanent brain-injury resulting from the convulsive disease. Almost all squinting children, in whom the strabismus cannot be referred directly to a visible defect of the cornea and lens, have suffered from eclampsia in the first years of life. In addition, loss of either one or more of the senses, amaurosis or deafness, imbecility in various degrees, chronic hydrocephalus, and general or partial muscular paralysis, may result from this distressing malady.

Therapeutics.—We must first discriminate between the partial muscular twitchings (the Fraisen) and the general epileptiform convulsions, the true eclampsia infantum. The treatment, moreover, varies according to the age and strength of the child, and it is absolutely necessary to institute a thorough examination in order to get upon the right track as to the cause of the disease. In this examination the

physician must not content himself with the assertions of the relatives, but should personally examine the entire body of the child. For, a splinter in the sole of the foot, between the toes, a foreign body in the nostrils, or in the external ear, may also be the exciting cause, the removal of which will rapidly cure the disease.

In the paroxysm itself the physician can very seldom render any material aid, for the reason that by the time he reaches the house the convulsions have almost invariably passed off, and he has to confine his services to imparting comprehensive instructions with the view of preventing the recurrence of the attacks. The first thing to be done is always to undress the child as quickly as possible, so that no constricting bands or skirts may additionally impede the respiration and circulation. Next the child, with the head slightly elevated, is laid upon a large bed, or on the floor, when the convulsions are so violent that there is danger of injury to the extremities against the sides of the bed or of its falling off. That such children are not to be left alone is self-evident. By sprinkling the face and exposed chest with cold water we may succeed in inducing deep, spasmodic inspirations, by which the danger of suffocation at least is lessened. No other striking abortive effect, however, is usually accomplished by this procedure.

Venesection, suggested by some therapeutists in this disease, is, aside from all other objections, inadmissible, for the reason that it is not possible to perform it during the paroxysm, or at least not without uncertainty and danger, for, when a vein has finally been opened, the aperture is immediately closed again by the contraction of the arms and displacement of the wound in the cutis, and the flow of blood must necessarily be arrested. I may mention here the suggestion thrown out by *Grantham*, to constrict the skull in children whose fontanels are not yet ossified, by firmly bandaging it. I have tried this bandaging of the scalp in two cases, but have derived no benefit in either; on the contrary, such an amount of restlessness was produced, when continued for the long time recommended by the aforesaid author, as a prophylactic, that after a few days it had to be abandoned altogether.

As regards the benefit to be derived from remedies after the attacks have passed, we have to look for that mainly in derivatives. Sinapisms, or, in infants, leaven is applied to the calves of the legs, or these parts are rubbed with mustard spiritus, by which intense redness is almost instantaneously produced. When there is the least suspicion of the existence of gastric irritation, a derivative from the intestinal canal should also be administered. This should only be omitted in children who before and during the fits had had diarrhœa, and had expelled large quantities of flatus. To older children, who shortly be-

fore the paroxysm had taken a considerable amount of nutriment, it is best to give a proper emetic of, for example, *tart. stibiat.* gr. i., dissolved in a strong infusion of ipecacuanha, by which the entire contents of the stomach are soon evacuated. But, where no probable overfeeding, or indigestion, can be ascertained to exist, calomel is to be preferred to the emetic; half of or one grain of calomel is to be given to the child every hour, until a few evacuations have been produced. When constipation is the presumable cause of the eclampsia, a clyster may be administered, even during the convulsions. I have never been compelled to resort to croton-oil in this affection.

Of all the antispasmodics, oxide of zinc, in one to two grains pro die, is the most useful, and best adapted for a prolonged use. It is rather difficult to form an opinion as to the benefit derived from such prophylactics, for the reason that in most cases but one eclamptic fit occurs. Narcotics are not admissible in this disease, because they do not act quickly enough, when administered during the fit, to arrest it, and afterward are apt to induce cerebral congestion.

An after-treatment, by the use of tonics, iron, quinine, and ale, may be indicated, chiefly after eclampsiæ consequent upon gastric and dental irritation.

(2.) Paralysis.—Since central paralysis, produced by diseases of the brain and spinal cord, has already been mentioned in connection with those affections, we still have to speak of what has been called *essential* paralysis of one or more extremities, coexisting with perfect integrity of the nervous centres, and also of the peripheral paralysis of the *facial nerve.*

As regards *facial paralysis*, it is sometimes observed immediately after birth, but, on account of the immobility of the features, it is much more difficult to recognize in the new-born child than in the adult. The lesion does not become noticeable till the child begins to cry; the angle of the mouth on the sound side is then seen to be drawn outward, and the whole healthy moiety of the face is generally thrown into folds, while the paralyzed half remains as immovable as before. When the cause of the paralysis is central, the uvula will also be seen to stand obliquely; in most instances, however, no alteration whatever can be observed on the palate and uvula, as the cause of the paralysis usually lies in the course of the facial nerve. The most frequent cause of the paralysis of the new-born child is to be found in the use of the forceps. In addition to this, it may also be due to a congenital smallness or distortion of the petrous portion of the temporal bone, which occasionally occurs. Later in life, caries of this bone, glandular indurations, and contracting cicatrices in the vicinity of the facial nerve, are the most common causes.

The *treatment* of facial paralysis depends upon its cause, and is effectual only when that is capable of removal. Contracted cicatrices, most frequently the result of scrofulous ulcers, and glandular tumors, may be removed by an operation; on the other hand, paralysis, the effects of caries of the petrous portion of the temporal bone, as a rule, is irremediable.

Essential paralysis of single extremities, very briefly alluded to in the older text-books, is a much more frequent and interesting affection, and has lately been more accurately described by *Heine*, *Kennedy*, and *Rilliet.*

By *essential paralysis* is understood a partial or complete loss of power of motion, and of sensibility in one or more extremities, without any discoverable evidence of its depending upon lesions of the nervous centres. That the central organs have experienced none, at least no material alteration, may be readily concluded from the facts that the paralysis sometimes disappears very quickly, after two or three days, and from the reports on autopsies of children with essential paralysis who had succumbed to other acute affections. *Rilliet* and *Barthez* have had two opportunities to dissect such bodies, and *Fliess* has had one. The former found no alteration whatever in the brain and spinal cord; the latter, in a case of paralysis of one arm, found a simple congestion of the meninges of the cord on a level with the brachial plexus. *Post-mortem* examinations of essential paralysis are always very rare occurrences, because this disease *per se* is not apt to terminate fatally.

Symptoms.—Paralysis, usually, in most instances, begins in this manner: The child, during dentition, but otherwise in good health, falls asleep at the usual time in the evening, is somewhat restless during the night, and, on the following morning, awakes with one arm or leg, seldom both legs, paralyzed. The palsy is complete on the very first day of its occurrence. In other instances, difficulties of dentition, with convulsions, or even eclamptic fits, precede it for several days. The palsies which follow these phenomena are mostly hemiplegic or paraplegic, and are of longer duration than those which originate in a simple manner. In exceptional cases, essential paralysis of the lower extremities follows chorea, typhus fever, and the acute exanthemata. In these latter cases it develops itself most markedly during convalescence. It is very questionable whether it is really always primarily peripheral, and originates without any morbid alterations of the meninges. That paralysis which affects one extremity, most frequently the upper, and which comes on suddenly during the night, and without the least disturbance of the general system, presents the simplest form of essential paralysis under discussion, and to it we will now call attention.

Although the whole group of symptoms must be regarded as complete from the very beginning of the disease, still, two stages may be distinguished in its course: (1), the stadium of simple paralysis; and (2), that of atrophy.

The second stage, when the disease runs an acute course, and soon passes into recovery, does not take place at all; it only occurs in cases that have lasted for some months. In the first stage, no alteration can be discovered in the length, circumference, or temperature of the affected limb, but, when the malady is longer in duration, the limb begins to waste, the muscles become flabby and thin, the adipose tissues also decrease, and, lastly, even the longitudinal growth of the bone is more or less arrested.

As regards the symptoms of the individual palsies, those of the arm manifest themselves in the following manner: The arm hangs powerless by the side. It is a remarkable fact that paralysis of the muscles of the arm occasionally occurs, without involving the muscles of the hand and fingers of the same limb. The reverse of this condition has never, to my knowledge, been observed. In this case the patients are still able to grasp with the hand, but are unable to lift the grasped object. For example, they can grasp the spoon, but cannot carry it to the mouth. Older children try hard to use the affected limb, and assist it with the sound one. The only alteration of form that is noticeable from the very commencement is, a flattening of the outer contour of the shoulder, caused by a paralysis of the deltoid muscle, and the weight of the dependent arm itself.

Essential paralysis of a lower extremity seldom implicates all the muscles of the limb; it often affects only those of the leg, and not always all of these. The foot is inclined either inward or outward, according to the muscles affected. The disease is very easily recognized. In children not yet able to stand, the palsied limb lies quietly during their crying and struggling, while the other is drawn up against the body, and, when seated upon a chair, the paralyzed limb dangles about lifelessly. In children who have walked, the signs are still more marked. They make no further attempts to walk, or, if it be a partial paralysis—that is, of only certain of the muscles—will drag the leg after them, or hop on one foot.

When both lower extremities are affected, the child will lie motionless in bed. It, however, soon learns to sit, aided, perhaps, by returning functional ability of the limbs, which progresses from above downward, so that it is first able to move the thigh, next the leg, and finally the foot.

The peculiarity of this peripheral paralysis is, that neither the bladder nor the rectum ever becomes affected by it.

Its course and duration are variable. In most cases, the palsy disappears completely after a few weeks or months, without leaving any effects behind, but, when it lasts longer than six to eight weeks, without any improvement having taken place, the signs of commencing atrophy, so far as concerns the alterations of form, will ensue. A marked decrease in the temperature of the skin soon becomes superadded, followed by complete anæsthesia, and frequently, also, by slight œdema of the dorsum of the feet, the chief cause of which is, undoubtedly, the feeble circulation of the affected limb.

The atrophy never proceeds so far as that it is not still possible, by faradization, to produce contractions of the single muscles. The sensibility in the paralyzed limb is continued for a much longer time, but whether it is as perfect as in the sound limb is not easy to decide, for the children are mostly still too young to be able to make very fine discriminations. During the first few days after the invasion of the palsy, hyperæsthesia and decided painfulness are sometimes observed, seemingly due to inflammation of the neurolemmata; still, they may also be suspected to be caused by preceding contusion, or they may be feigned. After several days, these pains disappear.

The longer the palsy exists, the greater the alterations of form become. The shoulder-joint becomes enfeebled to such a degree that a dislocation of the upper arm may take place. A depression appears beneath the acromion process, and the deltoid muscles become completely flattened. In partial paralysis of the lower extremities, contractions in the direction of the sound muscles occur, producing club-feet and genu valgum on the lower extremities, and scoliosis of the spinal column, in consequence of obliquity of the pelvis.

In regard to the duration of this disease, *Rilliet* and *Barthez* have furnished us with more accurate statements. In one case, a well-marked essential paralysis disappeared in twelve hours; in many others, in from six to eight days. Complete recovery has been seen to take place after a duration of eleven months. Even when the affected extremity exhibits imperfect development, and is able to perform but few and feeble movements, it is still possible, even after the lapse of years, by proper gymnastics, and by the use of electricity, to improve its condition, and, perhaps, to cure the disability.

Etiology.—Essential paralysis is a disease of early childhood, and is most decidedly connected with the eruption of the teeth. Children under half a year are but seldom affected with it; most frequently it comes on at the eruption of the molar teeth, and becomes extremely rare after the completion of dentition. No age of life, however, is exempt from it. More boys than girls, according to my experience, are afflicted with it. This, however, may also be ac-