Locomotor Ataxia

with

Illustrative Cases,

being

A Graduation Thesis

by

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1884.

Cullercoats.

Northumberland.

Locomotor Ataxia, may be defined as an extremely chronic inflammatory affection of the spinal cord, progressive in its tendency, resulting in a loss of co-ordinating power over the muscles usually of the lower extremities. The names Progressive locomotor Ataxy, posterior spinal sclerosis, or more correctly posterior root-zone sclerosis, or sclerosis of the postero-external columns have also been applied to the disease.

Pathology. Examined macroscopically, the cord appears flattened from before backwards, the posterior columns being atrophied, & the membranes are usually thickened & adherent over the posterior surface of the cord. On division, the posterior columns present a pearly-grey tinge with increased consistency. The lesion usually begins in the dorso lumbar enlargement, the posterior root zones being the initial site of the sclerosis and as has been abundantly demonstrated the only essential morbid process of the disease. e.g. in Pott's disease, and in the growth of syphilomata, we may have sclerosis of the posterior columns, with no ataxic phenomena, because the lesions are limited to the postero-internal columns or columns of Goll. Again a post mortem examination of one of Pierret's cases showed a normal state of these columns of Goll, sclerosis as a thin laminar, only existing in the posterior root zones of the cervico-dorsal region, the symptoms during life being want of co-ordination & lightning pains in the upper extremities. While postero-external columns are first

attacked, the postero internal columns become involved with the advance of the morbid process and according to Lockhart Clarke the posterior cornua become invaded as well. Hammond has traced the morbid process in the lateral columns reaching the anterior horns. As we have seen in the case of one of M. Pinto's patients, when the postero-external columns in the cervical region are invaded we have want of co-ordination in the upper extremities - just as we have in co-ordination in the lower, when the lower dorsal and lumbar regions are attacked. Of the cranial nerves the optic most frequently becomes affected with the same atrophic change.

Sclerosis is the name usually applied to all lesions of the cord where the neuroglial Connective tissue is increased. It must be noted however that in Locomotor Ataxia the lesion begins in the nerve elements themselves, a histological difference from that which is the case in disseminated sclerosis, where the lesion has its origin in the Connective tissue. Initial destruction of nerve elements with overgrowth of Connective tissue is the histological characteristic of Ataxia, the microscope also reveals numerous Corpora Amylacea and Compound granule cells.

The morbid Process, then, may be defined as a chronic inflammatory one beginning in the nerve elements, leading to their destruction with slow distruction of the nerve tubes accompanied by increase of the fibrous Connective tissue.

I have copied from a book in Diseases of the Spinal Cord by Dr Byrom Bramwell 1882. (1) one representation of a transverse section through the dorsal region of a healthy spinal cord, the better to illustrate what obtains in Ataxia. (2) a transverse section through the dorsal region of the cord in a case of Locomotor Ataxia. (3) a transverse section through the lumbar region of the cord in a case of the same disease. (4) a transverse section through the cervical enlargement in a case of the same. I have coloured the sketches, so as to represent as well as I can the staining of the white columns with osmic acid. These copies illustrate diagrammatically all the more important histological characters of the lesion in this disease. (5) which I have pigmented to represent carmine staining is a longitudinal section through the posterior columns of the cord in this disease. These representations are from sections made by Dr Bramwell himself.

Sketches 6.7 & 8 are from representations from Gowers's diagnosis of spinal cord diseases 1884. which came into my hands lately, also pigmented to represent carmine staining.

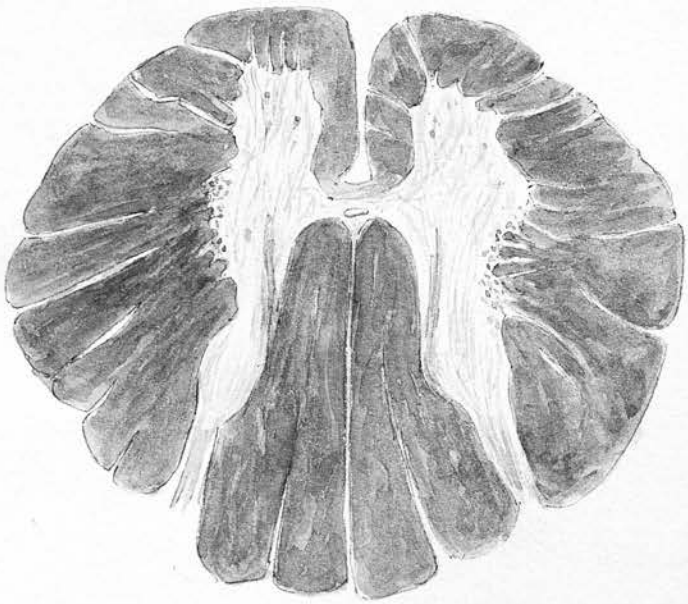
(6) Section at the level of the first lumbar nerves showing a dense areas of sclerosis through the post-external column. (Section by M. Pierret, Lyons).

(7) a dense band of sclerosis occupies the post-external columns.

(8) Syphilitic growth in Posterior Column, Section through the cervical region of cord. It caused in-coordination & partial loss of sensibility in right arm.

All these semi-diagrammatic representations illustrate well the site of the lesion in this disease. Figure 4 shows the lesion in the cervical region as a secondary ascending degeneration, but as we have seen in M. Pierret's case already cited the lesion may begin in the Posterior root zones of the cervical region.

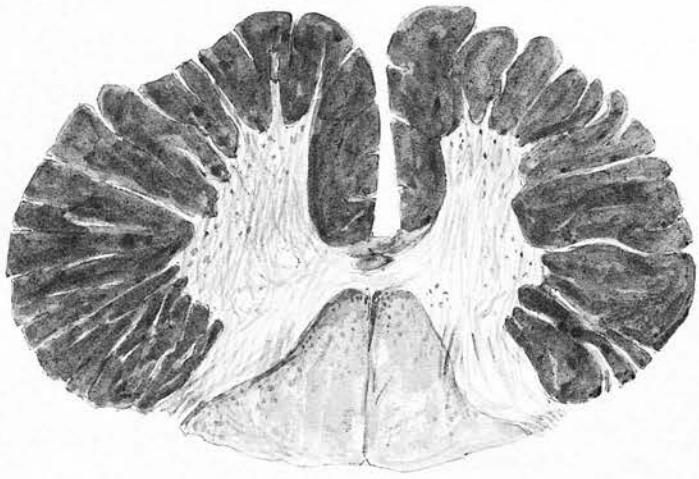
I.



Transverse section through the dorsal region of a healthy spinal cord.
magnified about 10 diameters.

All the white columns are deeply stained with the Osmic Acid.
The grey matter is only slightly affected by it.

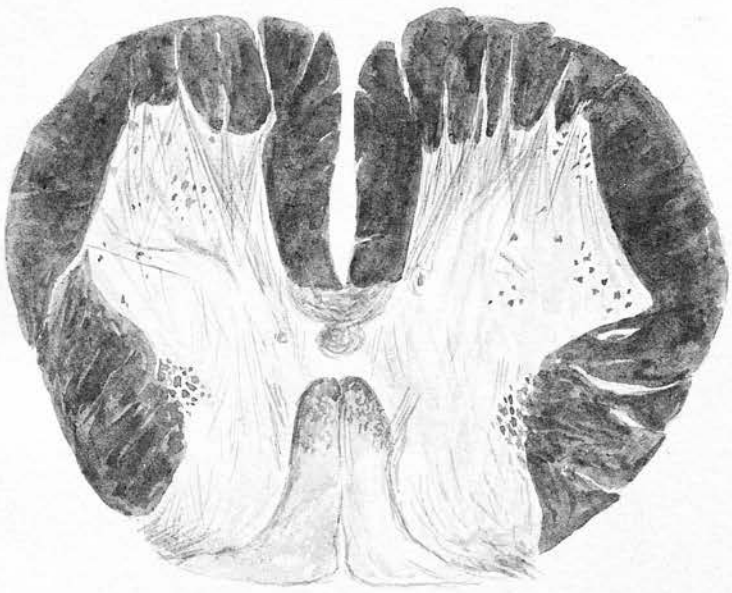
2.



Transverse section through dorsal region of cord in a case of Locomotor Ataxia.
magnified about 10 diameters.

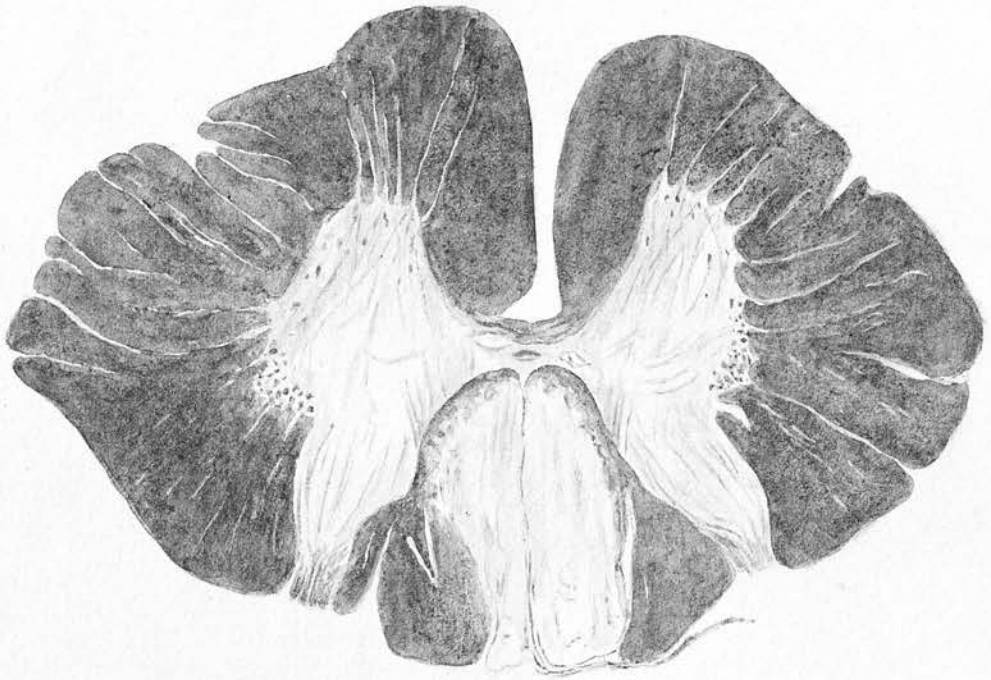
The lesion involves the whole of the posterior columns which are seen to be very faintly stained by the osmic acid.

3.



Transverse section through the lumbar region of cord in a case of Ataxia magnified about 10 diameters.

The greater part of the posterior columns is invaded by the lesion and is therefore unstained by the acid. The part of the posterior columns adjacent to the posterior commissure is still healthy.

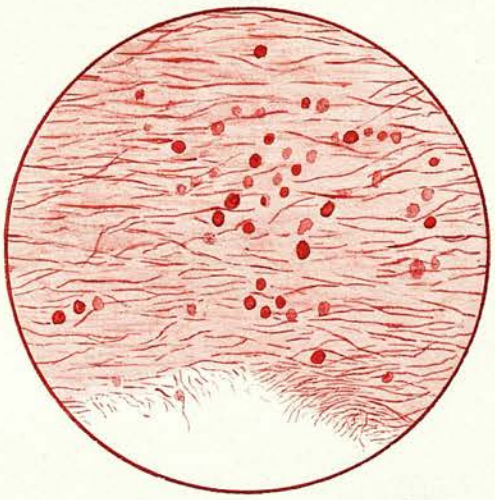


(magnified about 10 diameters)

Transverse section through the cervical enlargement in a case of Locomotor Ataxia.

The lesion almost confined to the postero-internal columns; & presents the usual features of a secondary ascending degeneration.

5.



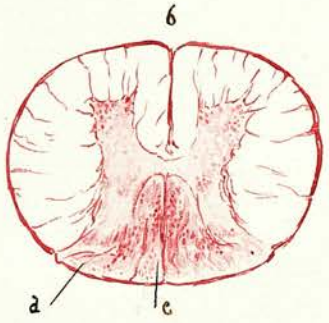
Longitudinal section through the Posterior Column of the Cord in Locomotor Ataxia magnified about 250 diameters.

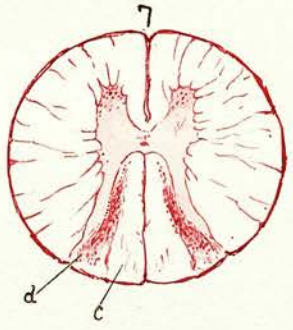
The nerve tubes have almost entirely disappeared, their place being taken by delicate connective tissue. Numerous amyloid are scattered through the section. These bodies are deeply stained by Carmine.

d = postico-external column.
c = postico-median column.

Postinor Sclerosis – Locomotor Ataxia.

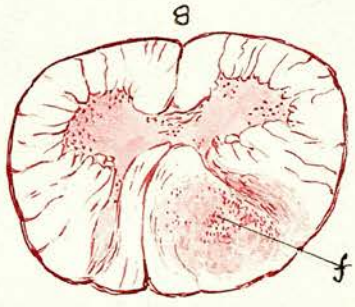
(6) Section at the level of the first lumbar nerves. The Postinor Columns are closely sclerosed throughout their entire extent.





(7) A dense band of sclerosis occupies the postico-external columns (d) through which the postinor nerve roots pass. The postico-median columns (c) are free from sclerosis. The bands of sclerosis are narrow, probably from contraction of the tissue, since from the position of the septum (limiting), they appear to occupy the entire width of this column. The patient suffered from well-marked Locomotor Ataxia.

(Section by Prof. Pierret).



Section through the cervical region of Spinal Cord of a man who died from syphilitic disease of the Brain.

A growth (f) occupies the right posterior external column, and has enlarged it to three times the normal size, displacing the posterior median septum to the left. The growth has invaded the right posterior horn, and extended a little way beyond it into the lateral column. It caused incoordination and partial loss of sensibility in the right arm.

Looking at this disease as it has been defined, we notice that it is - chronic, that it is - progressive & that without loss of muscular power, there is difficulty of locomotion from want of power to co-ordinate groups of muscles.

Causes of Locomotor Ataxia. Syphilis is generally held to be the most common, (1) acquired (2) hereditary. Former writers the proportion of ataxic cases with a history of syphilis as high as 91.45 p. cent and other observers state varying estimates from 15 p. cent upwards. Out of 23 cases, I have treated at the Prudhoe Memorial Home, Whitley-by-the-Sea, Northumberland, only 2 had ever acquired syphilis and out of 5 cases in my private practice (wherein 4 were children) only 1 had a history of hereditary taint.

Neurotic hereditary predisposition, must I think be looked upon as tending to produce the disease. The cases I illustrate this paper with show this to be the case. 14 out of the 23 cases already studied give a decided hereditary neurotic history. Examples of cases of Ataxia, where we can trace out cases of Hippomania, monomania, epilepsy, paraplegia, mental disease of one kind or other, in relations or ancestors are numerous. Fit deduce this from an analysis of all the cases I have heard of, that this history of hereditary taint is most important, as without it, other causes which excite this malady would probably not be sufficient - else would the disease be commoner.

Injuries, must rank as exciting causes, though with the present statistics more cannot be said. Out of my 23 cases

had history of severe blows. I was off work 3 months from a kick in the small of the back while treating in a young horse, and then fell down the hold of a ships in Palmers Yard. Seven. or. Tyne & injured his spine on a transverse beam, the third received a blow on the abdomen, which rendered him insensible from the handle of a crane. Working in Cold or wet in a strained position, is often mentioned as a predisposing & exciting cause. It may be an exciting cause, especially if the work be hard, but in Northumberland, a County which has a most unenviable reputation for Colexia I would notice that we rarely have the disease manifested in Pitmen or Miners, yet the Coal seams of the County are low & the workings commonly wet, necessitating the hewers often to lie on their sides, backs in unusual positions of strain with the other disadvantage of being wet. It seems then that if this were an important factor we would have a greater number of cases from that class of men as everything else favours — Pitmen & hewers are born - not made, they intermarry & have a class by themselves (witness the long arms hands almost to knees) & from their irregular habits &c. one would consider them especially liable. My own experience is that the Mechanical class & those whose work entails repeated shocks are the most liable e.g. Strikers & riveters in Shipbuilding yards. Brakesmen. Fitters & the like. Four out of my 23 "Home" cases were brakesmen on coal trains where there are no vans, but they stand on the buffer and getting bumped about having to jump down frequently to couple & uncouple.

5 mine strikers or miners. 3 Tailors (under cover) 3. Seamen (under cover)
3. Engineers on Steam hoppers (also sheltered). 1 bandsman, 2 Others
worked in N. S. Ry. repairing shops & the 3 cases I had in 80 were
not noted as to occupation, the most we can conclude is that
Cold Frost & Strain may excite the disease where there is a
predisposition for it.
Other diseases, influence e.g. Afterst Limpotence. Diphtheria,
acute febrile attacks e.g. typhus. Acute pneumonia, epilepsy
Alcoholism, Gout, rheumatism &c. I feel it out of the
question in my cases to relegate the proper influences, so many
are usually at work.
Severe & prolonged mental or bodily exertion, act both
as predisposing and exciting causes, the latter causes was
well marked in our Soldiers after the Peninsular War.
Immoderate Sexual indulgence & Self abuse may lead to Atrophy
but the balance of evidence goes to shows that it is functional
mischief rather than organic disease that they induce.
One proof adduced as to its being a cause is that the disease
is rare before virility - & that it has been known to follow
great sexual indulgence, but one would be inclined
to think in that case that prostitutes would be more
liable as they are also so exposed to Syphilis &
then the proportion of the sexes would not be so extreme.
Many other things are supposed by some to exercise an exciting
influence on the production of the malady - Tobacco in excess for example.

In looking for a causal element, it is well to notice that in many cases not one but several favouring circumstances or conditions may be at work, e.g. a man may have been-as indeed I have known - a hard worker, a hard drinker, have had syphilis & rheumatism, now it would be difficult to allegate to each their proper proportion as to cause, they must be taken together. In a large proportion of cases, no cause can be assigned. Males are much more disposed to the disease than females. Scarcely 14 p. Cent. were females according to Sulenburg who collected 149 such cases. His table shows too that the disease is one of manhood & middle life. No cases after 60 years & but 3 before 20. The probable reason for the greater liability of males is the fact that they have harder to work and are speaking generally more exposed to the various exciting causes. The ages of my 23 Pembroke Home cases may be thus tabulated.

In 1880 — 3 males — average age 45.3 years.
" 1881 — 4 " — " " 44.7 "
" 1882 — 7 " — " " 39.3 "
" 1883 — 9 " — " " 40.9 "

Out of that number it will be seen there were no females. The commonly accepted causes in females seem to be, hard & protracted labours, severe haemorrhages, suppressed lactation &c. In all cases, it may be regarded as an axiom, that whatever excites excessively or leads to exhaustion of the functional activity of the nerve tubes of the posterior root zones will act as excitants in pre-disposed constitutions.

The Course of the disease & its symptoms may be conveniently studied as it is usually divided:- (1) The premonitory or invasive stage. (2) The ataxic or full development stage. & (3) Stage of extension & complications. It must be remembered however that there is no hard & fast line where one stage merges into the other & even the initial symptoms frequently remain throughout the course of the disease - these symptoms being so various & so differently grouped in different cases makes it impossible to definitely fix their time of appearance indeed as we shall see they are frequently overlooked or mistaken.

(1) Stage of Invasion, may last months or years, comprises (1) Disorders of general Sensibility, most important & characteristic being - lightning pains flashing into some part of the body suddenly & unjustly, recurring sometimes periodically, more commonly at variable intervals, usual site, lower extremities, but may be back, pelvic organs, chest or upper extremities head. It is variously described, as a shooting, burning, or dragging pain, being compared to successive electric shocks, forked lightning, & the dart of a red-hot blade. The pain is always complained of as being deeply seated near the bones and both sides of the body are often simultaneously attacked. In addition to these deep pains, lancinating pains, neuralgic in their character not confined to a particular nerve are frequently met with & are most difficult to treat. A girdle sensation, a feeling as if a tight cord or broader belt was round the body & extremities - at various levels. Numbness & tingling of extremities usually the 1st-first complained of then the hands. A feeling as of walking on cotton wool or air bags - one explanation

sometimes given for patients slapping the ground so as to feel it—fingers as if covered with downy feathers making difficult all grasping movements. Feet frequently excessively cold — may be hot, or one cold & other hot. Anaesthesia & analgesia more or less in the areas of affected segments. Hyperaesthesia distributed in patches. Common on lower extremities generally associated with the lightning pains.

The lightning pains depend most likely on irritation of the posterior root fibres in the posterior root zones. Girdle sensation depends on slight excitation of the entering posterior nerve roots. Feeling of heat & cold probably depends on a vaso-motor irritation. (III) Condition of Reflexes — Superficial reflexes vanish but plantar reflex as a rule is unimpaired even when lost. The Patellar tendon-reflex is almost invariably abolished early in the disease, probably caused* by arrested conduction through the patellar tendon reflex arc is in the afferent fibres entering the inner radicular fasciculus in the posterior horn. (III) Disorders of Special Senses. Amaurosis from atrophy of optic nerve, may go on to complete blindness, at the early stage perception of colours (green first) being interfered with or lost. A like atrophy of the auditory nerve may cause deafness as in 2 of Virchow's cases. All sense of smell was lost in one of Althaus' cases, but slight interference with the sense of taste has been noticed when the trigeminus is involved. (IV) Paralysis of the muscles of the eye, a temporary paralysis of the levator palpebrae superioris gives rise to ptosis. Less have squint in some cases divergent squint most frequent. Myosis a common symptom may be double or single most frequently double, if not extreme probably caused by a lesion of the sympathetic fibres in the cilio-spinal region. If extreme — from irritation of part of the third nerve nucleus.

* Charcot.

Mydriasis is observed in a small proportion of cases, but it is noteworthy that it frequently dilates & remains dilated for hours (as in two of my own cases at the Home) after an attack of ataxic pain. The Argyll-Robertson phenomenon, is usually associated with myosis. Nystagmus is a rare symptom & late one usually. The trigeminus is sometimes involved in the disease with pain as its most common symptom, the attacks are as a rule followed by fruit hypaesthesia of the skin followed as the disease progresses by anaesthesia in the region of the fifth nerve. What I would like to notice is the statement of Peiser who says that this anaesthesia may by extension to the pharynx produce dysphagia, the facial nerve may be also involved, & may have double or single paralysis. Soffroy records a case where bulbar symptoms supervened. Hamot reports a case of double facial paralysis, paresis of tongue, dysphagia, partial diminution of taste & smell. In both cases these symptoms disappeared suddenly. (Compare this case with that of Martin Paul's. Hamot's case began with an attack of vertigo then followed the symptoms mentioned, they disappeared & left the ataxic symptoms behind.)

V. Various Organs. (a) Cardiac. Vulpian first described that there was an association of heart disease in ataxia, but has been shown that incompetence, obstruction at either orifice may accompany this disease. In Miss Constance (one of my reported cases) we have a functional murmur becoming organic. In 3 of my 23 "Home" cases there was heart mischief (embolic aneurism

of the arch of the aorta be included) when there would be 4.
I as stated above 2 aortic regurgitation - Corpuing the
views of Berger & Rosenbach - 1 mitral insufficiency.
It is right to state that other observers hold that prolonged
suffering of any kind can influence the heart & produce
disease that the association of cardiac disease
with Ataxia Case in this view is accidental.
(b) Laryngeal crises, consist of whooping coughs, may cause
asphyxia & convulsions if severe, for days after the voice
is almost quite lost, this was well illustrated in one of
my cases who in the space of six months had two of these
spasmodic attacks with loss of voice for some days after
about this case I would note that it was in the later
not the earlier period of the disease that the attacks occured.
Charcot thinks that the cough is reflex caused by hyperesthesia
of mucous membrane of the Larynx.
(c) Gastric crisis. In the case of a patient under the care of Prof.
Grainger Stewart, 6 years ago in the Edinburgh Infirmary I remember
a pitiable case of Ataxia who every now & again suffered from
this crisis. The case was thoroughly ataxic, complained of
excruciating pain in the front sides of abdomen before the
vomiting came on, & if possible increased with its appearance
In one of my recorded cases a feeling of sickness accompanied
with pain comes on irregularly, out of the 23 cases mentioned
I have not seen one, showing it is more an early Symptom of the disease.

VI Bladder & bowel affections – micturition may be painful, or frequent or irregular as my cases illustrate, or bladder may be only emptied once in twenty four hours as in Case 3. Want of control over bowels a common early symptom as a rule constipation of a very intractable kind later in the malady.

VII Disorder of Sexual functions. In the early stage increased, this may go on to the real ataxic stage – as in the case of a late M.P. who told me it was impossible to satisfy his sexual appetite – as a rule in the later stages we have neither loss nor impotence.

VIII Patches of ecchymoses have been described by Strauss & Ross says he has watched them passing through the normal shades of colour before fading as those following blows. I have also seen these patches but always considered that they were due to knocks or falls not to a vaso-motor disturbance. Trophic affections are not infrequent. Herpes in one of my cases now & again precedes an attack of lightning pains, this the most common symptom but we may have lichen or bullae, – the nails may fall off, teeth come out, ulcers of the foot may now & then be seen. A peculiar condition of the Hair, from the frequency I have observed it, & from not having seen it mentioned before deserves passing notice. I refer to an extremely dry state in dressed, hairs tend to stick out separately, hair will not lie smoothly as the head, but without (as in neuralgia) any tendency to fall off. I have so frequently observed this that in the hope of representing it I have given pencil drawings of the form

Case I. Sketched from nature.

Showing the erectile condition of the hairs.

Cases II. III & IV. sketched from a photographic group of the family in my possession.

Showing the erectile condition of the hair.

recorded cases which show this condition. Charcot explains trophic changes by thinking that the centrifugal trophic fibres pass through the central radicular fasciculus, & just as he attributes the various sensory disturbances to its irritation, these trophic fibres will consequently be liable to simultaneous irritation. (IX) Cerebral & psychical disorders. Giddiness is common in early ataxia. I would refer to the attacks in connection with Case II of which I have given extracts. Epileptic & epileptiform attacks. Case I shows ataxia ushered in by an epileptic attack & head pains. Apoplectiform attacks may precede or accompany ataxia. The mental faculties are generally clear, but towards close of disease, the moral faculty may become quite perverted, as impotence gets confirmed, the appetite for sex may become uncontrollable & the actions most lascivious. The foregoing are all the chief premonitory symptoms that I have seen recorded or observed, but it must again be observed that the division is arbitrary as the ataxic stage seems not infrequently to have no premonitary stage so far as we can trace them the peculiar gait may be the first symptom.
(2) Ataxic Stage or stage of full development. Want of co-ordinating power is its characteristic. In standing patient keeps legs apart to widen base of support. When great toes thrust in apposition unless eyes fixed on feet great difficulty to remain erect without swaying or even falling, when eyes closed erect position impossible, as disease advances inability to stand at all even for artificial aids. Sometimes the first indication of the disease

when patient closes his eyes to wash his face experiences a tendency to fall forward over the basin. The walk from being but slightly staggery on first getting up or suddenly halted becomes impossible unless eyes directed to the feet or ground immediately in front; instead of the almost simultaneous gliding movement of planting heel & sole on the ground as in natural walking the ataxic has two separate movements, the leg is jerked outward & forward, the heel strikes the ground suddenly then after an interval the sole reaches it with an abrupt flap – This in proportion to the diminution of the tactile & muscular sensibility. The movements of progression have been compared to the balancing ones of tight rope walker. At this stage a spurt for a short distance is possible but is to be noted that the direction of the ataxic patient is in a straight line. As the disease advances without the aid of crutches or sticks progression is impossible, these artificial supports being kept well away from the sides so as to give lateral assistance, as still further advance is made progression impossible even if supported by someone at either side, the legs are jerked in all directions in the greatest disorder of incoordinate movement. Ataxy of the upper extremities may now appear (if they have not been incoordinate from the first) writing, buttoning boots or clothes & delicate manipulating movements become uncertain; impossible without the aid of the eyes. Spoon reaches the mouth by a round-about series of disordered jerks.

I had hoped to have been able to have added a number of Sketches illustrating ataxia of the upper limbs, but the movements are so difficult to express, that nothing short of instantaneous photography will properly express them.

Just about Commencing front on steps.

Sketch from memory, ataxic patient attempting to enter a carriage. He is represented as having finished all the movements save the abrupt jerk on to the steps.

I.

about to take a step.

Ataxic patient is figured as about to step off his left foot, the general position of the body, feet widely separate, sticks also for lateral support can be seen. I. II & III are from nature, but it is difficult to sketch a well marked ataxic patient as he is unable to maintain one position long.

II

Setting a step.

Patient is figured in the act of putting his leg outwards & forwards, again stepping off the left foot, the forward position & to the left of the body in order to preserve his equilibrium is seen.

III.

planting heel on the ground.

Patient is sketched in the act of putting heel on the ground, the sole will follow, when the trunk will be inclined more forward & the inclination of the body will be to the leg he is about to step off next.

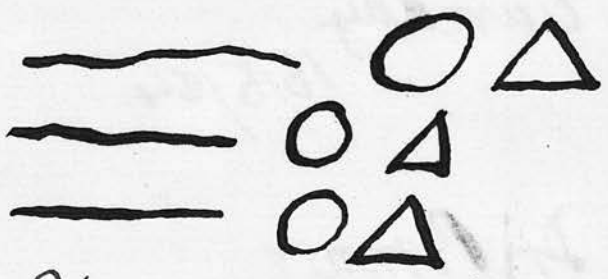
Sunday 18/5/84

Dear Dr Rennie

I am very sorry

I was so lazy as not to write to you before. I am getting a good deal better; thank you very much for your letter; it was very kind of you to think of me here are the straight line the circle & the triangle

Specimen of handwriting of Master Bryan, whose case is reported. It will be noticed to get worse towards the close, yet "Bryan" is well written, owing to less effort being required as being his own name he writes it frequently. In writing he "grasps" the table with hand & wrist.



short a
sincerely

I've done it three times Bryan
because the first were
n't at all good. So many
people go to Mr. Kellgren's
now that we go at half
past eight instead of nine.
Both Mother & Ethel think
I have grown a great deal
more lately than I have
ever done before in so

Specimen of handwriting of Master Bryan
will be noticed to get worse towa
well written, owing to less effort
name he writes it frequently. He writ

Incoordination of the limb muscles may now come on, causing the same characteristic jerking movements of the body; so far as sensory disturbances are concerned, the lightning pains continue & increase in severity, in respect of the hyperaesthetic patches they give place to anaesthetic ones. Patient with shut eyes cannot tell whether he is walking on bobby tiles, carpet or wool mat, & all their fingers handle seems muffled in cotton wool. Paralysis of sensation of every kind & combination is met with but analgesia is most common. Retardation of sensory conduction is often observed, if pricked touch may be felt but 10 or 15 seconds may elapse before pain is felt. Muscular sense becomes impaired & cannot distinguish between different weights. Incontinence of urine, obstinate constipation as a rule & sexual impotence is gradually developed, the muscles become soft & flaccid when we reach the final stage

of 3 Extension & Complications. Patient lies helpless mass, but may still be capable of pushing firmly with his legs, sooner or later however the muscles loose all tone & tension & undergo a diffused atrophy. Anaesthesia increases till patient cannot tell with shut eyes the position of his limbs. Incontinence micturition & defaecation are now the rule. Bed Sores complicate the case & the patient at length succumbs to general wasting, or cystitis, pneumonia or phthisis; the heart disease may be the immediate cause, or cerebral symptoms may develop, or the disease may extend to the medulla & the end be caused by difficulty of respiration & deglutition.

Charcot first traced a connection between ataxia and peculiar affections of the joints which former observers have put down to rheumatism. It occurs in but few cases. The larger joints are the most frequently affected, bones become liable to spontaneous fracture the joints to dislocate from liquid effusion. Dr Buzzard says this joint affection is due to a lesion of the medulla oblongata. Dr Benjamin Bell reported cases of like affection co-existing with ataxia. That the disease cannot be due to an affection of the cutaneous is proved by the fact that the affection may be an early symptom, that there is no muscular atrophy, that it has after death been found healthy in some cases. The deformity which this disease gives rise to is very great. In one of the cases – a pauper – David Pigg, whom I attend as Medical Officer of the Tynemouth Union –, motion of the legs is impossible & contrary to what I have often seen it elicited – pain is unbearable strong doses of the bromide being every now & again necessary or the hypodermic Injection of Morphia. – The pain is by no means constant, comes on a week or more at a time, is worsened by cold winds & wet weather. This man is 47 has been ataxic for 15 years, he is now in the last stage – grave complications have set in attacks of dyspnoea at intervals. Nystagmus – a rare symptom – is present in his case, his speech is ataxic, only soft food can be swallowed, his first symptoms were pains in his legs & he had been treated by the late Dr Stephens of Shields for over 2 years as if rheumatic.

Diagnosis. In the second stage easy, in the premonitory stage or where disease extends beyond its usual limits difficult often in the extreme. In the early stage it is better not to trust to any one symptom as pathognomonic, out of my 28 cases I have found the knee jerk lost in all save one. Lightning pains & the girdle sensation are reliable symptoms. Loss of perception for space tried. paresis of the ocular muscles. Myosis with the Argyll Robertson phenomena are also trustworthy evidences. The sensory disturbances also guide our diagnosis & the tendency to oscillate when the eyes are shut. Some observers state that the lightning pains alone are sufficiently characteristic symptoms whereby to diagnose ataxia. I can only say that I have seen not a few cases where these were not sufficiently pronounced to be conclusive and indeed have seen them mistaken for pains of a rheumatic character by practitioners. It is best therefore to trust not to any one symptom but to a groups of symptoms, & this all the more important as it is the different character the symptoms assume, & the irregularity with which they appear that in itself constitutes a difficulty. That a very careful study of the groups of symptoms evolved by lesions of different segments of the cord be made and a sound basis for diagnosis established is I think of extreme importance in this disease, as from all I can gather, treatment in the premonitory or early stages is the more likely to be followed by a beneficial influence on the disease.

Prognosis. is always grave; if no neuropathic hereditary taint, if symptoms not severe, & the progress of the disease slow, with a distinct history of Syphilis then we may if we treat the case early hope for a favourable result. A certain number of cases may become arrested spontaneously or under treatment, in a smaller number there is apparent Complete remission of the symptoms & Cure. The greater proportion of cases go slowly & progressively on for 10 or 15 years or more & then death from general marasmus or some intercurrent affection.

Treatment. (1) Preventitive - all families of a hereditary neuropathic tendency, should avoid all causes likely to act as excitents: e.g. Exposure to cold or wet. excessive bodily or mental work long prolonged. immoderate sexual indulgence, & the children shown the danger of Self abuse.

(2) Hydropathy - Baths were formerly greatly in favour. affusions of tepid water or rather colder to the Spine are highly spoken of. Erb recommends cold sponge bath even through the winter.

(3) Antisyphilopathic treatment may be of value in the premonitory stage.

(4) Electro therapeutics is highly recommended, the Constant Current being employed - it is a most useful adjunct to other means.

(5) Medicinal. Nitrate of Silver given in doses of 1/6 to 1/3 of a grain 3 times a day - continued for 3 weeks then stopped for 2 weeks then resuming for other 3 weeks & so going on for months, watching the effects on the skin may prove beneficial. Albuminuria may be caused by it use.

Iodide of Potassium takes a high place deservedly in syphilitic cases, in the case No I have recorded as hopeful for cure it was an important factor.

Bromide of Potassium is useful in easing the pain. It is what we always use at the Sundhed Home with good results. It is often combined with the Iodide in treatment. Ergot of Rye has lately been much advocated in the disease, as also phosphorous. Cod-liver Oil is also recommended. It is my Cases shows a useful adjunct. (6) Operative treatment consists in stretching the large nerve trunks. It is not unattended with risk, may relieve the pain for a few days but the results hitherto obtained are hardly such as to warrant recourse to this treatment. (7) Treatment by rest, is a very good remedy & I believe played an unimportant part in Case I. He was in pure ozonised air, lying on a deck lounge & from his limited surroundings had no inducement to walk much. For individual Symptoms General principles must guide us. For pain. Bromide of Potassium or Morphia injections. I may mention that I am in the habit of giving drachm doses of the Bromide every 4 hours till the paroxysm passes off, as a rule the first dose mitigates the severity & dulls the pain considerably. Friction with Chloroform along the Spine is of benefit in pain in the back. The Constipation is best overcome by enemata, or if too obstinate for such for aperients of the bowels may be resorted to.
The patients themselves invent many cures for the pains, e.g. turpentine, rubbing with paraffin, cold water cloths &c.
Sea & Mountain & forest air best; careful dieting, flannel underclothing to avoid sudden changes of temperature should be recommended. In very old cases, relieve symptoms as they arise and try to make surroundings pleasant.

Having thus given as far as I can an outline of all that is most important in relation to Locomotor Ataxia, I will proceed to detail more particularly the four cases I have had occasion to allude to. I am induced to report them as the disease is not common in children. Prof Friedrich calls attention to an affection of the spinal cord occuring very rarely in children which he regards as a hereditary form of ataxia, Hammond from an experience of four cases of his own & full details of six others does not consider them to have been ataxia at all. Incoordination was not a feature in the early development of the disease, but only muscular weakness. Dr Hammond's own cases - two pairs of brothers - they looked like old men, could walk as well with eyes shut as open & could stand with shut eyelids without any unusual swaying of the body. His cases were all males. It will be seen from above symptoms that the special features of ataxia are wanting altogether, as we have already seen out of 149 cases collected by Eulenburg only 3 were before the age of 20 years and only 1 a girl. Three of the reported cases are members of one family and bear considerable likeness to one another as my pencil drawing shows. The other of whom we will hear first, has an interest from the improvement under rest & treatment, and that too with a rapid onset of symptoms usually considered to be unfavourable.

Case I.

Master Talbot H. 15 years of age resident at Tynemouth, Northumberland, first seen in the August of 1881. He was a tall, slim, anaemic boy, pale complexion, fair hair and light blue eyes, incisors notched, constantly complained of feeling cold, even in bed - used to heap rugs &c., on his bed, was often tired in the mornings as if he had not slept, complained daily of Headache after leaving school, said it was a dull, heavy pain, & came on in the afternoons lasting till he fell asleep. Appetite capricious & small, a craving for butchers meats, & if allowed them, picking at them & nothing else. He had a dull, listless look - if asked to interest himself in anything would say "It wasn't worth while", his parents noticed him strangely forgetful of little acts he had but recently done, e.g. would feed his pigeons twice, or go again to the yard to let loose his dog, his temper too from being exceptionally good, became extremely irritable. With above exceptions all other systems, sensory, circulatory, alimentary &c., were normal. He was by no means an advanced boy & seemed to feel this, had a turn for mechanical pursuits, - fretwork & the like.

Recommended:- that he should be at once taken from School, - a private one where competition was slight - reading only what would interest without fatiguing him, that he should spend as much of his time as possible in the open air, taking exercise short of fatigue. As regards diet

drinked 1½ pints of milk to be taken every day, porridge either at breakfast or in the evening, less butchers meat & more bread (old), tea to be weak with plenty of milk, same also as a nutrid Cod-oil in teaspoonful doses after the three chief meals of the day.

Medicine - A teaspoonful of Parrish's Chemical Food with half that quantity of the Syrup: Ferri Iod: was prescribed in conjunction with the oil.

The duel, almost vacant look with the tired morning feeling still persisting after a months trial of the treatment despite a general improvement and cessation of headache, I induced his elder brother to sleep with him and as far as possible watch he did not practice self-abuse advising steady continuance with the building up treatment adopted. No bad practices could be discovered, he slept I found fairly well grinding his teeth occasionally but not every night. This latter symptom together with a dryness of skin & hair and his capricious appetite induced me to try the effect of a vermifuge but without results. Things remained pretty much in the same condition till October 6th when on the morning of that day I got a hurried message to say that Master Talbot had taken a fainting fit in the street. I drove rapidly to his house and found him recovered for the most part, but

but looking very drawn, with that peculiar old-mannish look I have frequently observed after an epileptic seizure. On asking a few leading questions, it was evident the "fainting fit" was an epileptic attack. Prescribed quiet, rest in bed with a high pillow, and as headache was complained of — a dull aching at back of head — painted for 4 inches down nape of neck by about 3 in. a Cantharide blister, & gave internally gr: V of Calomel: Combined with gr: XX of Calc: Salaap: Comp: left and called again in the evening, found patient had slept well, had had twice relief by the bowel, respiration tranquil, & pulse & heart's action regular, blister beginning to rise, gave instructions how to keep up irritation in the neck & prescribed Bromid: & Iod: Potass: in the proportion of gr: XV of the former to gr: V of the latter every 4 hours. This treatment I pursued till the 17th with the effect of relieving the head pain on the one hand & producing "Bromism" on the other, in consequence reduced the Bromide by a half still pursuing gr: V doses of the Iodide the irritation being still kept up in the neck. For the first time since the attack my patient expressed a desire to get into the drawing room, this was permitted for the morrow the 18th. On visiting him that day found him sitting up, he complained of shooting pains in his legs and cramps

in the calves of his legs and a feeling as of a tight band in the upper third of both thighs. He attributed the symptoms to lying so long in bed, myself partly accounting for them the same way & in greater part to the Bromide, or the "Bromism" produced, ordered a hot pitch bath for about 10 minutes with a cold towel wrapped round head & discontinued the Bromide exhibiting the Sod: P Iod: alone & resuming the Cod-oil which had been discontinued. Two days after this I was sitting listening to him trying over a new tune on the Piano, when suddenly he uttered a short scream, slid off his chair grasping the calves of his legs, tearing his stockings (he was wearing Knickerbockers) in his attempt to suppress his crying out. At first I thought he was about to have a fit, but this fear was soon dispelled & the supplanted by if possible a worse one. In about 3 or 4 minutes the pain entirely vanished & my patient laughed & said he had now & then had cramp once this fit but never so severe as on this occasion. I made him sit on the table with his legs dangling over the edge having previously bandaged his eyes, although he was close to the edge of the table, I saw from his timidity & want of co-ordinating power what taken together with the lightning pains was sufficient to convince me that I had to do with an ataxic patient.

With the end of my Stethoscope I tapped at first gently, then firmly the tendon of the Quadriceps femoris getting no jerk whatever in the left knee & but the slightest in the right. Assisting him on to the floor I asked him to place his heels & toes together, but that he might do this he had first to remove the bandage. On again adjusting it, found he could not maintain his position, - with eyes open only with difficulty & with feet apart. Gait at this time with open eyes was by no means such as to attract attention, progression however with eyes shut in anything like a steady manner was impossible. There was no anaesthesia, nor retardation of sensory conduction, nor any ataxic eye symptoms that could be observed or roughly tested, with compasses, pricking & light. Increased the Potass: Iod: to gr: X every four hours, at same time indicating that it would require to be taken for length of time to prevent him becoming worse, advised also an increased dose of Cod-oil to combat the emaciation. There was no appreciable change in the case nor its treatment till the 3rd of Febry 1882 with the exception of a fortnight's cessation of the Iod: Potass: then its resumption combined with Bismuth: Alb: gr: X. The lightning pains still came & went irregularly, were confined to the legs & lasted only a few minutes, but cramps at night very troublesome, the bowels to have been becoming more obstinately confined, half a

a Samar Indian Lozenge being requisite every other night, up till this time the opposite extreme used to obtain. On this date, the patient had another epileptic fit much more severe than the first, (the attack may be characterised as one of unconsciousness with tonic & clonic Convulsions) was informed it had lasted over ten minutes, his tongue was bitten through, contents of bladder & bowel had been evacuated. On my arrival I found him on the floor, having refused to be put to bed till I saw him, pupils contracted to a pin-point, complained of feeling as if he had been through a series of foot-ball scrimmages, placed him on the sofa there to rest till bed time (this would be about 6 p.m.) ordered pill with equal part of Belladonna for this night, & prescribed 3ss: XL of Potass: Bromid: to be taken for a draught at bed time. In the morning was told my patient had passed a good night having slept from 11 p.m. till 5 a.m. Visited the 9. he complained very much of the old head pain, but begged me to wait for another day before I re-applied the blister, I consented and as the pain was much better and he felt as he himself expressed it "lighter" it was not again resorted to. A fortnight's careful observation showed that the ataxic symptoms were becoming more marked — tendo reflexes absolutely lost in both legs, could not stand even

with open eyes if feels & tries together, characteristic gait evident even to an inexperienced eye, lightning pains in legs worse, feeling of constriction now round thighs — now gone, but constant constriction a little below umbilicus felt, sat down & had to be dressed, felt the ground soft beneath his feet, pupils still contracted, reflex contraction to light interfered with. Perception of colours Red & Green lost: (Afterwards found he had always been in great degree Color-blind). Complained of great pain & difficulty in passing water, Constipation only relieved by enemata of oil, soap & water.

I again resorted to the combination of the Bromide with the Iodide with intervals of a week at the end of every month went on till the end of May, by then I was satisfied that if my patient was not improving he was certainly no worse. About this time my patient's general health demanded attention, he was exceedingly thin & wan, so decided to discontinue these remedies for a time & trust to the combination of Syrup: Ferri Iod: with Chemical Food & the Cod Oil, this I did till mid July, when an improvement again induced me to repeat the Potass: Iod: in gr: X four times a day ceasing for a week at the end of every four weeks, continuing all through the oil. This treatment went on till exactly a year had elapsed since the first fit and a steady

improvement had kept pace with it observable to all his friends, and to myself especially the last two months. His general appearance was markedly improved, his gait less ataxic, though he could as yet neither stand nor walk with eyes shut, the lightning pains returned at longer intervals & the flashes were of shorter duration though quite as painful, the constipation was not so extreme & at this difficult & pain was accompanied by no pain. At this time he took a violent fancy for a sea-voyage partly I think to escape the cold in our East Coast- his father had a steamer with good cabin & sleeping accomodation chartered to trade in the Mediterranean, & with considerable reluctance I consented & this going provided he was accompanied by his old governess, giving instructions that he was never to be allowed on the Bridge, nor even on deck unless some one had hold of his arm, equipped them with a supply of the Iodide which was pushed all through the voyage save for the monthly rest. a quantity of Cod-oil, Bismuth, & Lactopeptine. The vessel did not return till the middle of January when I had again an opportunity of examining my patient, the result surpassed my most sanguine expectations. He could dress himself, put in his buttons, lace his boots stooping down,

swayed less with his eyes shut, could stand perfectly steadily if the base of support was widened & his eyes open & blinked at intervals & his feet. Tendon reflexes still absent, extreme contraction of pupil gone, reflex action however sluggish as regards light, lightning pains had not appeared for some weeks – never so long absent since first fell. — bowels acted every third day of themselves and the micturition was normal, leg pains & cramps much relieved altogether patient felt himself better both in his general health & special malady. He remained at home the remainder of January & all February steadily pushing the Sod: Iodan: in doses now of gr: XV three times a day, interval as before. I found when on shipboard the Capt who was a great believer in Glycerine had persuaded him to take some; as it was a tonic & laxative I made no objections, it is taken in conjunction with the Cod-oil – half an ounce of each. In the beginning of March another sea trip was agreed on, in the same vessel to Odessa & some ports on the Spanish Coast, they returned in June of '83, my patient remaining at home all the summer, when I again sanctioned a voyage to Australia setting out in September, and not returning to this country till a couple of months ago, having taken a contract at Melbourne. Every message received

had been most re-assuring and when he arrived home, he surprised his friends, & no one more than the other medical men who saw him prior to his first voyage with me.
Naturally, I took an early opportunity of applying the various tests, but found the patient as well up in them as myself & his own account did not belie what I found to be the case. In a word save the tendo-reflex which I found impaired, but present in both legs,— (more imperfect in left knee where at first it was absolutely absent,) save the want of perception of green hue in colour (which had never been perfect), save a slight balancing movement when attempting to walk with bandaged eyes, my patient presented no symptoms of posterior root-zone Sclerosis. The Sod: Potas: had been pushed all through this case from first to last, even when at sea, with the intervals stated, and was always fairly well borne, (the patient now discontinues it at his own discretion, when he begins to feel as he expresses it "the lowering" effect of the medicine).
The fact of the pain in the head and the epileptic seizure being the initial phenomena induce me to give this case at considerable length, for though epileptiform Convulsions have been recorded (and in one of my Prudhoe Home Cases they were very severe) they have

come on after the symptoms of Locomotor Ataxia have been well made out. Again there is the somewhat rare intermission of the malady under a persistent exhibition of the Potass: Iod: which I pronounced with on Learning the family history. Then there are the sea voyages, where my patient had exercise without fatigue, change of scene & climate without anything likely to exhaust the functional activity of the nerve tubes.

Family History. belongs to the upper stratum of society

Father, 57 years old, had syphilis when 25.

Mother. about 40 years, lisps when she speaks.

Grandfather (maternal) died from paralysis.

Cousin. (maternal) suffers from epilepsy, brought on & suppressed by alcohol.

Uncle. paternal suffered from epilepsy died suddenly.

The foregoing is all I can certainly make out, & this is sufficient to indicate that my patient was handicapped with a neurotic predisposition and syphilitic Constitution & that nothing is more feasible than that over mental effort in a not too bright intellect would be a sufficient exciting cause for the development of sclerosis. Of course the history determined the treatment, if the foregoing premises are right. I think I am justified in hoping, that, by removal of the exciting cause, perseverance for a time with the treatment & attention to the general health, the

will yet successfully combat the neurotic tendency
the syphilitic determination of his system .....

I would now call attention to three cases - members of one family, who have been more or less under my care since August 1880, their present ages being 14 yrs. 11 yrs. & 7 yrs respectively. Nothing called for attention in the oldest case till the age of 7 yrs was reached, in the next, till the age of 6 yrs was attained, in the third member of the family attention was attracted to his case after the first month of infantile life. The eldest & youngest of these three cases are boys, the intervening case being that of a girl. The two boys are bright and highly intellectual for their ages, the girl is emotional and as her mother expresses it "by no means clever". One peculiarity I have observed in many cases, and specially in the cases about to be mentioned as in the one already noted, is the peculiar dry, every-hair-seperate, and stand-on-end appearance of the hair. In the case recorded in the cases of these three children, the colour of the hair is very fair and of the eyes, light blue, all the features on looking round seem also to favor turning the eyeballs in the direction, rather than moving the head on its axis, I have frequently heard the mothers of both children direct them to turn their head not look out of the sides of their eyes when they wanted to look around With this slight sketch of the cases, will now proceed with the

Family History:- The patients whose cases I have sketched are descended on both sides from old County families, with a pronounced, malignant, gouty and neurotic history. It is always difficult, with a certain class of patients, to get a good family history and it is not to one, but to various members of the family that I am indebted for the following particulars; without doubt I would never have obtained them, had they thought any use would have been made of them, as each member of the family seems to keep back something from the other. All I have noted however may be regarded as well authenticated. So begin with the Parents—

Father, died from Carcinoma of the liver at the age of 57, he suffered very much also from Gout.

Mother, eldest of eight girls (two brothers older) is about 48 years of age, gouty and highly neurotic, of an irritable disposition, has lately suffered from cerebral hyperaemia, followed by congestion of the low delirious type, excited by anxiety about her children and worry about her estate, from predisposition of gouty diathesis and time of life.

Grandfather, (paternal) died at 72 and was paralysed some ten years before he died.

Grandfather. (maternal) has been twice married, having had 10 children by his first wife and 3 by his second, is 72 years of age and is just recovering from Hemiplegia.

Grandmother. (paternal) lived to an old age, died from paralysis.

Grandmother. (maternal) died from puerperal fever (mania ?) after her 10th. Confinement.

Uncles. (paternal) Two, both gouty, alive

Uncles. (maternal) one at age of 17 had an epileptic seizure, two others followed soon, no history of another attack till 18 months after, when he was drowned while canoeing, having overbalanced himself in a fit.

Aunts. (maternal) one stammers slightly (Gouty diathesis)

Step-Aunts. (maternal) Two stutter badly.

Cousin. (maternal) Stammers very badly.

Grand-Uncle. (maternal) has been in a private asylum for about 50 years. was quite right till he contracted some fever in Turkey when travelling with his tutor when quite a youth - He is perfectly harmless.

Great-Grandfather. (maternal) died from Gout.

Great-Grandmother. (paternal) died from Cancer of liver.

NB. I am credibly informed that there is a blood relation on the paternal side at present suffering from Cancer, and that other relatives died from it.

The children have two elder sisters, one born in June '66 who suffers from gouty eczema, the other born in Augt: '69 who is very Short-Sighted.

Another sister, died aged 10 months from, as far as I can make out - teething - after 15 hours illness she was born in the September of '67. (Convulsions).

Such is the history, so far as I have been able to gather it, of this singular family. From observing it, together with a concurrent history in 4 other cases, I think we may safely assume that the offspring of parents whose ancestors suffered from malignant, neurotic, or gouty affections are peculiarly pre-disposed to the Disease. That a very slight exciting cause is sufficient to determine grave nervous mischief is frequently seen, e.g. meningitis, from the irritation of dentition, or intestinal worms, or again the eccentric irritation, from dentition, indigestion, dysentery &c., may be an exciting cause of Epilepsy, of course the pre-disposition must be behind all this. A direct hereditary influence in Ataxia cannot easily be made out as it is within recent years, the disease was classed in common with many other maladies as - paraplegia - e.g all the history I got of the Grandfather on the paternal side is that he was paralysed for 10 years, the length of time & other circumstances though but ill made out inclines me to the opinion that the paralysis may have been Ataxia. On at least four occasions, my assistant at the Pendlebury Home himself have been struck with such a remark as the following from an Ataxic patient "My grandfather" or other relation "just went the same way"

We will first take the Case of the eldest boy, beginning with the History obtained from his Mother.

Case II. Master Bryan B. was born in Sept: 1870, as a child was considered very strong, had no trouble with his teeth, but is described as having always been what is called- a nervous boy. Nothing called for attention till '77 when it was noticed that in walking his right foot had a tendency to turn inwards, & that he often went over on that ankle. In November of same year Dr. Robertson of Gateshead ordered him a support from Leeds (I cannot describe its mechanism as it had been given away before the case came into my hands). He got no better, in fact worse and in the July of '78 was seen by Prescott Hewitt who at once asked for Sir. Wm. Jenner in consultation, the opinion they expressed was that it was paralysis of a slight nature on one side, giving the friends the impression that it was a thing he was to be expected to outgrow, they changed the kind of support supplying patient with two as both ankles were then involved. At this time also by Jenners advice, slitting of the prepuce was resorted to, in the hope of curing the extreme incontinence from which patient suffered, but with no beneficial result. About this time he began to have little or no control over his bowels.
No special treatment was adopted, general tonic remedies with attention to general health. On again being seen by

Prescott Hewitt in the end of July same year, the only change recommended was that the patient should sleep in Scamparo shoes. They were continued for ten months but at the end of that time given up, as they seemed to increase shooting pains and cramps from which Bryan now suffered. These pains were always complained of in the legs & came on irregularly. In May '79 he was sent to a Boarding School at Moffat, where, while getting the character of being an -idle- boy, obtained credit for remarkable ability. When 11 years old, he was top of a School of 48 boys some of whom were 14 & 15 years of age. His handwriting was a great cause for complaint, & the way he jerked his arms. In the August of 1880, I first saw this patient. He was well developed for average height & weight, jerked his head a little when speaking, had a pleasing expression and intelligent look, remarkably fair hair did not lie smoothly on head, tendency to erect individual hairs. In standing even with the supporting boots on, he had a habit of keeping his feet apart. He had hardly any control over his bladder or bowels, frequently committing himself, the circulatory system was normal as was the respiratory with the important exception that every now and again he used to alarm his friends very much by loosing his breath when crying or laughing, turning quite black in the face & only keeping his feet with difficulty all power apparently leaving his legs. He complained

that every now & again he had quick, darting pains in his legs and arms and a feeling of pins & needles in his legs with a cramped feeling of his toes. Cutaneous sensibility normal. Distinguished between heat & cold perfectly but after a considerable interval on testing applied. Could not tell with bandaged eyes the difference between a ¼ lb. weight and a 1 lb. weight suspended in either hand. Both pupils were contracted & the pupil reflex to light lost. Skin reflexes over body generally morbidly acute, in calves of legs impaired, in soles of feet lost, - feels the ground soft under him. Tendon reflexes absolutely lost. Want of co-ordinating power with in upper & lower extremities, trying to write jerks his pen, great difficulty with curves & a tendency to dash on at the end of a word unless pen lifted. On taking off boots & supports (still weeks from Knee & Ankle with universal joints, horizontal metal plates with divisions at heels & screws for extension of feet) found he could not stand unless with legs apart, (widening the base of support) unless his eyes were directed to his feet, with bandaged eyes he could not stand a second steadily with feet - toes & heels together, nor with open eyes some when looking at his feet. If asked to place his foot on centre of Health-mat pattern, he would throw out his leg first & the foot round & then when near it dash down his foot with a flap. Walks in a straight line but apparent want of harmonious control over his muscles, the leg is thrown out & forward & the heel comes down suddenly

with a jerk to the ground then the sole follows with a slap.
This examination, showing such want of co-ordinating power,
loss of tendo-reflex together with the other characteristic symp-
toms e.g. darting pains, left no doubt but that the case was
a well marked example of Locomotor Ataxia. Ex-
plained to the Mother that Sir W. Lennox Broadbent Hewitt
in 78 had quite stated the case so far, but that as the mis-
chief in the spinal cord was progressive she must not
expect her boy improved soon, as the very nature of
the disease was slow progression either to recovery or the
reverse. Advised him to be kept at home from School
so that he might have no fatigue — to this she would
not listen saying that would mean a tutor in the house
which would not be agreeable, prescribed the Iodide
of Potassium in X grain doses four times a day to be
continued for four weeks then a weeks intermission
then to be again repeated. The Doctor at Moffat
under whose charge he was placed on returning to School
which he did soon after I saw him wrote suggesting
a consultation with Hughlings Jackson who in
consequence came him in October. He confirmed
the diagnosis - Locomotor Ataxia & gave a most
unfavourable prognosis, at same time advising that
if he was happy at School that he should be
allowed to remain. He approved of a continuance

with the Potass: Iod: I did not see the patient again till the April of '81. There was no improvement in the symptoms, gait as ataxic, writing as bad & difficult, no more control over bladder or bowel. At this time I tested his perception of green tried in colours & found it lost. In a general way he did not seem quite so well nourished as when I saw him before he consulted Hughlings Jackson in October, but bright his good spirits. I suggested that during his Easter Holidays he should give up the Iodide & take 3ss of the Syrup: Ferri Iod: with 3ii of Gl: Morrhua: three times a day after meals. This was done & a general improvement resulted. On returning to school the Iodide was resumed & persevered with, with the exceptions stated till I saw him at Midsummer. There was no appreciable change in the symptoms, neither better nor worse, at this time I got a pen with a thick cork handle for him, but though he greatly preferred to use it - his writing was not improved. Used to take him out driving with me when going a long journey - his manner of getting into the Carriage was most characteristic, he would catch hold of the door side of Carriage with both hands keeping his eyes fixed on this foot trying to step off one foot and if not succeeding threw from off the other with a round about sweep, a jerk & then a sudden rush & stamps on the step, if the horses restive, his

tinctly greatly increased his difficulty. I found he could walk best & with least fatigue (this latter always increasing the inco-ordination in his gait) on the level or down a gentle slope, up hill was most trying. I took him up the light House at North Shields on one occasion, with much difficulty he got half way up when he had to rest, on resuming more difficulty & in harmonious motion till finally with another rest he reached the top, when walking along the top outside within the railings his gait-doubtless from fatigue, was worse than I had ever seen it before, so observable was it, even in that confined space, that Capt Arnott, the lighthouse Keeper, remarked to him "why my boy you haven't got your sea legs yet." On returning to school in addition to the medicinal treatment I recommended the constant galvanic current & the applied for about 8 minutes every other night along the vertebral column. This was I believe faithfully carried out. I did not again have an opportunity of examining my patient till the winter of '87. The only difference after careful study of his case that I could discover, was a greater contraction of pupil, and the House Steward informed me that he fell down more frequently, he had however more control over his bowels, and the incontinence of micturition had ceased to trouble him at night only through the day.

In April '82 I had him again under observation, the Galvanic treatment had been continued for well nigh 8 months, with a single exception when it had to be discontinued owing to an eruption. Noted the reflexes, no improvement, said the same, writing still as bad, and what is very important the lightning pains had never been influenced, still came on irregularly, now legs, now abdomen, now arms, sometimes maddening in their severity when they were of short duration at other times darting up and down the legs for hours, compared to "electric shocks" but "bearable", patient had no warning of their onset, they came suddenly & went suddenly. Loss of tactile sensibility greater, buttons his clothes with the most painful difficulty if attempts to lace his boots must get down on his knees & then contend with the incoordinate movements of the arms. Greater retardation of sensory conduction in respect of temperature & pain quite ten seconds, the latter more delayed than the former. For the first time he complained of feeling the "ataxic girdle" sometimes at the level of the pelvic brim, at other times at the level of the umbilicus at other times round the chest. When lunching with my patient the one occasion, my attention was directed to the way he took his food, his face was held near to his plate & the hand holding the spoon presented the classic series of jerks & final rush that the leg did on mounting a step.

No change in the condition of the patient could be observed, although the treatment was steadily pursued for four months longer. Hughlings Jackson was again consulted in the October of 1882, he confirmed his unfavourable prognosis, and as he found the patient pale and anaemic recommended a discontinuance of the Potass: Iod: and a cessation of the galvanic treatment, substituting the Syrup of the Iodide of Iron, during the winter he saw him twice again, and on seeing him for the last time in June '83, said there was nothing more he could do, that the disease could not be arrested in Bryan's case, that there was no use continuing longer this time, that he considered his case quite hopeless, and felt sure he would never reach manhood. Having two other children suffering from the same malady, the Mother was greatly distressed. I could only tell her about my other case, where I was expecting good results from similar treatment to what her boy had been receiving, that a cure of the malady though not common was by no means unknown, that a spontaneous remission of symptoms and arrest of its progress had from time to time been reported. Not feeling justified in committing myself to more definite statements, & as she heard Hughlings Jackson's hopeless prognosis confirmed on all sides she determined to place her boy under the care of a Dr. Nelgren, a Swede, who

who at 46 Eaton Square, London practices the manual treatment. Sir Alfred S. one of her relations spoke of cures of paralysis &c, he had personally known, and other corroborative evidence having been forthcoming from others she in the October of 1883 boarded her son in a private family to be near this Swedish manipulator. From the time of last seeing Hughings Jackson up till the time of placing him under this treatment, Bryan had been having no specific medicine for the malady. Attention to diet & regimen with passive exercise having only been enjoined. I affix to the end of this paper a column & a half, written by the Editor of "Vanity Fair," which appeared in that paper of date May 3rd without comment, further than to say that the Editor was a former patient of Dr. Kellgren's. After about a month of this manual treatment, certain cerebral phenomena (of which I had no previous account) developed. and although it will be found stated by the patient himself that the fits attacks came on at School, still on inquiry of the Headmaster I am informed that if they did they could not have been anything like so severe or prolonged, that though the other boys had complained of Bryan talking in his sleep now & then no special notice was taken. If the cause be what Dr Kellgren states I am afraid such manifestations would be too common to notice.

As I have been unable to get any account of these attacks or similar ones, (which I may call central crises) I think the better to understand them it will be well to give extracts with the dates when the periods of excitement began & ended & the duration of the separate attacks. For information of these attacks I am indebted to the widow of a medical man with whom the patient boards in Chester Square Bloe near D. Kellgreen. It will be understood the extracts though lengthy are greatly condensed, Extract from letter dated

Decr. 14. '83, "Bryan to all appearance as well as usual, only this terrible excitement on going to bed for a couple of hours, & again this morning from 5:30 to 7.30 he was the same thing I or had to watch him but could not keep him in bed. He seems to be living all his school life over again, doing sums, reciting prizes, talking in French, *fighting other boys with hands & feet, so excited is he that I cannot help feeling that it must wear out his brain, but he comes down to breakfast quite as usual, says he did the same at School."

Decr. 15. '83. "Is very excited, went to D. Kellgreen, who ordered him apples to eat, says the talking is caused by gases, and the depressing medicine that has been given him, he says he is not to be watched, only watched & kept in his room."

Decr. 16. '83 D. Kellgreen and one of his assistants came last night while Bryan was in his communicant state,

* no better proof could be given that this malady is one of excessive cerebration not loss of motor power.

after watching him for a little while Dr. Kellgreen began some rubbing over the chest, after a time Bryan woke up, on continuing the rubbing over different parts of chest & abdomen, Bryan again went to sleep & slept till 6 a.m. During the time Dr. Kellgreen watched Bryan, he was much excited struggling hard to cause a shipwrecked crew. He looks on the Dr.'s visits as part of the treatment. Two of the assistants gave him the usual rubbing last night before he fell asleep."

Decr. 19th '83. "Two of the assistants come to rub Bryan every evening, he goes to sleep & does not wake all night. At 6.30 this morning, he got up walked about his room, and was later than the morning before he was more unmanageable, so we hope the attack is passing off."

Decr. 20. '83. "Bryan woke up this morning at 7.30 after a long sound sleep. He was rubbed as usual the night previous."

"This is the end of first attack since patient went to London, It began on the 13th and lasted till the 20th Decr. The next history of attack is in letter dated

Janry. 15. '84. "Bryans excited state recurred on Friday, exactly a month since last attack, & he has talked and walked every night since, sent for Dr. Kellgreen & he or one of his assistants have been here every evening since & given him some treatment. He becomes quiet about 11 o'clock and sleeps till morning, when he begins to walk & talk from about 6 a.m. till 8.30, when he gets into bed, remains a few minutes, opens his eyes, becomes wide awake, bathes, comes down to breakfast, looking as usual. With no recollection of what has been passing and no tired feeling. He generally imagines himself to be at school

chats to his schoolfellows. fights. laughs. & often says most witty and clever things."

Janry. 16. 84. "As usual, but morning attack lasted 4 1/2 hours".

Janry. 17. 84. "No attack last night nor this morning, think it has been of short duration this week. I do not think there is any danger of him hurting himself as we watch him well & he himself moves with the greatest caution."

This is the end of 2nd attack. I may here mention that I have learned that if any one replies to questions during these attacks, he gains quite a connected history of all he is doing. e.g. He will imagine himself to be a King, that his crown is lost, offers a reward, if a cap be now given him, he will order proclamation to be made, order his ministers to pay the reward & place the cap on his head.

Feby. 15th 84. "Attacks came on quite a week before full moon & were over the day before it was full moon. The attacks were all in the morning this month, the worst he has had was yesterday week, when he remained in me from 6 a.m. till 3.20 p.m. Dr. Kellgren came & remained 2 hours but nothing he did had the effect of rousing all his brain, he even had his breakfast in that condition, we only gave him food as this one morning as we fancied he was longer in waking - not being hungry, next day he awoke at 12 noon & the three following mornings at 10.30 a.m."

While in point of duration of whole time, there is not increase, we find this month that the individual attacks were longer and more severe.

March 18'84. "Bryan only slept very heavily and could not be roused till 11 a.m. on the 11th. day of full moon."

I would here note that the patients mother went up to town on that date, & it would seem probable that her presence, combined with the change, driving about, visiting friends &c., had been sufficient to break the periodicity and ward off an attack.

April 3rd. 84. "Attack began as second, sent for Dr. Kellgren as he was more excited than usual, he gave him the usual manipulatory treatment. I think I told you his eyes are always firmly shut during these attacks. He was very amusing, thought he had a bullet in his thigh, ordered the nurse to send for the surgeons to extract it, & thought Kellgren & his assistants were come for the operation. He told them the spot where it was, & when they taking no notice, kept rubbing his neck and head, made all kinds of remarks about them expecting to extract a bullet from his neck that had entered his thigh, all the time fancying he was a general, at last he fell asleep in one of the assistants arms while the other was gently rubbing his stomach."

April 7. 84. "Same ideas every night, rides his horse, bullets, pillows in the middle of the bed, looks through his glass, sees the enemy, fires his gun, cuts them down with his sword, gets wounded, &c., &c., no attacks this month in the morning."

Last time it will be observed that all these attacks were in the morning if we except the one in March which hardly can be called an attack, this month of April, the attacks only come on at night.

April 10th. 84. "Best race with the place of the war excited as usual."
April 15th. 84. "Last attack night of 14th."
I had hoped to have been able to have been in London in April so as myself to have seen one of these attacks, unfortunately I could not leave my practice, but from these extracts, a very fair idea of what they are like will be obtained. I hope in a few months - after the specified time for T. Kellgren's cure has elapsed - to have him under my own care again when I will perhaps be able to determine whether these Regular phenomena and periodic periods of excitement depend on anaemia of the posterior columns of the cord or cerebral mischief. In resuming this case, the first thing I would notice is the treatment and diagnosis of Lennox & Hewitt - There is no record to any medicinal treatment, boots were applied as both ankles had become involved, they gave their opinion that it was a slight case of paralysis, and for the incontinence of urine slit the prepuce. It is highly probable that this case when seen by Robertson of Gateshead merely presented weakness of the right ankle-joint & the permanent weakness of joint leading to deformity he put on the support mentioned. Lennox & Hewitt recognised a paralytic condition. If then we suppose this at first to have been a case of monoplegic poliomyelitis anterior acuta it must soon have become paraplegic. Undoubtedly the supports would be recommended to prevent the affected joints becoming fixed in a bad position. Many things incline me to the opinion that this is what their diagnosis was.

(1) the sudden onset of the affection. (often in this disease no premonitory symptoms observed) (2) the distribution of the paralysis to functional groups of muscles. (3) their favourable diagnosis (4) the only treatment adopted being mechanical to prevent contractures. The affection of bladder & bowel uncommon in this disease might be explained by unitabric lesion, in the lower segments, of the multipolar nerve cells, through which these reflexes pass.

In the beginning of November '78, the first symptom characteristic of ataxia showed itself - lightning pains & cramps in legs coming on irregularly. While he noticed however that a jerking of the arms had been noticed & that his penmanship was complained of. No attention to the lower extremities save that caused by the pains, now we know that the lightning pains though very characteristic of ataxia are not always present; and we may have lesion of the cord tho' which they do not point. What we see in this case is, ataxic symptoms - want of co-ordination of upper extremities - first observed by the patients friends pointing to cervico-dorsal region of cord, while, though doubtless the lesion was progressing, the symptoms of cramps & darting pain pointed to lesion in the dorso lumbar region without the ataxic gait phenomena. When I saw him in the Aug[st] of '80 as stated there was want of co-ordination in both extremities my attention first being drawn symptoms directed to the lower. It would seem then that the lesion in the two regions of the cord must have begun about one & the same time, or if a difference as to time, in the cervico-dorsal region first, we have in-coordination as a well marked

symptoms for months before any pains in upper extremities, & before any want of co-ordination in the lower was observed. I think this worthy of notice as many writers would have the lesion of the cervico-dorsal region of the cord always to be a secondary ascending degeneration, this case, with others, proves that it may arise independently, & probably from the more delicate movements demanded of the upper extremities, even when the dorso-lumbar region is involved, be the first to show the characteristic want of co-ordination. The form of Paralysis (Essential Paralysis of Infants)? diagnosed by Seymour & Merritt has its morbid process limited to the anterior horn and the lesion must have fallen short of actual destruction of the nerve cells. It is just possible however that a more extended morbid anatomy may yet show that such a lesion may be the exciting cause of others.

I would next call attention to the way Ataxic lesions even the little co-ordinating power left. well illustrated on taking this patient up the Lighthouse from the top of which I had to carry him to avoid accident. I cannot but regret that Hughlings Election did not permit a persistent exhibition of this Iod: Potass: treatment – it was well borne – indeed no gastric symptoms of the malady have so far appeared. I cannot but regret also the loss of time, in the treatment of the disease, during the course of treatment he is now undergoing. When I get him under my care again. I purpose to exhibit at all events first. – nitrate of silver – combining alternate tepid salt water affusions down spine with the constant galvanic current.

Before finally dispersing of this case I would notice that Dr. Buzzard notices a feebleness of the lower extremities amounting to a decided paraplegia which may be met with in the early stages of Ataxia but it is only on recovery from this paralysis that characteristic mis-ordination shows itself. Ross gives it as his idea that in these cases the brain had extended transversely so as to have affected the lateral columns & that under treatment it has receded so as to become limited again to the posterior columns. It is quite possible that the case when seen by Prescott Hewitt was of this nature— a passing paralysis of certain muscular groups— just as we have as a well known symptom— a transitory paresis of the Ocular muscles. I regret the impossibility of obtaining information about the knee-jerk, or about the state of the muscles whether loose & rigid, or any notice of twitchings or tremors. If this latter view of the case be adopted, the simultaneous development of the disease in the cervico-dorsal & dorso lumbar regions would be very questionable & the most we can say is that the ataxic phenomena just showed to unpractised observers in the mis-ordination of the muscles of the upper extremities. This is only another example of the extreme difficulty of determining in individual cases the premonitory symptoms & differentiating the stages.

Case III.

Miss. Gustance B. another member of the same family was born in June 1873, is described as having been a very strong healthy child, and never ailing anything till the winter of '79 when the family went to Eastbourne for the winter. When there she had constant diarrhoea which was attributed to the milk, at this time she also complained every now & again of severe, darting pains all over the abdomen, now at one place & then at another, and was constantly tumbling down when walking out of doors. She has never been strong since every month having flying pains in the head, legs or abdomen with cramps at night. Until this last winter, she never passed water more than once a day and then owing to the difficulty & pain had the greatest objection to be made do &c. Her bowels did not trouble her after leaving Eastbourne in March. I first saw this patient in July '80, along with the third member of the family about whom I will subsequently speak. On examination she appeared a slim-formed but indifferently nourished child fair hair & complexion, the former hard & dry with a tendency not to lie smoothly on the head and outspreading, of a very markedly nervous temperament & extremely sensitive. On observing her position I saw that she stood with her feet well apart & on asking her to walk to the door the characteristic ataxic gait was plainly seen.

lightning pains of great severity, recurring with considerable regularity every month, — less severe lancinating pains however in the intervals coming on irregularly — were complained of now in legs, now in abdomen now in chest or head. Sensation of creeping all over skin of lower limbs with severe cramps frequently experienced at night. Attacks of Sickness, without actual vomiting, often preceded an attack of lightning pain if the bowels was for the time blue its site; again if the chest wall; a crop of Herpes usually accompanied the paroxysm. Bladder only emptied once in twenty four hours (a probable result of anaesthesia of the mucous membrane) Bowels act regularly. Considerable plantar anaesthesia, hyperaesthetic patches on calves of legs can scarcely bear the nurse to dry them after a bath, with this exception tactile sensibility unimpaired & no retardation of sensory impressions. Pupils on examination were found to be dilated, but with no effect of accommodation accompanying the mydriasis. The Cardo reflex was absolutely lost. The grouping of these symptoms satisfied me of the nature of the case. However hesitated giving special treatment the child was so anaemic, with a hoarse mitral murmur — the only complication — of the usual tee-hee hum at the veins of the neck of the head. Thinking, after a consideration of the general state of the system that it would first be better to try tonic treatment

I prescribed half drachm doses of the Syrup: Ferri Iod: in conjunction with a like quantity of Parrish's Chemical Food, three times daily in half a wineglassful of water after the three chief meals. advised that her governess be requested only to give her light lessons, that she be encouraged to sit with her legs up on one of the garden seats in the fine weather, limited the extent of her walks, stopped her drilling - this had been suggested by another practitioner as likely to be beneficial - and recommended milk & cream with raw egg twice daily, advised recourse again to her woollen flannels as she was to have mostly passive exercise, The Hall is only a few hundred yards from the German Ocean. This treatment persisted vigorously for 3 months only ceasing when the attacks of sickness & severe pain came on then ceasing. For this length of time also tepid Salt water was affused down the spine every night for not less than five minutes combined with gentle stimulation by means of friction with a bath glove. My patient having improved very markedly in her general appearance & physical condition, evidenced by the disappearance of the mitral murmur. I directed my treatment more especially to the Ataxia, Prescribing VIII grain doses of the Iod: Potass: to be given every 8 hours rubbed up with Glycerine in water, after a few days trial I found it could by no means be borne not even in combination with Bismuth & Lacto peptone. As an attack

of sickness & pain then came on I ceased the medicine for a week & then prescribed a lessened dose by one half in conjunction with bismuth & lacto peptine, from the sense of epigastric pain & burning with actual vomiting so severe that in a week I discontinued this also, particular injunctions had been given as to the stated fixed times for administering the drug & it was given every 8 hours regularly day & night. after another attack of pain had passed accompanied this time with a herpetic eruption on either side following course of lower intercostal nerves. I again prescribed the Sol: Pot: Ars: in XII grain doses every 8 hours thinking from the largeness of the dose to surprise off these immediate effects of the drug in her case, but after four doses with correctives as before I finally abandoned it altogether, having the feeling that I had only lost ground in a general way confirmed by a re-appearance of the haemic murmur the repeated attacks of palpitation with feeling of fatigue from even gentle exercise. I again fell back on the Syrup: Ferri Iod: with the Chemical Food as before adopted and after a perseverance with it over the new Year had the satisfaction of seeing my patients general health improved & the haemic murmur no longer heard. During all this time the ataxia was progressing patient fell down more frequently, was more distrustful of her own powers, was inclined when out walking to cling to the

governess's arm. The lightning pains still recurred tremendously longer, sickness to more troublesome, plantar anaesthesia more marked, more dilatation of pupils, contracting very sluggishly to light imperfectly, when paroxysm of pain present the mydriasis extreme. Perception of colours however quite good & this condition persists even now. In addition to lancinating pains & lightning the girdle sensation is constant on a level with pelvic brim & a burning pain in the loins is also nearly always persistent, relieved however by the salt douching & friction. At this time I observed a peculiar form of nystagmus though only in a slight degree - if patient asked to fix her eyes on some object at a little distance, if not hurried she can at once direct the eyes to it, but if hurried abortive movements or quick effort of will being made is seen, the same also obtains if she is required to look steadily at the object for a length of time. I may here mention that I trusted to the Bromide of Potassium for relief of pain up till now when I combined its internal administration with external application of the constant galvanic current when the paroxysms came on, one pole being fixed & the other moved up & down along the whole course of the spine. Mustard Cataplasms I found did good whenever the feeling of dizziness to a considerable extent, lactopeptine Bismuth being administered internally. I now exhibited the Oxide of Zinc which I had heard much lauded

in this disease, it was well borne in fine grain doses night and morning for over three months, when after every dose my patient complained that her head was so heavy she could not sit up & that it felt as if it was going to burst open. In May '82 I discontinued this treatment and pushed the Syrup: of Iron this time combined with the Extract of Malt (Cod-liver oil could not be borne). My little patient had fallen off every day since leaving off the Iron combination, was very listless when left to herself & spoke even kindly to would often quietly (no violent sobbing) shed tears, Haemic murmur was again pretty constant especially at night, palpitation on the slightest exertion & for the first time she complained of a fixed pain over the region of the heart which was increased by the palpitation so that she could hardly draw her breath. About the middle of May I applied externally a belladonna plaster over the lower cardiac area & stopped the Ferri Iod: substituting min XXX drops of the Liq: Ferri Perchlor: in Glycerine with a tablespoonful of water every 4 hours. This I persevered with, the only intervals being when the feeling of sickness intervened, for two months; at the end of that time the palpitation was much better & the pain so very much complained of was quite relieved, the haemic murmur however was sometimes on my visits quite audible at others visits it was not to be made out. During this time the effusions & the spine were being

persevered with the constant current being employed to aid the relief of the pain. The Ataxic symptoms became more & more pronounced and as my patient seemed to lose ground every time building up treatment was stopped I sent her for the next four months on the Syrup of the Hypophosphates half teaspoonfuls in water immediately before meals three times a day. In the beginning of November feeling that I was practically doing nothing for the disease only endeavouring to relieve the symptoms as they occurred, I requested that Prof. Grainger Stewart should see this patient along with the brother whose case I will next mention. Accordingly they were brought to Edinburgh so that an opportunity might be afforded of frequently seeing the cases. Owing to a fatal accident to my father I was unable for some days to meet Dr. Stewart as I had arranged, but on explanation he kindly in order to save time saw the cases and pronounced them to be cases of Locomotor Ataxia. I repaired to Edinburgh met Prof. Stewart with the patients and gave him the history of the cases so far as I knew, supplementing generally the history the mother & aunt had been able to give. Prof. Stewart while by no means hopeless recommended me to keep hoping but to abandon the cases. I advised in this little girl the 1/14 of a grain of Nitrate of Silver persevered with for three weeks then

discontinued for 10 days watching it carefully the while then beginning again for another three weeks two or. The 1/14 grain dose was given in pills at first twice a day afternoon and three times in the twenty four hours. This remedy was pushed, save for the intermissions, for nearly eight months, when symptoms of discolouration appearing I immediately ceased. I regret to report that no good result was derived from this treatment. I may here note the fact that Prof. Stewart heard the mitral murmur two or three different times and again lost it. He drew attention to it particularly when I gave him my experience of it & its amenability to treatment with the ferruginous tonics, accordingly he recommended in the intervals of cessation from the Silver to push the Iron & the Maltine which was done. He also observed the peculiar ill-conditioned state of the hair in both cases. In the Summer of '83, possibly because the fine weather tempted my patient to take more exercise, & partly also owing to the progress of the disease, I could not but see that she was becoming more ataxic, & the more frequent history of falls. Complete anaesthesia of the plantar surfaces, as also of former hyperaesthetic patches, & the more ataxic, peculiar form of nystagmus more easily excited. lightning pains persistent indeed all the pre-ataxic symptoms intensified. Once discontinuing the Chloride Nitrate the

Iodine & Iron have been perseveringly given, but now one of the peculiarities of the case presented itself, the murmur referred to from being functional, only appearing when patient reclined, became persistent and has been always heard ever since. No difference in the progress of the Ataxia the other symptoms appeared like the end of April '84 when the joints of the great toes became very painful, after a few days they swelled very much, but only with slight redness or pain, simultaneously with this joint-pain which she described as a jumping pain another which she compared to a snake curling round her leg below the knee appeared. For about a month the patient has been taking Ergot combined with Bromide of Potassium with Glycerine but I cannot as far speak of any result. There is no want of co-ordination in the upper extremities and water instead of being passed once a day has during the winter & spring been voided regularly. There are fewer attacks of pain - it does not recur with the former monthly periodicity - but more irregularly though it does not last longer. The feeling of dizziness shows also amelioration, but on the other hand, her gait is worse, she is constantly tumbling down, cannot stand in any position with her eyes shut, and slight swaying of the trunk is perceptible & the girdle feeling is complained of round the chest, all pointing that the little patient has passed into the fully developed Ataxic Stage.

Before dismissing this case there is one important causal element I would notice. The winter of '79 was unusually cold & I have been told by their mother that their bedrooms were close to the sea & both damp & cold. In resuming the history, we see that the initial symptoms were the lightning pains & constant tumbling down - both appearing at the same time the winter of '79. The ataxic gait however seems not to have been well marked till the Summer of '80, the falling being mostly when turning sharply round or when fatigued. The periodicity of the attacks of pain is rather unusual. It will be remembered her elder brother's cerebral attacks came on with considerable regularity. The heart murmur is also worthy of notice. It is persistently heard at the angle of scapula posteriorly & two inches below the nipple anteriorly. The cessation of the back pains seems to have been most favourably influenced by galvanism. The ataxic eye movements are not frequent; fright increases them - once, before extracting a tooth they were painfully visible - I intend exhibiting the Ergot for a time combined with the Bromide of Potass: carefully watching its effect if no good result - I propose trying again the Citrate of Iron, giving only three a day, & if anything may be inferred from family history, it would seem to be the most likely treatment in the case. The tepid - or rather colder - affusions along the whole course of the spine with friction will be continued, and when the paroxysms of pain come on the galvanic current.

Case IV

Master Paul B. The youngest member of the family was born in March 1877, he was always small and delicate looking, he had a wet nurse till he was 14 months old. He cried as babies usually do during the first month of his life, but from that time till he was 7 months old, he never made the slightest noise not even a cry or scream. He was always subject to attacks of diarrhoea for 3 or 4 weeks at a time. During the family's stay at Eastbourne, he ate his food in a peculiar way, seemed to have a dread that he could not swallow it — particularly butcher's meat, which he chewed & kept in his mouth. Great incontinence when 3 to 4 years old patient was never dry.

In July 80 I first saw this patient, he looked small, sweatly, puny anaemic. Circulatory respiratory Systems were normal, appetite bad, but little control over the bladder either day or night, had control over the bowels. He complained of pains coming on irregularly which made him cry out, on being asked ~~asked~~ to put his hand on the painful part, he would at once pass over place it on one part & again on some other, usually the back, sides, or abdomen. On examining the tendo patellae reflex I found it impaired in both legs. There was a considerable degree of plantar anaesthesia; but no other disorder of sensibility nor any retardation of it. Perception

for temperature normal, abolition of pupil reflex with dilatation as in his sisters case. I recommended warm woolen underclothing, rest, passive exercise, nourishing food, milk, eggs. Caution re avoidance of cold and damp. For medicinal treatment, I gave the Lod: Potass: as in his sisters case rubbed up with Glycerine in gr III to ... doses every 4 hours giving for a month then ceasing for a fortnight then resuming - in the interval giving Chemical food in min XXX in water 3 times a day. I found this well borne & the patients general health improved. This treatment was exhibited for five months, The Epsom affusion to the spine being at the same time carried out for 5 minutes at bed time with Sea water. when the painful paroxysms came on I gave gr VIII to ... of Potass: Bromide in conjunction with the Potass: Iod: There was never any trouble from Sick feeling or Sickness in this case. At the end of this time I could find no appreciable change, if anything the knee jerk was becoming less responsive, and the pains were determining more frequently to the legs with cramps at night causing him to cry out. I then tried the Constant Current alternating with the affusion to the Spine 5 minutes at a time every other night. On examining my little patient from time to time I could see no change to record, & things went on pretty much the same, pains

& cramps – in commencement of urine – requiring 4 or 5 times within half-an-hour after his meals – dilatation of pupil – loss of pupil reflex to light, almost total extinction of knee jerks. The medicinal & external treatment was still being persevered with, & was continued for quite a year & more for a few weeks in February when he had violent & intractable diarrhoea with an increase of leg pains. In the Summer of '81 he first indicated the girdle pain round the umbilicus & on testing the tendo reflexes I found both absent. Up till Oct. '81 no other changes could be detected, about this time he complained of pain in his head with no inclination to go about as he used to do. I discontinued the Potass: Iod: still persevered with the Hypophos: Phosph: Comp: and did not begin the Iodide again for two months. I then added ¼ grain being done. It was well borne. In the Feby. of '82 I first detected what I had often looked for – an impossibility – to walk with eyes shut, or to stand steadily under similar conditions if feet close together – the girdle feeling was persistent & the pains in the abdomen, back & legs came at irregularly sometimes so severe as to demand special treatment and attention at other times not so severe. One thing I noticed in this case, before I decided what

to give to relieve the pain — I found that a sharp paroxysm did not last many hours whereas a less acute one would probably be complained of a week after. I had now well nigh lost faith in my treatment or in my power to arrest the malady by its means. Left with cessations I pushed it till the November of 82. During this long period the disease was obviously progressing — a history of falls was now got — unless he looked at his feet the ataxic walk was most apparent; if walking fast to stop abruptly he would on turning stagger & fall but fall. He could not now stand with eyes shut without falling, he could not distinguish the floor from the carpet nor the letter from the rug. Thoroughly disgusted with both cases I also had Prof. Jennings Hunt's opinion on this case with the last detailed. He gave a rather hopeless prognosis in this case as well but recommended the nitrate of silver in 1/16 of a grain doses given as in the previous case advising me to treat the symptoms as they arose on general principles. After giving the nitrate of silver for a fortnight, for the first time in the history of the patient severe vomiting came on with pain & tenderness in the epigastric region. Thinking I might have exhibited it too soon after the cessation

of the Iod: Potass: I stopped all medicinal
treatment for a month & then tried the nitrate
of Silver pills again – Iron had not been administered
when a repitition of the same symptoms
so alarmed his mother that with difficulty I
induced her to try once again half the quantity
no better a result followed so with considerable
reluctance I abandoned the drug altogether.
Through the winter & spring I managed to get him to
take Cod-oil with his Chemical Food. In the
Summer I was induced to make a trial of (Fletcher)
the Syrup: of the Hydrobromates half-tea-spoonful
doses after breakfast & tea in water, this I have
continued ever since. No good result has been derived
so far as the Locomotor Ataxia is concerned.
The Pains still come on irregularly, the walking
is more ataxic & I am told he falls – "just as
Mr Egan did", the Incontinence of urine still persists,
the gait is more pronounced and even casual visitors
see that he is gradually getting less secure on his legs
There is no want of co-ordination in the trunk or
upper extremities so far.
The points I would direct attention to in this case
are (1) the extreme youth of the patient: (2) the peculiar
history of no wound being suffered after the first month

of life till the 7th — the last case of this kind I saw depended on "basilar meningitis" but this could hardly be the case here. The paresis may have been of a reflex character as is frequently observed in cases of Asiatic cholera as there is a history of constant diarrhoea. another explanation is that the disease was congenital & that the loss of power of walking coming was the first manifestation of it. As before mentioned Hamot reports a case where the ataxia appears to have come on by an attack of vertigo, with other symptoms* there were paresis of tongue diminution of taste, dysphagia which symptoms disappeared as suddenly as they came leaving the ataxic symptoms persistent. The difficulty of deglutition may also be so explained, or the dysphagia may have been produced by partial anaesthesia of the pharynx or from spasm. The next symptom was want of control of the bladder either day or night. thereafter the characteristic pains presented themselves. and since, the usual course of the disease. unimproved & so far by treatment. (3) The fact that the constant current in these children mitigates the severity of the pain in the back when applied over the spine, and in the legs when applied over & along the nerve trunks is worthy of notice. Several times no internal treatment was had recourse to & this electric treatment alone adopted. The irregularity of the pains as to duration interfere with more

definite statements. Looking back on the history of these three children and considering the unusually pronounced hereditary predisposition the prognosis is a gloomy one - one thing - their youth - always gave me hope. - but this very fact gave Hughlings Jackson the very reverse impression, he thought such a decided group of symptoms appearing so early, the very worst sign possible. I will watch the cases as closely as a very busy life will permit, and as I think them uncommon both in respect of age and sex will note future treatment, other opinions & results. I would now just refer to the manual treatment adopted by the Swedish doctor under whom Bryan now is. It will be seen from the articles from "Vanity Fair" that it is essentially different from the treatment now so much in vogue on the Continent, notably at Aix-les-Bains; - no water of any temperature is employed, so far however as manipulation, skin kneading thumb pinching with muscle friction is concerned it resembles that which we call - "massage". From what I can privately gather the method & appliances of Dr. Zander of Stockholm are introduced, mechanical means capable of bringing into play certain groups of muscles which may have become enfeebled being employed. This gentleman undertook to cure my patient at first in 6 months but now it is to require 6 months longer at the end of that time

he professes that perfect co-ordinating power will be restored. From letters I have received privately from friends I can easily judge that no cure so far as the ataxia is concerned is likely to take place. One thing I notice he gives Bergeon no "exercises" for joints nor muscles as if he knew there was no weakness in them themselves, he contents himself with nerve pinching and rubbing the various groupes of muscles. I am far from thinking lightly of this form of treatment for rheumatic affections or muscular weakness dependent on rheumatism or nerve affections, but when by its means destroyed nerve cells are to be restored it goes beyond credibility. I wrote him asking a few particulars as to how he considered the mode of operation he adopted could be effectual in accomplishing this object, he wrote me in Swedish that M. Bergeon would soon be quite restored. I again wrote in his own language, (M. Conrad, Swedish Consul for Newcastle-on-Tyne kindly putting into Swedish) that owing to my questions being in English he must have overlooked them. He wrote me back in English that already the patient was getting over the effects of the lowering treatment he had been subjected to, on again writing him - three months ago - I have had no reply. In conclusion I can only hope that what the Editor of "Vanity Fair" says may be correct "if no good no possible harm", still one cannot but regret the loss of time in the case.

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THE LAST NEW CURE:

MANUAL TREATMENT.

MEDICINE is the art of curing disease by giving physic—that is to say, of curing you of one disease by giving you another. If you are suffering from Cholera, the Doctor gives you Constipation; if from Constipation, he gives you Cholera; if from Neuralgia, he gives you Morphia; if from Pain, he gives you Unconsciousness; if from Unconsciousness, he gives you pain. Patients are in many, and probably in the majority of, cases created by a shake of the head of the Doctor acting on their own fancies; and when once created they are maintained by Physic. There are special forms of disease, such as Iodism and Morphism, which are now recognised as being wholly due to special drugs. The German watering-places have slain their thousands; the patent pills and potions their tens of thousands; and there are few men or women—but especially women—who when they reach middle-age are not the victims, in some form or other, of the Pharmacopœia.

Surgery is a different matter, and has made very great advances and brought blessed results to suffering mankind; but in Medicine the Doctors are very much where they were when they used to mash up toads' heads for physic. Nor is it entirely their fault. They do the best they know according to the traditions they have invented, and the foolish patients on whom they depend for their fees; but the most honest of them are fain to confess that in general the best they do is done by a grave or a smiling face, a pat on the back, and a few bread pills.

Some shrewd unbelievers have however now got an inkling of the real state of things, and a considerable proportion of mankind are agreed to escape if possible from the ordinary doctor and his deadly potions to some new men and new method. Hence Milk-cures, Grape-cures, Tent-cures, and the like, all which vary from each other, but agree in excluding the Physic that Macbeth devoted to the dogs.

One of the most notable of the new men who have ventured to set up outside of the charmed circle traced by the College of Physicians is Dr. Kellgren. He is remarkable in himself, and still more remarkable in his method of treatment. He is a Doctor of Medicine, yet he renounces Physic. Indeed he renounces all attempts whatever to deal in any way with mankind through their stomachs, and undertakes to cure their interiors solely through their exteriors. This method he applies to almost every kind of malady, though it is especially addressed to affections of the muscles and nerves: and a considerable number of persons well known in London Society testify that they have received the most remarkable relief from it in cases of neuralgia, sciatica, and paralysis, and even in cases of fever and heart disease.

The point about Dr. Kellgren's system is that there is no Physic whatever in it. It consists only of what is called "Manual Treatment;" and seems to be, in fact, no more than a revival or scientific re-discovery and development of the system of shampooing which has been used as a curative agent in the East since the days of Abraham, and a combination therewith of certain simple gymnastic exercises. Of the restorative effects of shampooing all those who have lived in the East are well aware. The tired rider broken with fatigue submits himself to the cunning hand of the shampooer, and in an hour is re-invigorated and fresher than ever. This same shampooing is indeed still, for the great majority of mankind, the only curative agent known besides a few harmless exercises of the magic arts. The vast masses of men who live beyond the Ural mountains have never passed through the toad's head stage, they have developed it into no Trades' Unions of Physicians, and they have no Pharmacopœia. They continue therefore to do as of old, and

when they are ill they exercise, bathe, and rub themselves well again, without drugs of any kind. This in general seems also to be Dr. Kellgren's system. It certainly appears to do as much for the patient as any physic does, and most especially in the particular department for which physic is most commonly used by all civilised mankind. Whatever doubt may be expressed as to the results of other parts of the system, there can be no doubt whatever that it is entirely capable of replacing all the laxative pills and mixtures with which people dose themselves so liberally. Moreover, there can be as little doubt that, even if this system should fail to remove the special disease submitted to it, it does most certainly improve the system generally, and very notably improves the general health of the patient. It is, too, beyond question that, in many cases supposed to be helpless and hopeless, Dr. Kellgren has achieved most marvellous results. And finally there is this to be said of him and of his system, which can be said of no others: that, even if they do no good, they cannot possibly do any harm.

Dr. Kellgren is a Swede. He is established in a large house in Eaton Square, together with a half-a-dozen diploma'd young Swedish doctors, who carry out his instructions as to the treatment of the patients who attend there. The proceedings all take place in a large double drawing-room, which is fitted up with low benches, upright posts, and moveable cross-bars. Here any morning, beginning at nine o'clock, may be seen some score of patients stripped to their shirts and trowsers, and being put through the various "exercises" by the young doctors, and by Dr. Kellgren himself. Each patient goes through ten exercises, some active, some passive; those that are active being intended to exercise the unaccustomed muscles, while, in those that are passive, the muscles and nerves are coaxed and stimulated into activity. Here you will see a man having his chest and back slapped; there lies one over whom stands a doctor pressing the muscles and nerves of the back with a cunning hand, which the patient can sometimes scarcely bear when it comes to ticklish points; there again sits a third, having the nerves of the head and face shampooed; and further, recumbent on his back, lies a fourth, undergoing the last exercise, which consists of kneading the abdomen.

It is impossible not to be struck with the general, and in some instances the exact, similarity of this treatment to Eastern shampooing. By this is not meant what is called shampooing in the Turkish baths established in England, where the operation is performed without knowledge derived either from science, as in Dr. Kellgren's case, or from tradition, as in the case of the Eastern shampooer, but blindly and perfunctorily. In the Anglo-Turkish bath shampooing is held to consist in vigorous rubbing of the skin; but in reality scientific shampooing means a pressure exercised through the skin upon the muscles, nerves, and organs that lie beneath; and the result both of Eastern shampooing and of Dr. Kellgren's manual treatment is the same. They both produce what the shampooing of the Anglo-Turkish bath does not produce, a remarkable feeling of increased vigour and lightness. The difference between Eastern shampooing and Dr. Kellgren's plan is that the Eastern shampooer never hurts you; whereas Dr. Kellgren sometimes hurts you very considerably, and one of the first lessons one learns in Eaton Square is that one has a very much larger number of ticklish places in one's body, and of what may be called screaming points, than one had ever previously suspected.

One of the best proofs that Dr. Kellgren's system is satisfactory to those who have essayed it, is the fact that many of them continue to follow it year after year. It is applied not only to men, but to women and children; and with these latter it produces even more rapid and more remarkable results than with men.