

sacs occur very infrequently; in older children, however, they are more frequently seen as the effects of certain diseased conditions. The fluid poured out is purely serous, yellow, albuminous, and the salts it contains exhibit the same quantitative proportions as those of the serum of the blood. On the pleura itself no morbid alterations are to be detected, if no pulmonary disease with mild pleuritis have preceded it.

Etiology.—Some authors still assume that a primary, essential hydrothorax may occur, but that is extremely problematical, for some preceding diseases, in certain instances, are readily overlooked. Nephritis, the result of scarlatina, undoubtedly furnishes the most frequent cause; next follows the intermittent-fever cachexia, and finally, as the rarest cause, an acquired disease of the heart is to be mentioned. The rest of the cachexia, through which, in the adult, hydrothorax may also be engendered, such as hepatic cirrhosis, chronic Bright's disease, carcinoma, paralysis, etc., scarcely ever occur in children.

Symptoms.—Hydrothorax after scarlatina appears several days after anasarca has appeared, but by this we do not intend to say that it must absolutely follow in this manner. Anasarca is regularly ushered in by febrile phenomena, which become aggravated when serous effusions into the pleural and peritoneal cavities are superadded. The formation of the diagnosis in that case is much facilitated by the existence of the anasarca.

Hydrothorax, as a result of intermittent-fever cachexia, sometimes occurs with, sometimes without, fever. Generally, however, anasarca is also present here, at least of the lower extremities. The grayish-yellow color of the face, the extreme anæmia of the mucous membranes, and the invariably present splenic enlargement, are such prominent signs as to preclude the possibility of mistaking the intermittent cachexia for any other.

Hydrothorax in consequence of disease of the heart is the rarest form, because in children endocarditis occurs very infrequently, and generally quickly terminates fatally, and because congenital cardiac malformations terminate usually too early to produce dropsical effusions.

Hydrothorax, in contradistinction to pleurisy, is much oftener observed on both sides than on one side only; still, the quantity of the effusion is seldom alike on both sides. The pain in the side, so constant and persistent in pleurisy, is totally absent in hydrothorax. In a marked example of hydrothorax, the dulness is complete, and its boundaries may be changed readily by varying the position. Children, however, do not willingly submit to this kind of manipulation. The fluid is so thin and copious, that it quickly changes its place in accordance with the laws of gravity. Friction-sounds are never felt nor

heard, but the external form of the thorax becomes altered as strikingly as, and perhaps still more so than, in empyema. Dilatation and bulging of the intercostal spaces, immobility of the part of the thorax with which the serum is in contact, and alterations of the position of the heart and liver, occur here in the most striking manner.

As hydrothorax in most instances is bilateral, the dyspnoea, therefore, increases rapidly; soon orthopnoea, cyanosis, and œdema of the lungs supervene, whereupon death quickly ensues. The secretion of urine in most instances is very much diminished; the bowels may be torpid, or, as is frequently the case, a derivative attempt may have been made by the alimentary canal, giving rise to diarrhoea.

The pulse at first is much accelerated, but in moderate dyspnoea may soon return to its normal condition.

The *prognosis* may be set down as most unfavorable after scarlatina, not very favorable after intermittent fever, and decidedly unfavorable, if not positively hopeless, after cardiac disease.

Treatment.—A debilitating, antiphlogistic treatment is never indicated here, although in the first days of the illness distinct febrile phenomena may have been present. The subjects always become so exhausted by their preceding sufferings, that it seems absolutely necessary to pay the utmost attention to the nutrition. Nourishing broths, with yolk of egg and milk, should therefore be allowed them, and as much as they will consume; and an attempt is to be made by mild diuretics, such as will not disturb the digestion nor cause diarrhoea, to stimulate the kidneys and to promote the excretion of the urine. In this respect a few drops of the tincture of digitalis, with *roob juniperi* in large doses, as I have often stated, are the most appropriate remedies. In the after-treatment, quinine and iron are most to be relied on.

CHAPTER V.

DISEASES OF THE NERVOUS SYSTEM.

A.—BRAIN.

(1.) **HYDROCEPHALUS ACUTUS INTERNUS.** *Synonyma.*—Meningeal tuberculosis, morbus cerebri Whyttii, hydrophlogosis ventriculorum cerebri (*Lobstein*), febris hydrocephalica. Entero-cephalopyra (*Eisenmann*).

The pathology of hydrocephalus consists in a miliary tuberculosis of the arachnoid membrane, especially at the base of the brain—in an

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intense augmentation of the normal fluid contents of the cerebral ventricles; and in a softening of the parts of the brain entering into the formation of the cerebral cavities. Tuberculosis of the meninges is generally stated to be the exciting cause, and an acute internal hydrocephalus, not tubercular, is also spoken of. I have never yet met with this latter kind of acute dropsy of the head; but of the former, on the contrary, I have dissected more than fifty cases, and the majority of them I also observed during life.

Pathological Anatomy.—In these autopsies, the dissection of the skull must be performed with the utmost caution. If the large fontanel is not yet closed, it will be seen to bulge out enormously, and often a decided fluctuation may be detected over it. The skull should be sawn very slowly, and the movements of the saw should be short, especially toward the close of the operation, in order that the brain, which is often very soft, may not be injured, and the contents of the ventricles be lost before they are closely inspected. If the dura mater, at certain places still adheres to the bone, it will be very difficult to remove the calvarium, conjointly with the dense dura mater, without injuring the brain. In these rare cases it is advisable, after the skull has been sawn through, not alone to sever the dura mater all around, but also the brain, and then to remove the calvarium, dura mater, and the whole portion of the cerebral substance lying above the incision, *en masse*, by the aid of a brain-knife or spatula. It is true that, by so doing, the ventricle is opened and its watery contents escape, but then we have the advantage of being able to examine more accurately the base of the brain, and we thereby also spare the rest of the generally soft, friable portion of the organ.

After the calvarium and dura mater have been removed, the brain to a certain extent bulges out over the edges of the divided skull, the pia mater and arachnoid will be found to be very tense, the arachnoid membrane upon the convex part of the brain dry, and the convolutions obliterated; it is, therefore, plain that the cerebral substance has been firmly compressed from within outward against the bones of the head. That the injection of the meninges in the cadaver had no connection with the injection of the meninges during life now becomes sufficiently evident, and there is nothing peculiar in the circumstance that in acute hydrocephalus they are sometimes found dark red, and then again very pale and anæmic. If it is desired to institute a chemical examination of the hydrocephalic fluid, which is very instructive, the ventricle should be punctured very cautiously with a trocar and only the fluid thus evacuated should be examined; for, if the whole quantity of liquid that escapes on opening the ventricle be collected, it will always be found to be a mixture of blood and cerebral dropsy-

cal effusion, which is entirely unfit for the purpose of such a chemical examination.

The chemical analysis of a pure hydrocephalic effusion furnishes extremely peculiar results, to which *C. Schmidt* first directed the attention of the profession. The chemical reaction of this fluid is always distinctly alkaline; it is almost as clear as water, and contains only *traces* of albumen, for, on boiling it and testing it with acid, it is rendered hardly perceptibly turbid, and precipitates no large dense flakes of albumen. The proportion of salts in the effusion is also a peculiarity that deserves to be mentioned. While the transudation collected from the peripheral meninges, pia mater, and arachnoid, contains the salts exactly in the same proportions as the exhalations from other serous membranes—to wit, in the proportions of the serum of the blood—the transudation of the choroid plexus contains more combinations of potassium and of phosphorus, so that the proportion of potassa to soda and that of the phosphates to the chlorides, approximates nearer the salts as they occur in the blood-corpuscles. While the salts of the meningeal transudation, according to *C. Schmidt*, contain 2.8 per cent. of potassa and 40 per cent. of soda, in the salts of the fluid from hydrocephalus internus nearly 17.8 per cent. of potassa and only 27.2 per cent. of soda are found. We have therefore in this case no mere filtration of the serum of the blood, but a peculiar secretion, in the formation of which the salts of the corpuscles of the blood seem to participate.

The walls of the ventricles are more or less softened, and their ependyma (lining membrane) is destroyed. The distention of the lateral ventricles is often of such an extent as to rupture the septum ventriculorum, and the two cavities then directly communicate with each other. In extreme cases this softening is also found in the optic thalami, in the corpus callosum, and in the corpus striatum, the upper surface of which appears eroded, shreddy, flocculent, and uneven. The choroid plexus is bloodless, very pale, and *not* superabundantly filled with blood, as is unaccountably stated in most of the late French works. This bloodlessness is very natural, for the enormously accumulated fluid must very greatly impede the filling of this arterial plexus. The anæmia, in connection with the general dilatation of the ventricles, is the best criterion by which to judge of the extent of the hydrocephalus, if accidentally or incautiously the liquid, on opening the skull, has been allowed to escape prematurely.

This part of the examination having been concluded, we then turn our attention to the base of the brain. Here a whitish or greenish-yellow exudation of a peculiar gelatinous nature is seen to have been deposited in and between the pia mater and the arachnoid membrane.

By this exudation the sulci of the brain have become agglutinated and plastered over, and the depressions at the base of the brain, especially those corresponding to the *cella turcica*, are evenly filled out and obliterated. The exudation is most abundantly accumulated within the bilateral hilus cerebri, from the chiasma opticum to the pons, over this on to the medulla oblongata, and spreads upward, especially into the fossa Sylvii, and the longitudinal fissure of the cerebrum. Here, in the fossa Sylvii, along the artery and vein, the tuberculous character of this exudation is most distinctly recognized, for here, in particular, a countless number of fine white granules is seen, which, on microscopic examination, prove to be miliary tubercles. They consist entirely of an amorphous granular mass of detritus; the fibres of connective tissue seen here and there do not belong to the miliary tubercles, but to the pia mater, in which the tubercles are embedded. Miliary tubercles, in addition to being found in the fossa Sylvii, are also seen to have been deposited over nearly the entire base of the brain, especially along the course of the vessels.

In regard to the other organs, it is always observed in this affection that an older, larger, yellow tubercle exists somewhere in the body, most frequently, in fact, in the bronchial glands; next in the lungs, then in the brain itself, and sometimes also in a bone. The connection between acute hydrocephalus and softening of the stomach, mentioned in some text-books, in reality does not exist, as has already been clearly shown in our remarks on softening of the stomach, page 149.

Symptoms.—The disease most frequently attacks children from two to seven years of age. The youngest child in whom meningeal tuberculosis has been observed was three months old; in older children and adults the miliary tuberculosis localizes itself much oftener in the lungs than in the meninges.

Many divisions into stages have been proposed with a view of facilitating the study of this disease. Thus (1) a stage of congestion; (2) of inflammation; and (3) of exudation, have been assumed. *Bouchut* speaks of a stadium prodromorum, invasionis, and convulsionis, but, strictly speaking, no stadial division, based upon pathological anatomy, can be assumed; symptomatically, one into (1) a stage of irritation and (2) of paralysis may be practicable. In the first stage, the prodromata and the symptoms of hydrocephalus that have already appeared may be recognized.

The prodromata are of an extremely peculiar and variable form. Although it certainly cannot be denied that the study of these has been extended somewhat too far, and that much that is irrelevant has been added to them, still their existence cannot be ignored. Above all,

it is necessary to determine whether the acute hydrocephalus has developed itself in a child, who, for a long time previously, has had distinct signs of tuberculosis—usually pulmonary—or whether these signs have hitherto been absent, and the disease has developed itself in an apparently perfectly healthy child. It is, indeed, asserted by some hospital physicians that the premonitory signs may be totally absent, and the symptoms of developed inflammatory hydrocephalus may come on at once; in private practice, however, such cases have not been observed. Here, for several days, sometimes even for many weeks, some tolerably constant prodromata are always noticed, which only slowly become aggravated, till we finally have the disease before us developed in its most dangerous form.

This stadium prodromorum usually lasts two or three weeks, though cases are also met with where the children present these signs for several months. The most constant of these symptoms is a slowly progressive emaciation, which, in a most remarkable manner, entirely spares the face, so that the child, when dressed, presents nothing unusual in its appearance. But observing mothers and nurses invariably notice it, and the prominence of the ribs, in particular, excites their apprehension. A slight pallor of the countenance, and a peculiar lustre of the eyes, soon become associated with this condition. The patient now loses all healthy cheerfulness and liveliness habitual to it. It sleeps more than usual, soon forsakes its amusements, becomes morose and timid before others, and cries for the slightest cause. It is also very remarkable that it does not attempt any of its former little braveries, for instance, the climbing upon chairs, the opening of difficult door-latches. Even the looking out of a grated window intimidates it, and, when requested to perform these feats, it will sternly refuse. Boys who formerly would put up with nothing from their comrades, but were always ready to fight and defend themselves, now cowardly slink away crying. Other children, again, become remarkably affectionate, constantly embracing and clinging to their parents, and, when left alone, are inconsolable.

In older children, who have already commenced study, the tutor notices an unusual absent-mindedness and indifference; the learning by heart is more difficult than before, and what is finally acquired is uttered in a stuttering manner. The children sleep very much, and often fall asleep in the daytime. Their night-sleep, however, is not sound, is repeatedly broken by unpleasant dreams; they toss about in bed, and frequently break out into apprehensive exclamations. The appetite is gone; often there are capricious longings for stimulating food, of which, however, but little is consumed. The thirst is not augmented, the secretion of urine but slightly diminished;

the urine is often so rich in urates that they settle on the bottom of the vessel, and form what has been called the brick-dust sediment. The bowels are usually torpid, particularly in older children; but, should a diarrhoea exist, it should not, by any means, be interpreted as incompatible with the existence of acute hydrocephalus. Particularly in infants, who are still laboring under the first dentition, it often happens that the ordinary diarrhoea of dentition continues as in the normal state, and an acute hydrocephalus has nevertheless been in-trenching itself. Headache is scarcely ever complained of, even by older children; vertigo and an unsteadiness on walking are much oftener observed. Some time ago, a boy four years old, who displayed several premonitory symptoms of acute hydrocephalus, was brought to me. On walking upon the even floor, he always lifted up his feet very high, as if mounting a step. In the course of a few days the disease developed itself more markedly, and the autopsy subsequently confirmed the diagnosis. These children tolerably often complain of abdominal pains, which are distinctly aggravated on pressure. Fever is usually not present; still, what has been said of diarrhoea is also applicable to this symptom, the presence of fever is no reason whatever for excluding the possibility of a commencing hydrocephalus.

The symptoms just described, conjointly or singly, now become more and more aggravated; the children betake themselves to bed, and hereupon the signs of commencing effusion, likewise those of cerebral irritation, develop themselves.

Different are the circumstances when children with marked pulmonary tuberculosis in addition acquire meningeal tuberculosis and hydrocephalus. In this case, the symptoms of the preëxisting phthisis pulmonalis, such as hectic fever, excessive weakness, severe bronchitis, etc., are naturally so conspicuous that the prodromata, delineated above, are scarcely noticeable. Then, the disease begins directly with the symptoms of commencing effusion, and the irritation produced by that process.

The most characteristic symptoms of the *stage of irritation* are: vomiting, constipation, slow pulse, unrhythmical respiration, increased temperature of the skin, retracted abdomen, headache, extreme excitability alternating with somnolence, diminution of the intelligence, and the various kinds of motor disturbances.

The preponderating symptoms of the *stage of paralysis* are: great acceleration of the pulse, profound coma, and paralysis of the voluntary muscles. In order not to break off constantly in the description of the individual symptoms, and as the transition of one stage into the other can by no means be so accurately defined, as some of the textbooks declare, this stadial division will, therefore, be dispensed with

in the following delineation, and each symptom will be followed at once to its fatal end.

As regards the disturbances of the digestion, *vomiting* must rank first. It is a remarkably constant symptom, and usually comes on so early in the disease that the diagnosis may be established by it much earlier, and with greater precision than by any other symptom. The duration of the vomiting, however, is very variable. Some children vomit for only one day, others several days, and only a part of the food partaken of. Others, on the contrary, vomit incessantly from the commencement of the disease almost till death, and there is no article of food which is not vomited almost as soon as it is taken. A peculiar feature about this vomiting is, that it makes no remission, never recurring, after it has once ceased for twenty-four hours. The manner in which the children vomit is of the utmost importance in the formation of the diagnosis. While children who suffer from an indigestion are afflicted, for a long time before the actual vomiting, with nausea, eructations, retchings, and cold sweats, hydrocephalic children vomit without any such preparations, just as if they had taken a mouthful of water and then simply spat it out again. The act of vomiting is facilitated by setting the children upright, or by laying them on the side. It is arrested so long as the stomach remains entirely empty; when liquids, and, still more so, compact nutriments are introduced, they are instantly ejected without any apparent distress or difficulty. Very seldom is the matter vomited mixed with bile, a circumstance that is readily explained by the slight antiperistaltic action of the stomach. As the physician seldom personally witnesses the act of vomiting, and, consequently, has to rely entirely upon a verbal description of it, he should accurately question the relatives, and make them understand that they are carefully and minutely to observe the manner of vomiting—whether it is easy or difficult, with or without retching.

A second almost equally as constant a symptom is *constipation*, from which at least three-fourths of all the hydrocephalic children suffer. The intestinal secretions are so diminished that even the more powerful drastic cathartics have no effect, even when they are not vomited, which very often occurs. Calomel, so much in vogue in other forms of constipation in children, is almost entirely inert in this one. This constipation does not continue till death; latterly, thin colliquative stools are voided, no matter whether aperients have been employed or not. Even profuse diarrhoeas, the effects of intestinal tuberculosis, may cease in commencing hydrocephalus, but the stools which subsequently follow are again thin, and have the well-known putrid odor. As a rule, constipation is less constantly observed than vomiting, for instances not very infrequently occur in which regular

stools take place daily from the invasion till the end of the disease. The material diminution of their quantity is very natural, and is to be explained by the diminished consumption of nutriment. The appetite is gone, and the food that is laboriously administered is vomited, and it is, therefore, very easy to comprehend how a constipation of several days' duration may occur, and in which the abdomen nevertheless becomes more and more retracted, and no fecal matter passes through the intestinal canal.

The rest of the alterations of the digestive apparatus are less pathognomonic. The thirst never becomes so intense as in other acute febrile conditions, for example, typhus fever, or the acute exanthemata, and the secretion of urine is correspondingly always very much diminished. This absence of thirst is, in fact, a natural result of the slightly-increased temperature of the skin, and the inconsiderable acceleration of the pulse, and of the disturbed innervation of the stomach. The urine is very concentrated, rich in urates, uric acid, coloring matter, and salts, and therefore deposits in the bladder, or immediately after it is voided, a thick sediment. Toward the end of the disease, the child often passes no water for twenty-four hours, or even more, and yet the bladder does not become distended, showing the existence of a paralysis of the nerves governing this secretion. The urine that is finally discharged, or drawn off by the catheter, is turbid, has a pungent odor, and an ammoniacal reaction. Albumen, so far as I am aware, is not found in it.

The *appetite* is seldom as completely absent as in the diseases just alluded to; though it is true that there is no desire for food, still it is almost always possible, without any great difficulty, to administer milk or beef-broth to such patients, and this is all the more surprising, as vomiting almost invariably follows.

In this stadium, the tongue is always moist, more or less coated with a white fur, and furnishes nothing characteristic. The tongue remains moist in almost all infantile diseases, which is due to the circumstances that the mucous secretion of the mouth is very profuse at this age, and that children have the good habit of sleeping with the mouth shut. The gums are likewise always moist, but on these, too, the white fur that appears in most of the diseases is also seen.

The febrile phenomena in hydrocephalus are never of high grade. In miliary tuberculosis, which develops itself entirely in the pia mater, fever can hardly be said to ever occur; but if, on the contrary, the miliary tuberculosis involves other organs also, especially the lungs, or the peritonæum and pericardium, as pungent a heat of the skin appears as is commonly met with at the eruption of an acute exanthema. The temperature of the head, particularly the forehead, is, in all in-

stances, decidedly elevated, and remains so to the end, while the feet are very prone to become cold.

In general, the temperature of the skin stands in exact relation to the rapidity of the pulse, but the forehead always remains hot, even when the pulse becomes ever so slow.

The condition of the *pulse* has always been regarded as of great importance in acute hydrocephalus, and there is, in fact, no disease in which it deserves so much attention as in the one under consideration. In the incipency of the malady, the frequency of the pulse is due more to the miliary tuberculosis that has developed itself in the other organs than to that of the meninges. When the miliary tuberculosis is very extensive, and in course of development in the rest of the organs, the consequent acceleration of the pulse will counteract the retardation actually caused by the cerebral affection, and may continue for many days, till finally the slow hydrocephalic pulse comes on. If, on the contrary, the meningeal tuberculosis occurs, the retarded pulse soon manifests itself, and is readily recognized by the lessened frequency and modified quality of its beats. Whatever may be the explanation, it is a fact that the pulse, at the commencement of acute hydrocephalus, is often accelerated, but that in other cases it also becomes slower and slower from the first day of the disease on. In the majority of cases, it is at first slightly accelerated, and becomes retarded in a few days. As the watery effusion in the cerebral cavities becomes augmented, the number of the beats sinks down to between forty and sixty; usually, however, the pulse does not remain stationary upon any definite number, but changes from hour to hour, so that, in the course of twenty-four hours, it may be forty, then sixty, and then, again, eighty per minute. These varying conditions of the pulse are differently explained by different clinical observers. Whatever view they take, I have often convinced myself of the correctness of the fact. In most cases qualitative changes of the pulse also occur, a strong throb follows several small ones, or *vice versa*; also distinct but not regularly-recurring intermissions take place, and sometimes the pulse assumes a peculiar vibrating character, imparting to the finger a sensation as if it rested upon a vibrating string. This character disappears as soon as the finger presses a little more firmly upon the artery, and an easy, cautious touch is, therefore, necessary for this examination.

One to three days before death, the pulse again becomes rapid, and indeed so rapid that it is hardly possible to count it. It may reach 180 to 200 in the minute. When this continually-augmenting frequency of the pulse supervenes upon the above-described retardation, with its accompanying alteration of quality, a speedy end may

be prognosticated with the utmost certainty, for this great acceleration is to be interpreted as indicating commencing paralysis of the pneumogastric nerve.

The alterations of the *respiration* are also of great importance. At the invasion of the disease, the breathing goes on normally, except in those cases where the miliary tuberculosis in the lungs has made great progress, and the fever is intense. Then, of course, the respiration is very much accelerated, and this acceleration is due as much to the local disturbances as to the fever, with its implication and depression of the organism. But as soon as the symptoms of exudation have become more prominent, then they are also infallibly manifest by the respiration. It, for example, becomes much slower and completely unrhythmical. In one minute the child respire fifteen times, in the next thirty, and in another twenty. At one time the respirations are superficial, and occur with a barely perceptible dilatation of the thorax, and without any audible sound; then, again, they are deep and sighing. This latter kind of respiration is so constantly observed, that these have been called hydrocephalic sighs. This retarded and unrhythmical respiration takes place in all cases, even in those where advanced pulmonary tuberculosis gives rise to marked acceleration of the acts of respiration. Occasionally the breathing is arrested for ten seconds and more; and the next gasp, that is waited for by the parents with anxiety, occurs as a deep, long sigh; and, immediately upon that, several very normal, tranquil inspirations follow. If the pulse, shortly before death, has assumed that extraordinary rapidity already described, the respiration also will become more rapid again—about as rapid, but not as rhythmical, as in the normal condition, and by no means in exact proportion to the extreme frequency of the pulse.

The physical examination of the lungs furnishes either entirely negative results, or in some cases it reveals the presence of pulmonary tuberculosis with cavities, which, in childhood, very remarkably, are much more often met with in the lower lobes than at the apices of the lungs. For a long time I have been in the habit of repeatedly and attentively percussing the sternum in all hydrocephalic children, on the supposition that the ordinary bronchial glands, swollen into large masses, would produce an especial dulness in that region. This examination, however, has proved to be entirely fruitless, for the bronchial glands, even when they are ever so much enlarged, are never enlarged anteriorly toward the sternum, but always laterally into the lungs, downward beneath the bifurcation of the trachea, and backward toward the spinal column. Hence the reason why no extensive dulness is ever observed over the sternum, although, at the autopsy, the

tuberculous bronchial glands are found hypertrophied to the size of a pigeon's and even to that of a hen's egg.

The phenomena presented by the *skin* are of inferior importance. At the commencement of the disease the skin is commonly moist; active sweating of the head is also observed; but, as the disease advances, the skin becomes dry, brittle, and furfuraceous, and no sweating takes place again until the fatal accelerations of the pulse come on, near the close of life. Sudamina are comparatively rare. The integument retains its susceptibility to counter-irritants up to the fatal end; the horrid anointings with ungu. tartar. stibiat. or of sublimat., as well as the vesicators, act as promptly in hydrocephalic as in healthy children. So, too, the simple rubbing in of blue ointment, in children with a tender epidermis, produces the ordinary vesicular eruption.

In the French compendiums there is a description of peculiar meningitic spots (*taches méningitiques*); it is asserted that they originate when the integument over the chest and abdomen is scraped and much irritated with the finger-nail, and that they leave behind them scarlet-red streaks, which, in a few minutes, indistinctly merge into the surrounding rose-colored skin. I have often tried to produce these "meningitic spots," but have never been able to detect any thing more than a red streak, the same kind, in fact, as may be produced almost instantaneously by simply scratching any free part of the skin in a healthy individual.

These "meningitic spots" were discovered by *Trousseau*, who has enriched the *Pædiatrica* with many similar "discoveries." That red spots should originate on the skin, in consequence of local congestion, sometimes at one place and then again at another, but especially on the face, is a phenomenon that by no means belongs particularly to hydrocephalus. Their frequent occurrence here finds a very natural explanation in the unrhythmical pulse, and in the attending disturbances of the circulation.

Headache, likewise, is a prominent and tolerably constant symptom; but it does not come on so early as might be supposed, were we to judge from the primitive cause of the entire disease, which, in reality, is to be looked for in the meninges. Indeed, it is almost uniformly absent in the premonitory stage, as has already been stated. It comes on with, or a short time previous to, the vomiting, and soon becomes so severe that older children constantly cry aloud from pain. Younger ones pluck at the head and ears with their little hands, and restlessly toss the head about or rub it to and fro on the pillow. These manifestations of pain continue as long as the children are in possession of their faculties. Usually, no defined place on the skull is complained of; still, when asked concerning it, they will point, in the majority of