Spasmus Nutans, or
The Nodding Spasm.

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Spasmus nutans is an affection absolutely confined to the period of infancy.

Although it would appear to be not uncommon, it has received somewhat scant recognition in the numerous text-books on Diseases of Children.

With the exception of Rhea's Lectures, and Starr's (Philadelphia) Text-Book, I have been unable to find the slightest reference to the affection in any of the books on Pediatrics.

The disease consists essentially, as regards symptoms in wriggling or shaking movements of the head, combined with nystagmus of one, or both eyes.

The name Spasmus nutans is somewhat misleading, because the head movements very seldom consist of wriggling, but
are much more frequently lateral, or shaking movements.
Moreover the term is apt to cause confusion between this disease and an entirely different affection, viz. eclampsia uterina, or the "salam convection."
Probably a better name would be spasmodic oscillation. This would include also the nystagmus, which as will be seen is an equally important and even more constant symptom than the head movements.

My attention was first drawn to the subject by the occurrence of a fairly typical case in the wards at Craiglockhart Hospital, while I was acting as house surgeon there. The following is the case in full.

Case No. 1

Willie Morton, aged 1 yr.
Admission Decr. 11th, 1893
No history was obtainable as the child had been deserted by his parents.
Examination.

The child was pale and anemic looking, but well nourished, bright, intelligent, and exceptionally good natured.

The fontanelle was small for the age, the forehead large and broad, and there were two upper, and two lower incisor teeth.

There was slight breathing of the ribs but no other evidence of rickets.

On admission the child's head was observed to be constantly held inclined to the right side, when he was sitting up.

In addition, the head sloved from side to side, somewhat in the way which expresses dissent.

The greatest excursion of these lateral movements was to the left, and in addition to the lateral motion there was a downward inclination, also to the left.

The movements were by no means constant, but were very
paroxysmal in character. They were generally induced, or, if present, increased by excitement of any kind.

On restraining the movements the child at once showed marked evidence of discomfort. They ceased entirely during sleep, and even the child was laid on his back.

A day or two after admission there was noted to be epistaxis of the left eye, lateral in direction and very rapid—out of all proportion to the rapidity of the head movements. It was markedly increased, or, if absent, induced by fixing the head, or by laying the child on his back. It was not specially induced, or increased by looking in any particular direction.

There was no impairment of vision or movement in either eye, but the right pupil was larger than the left.
When sitting up he was noticed to have a peculiar way of looking at objects, when his attention was arrested. He threw back his head, and, still keeping it inclined to the right side of necessity squinted at the object looked at instead of directing his gaze straight towards it.

Dec. 23. In status quo.

Jan. 7. Notice almost disappeared.

Cryptagnmus much less marked. Has just cut a tooth.

Jan. 26. About this period the movements returned more equally, and two teeth were found to be cutting through the gums.

Jan. 29. Slight return of cryptagnmus in left eye. Slight cryptagnmus also in the right eye. In both eyes especially marked on looking up and to the left.

About the middle of February the anterior tooth cut through the gums,
and the dyspnoea disappeared, the movements at the same time becoming less marked.

March 11th: Child quite recovered
April 3rd, no return of disease.

In this case no treatment was adopted, but Cod liver oil and liberal diet.

The above gives a very fair idea of the general nature, course and termination of Spasmsus Eutans.

Since this case I have seen three other cases, two of which I only join, and which are also typical. All three I owe to thekindness of Dr. John Thomson, who allowed me to visit them.
Base W II

John Brown Age, 1 year.  
Family History, Good. No Epilepsy.  
Personal History, also good, no previous illnesses and no convulsions.  
Had a fall on the head about a month previously. No unconsciousness occurred afterwards, and no lassitude followed, so that the fall was probably not severe.  
A few days after the fall his head was noticed to shake by the mother.

Examination:  
General, well nourished, heavy child.  
No appearance of rickets. Fontanelle well closed in — two teeth.

Head movements: Head held with the chin drawn forward, the right shoulder, and movements lateral, with no downward inclination. — Eye Con- 
stant, but only occasional, move on engaging attention.

Hyperacusic, rotation in both eyes, and
Very marked, increased markedly by fixation.

Feb. 15th. In status quo. The mother, when questioned, states that the child is often noticed to take turns, during which he stares vacantly as if stupefied for a second or two.

About the end of February, the child passed all appearance quite well, and had been so for a fortnight. He had five teeth.

Case III

John McCullum, age 12
14t. child.

Date of Essex County, 25th. 1895
Family history. Father's brother takes fits, otherwise good.
Personal history. Always enjoyed good health, until an attack of bronchitis early in December of last year, during which the head began to shake. Had also during this period often "shaking of the eyes."
As the Bronchitis improved the shaking stopped, but began again about three weeks ago. The head inclined to the right side, and shook it laterally. About two weeks ago the head stopped shaking, and the eyes began to move. Especially the left.

**Examination.**

**General.** Child strong, healthy, and intelligent, with no appearance of rickets. Fontanelle well closed.

No teeth.

No head movements now.

**Nystagmus in left eye.** Almost constant, very evident on fixation.

Pupils Equal, Horizontal - Pupils Equal.

No nystagmus of right eye.

The mother states that she has noticed the child's peculiar manner of looking at objects, when his head used to shake, but this is not.
apparent now.
She has also often noticed, what
appears from her description to have
been temporary convergent strabismus
of the left eye.

Feb. 8. Hypopyon p跨越, - oedema of both
Eyes, but especially marked in the left,

About the end of January I again
examined the child, and found him to
be in all appearance quite recovered.
He had just recovered from measles,
during which he had neither squint
nor movements. He was still without teeth.

Case III

Hannah Wood, age 14 yr. 2nd child.
Date of Examination April 9th, 1895.

Family History - good.

Personal History. Always healthy until
about the New Year when she developed
Ezema of the left side of the head.
At coincident with this the mother
noticed movements of the head and of the
Examined.

General: Child strong, looking and well nourished. No evidence of rickets. On left temple and side of head a large angry looking patch of eczema. No teeth, and no appearance of them. No attempt at walking.

Movements: Head kept constantly inclined to right side, movements purely lateral, with no walking.

Implications: In right eye only and temporary.

In this case also the mother, when questioned describes what would appear to be attacks of nausea, like the last, and which she says occur frequently.
Literature

To Hensel of Berlin belongs the credit of having first brought this affection before the notice of the profession.

In the first edition of his Lectures on Diseases of Children he gives three cases, and mentions having, in conjunction with Romberg, made still earlier observations ('Klinische Warinnehmungen U. Beobachtungen S. 227 Berlin 1887') about the same time.

Two cases were reported by Faber and Ebert, where he does not state.

Hensel's cases are shortly as follows.

1. Child age 9m. Sex not given. Eyeb. Drooping with slight Rotation to the right. Hypotyphagma of right eye (inward movement especially marked) after a few weeks Eruption of a Tooth, Eyeb. disappeared, but Hypotyphagma remained.

2. Sex and age not given, Symptoms same as above, but Convergence...
Wandering of light eye, instead of
hyperagmus. No hyperagmus in either
eye. Eruption of two teeth, and
recovery. Began again, and recovered
spontaneously in two weeks.

3. Lee not given, age 9 yrs. See R.H.
History of laryngismus. Convulsions:
Teething. Waddling of head and
upper part of body coming on in
distinct paroxysms. Several times
daily. Diminished in intensity and
frequency after two weeks. Further
course unknown.

Of the above three cases it is safe
to say that the third is not an example
of spasms lumbans, but more proba-
ably is an example of eclampsia
lumbans, or, as it is called, the
“Talalum convulsions."

Heusel remarks the fact that the
movements are not confined to the
sterno mastoideus muscles, but that the
Estato's of the head are also involved.

In this Edition, 1889, he gives four additional cases all of which seem to be typical.

In his remarks he lays great stress on teething as a cause. Patients are all between three and twelve months, and the symptoms disappear as the teeth come through the gums.

Since Steno;en drew attention to the affection various observers have recorded cases, and the disease would appear to be far from uncommon.

Lancet—May 1st, 1886.
(Novicean Society Report.)
Dr. Stephen MacRae gives two cases.

In the subsequent discussion Dr. Sturgis Jones expressed the opinion that the affection is allied to canine clavica.
St. Bartholomew's Hospital Reports
Vol. XXII 1886 p. 96 Dr. Gee gives two cases.

The first is not remarkable except that Dr. Gee mentions that at the date of his paper the child is twelve years old, and strong and well.

The second case is peculiar in various respects. I subjoin Dr. Gee's account of it.

M. A., attacks of 'fainting and unconsciousness' when eight or ten months old, each followed by dizziness for a short time. The latter was now to recur, when the child was fired. It was divergent, and occurred in the left eye only.

Movements of the head began at fourteen months - lateral in direction, and a few days afterwards hypermetropia was noticed in both eyes.

There was no hiccup, but the child was unable to walk. He had one tooth.

This child recovered in about six or seven weeks, and at nineteen.
In the Ophthalmic Hospital Reports 1883 p. 46 Dr. Littlechild describes a case which he does not name, but which would appear to have been an example of Spasmus Unius. Dr. Littlechild's case.

**Case, age 15 months**

**Date**: Feb. 18th, 1885.

**History**: At six months "working" movements of left eye, left arm, and head. Latterly the arm has ceased to move. On waking the eye is still for twenty minutes, and then the movements begin.

**Examination**:

Constant slow rotary or shaking movements of the head; lesser than the nystagmus. Nystagmus quick, small, lateral, in left eye only.

Pupils act equally to light. Left sometimes acts when the right does not.
Right pupil often larger than the left: sees well with both eyes.

In Lancet. Oct. 20th. 1887, in an address on the relation of Ophthalmology to General Medicine Dr. Highley says Jackson mentions Spasmus nervosus, and again expresses his opinion, that it is allied to Canine Cïtechëa.


He remarks that the head movements, and Hypognum must be due to some Cerebral Disturbance common to both.

In Lancet. June 14th. 1870 Dr. Nadder of London gives Notes of five typical cases, and an.
Analysis of Twelve, accompanied by remarks, in which he points out that the affection is not essentially a disease of dévitation.

In one of the cases described there was vertical nystagmus of both eyes, accompanied by exotropia of both eyelids.

In two, in which there was recovery, the disease recurred temporarily during an attack of measles.

In St. Thomas' Hospital Reports for 1872 Dr. Nadden communicated a paper of considerable length on Ophæma Eritans.

He states that since his paper in the Lancet, he has had fourteen cases, and he gives full notes of nine of these.

In one, the head movements were generally lateral, but occasionally upward, whilst the nystagmus—in both eyes—was generally lateral.
Occasionally rotatory or vertical.
In this case there was also vertical exophthalmos of both eyelids.
In two of the cases the exophthalmos was most marked on placing the child to the breast.
In his remarks Dr. Naaden again speaks of ataxia as only an aggravating cause.
His remarks on the very frequent occurrence of petit mal attacks in this disease.

In a paper by Kassowitz — (Wien. medizinische Wochenschrift, 1893 ii 321) there is a reference to Epilepsia infantum.

Kassowitz appears to look upon it as one of the nervous phenomena of reiklo.
I have been able to collect from
the books full notes of five hundred
cases of this disease, working with
my own four hundred.

From these I have endeavored
to draw the following deductions.

Description of Disease.
The following five symptoms
are those most commonly met
with in Spasmus Nullus:

- Head movements.
- Hypstagnus.
- Petit mal.
- Peculiar way of looking
  at objects.
- Transparent.

The first two symptoms are by far
the most constant.

In typical cases there is both head
movements and hypstagnus, but
occasionally, throughout its
whole course, the disease is re-
represented by only one of these
i.e., hypstagnus only, or movements
only.
One of the twenty-seven cases. -
Both movements and nystagmus in 23.
No nystagmus, but only movements in 3.
No movements, but only nystagmus in 1.

Incidence of Symptoms
The head movements and nystagmus may begin simultaneously, but more frequently one appears before the other develops. The disease is probably more frequently ushered in by nystagmus than by head movements, in cases where the two do not occur simultaneously.

Subsidence of Symptoms
During subsidence of symptoms, which is generally gradual, and frequently interrupted by relapses, the nystagmus generally persists longer than the head movements, in cases where both have been present.
Symptoms in Detail.

Head Movements.

The movements of the head are not constant, but not at all paroxysmal. They vary in rapidity, but are generally about fifteen per minute. They are quite rhythmic, and appear to be quite involuntary. They are generally increased, or, if absent, excited by engaging the child's attention. They always cease during sleep, and when the child is laid on his back. The child invariably shows marked evidence of discomfort, if the movements are restrained.

They are said to be induced, or at least by covering the eyes. In one of my cases, in which there was well-marked unilateral exophthalmus, I caused the eyes to be bandaged with a handkerchief, without exciting any movements of the head, although, when the infant's eyes were open there were almost constant.
As regards direction, it may be
paid, or the subject that pure
nodding movements are very rare.
Pure lateral movement is somewhat
more common, but combined lateral,
and nodding motion is the commonest
of all.

Out of twenty-seven cases,

Pure nodding - 9
Pure lateral - 1
Combined - 15 = 25

In one no movements, and in
another the movements were sometimes
nodding and sometimes lateral.
The head is very frequently, whether
nodding or not held inclined to one side,
i.e. with the clinier nearer one shoulder
than the other.

In cases of pure lateral movement
there is generally greater excursion to one
or other side.

Where this is the case, no greater excursion
may lie to the side affected with exop-
tropia, if exotropia is
unilateral.
Where there is combined lateral and nodding movement, with unilateral hypertonicus the head often, but by no means invariably, rocks toward the hypertonic side.

Hypertonicus.
This may be univocal or binocular.
The movements are very rapid—about two hundred per minute.
It is not constant but only occasional like the head movements. It is sometimes increased, or induced by putting the child to the breast. It is always increased by fixation, but only seldom by looking in any special direction.
It is markedly increased, or if absent induced by fixing the head, the child showing unmistakable evidence of discomfort when this is done.
It is most commonly binocular.
Out of twenty-seven cases.

Double 24
Single 10
\[24 + 10 = 34\]
In three cases there was no nystagmus.

In direction it was most commonly horizontal, but occasionally rotary or vertical.

One of the twenty-four cases in which there was nystagmus, the nystagmus was:

Horizontal 12
Vertical 2
Rotatory 2

In six the direction of the nystagmus was first-stated. In one case it was vertical in one eye and horizontal in the other, and in one it was generally horizontal, but occasionally rotary or vertical.

In the latter case there was also vertical nystagmus of both eyes, and in one of the cases of vertical nystagmus there symptom is noted.

Where there is both nystagmus, and head movements present,
These are very generally in the same direction.

In seventeen of the cases a comparison is possible, and the correspondence in direction is noticeable in sixteen of these.

**Petit Mal**

Dr. Hadden appears to have been the first to notice this symptom, but it would seem to be a very common one.

In ordinary cases the child is simply noticed to look vacant for a few seconds, but occasionally, during the attack, the head, or the eyes, or both head and eyes may deviate to one or other side.

Out of seventeen cases there is evidence of these petit-mal attacks in six. Of these, seven of Dr. Hadden's, and three of my own. It is probable that it occurs more frequently than this, but from its nature it is a symptom that is very apt to be overlooked.
There is reason to suppose that the attacks of "Painting and Unconsciousness," described in the history of Dr. Gee's case, page 15, were really attacks of Petit Mal.

Peculiar way of looking at objects. This is noticed as having been present in nearly every case recorded by Dr. Hadden. It was present eighty-four cases at some stage of the illness. Dr. Hadden happily describes this symptom as "looking out of the corners of the eyes."

The head is generally held a little backwards and inclined to the side, and the child squints towards the object looked at, instead of directing his gaze straight at it.

It seems very probable that the head assumes this position, because in et-the movements can best be restrained, when an accurate view is desired of the object looked at.
On the other hand, as I have mentioned above, the head is in this disease very frequently held inclined to one side, and it is possible that the peculiar way of looking at objects is nothing more than the necessary cause of the eyes, due to the accidental position of the head.


træabisia

This is not nearly such a constant symptom as the others given. It may be present as a constant symptom taking the place of the cryptagrine, or it may be noticed occasionally, in cases where there is cryptagrine. In other cases it is present, as mentioned above, only when the child has an attack of Bell's.
Epilepsia (see page 12713).
In one of the above cases of left eye, in a case of left-sided epilepsy (see page 10).
In two cases there was a history of diabetes mellitus (Dadden 101).
In two cases there was deviation of the head to the side during "petit mal" attacks.

Pupils

These are generally normal in every way. In Billings's case they varied, one being frequently larger than the other. In Worries case one pupil was often observed to react to light, when the other did not.
In very juvenile cases the pupils differed in size on the child's admission, but as he recovered they became normal, equal.
In one of Dr. Dadden's cases there was nystagmus.
The Recess Cerei is always normal, and the vision perfect.

**General Health and Condition.**
This is nearly always good.
Children, the subjects of this affection have been noticed to be even more intelligent, and good-natured than usual.

**Aetiology.**
It is probably no influence.

**Age.**
It is at once apparent that this is a factor of the first importance.
It may be definitely stated that Spasms Oculi are an affection of children under two years of age.
In only one case did the disease last a month or two beyond the second year of life.

The statistics are as follows.
Era of the child at the incidence of the disease.

Under one month = 2
Between one and six months = 4
So. six to twelve " = 13
Over twelve months = 5
Not Stated = 3-27

From the above it is seen that nearly one half of the cases occurred between six and twelve months.

The youngest of those recorded by Ewerie, which he states started soon after birth.

Rebert's

This is recorded to have been present only in eight of the cases, and in several of these it is stated that the evidence of rickets were very slight.

I was fortunate to see a paper by Plessowicz, in which he deals at length with the nervous phenomena of rickets. He classifies Spasms and...
as one of these, like Bacillus subtilis and Cellula, and speaks of its being markedly benefited by anti-acetiphilic treatment, (phosphorus.)

Ricketts occurs in such a small proportion of the cases, that it is difficult to advice to it any great aetiologic influence. It may however act as an occasional predisposing factor.

Setting

It is impossible to overlook the influence in discussing the aetiology of this affection. By far the greater proportion of the cases occur during the dentition period.

One of twenty-four cases, where the age of stated eighteen were between the six months and two years.

There is also generally noticed a marked abatement of the
Symptoms, as each little cells
through the gums.

A very suggestive case is the
relating to one readily communicated
true by Dr. John Thomson, in which
the symptoms of Spasswur Sota
developed at three years old, but
in which dentition also began at
this abnormally early period.

Neurasthenia attributes great
importance to teething, and
indeed speaks of the affection as
a disorder of dentition, but
Dr. Hadden in his papers takes
up a different position, and
appears to think that the
causative influence of dentition
is only slight.

That is to say, the only
aetiological factor involved
is shown by the fact that the
disease occurs—though rarely—in quite young infants, and
that it may occur in older
children, where it is two of
In my own cases see p. 9 & 11.

There are no teeth, and no appearance of any.

The very least that can be said is that dentition is by far the most common exciting cause of the disease.

It must ever be remembered that the period of dentition is one of great physiological activity in the various tissues and organs, and that especially it is characterised by great hyperactivity, and consequent excitability of the nervous system.

In considering any nervous symptoms, therefore, that may develop during this period it is important to bear in mind that they are probably more dependent on the general nervous excitability of the child than on the mere local irritation of its gums.
Falls on the Head.

In six or seven of the cases there is mention made of falls on the head, and of the affection being noticed shortly afterwards.

Dr. Madden suggests that these falls may be worse than the cause, being actually attacks of petit mal.

It is possible also that the mother, knowing that the child has fallen, and anxiously looking out for possible damage has a keen attention drawn to the affection, which has been already existent.

I should be inclined to work upon falls as an occasional exciting cause, but it is of course impossible to determine how much influence to ascribe to the actual concussion, and how much to the accompanying fright.
Conclusions
In five of the cases, only, was there a personal history of convulsions, and a family history in five, so that to this tendency there would seem to be sufficient reason to describe any effect.
There is every reason to suppose, however, that spasms hemicraniae, like all other nervous affections, are more liable to occur in the children of neurotic families.

Diagnosis of Spasms Hemicraniae.
This may always present little difficulty. Where both movements and euphagia occur the disease could scarcely fail to be recognised. Euphagia occurring alone, however, might readily be confounded with other forms of euphagia, until the eyes were examined, and the ocular defect discovered.
Mere movements alone are present, violent, impulsive; they are also unmistakable. It should be said however that young children very frequently are noticed to shake their head from side to side in a non-purposeful fashion, without being affected by any disease.

These movements could scarcely be mistaken for the movements of Spasmus cutaneus.

In Spasmus cutaneus there are jerking movements, which spring very easily be mistaken thought at first sight to be Spasmus cutaneus.

"Eclampsia cutaneus, or the Saccorum Convulsive, as it is called, is only confusing in name. The movements are quite different in character, the whole of the upper part of the body participating in a forward
In Jection, which comes on in
distinct paroxysms.

**Prognosis.**

This is always good. Recovery
is the invariable rule. In only
one case, moreover did the
affection last beyond the second
year of life, and that only
for a month or two. In all
the others the patients were quite
well before two years old.

It would probably be safe to
say, in any given case that
the child will recover before
it is two years of age, and
that it is more than likely to
recover in a few months.

There is no evidence whatever
of its being a forerunner of Epilepsy,
As some have supposed.

The after intelligence of
children ever have been affected
with this disease is but little impaired.
Treatment:
The affection has a natural tendency to improve, without drug, and it is probable that attention to general hygiene, and good food is all that is necessary. Kassowitz and I have said recommends antirachitic treat-
ment.

Dr. Maddox speaks highly of Bromides, as tending to shorten the course of the disease.

Dr. John Thomson has treated cases with suitable doses of Antipyrin, with good results.
Remarks

The head movements are obviously not compensatory to the eye movements, or vice versa.

The marked difference in rapidity of the two renders this improbable, and cases are not uncommon where one occurs without the other.

The disease is obviously不吃a

Chorea. Apart from the fact that
Chorea hardly ever occurs under five
years of age, there is the question of the inelasticity of
tempor, and general depression
which characterizes Chorea.

Besides this the movements
do not at all resemble Chorea
movements. It is true that they
are increased by excitement,
and cease during sleep, but they
are much more regular, and
rhythmical than are Chorea
movements.
Canine Chorea is a somewhat different affection.

So far as I have been able to ascertain, it is a somewhat serious disease in dogs, accompanied by a peculiar prostration and with a tendency to pass into chronic nervous disease such as Paralysis Agitans.

It is, moreover, due to a well-recognized pathological change in the anterior cornua of the spinal cord.

The cryptoguins and head movements of Sparsum scintans must not be overlooked upon as interdependent, but as being due to a common cause.

This cause is undoubtedly some abnormality in the brain substance, either in the region of the cerebral cortex, or in the neighborhood of the medulla Oblongata.
Erytägminus occurs in many, and to various affections that it is less of much service, as indicating the region of the brain involved. The causes of erytägminus arrange themselves into three groups.

1. Acute ocular defects—mostly congenital.
2. Organic cerebral or spinal disease of very various character, e.g., Cerebral Spinal Sclerosis, Mucitis, Cerebral Haemorrhage.
3. From unknown causes, e.g., Cerebellum.

When not due to local ocular disease, erytägminus is generally a symptom of grave organic disease of the brain, and so far as I have been able to ascertain quite irrecoverable.

It is especially liable to occur in lesions of the cerebellum, and cerebellum.
That which occurs in Coal miners, however differs from the other forms. It occurs especially in those engaged in the occupation of "colding," who have to work with the eyes in a constricted position, and disappears on the patients giving up this occupation.

In many instances there are no other symptoms, but some of the worst cases have movements of the head as well (probably compensatory).

Dr. Oglesby has recorded a number of cases of Mine-mans Enophthalmus, in which, while suffering from the disease the patients were also subject to attacks of Vehic Nvæ (Brain 1881 p. 160) (Ophthalmic Journal U.K. 1881-2).

I have mentioned this affection of Mine-mans Enophthalmus, because it appears to present a slight analogy to Spheno-maxillary, but I am unable to think of any explanation of this analogy.
With the above exceptions, there is no other affection in which head movements occur, associated with lypotagmus.

The occurrence together of these two symptoms would point to a close connection between the nervous mechanism involved in elevating the eyes, and that involved in elevating the head and neck.

That this must be so is still further suggested by the close inter-relation which subsists between the two in a state of health.

In turning the head to look in any special direction, there is, at the same time an involuntary, but perfectly coordinated movement of the eyes in the same direction, and vice versa.

In opthalmoplegia externa, the patient can be taught to make up for defective ocular movement by increased head movement.
Moreover it is known that in the monkey, and, in all probability also in the human subject, there is a special cortical centre which presides over the combined movement of head and eye, situated in the posterior parts of the superior and middle frontal convolutions.

In this connection it is interesting to observe the almost invariably correspondence in direction of head and eye movements in Symphysis Entana.

Out of seventeen that can be compared they were in the same direction in sixteen.

This includes one case where the hypoglossus was vertical in one eye, and horizontal in the other, in which the movements were combined nodding and shaking, and a still more interesting and suggestive case in which the hypoglossus was generally horizontal, but occasionally rotary or vertical, the head movements.
being generally shaking, but occasionally rolling.

The disease is probably an affection of the cerebral cortex in the region of the above mentioned centre. The invariable and rapid recovery of all recorded cases, and the frequent relapses preceding the possibility of any serious pathological lesion of the part, and would rather seem to indicate that it is of the nature of an instability of the ultimate elements of the grey matter.

This instability is further evidenced by the frequent occurrence of Petit Mal.

In the evolution of the child's nervous system the first-coordinated actions are movements of the head and eyes, dependent probably on the developing activity of the centre involved.

At or about the period
Of denitition the whole nervous system is in a state of exuberance, activity, and irritability.

So it is not surprising therefore that it should be about this period especially that the highly complex mechanism involved in co-ordinated action tends to be thrown out of gear.

The immediately exciting cause will be all probability reflex irritation.

Irritation itself is doubtless the commonest reflex cause, but it is probable that any other reflex irritation would, other things being equal, produce the same effect.

In this relation it may be noted that several cases are recorded where the symptoms, after having disappeared, returned again during measles.
In the case recorded on page 11, there was no appearance of
commencing dentition, but a probable reflex cause was a large
patch of hair on one side of the child's head.