

A case of so-called Acute
Ascending or
Landry's Paralysis
with some remarks.

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Introduction.

The accurate knowledge which we now possess of the physiology, pathology and diseases of the spinal cord may be said to be the result of the work of investigators and observers within the last 40 or 50 years. Prior to 1855 our knowledge of the spinal cord was very indefinite, but from that period may be said to date a movement which resulted in definite physiological and pathological information, and as a consequence, accurate nomenclature. The most prominent, if not the leader of these investigators, was Brown-Sequard some of whose contributions I here give: American Quart. Journ. of Med. Sciences July 1856, Journ. de Physiologie Oct. 1858 and Jan'y. 1859, Lancet July 3rd to Dec^r. 18th 1858, Lancet 25th Dec^r. 1859 and Lancet 21st Augt. to 10th Nov^r. 1860. I also quote the following:-

J. Russell Reynolds and Marshall Hall. (Lancet

* Abstract of Medical Sciences. Churchill, London

- * Sept. 8th to 22nd 1855),
- * Marshall Hall (Lancet 29th Sept. 1855),
- * Theodor Valentine (Med. Chir. Rev. Oct. 1855),
- * Schiff (Brit and For. Med. Rev. July 1858),
- * Lewis (Brit. Med. Inl. 9th Oct^r 1858)
- * Pfluger (Inl. de. Physiologie April 1858),
- * Duchenne (Archiv. Gen. de med. Feb. Mch. April 1859),
- * C. Handfield Jones (Brit. Med. Inl. 5th Feby. 1859)
- and
- * J. Galliard Thomas (American Med. Monthly Inl. June 1862).

The investigations and observations of these, and many others, set men a thinking and gradually the several Cerebral and Spinal diseases as we now know them, were isolated from each other.

Landry's paralysis, as a separate disease, was unknown, or at least undetected, until Landry described it in 1859, since when, it has

borne, his name, as distinct from other forms of Paralysis. I am under the impression, however, that Watson (lectures on paralysis 1854) had some idea passing through his mind, which had a reference, to a disease such as this. But Landry himself had evidently been thinking over the subject before he isolated the disease, which now bears his name. With reference to this I copy the following from the Med. Times and Gazette, 10th Oct. 1854:- M. Landry terminates a long series of papers with the following conclusions:-

"I. There exists a group of Paralyzes of the motor powers, offering the following general characters. There is preservation of muscular irritability and of the excitability of the nervous trunks, integrity of muscular nutrition, and absence of reflex motion, of Spontaneous Convulsive movements, of Contractions, of fibrillary contractions, and of trembling in parts

* Watson, London, 1854. Vol. I. pages 548, 549, and 702

actually deprived of voluntary motion

2. In this group may especially be ranged hysterical paralysis and sympathetic paralysis, generally confounded together under the common denomination hysterical
3. Some of these paralyzes disappear during sleep, and immediately yield to the action of Chloroform, (probably also of Ether) and narcotics. Others undergo no modification under such influences.
4. The former appear to belong to the category of Sympathetic Paralyzes; the latter to that of hysterical paralysis, properly so called.
5. These phenomena constitute a means of diagnosis of true hysterical paralysis.
6. They serve to distinguish in all cases the paralyzes in which they are observed from those which are dependent upon organic, nervous or muscular lesions
7. Narcotic and anaesthetic agents may be employed in the treatment of paralysis

whether as curative agents, palliatives or simple auxiliaries."

In addition to Landry, another great physician (Trousseau), had been thinking over the question of paralysis, and, judging from the extract immediately below, must have seen some cases of Landry's disease, such for instance, as are put down in some of the modern text-books as arising from Typhoid, variola, Carbon-bisulphide, and charcoal vapours. From an interesting lecture on Diphtheritic paralysis (Med. Times & Gazette, 28 July 1860) I copy the following:—As to the nature of this paralysis (Diphtheritic), it is evident that it is not dependent upon a material lesion of the brain, as this would be inconsistent with the versatility of symptoms observed, and with its frequent curability. It is presumable that there is something analogous to what is observed in certain cachexias. In Bright's

disease paralytic phenomena are also observed, and the amaurosis in that affection has been well made out and described by M. Landouzy and others. One very remarkable circumstance in Diphtheritic paralysis is the temporary extinction of venereal desires, which occurs at a very early period, even in those possessed of considerable genital ardour.

In various other serious pathological conditions, especially phthisis, the patients long preserve their copulative aptitudes.

M. Trousseau referred to other instances of paralysis, analogous to those now in question, occasionally observed after feeding on certain poisonous fish, after Typhoid or variola, after asphyxia from Charcoal Vapours and after the manipulation of Sulphuret of Carbon in Vulcanized Caoutchouc factories (where also both men and women experience venereal frigidity).

Case.

On 25th December 1891 I visited A. D. aged 14 years. He complained that on standing his legs trembled and that he had great difficulty in keeping the upright position. His legs felt so weak that they bent at the knees, thus making it very difficult for him to walk.

His family history was good in every respect and there was no neurotic evidence on either paternal or maternal side. Two days before this visit he was driving in a gig on a very wet day without protection, with the result that he got thoroughly soaked. After putting his horse up he stood in front of a boiler fire for an hour drying his clothes, and, on going home about three hours after, he felt cold and was shivering, but thought little of it.

Still, that night and up to the time

I saw him, he could not get himself heated. His temperature was normal and remained so throughout his illness. The fact of his temperature being normal and no lesion discoverable, it seemed to me that the lad was suffering from that well-known but ill-defined complaint, "growing pains". However, as a matter of precaution, I sent him to ~~be~~ bed and visited him next day when the trembling on standing still existed. I could detect nothing else and advised him to go out.

On 29th December, (3 days after my last visit) I was again asked to see him, and was told that in going down stairs he had stumbled, fallen and blackened his eye. In the interval the feeling both of coldness and shivering persisted and he could not be warmed. A hot water bottle gave no heat to his feet though the sensation of something warm being there.

was slightly felt. On again examining him I found the trembling of the legs and inability to stand more pronounced and also that the reflex, usually evolved in tickling the soles of the feet, was absent. This led me to examine the spine and there, in the lumbar region, on palpation, tenderness was detected. To this part a fly blister was applied.

By next day (30th December) the blister had relieved the lumbar pain, yet the loss of power and reflex phenomena had crept up the legs. On 31st December the loss of power and reflex phenomena had ascended still further. I, therefore, on the supposition that there was some spinal mischief, put him on a mixture of Ergot and Bromide of Potash.

By this time it was evident the lad was in a critical condition, though I was at a loss to locate and name the

disease. By a process of exclusion, considering the age and surroundings of the patient, I came to the conclusion that it was a case of Acute Ascending or Landry's paralysis.

One point which assisted me to this diagnosis was the fact that the blistered surface healed in a perfectly normal manner, thus leading to the exclusion of those Spinal ailments which are associated with sloughing of tissue.

Constipation — an unusual thing for the patient — now began to give trouble, and the liquid Extract of Cascara Sagrada was given. Throughout the course of the illness this had to be attended to.

Complete control of the bladder was retained from first to last.

The motor and sensory paralysis gradually ascended until on 6th January 1892 (12 days from my first visit) the

whole body was involved to the level of the 6th rib. The fingers, hands, arms, and muscles around the shoulder were also implicated and the lad lay on his back absolutely helpless. The reflexes in the invaded area were all abolished.

There was no sweating at any period of the illness.

To the patient the affected parts felt very cold, and hot water bottles and such like applications gave him no feeling of comfort.

This sensation of coldness was present at the beginning of his illness and lasted throughout. The affected parts were rubbed with the hand and a rough towel to raise heat, but with no better success. The feeling of heat raised by rubbing or hot applications was felt but in a very slight degree.

On 6th January 1892 a consultant was called in. He confirmed the diagnosis.

and gave a very grave prognosis.

Double vision was detected but without strabismus. The patient had headaches of a most troublesome character which were somewhat relieved by Antipyrin, and he slept badly. To procure sleep sedatives were given.

On the advice of the consultant the lad was put on a mixture of Iodide and Bromide of Potash and Ergot.

From 6th to 13th January the disease remained stationary. Double vision, headache, sleeplessness, and constipation continued. When lying in this helpless condition he was asked to rise but could only lift himself partially on one shoulder for a moment and then fall helplessly back. He had to be fed by his mother like an infant.

Careful watch was kept for bedsores but none appeared throughout the illness.

Strict lookout was also kept for any sign of returning sensation but it was not until the 13th January that it was noticed that the reflex phenomenon had returned to the region of the 6th and 4th ribs and the feeling of cold had somewhat disappeared. From 13th January improvement set in, the parts last affected being those to improve first. There was a gradual return of motion and sensation. The reflexes again came into evidence and double vision, headache, feeling of cold and constipation disappeared.

By 16th January the reflexes had returned to the feet.

The disease thus took twelve days to attain its maximum, remained stationary seven days, and disappeared in three days. On 25th January Spamer's battery was used to stimulate the weakened muscles. The muscles responded and,

according to the patient, the use of the battery did him a lot of good. Graduated gymnastics were also begun. Returning power was shown by his ability to step on and off a low stool, then a high stool, then a chair, and by jumping, swinging on a cross-bar &c. By bracing up his muscles in this gradual way, he regained, by 13th February, full command of his body, though weak from the long confinement.

All the organs remained healthy throughout the illness.

The lad is now (1898) in good health and has just recovered from a severe injury to the knee joint.

Since this lad's illness there have been two acute illnesses in the family.

First, in 1894, a brother had an attack of acute articular rheumatism, and second, in 1896, the father, after a few days

intense headache, suddenly developed Ptoxis and external strabismus of the left eye, with double vision. The father's illness yielded to a large extent to the prolonged administration of Perchloride of Mercury and Iodide of Potash.

Had the lad affected with Landry's paralysis a Syphilitic taint? Did the Paralysis seize upon a patient tainted with Syphilis? The suspicion is strong when the fact is remembered that the improvement in the lad's case set in coincidentally with the administration of Iodide of Potash. Though the suspicion be strong, I don't think it can stand examination, for it is not usual for Syphilis to respond so rapidly to treatment. And in 1891, and even yet, 1898, there is no evidence of Syphilis in the family beyond the Ptoxis of the father, and that may not be Syphilitic.

With regard to the last point, I quote the following from Carter & Frost (Ophthalmic Surgery, London, 1887, page 476) :-

"Paralysis of the ocular muscles may arise from several causes, but by far the most common is Syphilis" ----- and some lines lower down - "Rheumatic thickening of the nerve-sheath, or periostitis at the apex from the same cause, may cause paralysis; in these rheumatic cases the paralysis is sometimes preceded by great pain over the orbit."

Aetiology

This disease has been ascribed to very varied causes. The most prominent, according to observers, would seem to be ~~cold~~ exposure to cold and wet. Then follow Syphilis, Alcohol, Diphtheria, Typhoid fever, Pneumonia, Small-pox, septic disease and injury. The common age at which the disease manifests itself, according to 'Bristowe, Gowers², Bramwell³ and Ross and Bury⁴ is 20 to 40 years. The authorities quoted also say that it is more common among men than women. With the exception of Bristowe, the authorities quoted above say that it may occur in older or younger people and even in children, though rare among the latter.

Annexed is a table showing authorities and variety of causes.

1. Bristowe. London - 1882. Page 1012 & 1013
2. Gowers - London - 1886 - Vol. I. page 275
3. Bramwell - Edinburgh. 1895 page 494
4. Ross and Bury - London - 1893. pages 44 to 48

Authority	Age	Sex	Syphilis	Atmospheric	Alcohol	Specific fevers and Acute inflammations
Brit. Med. Jnl. 22-10-92	9 years	Female		"Paddling" in water at seaside		
Brit. Med. Jnl. 10-12-92	52 years	Male		sleeping on damp ground	Previous to falling asleep was intoxicated with beer	
Brit. Med. Jnl. 24-12-92	14 years	Male		wetting		
Bristowe. - London - 1882 pages 1012 - 1013	mainly 20 to 40 years	Males more than females	said to be Syphilis	exposure to cold and the like		occasionally to follow fevers etc
Gowers op. cit. vol. I. page 275	20 to 40 years sometimes older or younger and even children	Males more than females	Syphilis	severe exposure to cold		convalescence from diphtheria, Typhoid and Small-pox
Bramwell op. cit. page 494	20 to 40 years children rare	Males more than females	Syphilis	cold and wet	alcohol	Typhoid, Pneumonia, Septic disease and injury
Ross & Bury 93 cases criticised op. Cit. pages 18 to 40	20 to 40 46% 40 to 64 23% 2 to 14 4% other ages not given	Males 63% Females 23% sex not given in others	9 cases	14 cases of exposure pure and simple	a number of cases where alcohol was a predominating factor in exposure and other causes	Typhoid 3 Child-birth or menstrual 4 Small-pox 5 and others from Measles, whooping-cough, diphtheria, and Pneumonia

I have purposely omitted from this list such causes as Lead, Arsenic, Carbon-bisulphide, Sulphuretted Hydrogen, Naphtha &c. because these are direct chemical poisons, differing in this respect from the indirect or secondary organic chemical poisons produced by such as Diphtheria. Probably also alcohol should be included in the direct chemical poisons.

Pathology

The pathology of this disease is, up to this date, still most obscure. No pathological changes in Brain, cord or nerves have been discovered that will account for what is seen clinically.

I here give a synopsis of the views of some authorities on diseases of the nervous system.

* Gowers :- "In several cases nothing has been discovered. In some, minute haemorrhages that have probably occurred in the last moments of life. In a few cases scattered indications of inflammation have been found in the grey matter of the cord with degenerative changes in the ganglion cells. Enlargement of Spleen and abdominal glands have also been observed in some cases. Bacteria have been found in the

* op. cit. Vol. I. page 244

"glands by some but not by others. The
 "disease is probably due to some Toxic
 "influence because of the acute swelling of
 "Spleen and lymphatic glands." Perhaps ⁽¹⁾
 "the malady to which Acute Ascending
 "paralysis bears the closest analogy is
 "Diphtheritic paralysis." ⁽²⁾ Gowers also thinks
 "there is a close analogy between Rabies
 "and Landry's paralysis and mentions a
 "case where the diagnosis of Landry's
 "paralysis was given, but which, by
 "subsequent inoculation, was proved to
 "be a case of Rabies."

* Bramwell:— "A few cases have shown
 "changes which were thought to indicate
 "commencing inflammation in Cord or
 "peripheral cells, but the majority of
 "cases disclosed nothing. The absence of
 "any obvious lesions in the neuro-motor
 "apparatus, and the fact that in some

* op. cit. pages 494 & 495
 (1) op. cit. Vol. I. pages 248 & 249 (2) op. cit. vol. II. page 854

"cases the Spleen presents changes similar"
 "to those which are met with in the"
 "infectious fevers have led Landry and"
 "some other observers to suppose that"
 "the disease is due to the introduction"
 "into the system of some Toxic material."
 "The fact that the disease seems in"
 "several cases to have been preceded by"
 "an acute febrile affection or a septic"
 "inflammation lends some support to"
 "this view.

* Ross and Bury:—⁽¹⁾ "It would appear"
 "then that definite morbid changes of the"
 "Spinal ~~and~~ centres, nerve roots or nerve"
 "trunks were observed in 15 out of 42"
 "cases in which an autopsy had been"
 "obtained. After criticising these cases"
 "they say —⁽²⁾ "The balance, therefore, of the"
 "evidence afforded by morbid anatomy is"

*⁽¹⁾ op. cit page 83. ⁽²⁾ page 86

"largely, in favour of the view that the
 "essential lesion is to be found in
 "disease of the peripheral nerves and
 "nervous roots rather than in the nerve
 "centres."

* Again:—"The truth appears to be that
 "in rapidly fatal cases of Acute Ascending
 "paralysis our present means of
 "post-mortem investigation are not
 "sufficiently refined to discover morbid
 "changes, which enable us to decide
 "whether they are to be regarded as a myelitis
 "or neuritis or a toxic influence without
 "anatomical substratum; and if preference
 "is here given to the theory of multiple
 "neuritis, the evidence in its favour is
 "to be found, not in microscopical
 "investigations, but in the essential identity
 "of the causation and clinical phenomena of
 "these cases with others which pursue a more
 "or less chronic course, and in which

"degenerative changes have been observed in"
 "the nerves. All, indeed, that is here "
 "contended for is, that there is an essential "
 "clinical identity between Acute Ascending "
 "paralysis and Post-Diphtheritic, alcoholic "
 "and other forms of paralysis, which are "
 "grouped under the name of peripheral "
 "neuritis, in that the Pathology of one "
 "member of the group is, at least in a "
 "generic sense, the Pathology of all. "

*Bristow:— No morbid changes
 have been discovered anywhere.

Symptoms and Progress.

For a few days usually — sometimes hours or weeks — the patient expresses himself as being out of sorts. Nothing is complained of specially and examination of the various organs of the body reveals nothing abnormal;

The temperature is in almost all cases normal. Sweating is noted by ^{*}Bramwell but not by other authorities. After this vague state, ¹matters has lasted for hours, days or weeks — a few days generally — the patient complains of difficulty in standing and walking and often of "prinkling" and tingling of the feet. The weakness of the legs gradually gets more pronounced until the patient is ultimately unable to stand or walk. Examination now will reveal the fact that the reflexes of the

* op. cit. page 496

soles of the feet are lost. If the patient be supported upright he feels that his feet are touching the ground, but that he is unable to move them. There is no feeling as if he were standing or walking on velvety material. While the patient is in bed and before the disease has destroyed the mobility of the muscles, the legs can be moved. Gradually the motor paralysis advances and with its advance is noted the abolition of the reflexes. The paralysed muscles are flaccid and perfectly quiet; that is, there are no tremors.

The paralysis advances gradually up the legs, involving the whole of the lower extremities. Then the muscles of the trunk become affected, the fingers, forearm, scapular region, and finally the muscles of respiration, deglutition, tongue and face; the patient generally dying asphyxiated. During the progress of the disease the superficial and tendon

reflexes rapidly disappear. Sensation is impaired in many cases, though as a rule this is not a common feature.

Neuralgic pains are absent. Full mental power is retained. Nutrition of skin and muscles is not interfered with. Bedsores do not occur, and the muscles do not waste unless what may happen from disuse.

The electrical excitability of muscles and nerves is said to be unimpaired. The natural power over Rectum and Bladder is retained in nearly every case. In a very few is it lost. Though the natural power be retained, the paralysis of the abdominal muscles interferes with the complete expulsion of the contents. The general health is in other respects good. Headache and diplopia are often present.

Occasionally the disease may commence in the upper extremities and then attack the lower, but as is pointed out by

(1) * Ross and Bury, it ascends from the fingers, and in this sense, just as it ascends from the feet, is it an ascending paralysis.

The disease may last from a few days to weeks or months. The longest case quoted by

(2) * Ross and Bury, with complete recovery, lasted seven months. On the other hand, the disease, from first to last, may end in death in two or three days.

Generally speaking the duration of the illness is from one to three weeks, and is generally fatal.

* (1) op. cit. page 46

* (2) op. cit. page 36

The progress of the disease may cease at any part of its ascent, and complete recovery result.

* (1) The parts last affected recover first.

Gowers mentions hyperaesthesia of the skin and tenderness of the muscles, and looks upon acute enlargement of the Spleen as probably a constant phenomenon. * (2) He also says that Bulbar paralysis has been known to precede the others, * (3) and that very rarely other cranial nerves have suffered in slight degree

† Bramwell:— The conditions most likely to be confounded with Landry's paralysis are acute Myelitis, Polio-myelitis anterior acuta, peripheral neuritis and Hysterical paraplegia.

* (1) op. cit. page 276. Vol. I.

* (2) op. cit. page 276 Vol. I. * (3) op. cit. Vol. I. page 277

† op. cit. page 496

Treatment.

No treatment specially applicable to this disease is known.

Rest in bed, in a warm, well-ventilated room and good nursing seem to be about the only remedies that authorities are agreed upon, but the same may be said regarding all diseases. Counter-irritations to the spine by sinapisms or fly-blister, and Ergot combined with Bromide and Iodide of Potash are the more active remedies recommended.

On the probability that the disease is Toxic, *Bramwell recommends treatment in that direction, such as Iron, Quinine and other remedies which are useful in septic and toxic conditions. During convalescence †Bristowe recommends the constant current,

* op. cit. page 499

† op. cit. page 1013

with *Strychnia* and other tonics.

* *British Medical Journal*:— Treatment of peripheral neuritis by alternating currents. Regnier records satisfactory results in 9 cases — 4 due to lead, one to alcohol and one to trauma. The current is obtained from the central station at Paris. The effect of these currents upon the nerves of sensation is much less marked than that of faradic currents; an electro-motive force of 10 to 12 volts could thus be used with them which would have been intolerable with faradism. The mechanical effect is described as being as energetic but less brutal than that of faradism; the redness of the skin is similar to that observed with faradism, but is not painful and only lasts 10 or 15 minutes. Regnier comes to the important conclusion that the action of

* *Brit. Med. Jnl.* (Epitome, page 30) 29. Jan. 1898

alternating currents resembles, without
being identical with, that of
galvano-faradism.

Conclusion.

This disease was first described by Landry in 1859 and consists in motor-paralysis of the muscles. The progress is generally uninterrupted and rapid. There is, as a rule, no loss of control over the emunctories, and up to this time the lesions discovered are said, by competent authorities, not to be sufficient to account for the mischief seen.

Sensation is generally impaired but rarely completely lost.

An important question arises in considering the Pathology of this disease, and that is, Is it a disease of the Spinal cord or is it a peripheral neuritis?

Most observers look upon it as a peripheral neuritis. * Bramwell is the only

* op. cit. pages 497 & 498

"one I have come across who is not "
"prepared to accept this view. Landry's "
"paralysis he holds to be a much more "
"rapid disease than peripheral neuritis. "
"In Landry's paralysis there is no marked "
"atrophy, no pain over nerve trunks, and "
"no definite symptoms indicative of "
"sensory derangement. All these symptoms, "
"he says, are well marked in peripheral "
"neuritis. Further, the mode of development "
"and spread of the two diseases are different. "
"In the majority of cases of Landry's paralysis, "
"the paralysis begins in the toes and "
"gradually extends upwards to the muscles "
"of the legs, thighs, trunk and upper "
"extremities. In cases of peripheral "
"neuritis, in which both the upper and "
"lower extremities are involved, the paralysis "
"usually affects the peripheral parts of the "
"upper and lower extremities more or less "
"simultaneously."

In considering this question it is important to remember one outstanding feature of Landry's paralysis and that is that, practically speaking, in all cases the Rectum and Bladder are able to perform their normal functions. Now, in all cases of acute paralysis of the kind usually seen in practice i.e. those implicating Brain and Spinal cord, control of Bladder and Rectum is lost.

The Sacral plexus governs the Bladder and Rectum. In Landry's paralysis these organs perform their functions as in health. It necessarily follows that the Spinal cord and the communication to the higher centres retain their power in full, otherwise these functions could not be performed.

*Bristowe says:—"The presence of this reflex."

"phenomenon implies that the nerves of the
 "Sacral plexus and the corresponding part"
 "of the cord are still capable of performing"
 "their special functions."

If the Spinal cord were affected as we see the superficial nerves affected, the same result would follow, namely, the natural reflex impulse of the Bladder and Rectum would be lost — paralysis of these organs would result.

Trophic affections of the skin are rarely, if ever, seen in Landry's paralysis.

* Bristowe says:—"There are good grounds,"
 "however, for the conclusion that the posterior"
 "cornua and central regions of the grey matter"
 "have the same trophic relation to the"
 "skin as the anterior cornua to the muscles"

From the nature of Landry's paralysis the patient is confined to bed, and compelled

to lie on his back because he is helpless. Now, this is the very type of case in which one would expect to see bed-sores form, apart from paralysis.

When we see a patient so helpless, and at the same time so completely paralysed, as in Landry's paralysis, the more would we expect to find bed-sores. Yet bed-sores do rarely form. In paralytic affections from Brain disease, in paraplegia and other forms of Spinal paralysis, bed-sores may form in spite of every care, and if every care be not taken bed-sores will form. Yet, with practically no attention paid to this department, bed-sores are not usually found.

We have thus two important clinical facts having a relation to the Spinal cord.

In the first place, the fact that the Rectum and Bladder are able to perform their functions shows that their

governing centre in the Spinal cord — the Sacral plexus — is intact. In Spinal meningitis, Myelitis, Haemorrhage into Spinal cord, Congestion of the Spinal cord, Softening of the Spinal cord and Locomotor Ataxy, the Bladder and Rectum are more, or less interfered with. If Locomotor Ataxy be excluded, the other affections mentioned show distinct interference with the functions of Bladder and Rectum. When these facts regarding the Spinal cord are applied to the diseases mentioned, the marked contrast between Landry's and other paralytic affections stands out prominently.

In the second place, the fact that nutrition of the skin and muscles is not interfered with shows that the centre of nutrition in the cord is not impaired. The white matter of the anterior horns gives origin to the motor nerves. Neither of these

has, so far, been found in a diseased state.

We are now in this position: Post-mortem examination has revealed no disease of the Spinal cord - no disease of anterior or posterior horns or grey matter: clinically we see no mal-nutrition of the skin and no trouble in those abdominal organs - the emunctories - under control of the Spinal cord.

* Bristowe says: - "The last to which we shall refer is the circumstance that, inasmuch as it is through the sensory or afferent nerves that reflex motor phenomena are excited, it is obvious that if the disease causing anaesthesia exist in the course of the nerve or its nucleus, no irritation of its extremity can evoke reflex action, while if it be due to Spinal disease, the

* op.cit. page 919

"probability is that irritation of the
 "extremities of the anaesthetic nerves given"
 "off below the seat of disease will excite"
 "muscular action in the corresponding"
 "muscles."

*⁽¹⁾ And :- "When however the motor nuclei,
 "or nerves emanating from them are the"
 "seat of disease rapid muscular emaciation"
 "usually takes place concurrently with"
 "loss of Faradic contractility."

*⁽²⁾ And under Reflex action :- "Reflex muscular"
 "action occurs, of course, constantly in health,"
 "and when met with in cases in which"
 "voluntary power over muscles is impaired"
 "or lost, necessarily implies that the"
 "afferent nerves which convey impressions"
 "from the seat of irritation to the cord, the"
 "motor nerves passing from the cord to the"

*⁽¹⁾ op. cit. page 915

*⁽²⁾ op. cit. page 915

"muscles which are called into action, and"
 "the part of the cord with which these"
 "several nerves are connected, retain in"
 "a greater or less degree their normal"
 "power. Reflex excitability, therefore, may"
 "be impaired or annulled by disease or"
 "injury of any part of this nervous"
 "mechanism."

Since Pathology reveals nothing, we are forced back to the clinical facts and to reason by comparison with well-known diseases, to locate the disease. And seeing that certain functions are duly performed which could not be if the cord were involved as we would naturally expect to see it, we are compelled to look upon Landry's paralysis as a peripheral neuritis — an affection of the afferent and efferent nerves in relation to the cord.

It is probably produced by a Toxic agent, and, (when we consider the most

usual cause - cold and wet - and the most usual time of the year - December and January -) of a character allied to Rheumatism.

In the classification of Ross and Bury ^{*(1)} many cases are put down as following upon certain diseases. This seems to me to be a mistake and to confuse the true disease with those so classified.

Just as we have Diphtheritic paralysis, so we should say alcoholic peripheral neuritis, Pneumonic peripheral neuritis, Typhoid peripheral neuritis &c, as distinguished from Simple acute ascending peripheral neuritis.

*⁽²⁾ Ross and Bury come to the conclusion that Landry's paralysis is a peripheral neuritis by comparison with other

*⁽¹⁾ op. cit. pages 18 to 40

*⁽²⁾ op. cit. pages 87 & 88

diseases of a similar character, but running a more chronic course.

I have tried here to show that Landry's paralysis, by comparison with well known diseases of the Spinal cord, and their clinical evidences, and by quotations regarding reflex action, viscera, and nutrition, is a peripheral neuritis.

It, therefore, seems to me, when the marked contrast between Landry's paralysis (simple acute ascending peripheral neuritis) and the other well-known acute cord diseases is borne in mind, difficult to come to any other conclusion, notwithstanding Bramwell's words on what he terms peripheral neuritis