

INAUGURAL DISSERTATION

BY

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REPORTS OF, AND REMARKS UPON, A SERIES OF NERVOUS CASES
ADMITTED INTO THE WARDS OF THE WESTERN INFIRMARY,
UNDER THE CARE OF DR. FINLAYSON, 1875-6.

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Case of Locomotor Ataxia.

Daniel Ramsay, admitted Dec. 14/75.
Aet. 34. Gun-maker. Married, - nine years ago, has four children, the youngest being 19 months old. His father is living well, his mother died in child-bed; - has one sister, in good health, & 1 brother living well so far as patient knows.

Past History. Patient has never had any serious illness. For 2 or 3 years past he has suffered more or less from indigestion, - as shown by epigastric pain after food, - costiveness, - nauseous taste with slight expectoration in the mornings, - & congestion of liver.

Recent History. About 8 or 9 months ago patient felt a stiffness in the knee joints, - this in time proceeding up to the hips. A difficulty in keeping balance when turning round was next experienced, this gradually getting worse till 3 months ago patient could scarcely stand or walk.

Four or 5 months ago his vision became dim & there was also slight deafness of the

right ear. About the same time his legs, more specially the left, began to have a dead & numb feeling. Patient experiences a tightness across the abdomen, - as if a band were tied round him, - this seems to be limited to the front of the abdomen, it is not constant, - in the same part there is a dead or numb feeling. When patient feels a desire to micturate or go to stool, unless he do so at once, both urine & feces escape involuntarily, in fact he sometimes has not time to leave his bed before the urine passes. He is perfectly conscious of the escape of the excretions but has lost control over the sphincters.

Patient left his work idly on account of his inability to stand.

When walking patient's feet are bristled with a thud; but he does not walk worse when keeping his eyes fixed on the ceiling of the room. He can not stand steadily, & if he closes his eyes whilst standing, he would fall unless supported. When standing or walking, he feels as if his feet were upon india-rubber.

On bending his knee he feels a tightness under it which increases up to a certain

points, when that is reached, the knee bends with a jerk. No "pins & needles" sensation nor any "lightning" pains have been experienced in any part. When lying or sitting he can use his legs freely.

Sensation. — In the arms this is normal. In the legs there is anaesthesia; — tested by compass points, — the right thigh could feel both points only when they were over 6 inches apart, — the left thigh when only 4 inches apart: in both calves he could distinguish two points of contact when these were $2\frac{1}{2}$ in. apart. In all these tests, force had to be applied before the compass points could be felt at all.

Tested by the induced current, — a strength which caused him quickly to withdraw his arm could scarcely be felt in the legs.

Tested by cold & warm sponges (on the legs) — a cold sponge was felt as cold when slightly pressed, but a warm sponge (about $100^{\circ}F$) could not be felt. While testing, — slight involuntary twitchings of the legs, especially the left were noticed.

Sense of Muscular Activity. A $\frac{1}{4}$ lb. weight

suspended over the dorsum of the foot (right), patient sitting with his feet off the ground, can be appreciated, but nothing under 1 lb. can be felt by the left foot. Weights under 2 lbs. placed on the legs, patient being recumbent, seemed only to be felt so far as they gave rise to the sensation of cold, - the weights being iron.

Muscular Irritability. The muscles respond to the induced current

Special Senses. Eye. At about 8 inches he can with the right eye make out the letters of No 1/2 "Snellen", - 8/2 being the size of type read by the left eye at same distance.

Pupils small, but equal, no squint.

The fundus of the left eye was examined (Dec. 19) by Dr. Clarke, - very marked white atrophy of the optic disc was discovered, the minute vessels being almost abolished, & the arteries being, generally, small. So far as the right eye was examined, without dilatation of pupil, it seemed nearly normal. The field of vision in the left eye is greatly restricted in its outer aspect, vision being lost when the finger is held very little beyond the middle line & when moved

upward & Forward on this side it is also lost.

Tested with colored types, - green is found to be the only color with which there is the least difficulty.

Ear. When patient was admitted the hearing of the right ear was found to be defective. On exam. with the ear speculum this ear was found to be blocked up with wax. On removal of this wax, by softening with oil & syringing with warm water, - the hearing was found to be as good on the right side as on the left.

Tongue. There seems to be diminution of the sense of taste on the right side - as tested with Quinine.

Heart & Liver Normal. A few dry - organ-pike, - râles are heard over the chest, otherwise it is normal. The bowels which were habitually costive have been more regular since illness commenced. Appetite good.

Sexual Desire decreased. No account of excessive venery, or of seminal emissions. No supposed cause assigned. Urine normal.

Remarks.

As regards hereditary predisposition to nervous diseases, - nothing of this kind can be made out in the case, - nor, as far as can be gathered had there been any sexual excess of any kind to account for his illness.

It may be remarked that - patient has been a healthy man up to the commencement of the present illness, excepting that he has suffered more or less from indigestion during the last 2 or 3 years. In what position, if any, this indigestion stands to ataxia cannot be said, altho' it is possible that it was one of the earliest indications of a disturbed state of the nervous system.

With regard to the most distinctive symptoms of Locomotor ataxy, - these, in this case are very typical: - the stiffness in the joints, - the difficulty in keeping balance when turning, increasing till standing or walking became almost impossible, - the numb feeling in the limbs, - the tight or numb sensation round the abdomen ("Douleurs Contractives" of Charcot), - the want of co-ordination shown in the lifting & placing, or rather falling of the feet, - the inability to stand

with closed eyes, — the sensation, so pathologically described by the patient himself, as if, when walking or standing his feet were upon india-rubber; — the cutaneous anaesthesia, with the retention of sensibility to temperature, — the monocular white atrophy of optic nerve with contraction of the field of vision, — are well shown.

It is to be noted that there is an absence of the "pins & needles" sensation & also, — at least up to the time of admission to the Hospital, — of the "lightning like" or "toothache" pains. These latter set in about a week after admission.

As will be seen by the report the faeces & urine escape involuntarily if the calls are not at once attended to, but the patient is quite conscious of their passage, proving absence of anaesthesia. This escape of the excretions may be due to a spasmodic action of the bladder & rectum, but probably it arises from a loss of control over the sphincters. Normally these muscles are in a state of passive contraction, but this action can be made active, that is, increased, — by the power of the will; so that, tho' defecation &

irritation are reflex acts, they can to some extent be postponed. In the present case it would appear that when the rectum & bladder have become so full as to excite the cord to action, - the power of active contraction being lost, - the passive contraction is quickly & easily overcome. A possible explanation of this might seem to be that there is a paralysis of (active) motion of the sphincter. But in Locomotor Ataxy muscular power is usually complete, the disease being essentially a loss of the power of co-ordination. Is it not more than possible that the involuntary escape of the excreta is due to loss of co-ordinating power over the sphincters & muscles of expulsion in those cases where no anaesthesia of the orifice exists?

The anaesthesia is very marked, except as regards the sense of temperature which is pretty perfect.

With regard to the loss of sensation of muscular activity it is to be stated that this sensation was not perfectly lost till the patient had been about a week under treatment, & as this treatment resulted

even at this time, in improvement, the result cannot be altogether accepted as showing the extent of the loss at the time of his admittance to the hospital.

Various sized weights were placed upon his leg (whilst he was recumbent) to see to what extent he could feel a difference between them (as to weight). It was found that no weight under 2 lbs. gave rise to the sense of weight, but, seemingly, only to sense of coldness, - the weights being iron.

For it was found that when a certain sized weight (under 2 lbs) was left in contact with the limb for a short time & then replaced by a lighter, the latter was better appreciated (not as a weight, but simply) as a cold body touching the part. Evidently the former & heavier-weight, by contact with the limb, gradually received heat from it & as it approximated more & more the temperature of the limb, - was less & less perceived, so that when it was replaced by a colder (tho' lighter & smaller body), - the latter was better felt.

- Special Senses.

The Eye. — Tho' the dimness of vision was not noticed by the patient till about 4 months after the appearance of the first symptoms, — it is more than probable, that had there been an Ophthalmoscopic examination at the onset of the disease, — a trace, at least, of the very marked atrophy now present would have been detected.

The Ear. The Deafness noted on admission was found to be of an accidental, & not of a nervous nature, being due to an accumulation of wax. Such shows the necessity of a careful examination of the ear in all cases of Deafness supposed to be of nervous origin.

The Treatment in this case was by Nitrate of Silver, — the daily application of the induced current to the affected limbs, — & bathing of the spine. The result was a distinct tho' not great improvement. The Pains in the limbs which set in after his admission to the Hospital left him. Tested by the

Compasses there was an improvement in cutaneous sensation: — the right calf could appreciate two points when these were $1\frac{1}{4}$ inches apart. — & the left, — when $2\frac{1}{4}$ inches, — as compared with $2\frac{1}{2}$ in. & $2\frac{1}{2}$ in. respectively: — the right thigh when $1\frac{1}{2}$ in. — & the left, when 2 inches, — as compared with 6 in. & 4 in. respectively. There was no means of calculating the extent of the improvement as regards the pressure ^{required} to be used before the sense of touch was experienced. For such a purpose an instrument might easily be made, — viz. a graduated spring: — such might be affixed to a pair of compasses. An attempt was made to estimate to what ^{the} extent of the ~~was~~ anaesthesia by means of Handfield Jones' Sphygmometer, — but the pressure which it registered was not sufficiently strong for the patient to appreciate.

Case of Aphasia

Malcolm McKay, admitted Jan^y 18/76

This boy was seen at the dispensary & advised to come into the house, as he was found to be affected with a degree of right hemiplegia & an almost complete loss of speech.

When seen on the morning after admission, his condition, as regards speech, seemed so peculiar that a strong suspicion of deception could not fail to be entertained, notwithstanding his early age & his obvious paralysis; — for, in reply to a question as to his name, he said quite plainly "Malcolm"; — on interrogating him as to his other name, he seemed unable to mention it, but on trying various names he said "No" to them all, till the right one "Mackay" was introduced, when he said "Ay". "No" & "Ay" seemed his whole vocabulary in ready use: — even his surname "Mackay" was pronounced after repeating it to him, only with difficulty, & scarcely quite distinctly. On trying him with the letters of the alphabet it was very

remarkable the promptitude with which he answered, - when asked what letter was shown him, - but he was invariably wrong, he usually called every letter O or X at once without hesitation. It caused no little surprise therefore when the nurse patients mentioned that he could write his own name. On giving him a pencil & paper he at once wrote, with his left hand, "Malcolm Mackay", in a somewhat straggling manner, but still quite legibly.

He was now tried with the letters he himself had written, & with other samples of written letters, but he failed equally to name them correctly, altho' answering flibly as before. He was then tried with various objects, - a watch, - a book, - a penny - the wall, - a hand &c., & it was found that he could name all these quite readily & quite correctly. He was further tried with purely verbal requests, - to get out of bed, - to stand on the right foot, - to close his left eye, & such like orders of a character that he was not likely to guess, & it was found that he could understand; apparently, almost every thing said to him.

He was then tried with figures 1, 2, 3, - which

with a little trouble he could be got to repeat as directed; when asked to copy the figures, he wrote 1, 2, 4. The result of this examination seemed scarcely intelligible, except on the supposition of his writing having been a result of some special education directed to this end.

Next day he was tried with movable letters or lettered tablets, which seemed to delight him.

He soon managed to spell out "Malednu", & when the letters composing "Malednu Mackay" were supplied alone, he readily put them together ~~and~~ correctly. When, however, the whole

box-ful of letters were placed at his disposal, he had much more difficulty, & his attempts frequently resulted in producing something which only bore a resemblance to the word "Malednu" - if the erroneous letter were pointed out, he could in time find out the proper one. It was found that he

could arrange the figures up to 9 correctly, & even if some duplicates were given he could arrange the figures correctly, leaving the superfluous ones aside. He could also by a

While thus, with a variety of objects, he could, either at once, or with a little difficulty, begin to name the things, & while he seemed quite able to understand even long sentences addressed to him, — he could never begin to connect a few words together. Thus he assented readily to the question, — would he like an egg? : he could also name an egg when shown to him: he could, when asked to do so, repeat word by word, — Please, — nurse, — an, — egg, — but he could not be persuaded to say those 4 words, altho' encouraged by the assurance that he would thus get on.

The history of the case obtained from his mother, a few days after his admission, sheds some light on the difficulties here alluded to, as it became clear that most of the words he could now use, in any way, had been acquired slowly by a process of education since his illness.

Fifteen months ago he had Scallatina of only moderate severity, but during convalescence he had general suppur & inflammation of the

Kidneys. In about a month from the beginning of his illness he was seized with convulsions, these being preceded for about an hour & half by a state of stupor. The convulsions affected the right side exclusively: they lasted off & on for about 9 hours: some vomiting occurred in connection with this attack of convulsions. After these convulsions ceased he lay unconscious for 9 days, — passing everything in bed. The Dropsy disappeared after this seizure. He gradually improved in other respects also, but he was found on recovering from his unconscious state to have marked paralysis of the right side. This also improved considerably, but it was 4 months before he could walk. During this period, — in which he was recovering, — there were several recurrences of the convulsive fits, of a comparatively slight character however, & differing from the first fits, in being general & not limited to the right side. These fits have continued to recur, & one of the worst attacks was the last one, in the first week of the present year (1876).

After the first convulsive fit (which inaugurated the paralysis) there was blindness, which seemed to be complete at first, & deafness also, as well as loss of speech. The sight & hearing improved along with the power of walking, & are not now affected to any marked extent at least. There were no discharges from the ear at any time.

About the same time that the power of walking returned, he began to use the phrase, "Deed no", using it as a "rhyme" regardless of its meaning negative. He indicated assent or dissent by the movements of his head.

His mother thinks that it is only within the last 3 or 4 months that he has understood the use of words, as when asked to bring anything before that time, he stood still & seemed stupid, & only knew the object wanted when pointed at. Attempts were made, systematically, by his family to teach him words, & he can now use a considerable number of words, & can say them when the objects are shown: - This, so far as can be ascertained, seems due to education since

his illness. Amongst other things he has been taught to write his name, - imitating a copy set him by his brother & sister. ~~Next~~ had been at school up till his illness began, & was able to read well: he was also a good writer, & was well on in arithmetic: he was also able to draw, & he could sing hymns & songs. His mother says, indeed, that it was chiefly by means of singing that he began to pick up a few words since his illness, as he was able to follow the tune & put in a word here & there.

Since his illness his mother says he has not been subject to headache, altho' he had been very subject to them before. She also states that he has become rather passionate & irritable since his illness; & destructive of his toys & books.

Family History. Father living & well: mother has had an illness resembling Rheumatism, but it came on after a confinement. A sister child has had Rheumatic fever, but no rheumatic or cardiac affection otherwise are known of. The other three children living are in good health: 3 died, one of croup, & the other two in very early infancy,

This account of the progress of the illness & the gradual education of his power of speech, led to further tests being applied. The hearing was found to be equal on both sides, & to be almost normal, altho' not quite so acute as it should be. The vision was tested by means of pictures held at a distance, - the patient being asked what the objects were, & both eyes seemed almost normal in this respect. Tests by the types could not be satisfactorily applied owing to his calling letters by wrong names. In applying these tests it was found that he could see the various colors. He was tried with objects of different colors to see if he knew them by name, as Red, - Blue, - Yellow, - Green.

It was found that he could at once match any color given, - a red dress with a piece of red blotting paper &c. with the greatest certainty. He was however, so extremely uncertain in pointing to red, - blue, - yellow or green when named, that it seemed as if he had no accurate knowledge of these words, any appearance of certainty arising probably from his learning from the corrections made

this certainly disappearing when fresh objects were substituted.

Tried with coppers, he could not tell how much four pennies amounted to, he would count 1, 2, 3, 4 & then if asked, how much that was, he answered 6. Nor did he seem to know what relationship 6 penny pieces had a silver 6?

As it was reported that he could sing certain songs, he was asked to sing, "A Hundred Pipers", & when started by one of the students, he sang the tune with considerable accuracy & in this way he was found to put 4 or 5 words together, a thing which he had never been heard to do in any other way, or for any other purpose.

He also in same way sang part of "Wandering Willie". Next day he was asked to sing again, the object being to discover if he could originate the tune & words, without assistance. He would not try the two songs already named, but volunteered another, - "A Happy Dream, A Happy Dream" which he began unaided, & kept to the tune moderately well, but except the above words & the terminal words, - "Still a slave"

all the rest seemed on closely listening, to be simply vocables to carry on the tune.

Another day while testing him with letters, Tommaso etc. he was heard to hum to himself a small part of "Happy Land, far, far away", 3 or 4 ~~to~~ words being heard in proper sequence.

Following up some hints obtained in the course of the examination, - he was tried with various compound words, - but he did not succeed in naming objects thus designated: - a watch-key, he called a "watch", altho he confessed it was not a watch, which he names always correctly enough when it is shown to him, & when taxed with this error, he supplemented the name by screwing round an imaginary key as if winding a watch.

An "egg-cup" in the sameway he called an "egg" altho he knew & admitted it was not an egg: - "Handkerchief" he likewise failed to name, altho he indicated its use by a posture.

Subsequently to the odor tests he was tried with adjectives applied to ~~tests~~ tastes.

A sour liquid he indicated by a gesture.

there is perhaps a slight flabbiness of the right cheek. There is no trace of squint; - the pupils are equal; - the eyelids are well closed; - the tongue is protruded in the middle line. The muscles of the paralysed arm respond well to the induced current. The urine has been repeatedly examined, & found to contain no albumen. It was tested for sugar both by the eoper fermentation tests with a negative result. Heart sound normal

There is nothing abnormal found in the lungs. Since he has come into the ward, he has taken his food well, - there has been no sickness, & his bowels have been regular.

On Feb. 1st the boy was examined by Dr. Gairdner, & the above facts as to his power of speech verified. The only new fact then ascertained were that he could write little words below a copy with moderate accuracy such as "dog" but he seemed to have no idea what this word represented. He further was ascertained to know which object was round & which square in a diagram, & in setting him to

sing "Hold the Fort," it was found that he said nearly all the words in this hymn which he started himself. It was ascertained also that he knew a half-penny from a penny, he designated the latter, "ha-penny" & "ha-penny" indicating the double value by a repetition.

Since admission this boy has picked up many new words & phrases. he now occasionally says "Yes Sir" instead of "Ay," often in addition to it as if remembering.

He now also says "Maledm McKay" quite readily instead of "Maledm" only, as he did on admission. On several occasions he has put 3 or 4 words together to express his meaning. He can now also count readily up to 10, or even with an occasional mistake up to 20. When counting persons present & pointing, one two three he is very apt to make a mistake of one at the beginning or end.

Tried repeatedly with little words he seems to pick up readily which is man, pig, cat, &c. & he even remembers them.

more or less accurately, thus he said "man" when written, & he wrote something like the word beneath it, but on trying him with MAN he guessed something else altho' he also copied it. "Homo" he guessed as horse, a word with which he had been tried, but wrote "homo" quite legibly: avng he did not venture to name but made a fair attempt to copy.

Further investigations show that this boy is making progress in the use of words, not only does he put a few words together now, but he can now write one or two words to dictation such as "man" & "dog": the latter he several times wrote as "day", but on writing "dog" & telling him it was not the same as he had done, he found out the wrong letter & corrected it. Tried with German printing in test types, he copied it as well as he did English, even making an attempt at the Diæresis over the *ü*, but he always copied printing as printing, & writing as

writing, & he could not be got to continue the copying in writing altho' it was begun for him.

The eye-sight has now been tested with the types, - by getting the boy to copy & it is found that he can do number $3\frac{1}{2}$, - anything less than this he refuses to attempt, - pointing to his eyes as an explanation. The eyes were examined Ophthalmoscopically by Dr. Reid, - there was however nothing of a striking nature to be found in the fundus.

Remarks.

The history of a case of Aphasia interesting at all times, - is made more so when it occurs in a child, - children being so rarely affected with this disease.

Every point in the case is so worthy of notice that it is difficult - to pick out any special point or points.

As will be seen by the report there was complete Annesia as well as Aphasia for about ten months after the beginning of the attack, for up to the end of this time he did not seem to understand words spoken to him, - words of which he must have known the meaning before his illness.

At present he is able to name certain articles shown to him, - to indicate by gestures the use of others, - how much this is the result of teaching & how much the result of a return of the faculty of memory it is difficult to say: - probably by far the greater part of the improvement is due to the former.

As the inability to give names to articles of which he knows the use due to

Amnesia or to Aphasia? Suppose he is shown a watch-key, - he will imitate the winding up of a watch, - he remembers, or at least knows what the article is, but will pronounce the first part of the name, viz. "Watch," instead of "Watch-key"; - then if asked is it a watch? he dissents, - but says "Ay" if asked is it a "Watch-key" - Probable so far as compound words such as "Watch-key" go, - the inability to give the proper name is due (at least) however as regards all compound words, more to Aphasia than to Amnesia, - so it is only with simple words that he can be got to repeat compound words.

But it is different with simple words: when asked what a penny is, he says "Money", & when pressed to state its value by giving it its proper name, he very significantly says, "ha-penny - ha-penny", meaning thereby that it is of the value of two ha-pennies; - if asked, is it a penny? he replies "Ay" & can be got to repeat the word penny. In this case the inability to give the piece of money its proper name seems to be due to Amnesia.

That there is *Amnesia* as well as *Aphasia* is brought out more plainly when pictures of animals are shown to him, - for he will on seeing the picture of a dog imitate its bark by saying "bow-wow". When asked if it is a dog he says "Ay" & can be got to pronounce the word dog, but when other pictures are gone over in the same way, & the picture of the dog turned back to, & he is asked what it is he again replies "bow-wow", evidently having forgotten the word dog.

Louiseau says, - "whatever be the share, therefore which I am disposed to ascribe to loss of memory in *Aphasia*, I am compelled to admit that certain special kinds of memory are untouched". This remark as to the retention of some special memory receives a confirmation in this boy, for he can stark & go through a tune with some degree of accuracy even placing to-gether 3 or 4 words of the song, - more especially if there be a chorus. It is possible however that this singing, - or as it sometimes is, - "humming", - may occasionally

be, - what for want of a better term might
be called, - a reflex act, - it often being an
almost unconscious act, - the out-pul-
se of a happy or contented state of mind,
requiring neither thought nor memory.

Since his admission to the
Hospital he has picked up many words.
For instance he can now say "good morning"
or rather "tood morning", - but he seems to
have a difficulty in saying the word tood;
uttering it with an emphasis & as if he could
scarcely get his mouth "shak'd" to pronounce
it, - reminding one somewhat of the
manner in which a parrot "parrots"
word which it has just learnt. When
any figure, up to '9', is written on a slate
& he is asked what it is he counts 1 2 3 &c.
up to the figure written & stops there, - but does
not seem able to say at once & without
thus counting, what the figure is. If it be
the figure '6' - he sometimes says, without
counting "six pence"; - having been taught
the word "six pence" he seems unable to
pronounce the word "six" without adding

the word "pence".

He has had no fits since admission, & his general health has been good.

Treatment, - Parrish's Syrup & Faradization.

Two Cases of Lead Paralysis.

Wm. McAlpine, A. 33, - painter. Has followed this trade for 17 years; - the branch of the trade which he has been chiefly employed in, is that of house-painter, using paints mixed with turpentine as well as with oil; - he also used to mix paints occasionally.

Six years ago, patient had his first attack of Colic, lasting, & confining him to bed for one week; - there was severe pain in the right iliac region & great constipation which required large doses of aperients to overcome it. Two years after he had a second attack lasting 10 days, & a third attack two years after the second.

Six months ago patient felt a burning pain across the chest & great hips, both of which were temporarily relieved by cold fluids. About the same time he experienced loss of power in the right hand, & a week after, in the left. - this loss of power gradually increasing. Since this time patient has done no painting. He did not place himself under medical treatment, but treated himself hydropathically, placing

his arm & hand under running cold water, keeping it there as long as he could bear it, then rubbing it well, but without any benefit, except a relief so long as the heat produced by the ~~rub~~ rubbing continued.

Patient often took his dinner either in the workshop or in the house where he was employed, & does not seem to have been particular about washing his hands before doing so, — in fact it was not always that he could get the articles wherewith to do so.

There is a distinct blue line along the gums. His general health is good. His bowels at present are regular & do not require a aperients. The muscles paralysed are the, — extensor communis digitorum, extensor indicis, extensor minimi digiti, & the extensors of the thumb & carpus.

On testing the extensor muscles of the right arm with the induced current the only distinct action obtained is on the muscles of the thumb, — especially the extensor carpi radialis, — & the supinator, & on the left side in addition the extensor minimi digiti. On testing with the continuous current all the extensors were found to act well & readily with 14 cells of Störmer.

& even, to a slight extent, with 8 cells.

There is no anaesthesia.

The supinator longus, the interossei, & the muscles moving the second & third phalanges have escaped the paralysis.

Urine, - acid, non-albuminous.

Robt Kay. Oct. 29.

Has been a house painter for 12 years; - using paints mixed with oil, & also paints mixed with turpentine.

His present complaint began as a colic during the summer of 1873. At this time he was ill for 3 months, being confined to the house for 14 days of this time. The colic pains were severe & his bowels very costive, requiring enemata.

In the beginning of 1874 he had a second attack of colic which confined him to the house for 8 days. Towards the end of the same year he had a third more severe attack, & a fourth during the June of 1875. During the next month (July) he began to experience pain in

the left upper arm which gradually worked down to the hand began to affect the movements of the wrist & fingers. He managed however to remain at his employment for six weeks after this, using his right hand chiefly. (he is left-handed, as is his mother also)

In the month of September (1875) he was in Edinburgh Infirmary for a few days, having had a slight attack of edie, during which time he was treated with electricity with benefit to his hand.

At present the muscles paralysed are the, - extensor communis digitorum, extensor indicis, extensor minimi digiti, & to some extent the extensors of the carpus, for he can only extend the carpus when the hand is half shut, & in extending it, the fingers become approximated to the palm of the hand. If the hand be completely distended, or laid on a flat table, he cannot extend the wrist at all. The interossei, the supinators, & the extensors of the two distal phalanges have escaped the paralysis; & so have the extensors of the thumb, at least if there be any defective movement of them.

It is very slight. There is distinct
but not excessive atrophy of the extensors.

The extensors of the thumb are the
only muscles which respond in any marked
degree to the induced current, tho' the extensor
tendons do so to a slight degree. It is remarkable
that altho' he can move the wrist, the induced
current do not extend it. The continuous
current (16 cells of Storer) produces only a
slight quivering of the tendons down to the level
with the knuckles.

The patient's general health is
good, but his bowels do not act without enemas.

There is a marked blue line along the gums.

For 5 years patient ate his dinner
in the workshop.

Remarks.

These cases are interesting in so far as they present good types of the disease.

In reading the reports one of the points which strikes the attention is the fact that the patients having had occasionally to mix paints as well as to use them, & as turpentine was often used in these paints - is probable that part of the lead which entered the system was carried into it in the fumes of the turpentine, - through the lungs.

Another point to be noted is that these men had been in the habit of taking their dinner in the workshop, - or in the room where they were employed painting, - & often doing so without washing their hands.

One of the patients states that it was not always that he could get soot on, & was with - this remark alluding to the private houses he was employed to paint.

In both cases there had been attacks of Colic, extending over several years, - these attacks being almost periodic in their nature, & in both a distinctive blue line along the gums is well marked. In each case the

Muscles paralysed are the same.

As is usual in cases of Lead Paralysis, - the paralysed muscles did not respond to the induced current, except the muscles of the thumb, - & those only, to a slight extent; - it is to be remembered however that the paralysis in these muscles was very limited.

In one case the muscles responded readily to the continuous current (strength of cells of S. Beer), - in the other 16 cells only produced a slight quivering of the tendons.

At first sight it does not seem very clear why the patients should have been able to extend the 2nd & 3rd phalanges & not the first, - or rather why they could not extend the first when they could the second & third. A little further examination into the anatomy & physiology of the extensor muscles of the fingers explains this anomaly; - as will be seen on reading the following extract from the new edition of Quain's Anatomy - "the extensor Communis extends the first phalanx. The four Lumbricales, on the other hand & the Interossei have a triple action in

Consequence of their insertion into the lateral expansions of the extensor tendons, & of some of the interossei directly into the first phalanges. This action consists first in the flexion of the fingers at the metacarpophalangeal articulations, & second, in extension of the second & third phalanges.

The escape of the Supinator Longus from the paralysis ~~was~~ was well shown by getting the patient to place his forearm in a semi-pronated & semi-flexed position, & telling him to resist communicated efforts to extend it, - when such was done, - the tense state of the muscle could be well felt. This also proves that the Supinator Longus is principally a flexor of the elbow.

In the case of Robt. Kay it is difficult to understand why, tho' he could move the wrist himself, - the induced current did not do so. This ^{circumstance} however is not uncommon.

In Dr. McAlpine we have two other symptoms of Chronic lead poisoning, - viz. - the burning pain in the throat, - & the feet-twitch.

Three Cases of Chorea

Elizabeth Muir, aet. 12. Admitted Dec 11/75,

- suffering from a second attack of Chorea.

The first attack occurred about a year ago, for which she was taken into Ward VII at that time.

The following is a history of the case as condensed from the report book of Ward VII, - dated Jan 6/75:

(At the same time her father was in the Hospital suffering from Cardiac Disease, - following on Rheumatism).

Patients' mother living & well: - 5 brothers & 1 sister alive & well: - 3 dead, - one from Bronchitis, - one from Scarlet Fever, - & one from cerebral meningitis due to a fall. Her aunt by her father's side is Rheumatic.

Four years ago patient had scarlet fever, followed by dipping & albuminuria lasting 14 days.

During the last two years she has had frontal headache, - chiefly in the morning, & said to be worse on the right side. Patient has complained of dizziness, - pain in the eyes & dimness. There has also been vomiting in

the morning before breakfast. The weakness of the arm came on gradually, - being first noticed 7 weeks ago, by ~~the~~ her father who perceived her to use the left-hand in preference to the right, & that her right hand trembled when she lifted a glass or cup.

There was slight loss of power in the right arm & leg. She was treated with Iodine & Arsenic, & cold douches to the spine. After leaving the hospital patient went to Danvers whence she returned quite well.

History of Present Attack.

Patient first noticed a return of the symptoms about a month ago, - the same side, - the right being affected. She states that the loss of power is less than in the previous attack.

The choreic movement of the right hand is more marked than that of the leg, - whilst the loss of motion is greater in the leg, - it being slightly trailed in walking. Patient states that her mouth is sometimes ~~drawn~~ drawn to the right side whilst she is talking.

She still suffers from frontal headache, -
it never having entirely left her.

A venous hum is heard over the right
jugular. Patient is obviously anaemic.

Appetite good. Bowels Regular
Heart & Lungs normal.

Uric acid. Sp. gr. 1.032. Non-albuminous.

Jessie Lawrie

Age 15. Admitted Jan 13/76

Family History. Father died suddenly from
rupture of a pulmonary vessel, - having been
in good health up to time of death. Mother
living & well; - 3 sisters living & well; - one sister
died in childhood from Scarlet fever, & a
mother from Erysipelas. No history of Rheumatism
in the family.

Past History. Patient had an attack of
Bronchitis when 5 years of age, - from which she
made a good recovery. A year ago she
had an attack of Rheumatic fever which

confined her to bed for 6 weeks.

Three months ago she had another slight attack of Rheumatism, during which the choreic movements first commenced.

These movements affected first the left arm & leg; - at the same time her speech was noticed to be affected. Six weeks ago the right hand shared in the disturbance there being also felt a slight loss of power in it. The right leg is not affected.

At present, - the Chorea is confined to the left side, being worse in the arm.

There does not seem to be any loose grasping power in the right hand, - if loss of power there be, it is in the left hand; - but this is only a phantom, not real, & is due to the chorea causing a spasmodic grasping.

Her speech is still slightly affected.

Physical Exam. Lungs Normal.

Heart area normal except that the apex beat tends somewhat unduly to the left. A "V.S." murmur is heard at the apex, its auscultative area being so localized that it is difficult to hear it at any

Other spots.

Appetite fair. Bowels inclined to be costive. Menstruation commenced at the age of 13 & continued regular up to last September (about the time the Chorea commenced). Since then she has been unwell once, - about 5 weeks ago, - & is so at present.

Urine. Non-albuminous.

Janet Strathearn. Aet. 9.

Admitted Dec. 1875.

Family History. Father & Mother living.

The father, - according to the mother's statement is suffering from Heart Disease.

There are six other children living, & six dead, - one from Scarlet Fever, - two during teething, - two from Measles, & one from accidental Laudanum poisoning. There is no trace of Rheumatism in the

family, either on the father's or mother's side.

Past History. Patient had measles in infancy, - small-pox two years ago, - & scarlet fever 12 months ago.

Present Illness commenced 3 weeks ago, & the choreic movements were so bad, that she has been obliged to be confined to bed for a fortnight. The spasmodic movements began first, or were noticed first, in the hands & arms, - then in the head, muscles of the face, - a rolling of the eyes being also noticed. When walking, she frequently stumbled, - feeding was performed with difficulty & her speech was sometimes indistinct. There were also sudden bursts of laughter.

(Her eldest sister - 18 years of age, - was treated for the same disease about 3 months ago, in the Hospital under Dr. J. C. Anderson.)

At present, - patient has great twitchings of the muscles of the arms, neck & shoulders, & there is continual movement of the eye-brows. Her walk is very unsteady, & she is apt to fall when turning round. She is very pale.

There is slight indistinctness in her speech.

Physical Exam. The auscultative signs signs can not be very satisfactorily made out owing to spasmodic movements. The left side is comparatively dull. Hepatic dulness normal. Cardiac area + sound normal. A venous hum is heard in the veins of the neck.

Appetite good. Bowels costive.

Urine acid, sp-gr. 1020. non-albuminous.

Remarks.

Dr. West in his Juncalian lectures says, - "there is undoubtedly a connection between that state of constitution which predisposes to Chorea & that which predisposes to Rheumatism"

Two of these cases conform this statement. By the report it will be seen that both the father, & aunt (father's sister) of the patient E. Muir suffered from Rheumatism; - whilst J. Lawrie, herself, suffered from the same disease. There is no history of Rheumatism in the family of Janet Strathearn, - though according to the mother's account her father is suffering from Heart Disease, - which may be the result of an attack of Rheumatism in early life. It may be mentioned here ~~that~~ that her case was the most tractable of the three, notwithstanding that the choreic movements were worse than in the other two patients.

As is usual, the twitchings commenced in the arms, - at least in two of the cases.

The Paralysis which Dr. West says is always present to a greater or less extent

over & above the uncontrollable movements,
— was in E. Muir so great at the beginning
of the attack that when she was admitted
to the Infirmary (the first time) — the case
was at first set down as one of Hemiplegia

In neither of the other cases was there
very marked loss of muscular power.

In many cases this loss of power is
more apparent than real, — being due to
the inability to keep up muscular
contraction for any length of time, — the
muscles undergoing involuntary relaxation
in the same way that they are involuntarily
contracted, — or, at least, contraction of one
series of muscles being succeeded by contraction
of an antagonistic series, such as flexion
of the fingers giving way to extension.

In other cases there may be real loss
of muscular power arising from atrophy of
the muscles themselves, brought about by
their being constantly in action.

There are certain points
in two of these cases which favor
Dr. Hughlings Jackson's theory of the

Cause of Chorea, - viz. - that it is due to an Embolism in the region of the Corpus Striatum causing a blocking of small branches of the arteries, - this producing anaemia & subsequent under-nutrition, - the result being local instability. The first of the points is

(1st) That the Chorea is unilateral: - in E. Muir it has always been so, & tho' in J. Lawrie it has been bilateral, - it commenced unilaterally, - & that on the side which is now affected

2nd The arm is more affected than the leg.

3rd There is a certain amount of paralysis.

4th The condition presence of a condition for Embolism. In J. Lawrie there is

a systolic murmur evidently of Rheumatic origin: & altho' there is no cardiac murmur in E. Muir the absence of such does not negative the possibility of valvular disease, & this possibility is almost made a probability by the fact that her father & father's sister both suffered from Rheumatism.

At first sight there seems nothing in Janet

Sturtevant's case to favor Dr. H. Jackson's theory - for the chorea was bilateral thro' out nor is there any history of Rheumatism in the family. But her general condition was one of anemia & as Dr. H. Jackson says "the local instability is frequently brought about by under-nutrition consequent on diminished supply of blood," - it seems quite probable that the local anaemia in this case was not due to Embolism but was a part of the general anaemia, & this is the more probable seeing that the affection was bilateral & that the choreic movements gave way, - & that quickly, - under the tonic treatment adopted, - her general health & appearance improving in the same ratio. Another point is that in anaemia there must necessarily be (on account of the diminution in quantity of blood) a certain amount of contraction of the arteries, - & as Dr. H. Jackson believes that "their contraction is one factor in the disorderly development of the phenomena of chorea," - it is just

to suppose that as the anaemia passes off
so would that "one factor" arterial contraction.

It is stated that a not infrequent occurrence
in the course of Chorea is a high specific gravity
of the urine & that "there is also great excess
of urea referable to the muscular waste entailed
by the constant convulsive movements."

In none of the three cases reported is there
what can be termed a high sp. gravity of
the urine. In James L. Strathearn's case
the mean of 4 observations shows a sp. g. of
1021, - in E. Muir, the mean of 5, - 1022, -
& in J. Lawrie, of 11, - 1018. No estimation
of the amount of Urea passed per day was
made. Taking 36 g. as the daily amount
of urine passed (the mean of 3 observations in one
case was 34 g.) & calculating the amount of
urea by Prof. Haughton's table, we get as
the result, -

J. Strathearn	448 grs. urea daily
E. Muir	462 " do.
J. Lawrie	352 " do.

It will be seen that in no case was there
"great excess" of urea. At first sight,

however 462 grs. does seem to be a somewhat large quantity for a child to pass per day, but it must be remembered that children secrete more in proportion to their weight than adults, - & also that these patients were taking iron, - preparations of iron by increasing oxidation, increasing the elimination of urea. Nor is it likely that there would be an increase in the amount of urea excreted, - at least as the result of muscular work waste, - for it seems to have been pretty conclusively proved that the excretion of urea bears no proportion to the amount of physical work. In fact the urea excreted depends mainly upon the amount ingested. It may be stated that the urines of these patients were tested on various occasions for sugar & albumen but always with a negative result.

The treatment was by Iron & Arsenic, - & affusions of cold water to the spine; & with such success in N. Strathearn that in less than ten days

There was a very marked diminution of the twitchings & in 4 weeks scarcely a trace of the Chorea remained. Unfortunately the same can not be said of the other two cases, - for tho' there is very slight improvement of the symptoms in J. Lawrie, this is such as scarcely to warrant the belief that the present treatment will end in recovery: - whilst in J. Muir the twitchings have not only not improved but have increased to that to such a degree that the movements of the arm continue during sleep, & the right side of the face has become involved. Seeing this the Iron & Arsenic were stopped & one grain of Puls: Fol: Belladonna given twice a day, the dose being gradually increased till the physiological effects, - Mydriasis & signs of the throat - were produced, - three grains thrice a day being reached. On Feb: 9th she was ordered to keep her bed & a few days after the Belladonna was stopped & Iron alone given, - the baths being continued. At present (Feb: 23) however there is no change for the better.

In considering these cases both as to their history & the effect of treatment, - there seems good ground for believing that just as some cardiac murmurs are organic & others functional, - so some cases of Chorea may be organic & others functional. Should such a division be allowed, - it is likely that the cases of J. Lawrie & E. Nevill belong to the former class, & that of J. Strathearn to the latter.

Of course it is quite possible & even probable that the attack may recur in the child Janet Strathearn but so may its (supposed) cause - Anæmia. As in one set of cases Anæmia may result in one form of nervous disorder, - & in a second, in another form, - so in a third set, - Chorea may be the result.

Two Cases of Hemiplegia

Elizabeth Lemox, Aet. 7 1/2 yrs.

Admitted Nov. 10th 1845

Complains of - loss of power in the left leg,
- hand, face of 8 months duration.

History. Patient was healthy as a child,
till 3 years ago, when she had measles
from which she recovered well. About 2 years
ago she had a brief attack of Scarlatina
unaccompanied by sore throat & drowsy & with
a very evanescent rash. About 11 months ago
she had a feverish attack, with some Bronchitis,
& soon afterward she became subject to
frontal headaches in the morning, without
however any vomiting. These headaches
continued for some months detaining her
frequently from school, but they have now
been absent for about a month. Seven
months ago patient's mother noticed that
she walked awkwardly, - dragging the left
foot in walking. The left hand also lost
power & especially the thumb, patient
using her fingers only to turn the leaves

of her body &c. About the same time
the face became distorted the left side
moving but little in speaking, but as far
as is remembered the speech was not affected.
She seems also to have had double vision
at this time seeing 4 persons where there were
only two, - but there was no squinting.

The patient was then sent to the coast
where she improved a little as regards the face
& leg, but the hand got worse & the fingers &
thumb began to assume a permanently
semi-flexed position, & both the left arm &
leg were noticeably colder than those of the
right side. There were no pains, twitchings,
or convulsions in the limbs.

On examination the face is found
much improved, & it requires close examⁿ
to detect the still remaining distortion. The
tongue when protruded turns to the left side, &
there is slight flattening of the buccinator
muscle. The left shoulder can not be
elevated so high as the right, & supination
& pronation of the left forearm is performed
with difficulty; - the ~~extensors~~ extensors

are feeble, specially those of the thumb & wrist - the thumb is flexed & can be extended only slightly & with difficulty voluntarily, but it presents no great resistance to compulsory flexion. Extension of the left leg is a

little slow. Patient can walk pretty well & the foot is not now dragged tho' there is still some turning in of the foot. When at rest in bed the foot is fully extended the toes pointing down & the heel being contracted upwards, nor can the foot be elevated voluntarily; - the toes can neither be flexed or extended, but their position is natural. There does not seem to be any anaesthesia. The muscles respond to the interrupted current in a natural manner.

Lungs normal. A slight V. S. murmur audible at the apex. The bowels have been costive for many months.

Further auscultation shows that what was stated to be a V. S. murmur is due to a slight roughness or protuberance of the first sound heard at times. Observations, especially at night, show the pulse to be irregular &

intermittent. The vision was tested & appeared to be normal. She can read number 11/2 at the normal distance with either eye & the range of accommodation is good. On trying her however at greater distances she is found to have difficulty in making out number 15 at 10 feet.

Examination of the eyes gave evidence of an old neuro-retinitis on both sides.

On Feb. 2/76. - the eyes were examined by Dr. Reis who found something of the choked disc appearance with prominence of the papilla.

The general condition since admission has been excellent. There has been no approach to sickness, nor has she complained of any pain. The observations of temperature, after being taken over a month, were interrupted as they ~~were~~ showed the temp. to be nearly normal.

The treatment has been by tonics but chiefly by Faradization of the extensors.

Emily Shannon, Aet. 6 $\frac{3}{4}$ years.

Admitted Nov. 25/75; with partial paralysis of the right side.

Family History. Emily is the fourth youngest of the family. There were other 7 children, of whom 3 are dead, - the eldest dying from kidney disease having had convulsive fits, - another, - from Scarlet Fever, & the 3rd of acute diarrhoea at the age of 7 months.

The four living are quite well, - the eldest being 15 years of age, & the youngest (excepting the patient), 9 years. The mother had a miscarriage (at 3 months) last April.

Past History. When beginning to walk patient fell down stairs 3 times. At one year of age she had measles, & at 3, whooping-cough. About two years ago patient was unwell for some time, suffering from worms, - passing a number of thread-worms. At this time she was sick & vomited occasionally, but did not complain of any pain in the head at the time. Eighteen months ago she fell off a cart, falling on her side.

but this did not cause any illness at the time, - in fact her parents did not know of the fall until told of the occurrence some time afterwards by a neighbour.

Shortly after this fall, - perhaps about 2 months, - the paralysis came on in the right arm, - at least it was first noticed there, - her father noticing her to keep her arm & fingers flexed. At the time it was thought that she kept the arm flexed on account of a slight wound on the elbow (a slight scar marks this spot at present) received when she fell off the cart. The arm has gradually got worse since. The loss of motion in the leg was not noticed till 6 or 7 months ago. Fourteen months ago patient had a slight attack of Scarlet Fever. Her mother has never noticed any drawing to the side of the face; but 8 or 9 months ago noticed that she did not speak so well as formerly.

The paralysis of the right arm seems almost confined to the extensors of the fingers. She can raise her arm to her

head & flex the lower arm upon the upper

The grasping power of the right fingers is very little less than that of the left fingers. On being told to extend the fingers she does so by flexing the hand so as to put the extensor tendons on the stretch.

The right leg is slightly dragged in walking. There does not seem to be any atrophy of the muscles & they respond well to the induced current. The temp. of the right arm & leg is less than that of the corresponding members of the left side, at least to the touch. The tongue is pushed out to the affected side.

The muscles of the eyes are not affected.

The left buccinator is felt to be somewhat flaccid when the cheeks are puffed out with air. There is no dragging to the side, - of the face.

Thoracic viscera normal.

Digestive system in good order. No incontinence of urine.

Urine Sp. g. 1016. pale, acid; - non-albuminous & non-saccharine.

The vision in this case can be tested only with difficulty, as the child cannot read letters: - upon testing her with white spots on a black ground, - there seems reason to believe that her sight is pretty good. Ophthalmoscopic exam. showed slight traces of optic neuritis.

Her general health has improved since admission. There has been no sickness, - nor has there been any complaint of pain.

Remarks.

The main point of interest in these cases lies in the early age of the patients, - for this Hemiplegia is common enough in the adult, - true Hemiplegia is rare in children.

There is nothing in the history of either case which points positively to the cause of the disease.

Tubercle sometimes gives rise to Hemiplegia, - but in neither of these cases are there any symptoms which would point to Tubercle as the cause: - in both the temperature was normal or nearly so, - in both the general health is good, - in neither is there any symptom of Tubercle either in the thoracic or abdominal organs, - in both the tendency has been to improvement, certainly not the reverse as might be expected if Tubercle were the cause; - in fact neither case presents any of the characteristics of Tubercle.

The idea of Embolism can scarcely be entertained, for in both cases

the paralysis was gradual in its onset, - nor is there anything in the history of either which would point to such a cause. In E. Fennox there at first sight seemed to be a suspicion of a cardiac murmur, - but the nature of the peculiarity of the first sound scarcely points to its being due to vegetations.

The rarity of Tumour of the Brain in children, - the absence of convulsions, - & the tendency to recovery seem to place the probability of a Tumour out of the question.

In looking more closely into the history of the case of E. Fennox, - it will be seen that 4 months before the paralysis was noticed, she had a feverish attack which was succeeded by frontal headache; - this points to a probable cause, - viz. Chronic Meningitis. The double vision, - & the evidence (ophthalmoscopic) of old "neuro-retinitis" & "Choked disc", also favor such a diagnosis. As far as can be made out, the Meningitis seems to have been idiopathic, - but it is quite possible that she had received some slight blow when at school, - so slight as not to attract more than a passing notice, -

which lead on to the Meningitis. With regard to the same patient it is interesting to notice that her sight is acute, - notwithstanding the lesions of the optic nerve which the Ophthalmoscopic examination revealed to be present.

In the case of Emily Shannon there is a history of a fall from a cart but this does not seem to have caused any illness at the time. As her mother was ill at the time of the accident, it is more than probable that any slight illness the fall may have produced, was overlooked, or did not attract particular attention, - & this is more likely to be the case as her parents were not aware of her fall till sometime after it had happened. The probability is that either a chronic local otitis was set up which resulted in slow effusion, - or that there was a slight amount of hemorrhage & that it was during the organization of the effused clots, - that the paralysis began.

By the report it will be seen that the left buccinator was found to be

Somewhat flaccid when the cheeks were
puffed out with air, — was this a case of
"Cross-Paralysis"? — More probably it
was due to only one (the right) cheek being
puffed out, — for some children seem to
have a little difficulty in puffing out both
cheeks together.