

locomotor ataxia as the expression of a general disease. It is an affection of the spinal cord in about the same way and to about the same extent that consumption is a disease of the lungs, scrofula of the lymphatics, and scorbutus of the skin and mucous membranes. The pathologic findings are far from being commensurate with the number and diversity of the symptoms. It is not unreasonable to suppose that a disease of so slow, insidious and varied a character should at times be the result of pathologic changes quite beyond the powers of chemistry and microscopy to explore. In fact, it is admitted by some of the most authoritative observers that the lesions of locomotor ataxia must in every case be very gross before they can be recognized histologically.

In conclusion, then, let me repeat that the history, etiology, pathology, symptoms, complications and treatment of locomotor ataxia point to it as a constitutional malady, with its most prominent manifestations in certain vulnerable parts of the whole nervous apparatus. Our knowledge of the disease is not yet complete enough for us to affirm or deny this positively, but from what we already know of it, I am inclined to regard favorably this constitutional hypothesis and to continue the study of the disease still more closely from this particular standpoint.

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### THE INTERRELATION OF SOME OF THE LOCAL SPASMS OF EARLY LIFE.

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The reciprocal anatomico-physiologic bases, etiology factors and clinical data of idiopathic torticollis, spasmus nutans and laryngismus stridulus are conspicuously interwoven. The convulsions are local, and whether or not their origin be central, peripheral or reflex, the neuro-muscular territories implicated have an important bearing upon this subject.

The nerves that control the mechanism of these regions are the vagus, the spinal accessory, the cervical spinal and the cervical sympathetic. Not alone are their nervous centers contiguous and correlated, but their conduction paths and terminations inosculate and communicate with branches to distant organs. Thus the exhibition of sympathetic interchangeability and reflex phenomena is interpreted.

Another common factor in the determination of these pathologic states is the immaturity of youthful tissues and organs. The muscles are undeveloped and untrained; the larynx is small and narrow; the nervous system is unstable; consequently, responds forcibly to the slightest stimulus. Let there be a morbid irritation, there results an overflow of nerve force along accustomed channels: For instance, compare the long drawn-out inspiratory sound when the babe begins to cry, to the aspiratory sound at the commencement of an attack of laryngismus. Or contrast the incoördinated infantile head motions to the nodding and turning of spasmus nutans.

The laryngo-spasmic explosions upon crying, swallowing, etc., can be further accounted for, granted that an abnormal activity of the laryngeal center renders them more susceptible to the normal blood stimulus.

The localization, by Semon and Horsley, of the expiratory centers at the base of the third frontal convolution is also significant in this connection; for intellection and inhibition are not attributes of infancy and childhood.

Deducting from the above, the kindredship of wry-neck, nodding spasm and laryngo-spasm seems to be established. It is begging the question to call them functional neuroses. It were better to acknowledge ignorance of their pathology, as does the nomenclature, a cognizant expression of symptoms. Some exception may be taken to the recognition of wry-neck as a neurosis. Its manifestations are distinctly neurotic and confined to a disturbance of one or more affiliated nerves.

In chronic torticollis, either disease of the centers exists, or there is such impairment of the nerves that resection and extirpation proves salutary. From the very nature and course of the acute disorder, no lesion can be demonstrated, but the occurrence of the same morbid change is not an unreasonable inference. Nodding spasm is, as compared to torticollis, a more intense and greater neurographic derangement. Its conjunction with nystagmus indicates a central lesion.

The etiology of these maladies is ascribed to season, heredity, age, emotional disturbances, gastro-intestinal irritation, acute infectious diseases and last, but not least, rachitis. These are unquestionably, predisposing causes, and rickets probably bears the same relation to laryngismus that scrofula does to the tubercular infection. But it is not fairer to accept the absolute etiologic relation of rickets to laryngismus, than it is to proclaim pneumonia an unconditionally pneumococcus infection, debarring a streptococcus or tubercular pneumonia.

Dunkin, in speaking of torticollis says: "I question whether the affection is ever directly caused by rheumatism properly so called."

Recently, in some of my own cases, I have noted the co-existence of influenza and wry-neck. Drs. Watson and Curtin describe "stiffness and pain in the back of the neck" accompanying a number of cases of influenza. Lyman reports a case of post-influenzal torticollis and head jerking. The literature occasionally refers to this alliance of such supposedly different disease processes. W. B. Hadden mentions a patient suffering from head-nodding in whom no sign of rickets nor neurotic history was obtainable.

The same is true of an 11 months old nursing who came to my clinic a month ago. The fontanelle was about closed and dentition regular, and all other signs of rickets were wanting. There was no history of previous illness and with the exception of the head-nodding, the babe appeared perfectly healthy. The movements were intermittent and rotatory and ensued upon a fall from the child's chair. An intercurrent attack of measles aggravated the initial trouble. Nodding motions are now added to the original ones and are continuous except during sleep.

This patient, and the only case of laryngismus stridulus that I have seen in a five years dispensary experience came from a practically foreign (Hebrew-Russian), unhygienic settlement.

Comprehensive statistics by able native and foreign pediatricians disclose similar environment; a fact pointing to a possible infectious origin of the disease. In America, where better living obtains, spasmus

nutans and laryngismus are so rare that my previous admission will be pardoned. Likewise the words of Drs. Adams and Blackraeder are not irrelevant. The former says: "There may be a few, like myself, that have never seen laryngismus stridulus complicating rickets." The latter says: "In Montreal I may say that the cases of laryngismus complicating rickets are comparatively few in English hospitals, and a very infrequent symptom in this country."

In Europe, this disease associated with tetany occurs isolatedly and in epidemics and epidemics. Gangenhofer, Escherich and Loos, call tetany an infectious disease; possibly the other local spasms under discussion belong to the same category. Clinical facts indicate protean etiologic derivatives, rather than any one or few causative agencies for torticollis, spasmus nutans and laryngismus stridulus.

The dissentient views of able teachers is in part responsible for this confusion and uncertainty. Escherich, Loos, Kassowitz, Gangenhofer, Gay and Soltman are a few of those giving earnest attention to the relation of season, age, heredity, unhygienic surroundings, infection, etc., to laryngismus and tetany. The two first named pronounce laryngismus but a symptom of tetany that does not stand in any causal relation to rachitis. This brings a storm of protest from Kassowitz who is the declared exponent of the rachitic genesis of laryngismus.

The craniotatic theory of Elässer does not seem tenable. Nor are Kassowitz's pathologic findings in the skull-cap, membranes and cerebral lesions in rickets, proof positive of their kinship to the dangerous respiratory symptoms of laryngismus.

"The latter," says Gay, "does not necessarily fall upon those who have the most marked signs of rickets." Again, laryngismus is present where rickets can not be demonstrated.

On the other hand, laryngismus is wanting in cases of most marked rachitic deformity where excessive weight and size of the head, and muscular weakness, or irregular and diminished thoracic capacity might lead to sudden serious respiratory disturbance.

Thus, we see, the question is yet an open one. Escherich and Loos, in their study of the relationship of tetany to laryngismus, are clearing the field for a broader and more impartial view of the entire subject. Their work is supported by the clinical investigations of Gangenhofer, Hoffman, Neusser and Jasch, Gay, Abercrombie, and Smith, who describe cases of tetany either associated with laryngismus, or of laryngismus alone in which contractures of the extremities are present, but which is marked by the three cardinal signs of tetany, viz.: Trousseau's phenomenon, the facial phenomenon, and general neuromuscular hyperkinesis.

Gay, in dwelling upon the importance of the facial irritability says: "It is not limited to the seventh nerve, but is significant of an increased excitability, probably of all the motor nerves of the body." "It seems to bridge over and connect laryngismus with tetany as it occurs in children."

To sum up:

1. Torticollis, spasmus nutans, laryngismus stridulus, and possibly tetany are closely allied neuroses, consequent upon their common anatomico-physiologic characteristics.

2. Their relation to commonly accepted causes, such as heredity, environment, rickets, etc., is admitted.

3. Their etiology is undetermined.

4. They may be of an infectious origin and, as it were, the common, the comparative and superlative degrees of one and the same affection.

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## CAUSATION AND EARLY TREATMENT OF MENTAL DISEASE IN CHILDREN.

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When I state that this paper is intended to deal with the physical causes which underlie the mental defects of the young, it may appear to you that it could be more fittingly read before specialists in their care and treatment. I hope to demonstrate to you, however, that a very large responsibility antedates their admission into institutions for the feeble-minded, and rests on no one as heavily as on the family physician. It has long been held that mental enfeeblement in children, in the vast majority of cases, was purely non-development of the nervous centers; and this view has been quietly accepted by the general profession and the public at large. Many a family with a clean history of mental health, when a bright child has suddenly changed and mental growth has ceased, perhaps after some slight illness, or perhaps after no noticeable physical dis-