

THE INFLUENCE OF SIR BYROM BRAMWELL
ON POLIOMYELITIS

A T H E S I S

Submitted for the Degree of Doctor of Medicine
of the University of Edinburgh

by

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CHAPTER I

I N T R O D U C T I O N

Poliomyelitis in "Little France" 1947

- The Shaping of this Thesis - Observations -

A shift in numerical incidence

Early in the morning of the 26th day of June, 1947, being a general practitioner in Edinburgh, I was called to Mrs Helen Robertson, aged 32 years, who, with her husband and three young children, lived in the village of Little France, Liberton. I sent her at once to the Royal Infirmary, Edinburgh, with the accompanying letter:-

COPY.

2

71 Moira Terrace,
Edinburgh, 7.

26.6.47.

The Waiting Physician,
R.I.E.

Dear Sir,

Re. Helen Robertson, age 32,
Little France Cottages.

I shall be grateful if you would kindly admit the above patient. She has been ill since Monday commencing with pains all over her body especially the back of the head and neck, and also she had a pain between the shoulder blades. Next day, Tuesday, she had diarrhoea, but no vomiting. She was very weak. Yesterday she found herself unable to move her legs and then a weakness in the back developed and then she was unable to move her arms. Last night she found her respirations embarrassed and she has been like this up till now when I have been called to see her for the first time.

I have examined her - Temp. 102⁰F. Pulse 88. Legs paralysed. K.J. absent. Plantar - nil. No loss of sensation. Abdominal reflexes absent.

It appears she has some form of ascending paralysis and a poliomyelitis had occurred to me. Her mind is perfectly lucid.

I shall be obliged for your opinion and advice and will be interested to hear what the outcome may be.

With many thanks,

Yours sincerely,

(SGD) M. B. O'NEILL,
M.B., Ch.B. D.A.

This was the first case of poliomyelitis reported in Edinburgh in 1947, and, naturally, it made a great impression on me when the disease spread until, before the year ended, the victims numbered 1,434.

Soon I started to collect items about poliomyelitis, as a lad starts to collect stamps. One item led to another, and their number grew.

To verify and interpret them, recourse was had to our great libraries in Edinburgh, where I had access to governmental and local public health reports, to the League of Nations' publications on poliomyelitis, to ad hoc surveys and to the relevant medical literature in Edinburgh from the time of George III.

When verified, the facts sorted themselves into clinical, endemic, epidemic, and such like groups, according to their nature, and within each group, they arranged themselves in chronological order.

So they came to assume the following pattern which in turn shaped this thesis.

1. Observations prior to the endemic appearance of poliomyelitis in Scotland during the decade that began in 1810.

2. Observations of the endemic disease in Scotland from 1810 until its first epidemic appearance here one hundred years later.

3. Observations of the epidemic course of the disease among us from the first outbreak of 5 cases at Harvieston, Clackmannanshire in 1910, until the nationwide epidemic of 1,434 cases in 1947.

As many of these observations were kindly culled for me from the official records of the Edinburgh Royal Infirmary, the Royal Edinburgh Hospital for Sick Children, the Glasgow Royal Infirmary and the Aberdeen Royal Infirmary, I would like to express my deep gratitude for the interest in co-operation I received from the officials of these Institutions.

Through the courtesy of a Fellow of the Royal College of Physicians I was privileged to consult works of reference in the Library, and I wish to record my appreciation of the co-operation received from the Librarian. I am grateful also for the assistance I received from the staffs of the Edinburgh University Central Medical Library, the

Edinburgh University Library, the National Library of Scotland, the Edinburgh Room of the Public Library, and from the photographic technicians associated with the University Library and the Edinburgh Public Library.

As I had been absent from Scotland throughout the war, my acquaintance with this disease had been practically limited to the lectures and demonstrations on Clinical Neurology conducted by Professor Edwin Bramwell in my student days.

It made one pause to think that Professor Edwin Bramwell had recorded, almost within my lifetime, the first epidemic of poliomyelitis in Scotland.

The number of cases in that first outbreak he recorded in 1910 was five and for the year 1947 the tally of this plague had risen to 1,434. Evidently a vast shift in its numerical incidence had taken place in our generation.

CHAPTER II

- The first epidemic in Scotland -

Dr Edwin Bramwell reports the epidemic
to his father, Sir Byrom Bramwell

That first epidemic occurred on the Harvieston estate, some three miles from Tillicoultry (population 4,000), in Clackmannanshire. At Harvieston there was a group of four farm houses, inhabited by eight adults and twelve children. The seven children in two of the houses were unaffected. The disease struck only in the other two houses. Between September 12th and 24th all the children in these two houses were attacked. The victims numbered five.

The report of this first outbreak in Scotland was presented on an evening in January, 1911, to a regular meeting of the Edinburgh Medical Chirurgical Society, on behalf of the local physician, Dr Currie, and himself, by Dr Edwin Bramwell. In the Chair was his father, Sir Byrom Bramwell.

At that time Scottish physicians had been long and well schooled in poliomyelitis anterior acuta; for, it had served many Victorian generations of medical teachers and students, as a type of spinal cord lesion; and perhaps none had taught it more tirelessly and brilliantly than he who presided over that meeting at which our first epidemic was announced.

CHAPTER III

Sir Byrom Bramwell - A Shift in Mortality -

- The classical concept -

- "Diseases of the Spinal Cord" -

Having graduated with high distinction at Edinburgh University in 1869, Sir Byrom Bramwell had for a while practised and taught in his native Northumberland. Happily he returned to Edinburgh in 1879, and on January 5, 1881, gave a demonstration, before the Edinburgh Medical Chirurgical Society, of a series of microscopical preparations and drawings, he had made, illustrating the spinal cord changes in acute anterior poliomyelitis. The material for this unique demonstration he owed to the North Eastern Hospital.

Fatalities from poliomyelitis in these days were excessively rare. No death from it was then known in Scotland. Yet in 1947, out of the 1,434 cases, 131 died. So not only had a vast increase in the morbidity occurred but an astounding shift in the mortality also.

It was mainly Sir Byrom Bramwell who built up for us in Scotland the classical concept of the disease which became almost an article of medical faith. He taught that poliomyelitis was an uncommon, sporadic condition of unknown cause; which affected infants and young children; the attack often commencing in the late summer or

early autumn, suddenly paralysing one or more limbs, usually the lower, but seldom proving lethal and never contagious.

In 1882 being an Extra Mural Lecturer on the practice of Physic and an additional examiner on Clinical Medicine at the University of Edinburgh, Sir Byrom Bramwell (1847-1934) had published his well-known textbook, "Diseases of the Spinal Cord", which was later reprinted in Germany as well as in the United States, which retained its popularity through three editions, and was translated into French, German and Russian.

His second edition appeared in 1884. In it, the poliomyelitis section was the same as in the first edition. Ten pages of text with an excellent series of figures and plates, two plain and six coloured, attested the important consideration which this disease already enjoyed at the Edinburgh School in the early eighties.

To fill in the details and complete this picture of poliomyelitis in Scotland, Sir Byrom Bramwell, in his 3rd edition (1895) used 68 pages of text and 16 illustrations. In 1895 the disease here seemed the same as in 1884, still free from atypical forms; and, in addition, it was still so rare and so very seldom fatal that Sir Byrom Bramwell was at a loss for material to correlate the functional pathology with the morbid changes. Hence,

the third edition appealed to the practitioner who should chance on the exceptional fatal case to send Sir Byrom Bramwell a piece of the spinal cord; and, moreover, gave careful instructions for the proper preservation of the precious specimen in transit.

In 1895 Sir Byrom Bramwell had for years been ranging Scotland as a consultant; and had he then seen or heard of epidemic poliomyelitis in this country he would certainly have written about it. From the third edition of his book it is not clear that he had seen anywhere, not even in the same family, more than one case of this disease occurring in a single place at any one time.

Of family cases all he wrote was (p. 94): "on the mere theory of chances, it must occasionally happen that two children in the same family will be affected; but the probability of such an occurrence is so small that it need not be taken into account . . . The occurrence of two cases in one family is suggestive that the members of the family have a special tendency to the disease, though it may, of course, be a mere accidental coincidence."

CHAPTER IV

O. Medin on epidemic poliomyelitis

Sir Byrom Bramwell says "poliomyelitis not infectious and not contagious."

Five years earlier (1890), the Swedish pediatrician, O. Medin, had reported to the Tenth International Congress of Medicine at Berlin, the 1887 outbreak of 44 cases of poliomyelitis at Stockholm, together with an additional epidemic of 18 cases observed by Bergenholtz, near Umea in the North of Sweden, as far back as 1881.

Medin told the Congress that poliomyelitis was rare in Sweden; that during his fifteen years' service at a children's clinic in Stockholm, he had seen about two cases a year, and that before 1881 there had in all probability been no epidemic of this disease in Sweden for fifty years.

Of Medin's 44 cases 17 were so atypical that he said he would not have identified them as poliomyelitis had they not occurred in an epidemic of that disease. At the Congress, Henoch cast doubts on this identification.

Besides atypical clinical forms, in which often cranial nerves were implicated, Medin found the epidemic disease more lethal: three of his cases died. Yet, none

of the 44 had afforded evidence of contagion, except, perhaps in two families where a second victim had been struck down a few days after the first.

Sir Byrom Bramwell in his third edition made no mention of Medin, and still wrote (page 50): "The occasional occurrence of 'runs of cases' of poliomyelitis anterior acuta have indeed been described, but as far as I know the disease is never infectious or contagious."

CHAPTER V

Hospital Statistics of the period tend to exaggerate
the incidence of poliomyelitis

When a case of a disease so rare and so tragic in its possible consequences occurred, the Scottish practitioner was apt to call for help, and if he was an Edinburgh graduate his call might bring Sir Byrom Bramwell; who would number the case among those he had seen in private practice. Sir Byrom Bramwell might advise that the case be sent then or later for further study and treatment to the Royal Infirmary, Edinburgh, or the patient might come to him in the first place not as a private but as an Infirmary case.

In either event besides being numbered with Sir Byrom Bramwell's cases such a patient would be included in the poliomyelitis statistics of the Royal Infirmary, Edinburgh, also.

Sir Byrom Bramwell and his fellow physicians of the Royal Infirmary, when they wished to demonstrate poliomyelitis, summoned a case showing typical palsy. If such a patient came from a distance, he would be admitted to the Infirmary for demonstration rather than treatment. A case thus selected for teaching purposes was usually of an age to co-operate. And his admission tended to raise not only the frequency of poliomyelitis in the Infirmary's

annual statistics but also the age incidence.

Despite his great knowledge, Sir Byrom Bramwell enjoyed no monopoly of the practice in poliomyelitis, either in Scotland, or in the Royal Infirmary, Edinburgh, and infancy being then the principal predisposing factor in this disease, its tiny victims were often taken not to the Royal Infirmary but to the Royal Hospital for Sick Children, Edinburgh, where poliomyelitis anterior acuta gave place to infantile paralysis.

After a stay in the ward, the Infirmary case did not again appear statistically, nor did the Ward patient of the Children's Hospital, if he recovered, or returned to some distant home; but if referred from the ward of the Children's Hospital to its own Out-Patient Department - which was known as the Dispensary - the same case might appear in the year's statistics, once as a ward patient and again as a Dispensary Case. And if still attending the Dispensary in subsequent years it might be counted yet a third or fourth time.

Hence in addition to the ward cases the Dispensary also treated the residual paralysis of poliomyelitic patients who had passed their acute phase elsewhere, not necessarily in the district of the Dispensary, nor in the year they came to it.

So the Dispensary Statistics on poliomyelitis were an index to the popularity of the Institution as well as

to the incidence of the disease, and like the Royal Infirmary Statistics, tended not to minimise, but to exaggerate the frequency of this disease in hospital practice.

As the exigencies of teaching, the availability of beds, the interest or disinterest of admitting physicians, and the popularity of the institution, together with other considerations, helped to determine the number of cases of poliomyelitis reported by the Royal Infirmary and by the Royal Hospital for Sick Children, the statistics of these institutions reflected at times administrative anomalies rather than the true incidence of this disease.

CHAPTER VI

- "Edinburgh Hospital Reports" -

No increase in 'polio.' during the 'Nineties'

In 1892 there was published under the supervision of the Royal Infirmary, the Royal Edinburgh Hospital for Sick Children, and other local Institutions, the first of six annual volumes of Edinburgh Hospital Reports.

A simultaneous rise in the poliomyelitis admissions to the Wards of both the Royal Infirmary and the Children's Hospital might suggest increased incidence in the area these Institutions served. No such rise occurred. When 9 cases were admitted to the Ward of the Royal Infirmary in 1896 only 3 entered the Wards of the Children's Hospital; and when 7 were admitted to the Children's Hospital, in 1898, only 3 were admitted to the Infirmary.

At the Children's Hospital for the year ending October 1st 1892, the number of cases of Infantile Paralysis treated both in the Wards and at the Dispensary was 21: for the year ending December 31st 1898, it was also 21.

The population of Edinburgh in 1892 was 265,573. In 1898 the population was 301,305, an increase of about 14%. In this increase children of poliomyelitis age had proportionately shared. During the first year of this period

the total number of cases of poliomyelitis treated at both the Royal Infirmary and the Royal Hospital for Sick Children, Edinburgh, was 25, and during the last year, 24.

As already indicated these figures are obviously misleading and little to be trusted, but with whatever credit they possess they support the belief that there was no noticeable increase in the incidence of poliomyelitis throughout the Edinburgh area during the 'nineties.'

In the seven years between October 1891 and September 30th 1898, among the admissions to the Infirmary, under the category of Nervous Diseases, 29 cases of poliomyelitis are listed. During this period the total of poliomyelitis admitted each year ranged from 2 to 9; and annually averaged approximately 4. 41% of these admissions were over 15 years old. According to Sir Byrom Bramwell poliomyelitis occurs before the age of 15 in 93% of cases.

In these 7 years the poliomyelitis patients aged less than 15 years, admitted to the Royal Infirmary, numbered 17. Discarding for a moment the 12 recorded adult admissions on the ground that most of them were probably old cases, summoned for demonstration purposes, and accepting 17 as 93% of the recent cases seeking treatment, would make the estimated total of the new cases of poliomyelitis admitted to the Royal Infirmary in these 7 years not 29,

but 18. And in the same period, 26 were admitted to the Wards of the Infirmary's Junior Institution, the Royal Hospital for Sick Children, Edinburgh. In other words, the large area served by these two institutions annually averaged in the 'nineties' between 6 and 7 cases.

It has already been pointed out that the statistics of poliomyelitis have no absolute value. So it would serve no useful purpose to cite more of them than necessary. But if we imagine their inaccuracy in Scotland to be a constant, then they may afford a rough index of a trend here and in default of a better index, I am so using them.

The seven cases yearly occurring in the "Edinburgh area," are, of course, only a minor fraction of the average annual incidence in Scotland at the close of the nineteenth century. Yet, as far as the records show, at the end of the eighteenth century only one case had occurred throughout the entire country.

CHAPTER VII

- Sir Walter Scott - The earliest record of poliomyelitis in Scotland
- No Archaeological evidence -

Poliomyelitis cannot establish a long lineage in Scotland. In the cists uncovered by our Archaeologists in the Orkney and Shetland islands, no atrophic bones suggestive of the disease have been found.

Medieval cripples from the disease may have dragged themselves to the holy wells seeking cures and alms; but if they did so, no word of it has come down to us.

Doubtless we shared in the world's plagues though we bred none for export. And when poliomyelitis first began to afflict the world, it doubtless did not long spare Scotland. But when the disease first came into Scotland is not known.

It entered the country unnoticed at a year yet unknown. How long it lurked here before making its mark is a topic not worth conjecture. Actually, it has been traced in Scotland no farther back than 1773. In February of that year the trail ends, not at the initial victim, but merely at the first of whom there is word that he showed signs we now recognise as indicative of poliomyelitis.

That victim was a lusty, teething infant, eighteen months old, who was attacked at Edinburgh in a house near

the head of the College Wynd. Overnight he lost the power of his right leg; and Dr John Rutherford was summoned to treat him.

The doctor was then a patriarch of seventy-seven years. The victim was none other than Sir Walter Scott, who later set down his account of the illness (dated Ashestiel April 26, 1808).

"One night I have been often told I showed great reluctance to be caught and put to bed, and after being chased about the room, was apprehended and consigned to my dormitory with some difficulty. It was the last time I was to show such personal agility. In the morning I was discovered to be affected with the fever which often accompanies the cutting of large teeth. It held me three days. On the fourth day, when they went to bath me as usual, they discovered that I had lost the power of my right leg. My grandfather, an excellent Anatomist as well as physician, the late worthy, Alexander Wood, and many others of the most respectable of the faculty were consulted. There appeared to be no dislocation or sprain; blisters and other topical remedies were applied in vain."

As the teething trouble had died down, and local irritants still failed to arouse the lifeless leg, it was evidently paralysed. The paralysis could come only from

disease, for there was no sign of local violence. The paralyzing disease then dreaded in children was a scrofulous, or tubercular, spine.*

True tuberculosis, when it attacked the spine, affected usually both legs. In Scott, only one was paralysed. Lest the other come to be implicated too, and in the hope not merely of arresting the condition but also of improving it, Dr Rutherford advised that the child "should be sent to reside in the country, to give the chance of natural exertion, excited by free air and liberty."

"And before I have the recollection of the slightest event, I was, agreeably to this friendly counsel, an inmate in the farm-house of Sandy Knowe."

Scott says he showed great reluctance to be caught, and had to be chased before he was apprehended and put to bed. But the virus of the disease had previously been brought to him: and whether or not this over-exertion was a contributing cause of his attack, he became the first unequivocal case of poliomyelitis in Scotland of which we have record.

He was scarcely less unique in his malady than in his genius, for after attacking him at Edinburgh in 1773, the disease was not noted again in Scotland until the second decade of the 19th century.

* Scott was one of a family of twelve children, of whom only five lived to grow up. He had been alarmingly exposed to tuberculosis -

"I was an uncommonly healthy child but had nearly died in consequence of my first nurse being ill of a consumption." Lockhart's Memoirs of the Life of Scott, p. 14, Edinburgh 1837, Vol. The First.

CHAPTER VIII

Poliomyelitis Endemic in Scotland

- The Abercrombie Case -

Poliomyelitis became endemic in Scotland during the decade 1810-1820.

In 1812 a case occurred in the practice of the celebrated Edinburgh physician, John Abercrombie, (1780-1844). The victim, a girl this time, after "previously enjoying excellent health, was suddenly stricken with paralysis of the right leg, when eighteen months old. Reporting later, Dr Abercrombie wrote; "She had been left for some time sitting upon damp grass and was immediately seized with fever accompanied by such a degree of oppression as led to an apprehension of an affection of the brain. These symptoms however passed off in a few days, and, upon her recovery from them, it was found that she was entirely paralytic in the right lower extremity. She has from that time enjoyed uninterrupted health, and is now a big and strong young woman; but the right lower extremity has continued paralytic. It is also a great deal smaller than the opposite extremity and several inches shorter. All the joints are remarkably relaxed and the muscles flaccid; but there is no other appearance of disease in any part of it, or in the spine . . . It is impossible I think to explain such cases . . . except upon the principle

of local affections of the nerves, which are at present involved in much obscurity."

Abercrombie was an alert observer, a prolific writer, particularly on nervous diseases; a popular consultant throughout Scotland and a physician of the Royal Infirmary, Edinburgh, to which patients came from all over the country. Yet he reported only this single case;^{*} and it did not occur before 1812.

He does not say whether it originated in Edinburgh, or was brought to him there. But after 1812, one case follows another in Scotland down the years, leaving no doubt that the disease had become endemic in the country by the second decade of the 19th century.

^{*} Some think to see poliomyelitis in one or more of his post-mortem reports of cases "with serous effusion."

But as poliomyelitis in the central nervous system cannot be diagnosed by the naked eye, I have not included these.

CHAPTER IX

Sir Walter Scott Case may not have been endemic

But the Scott case can hardly be considered endemic. 39 years had elapsed since it occurred. This would suggest that his was an accidental alien infection not yet native to the country. When he was attacked he lived less than 100 yards from the Edinburgh Royal Infirmary. There, patients came from England, Ireland and other parts. There, too, John Rutherford was the professor of clinical medicine: and doubtless dropped in to see his grandson - after the infirmary rounds, perhaps he carried with him one day the virus that paralysed Scott.

CHAPTER X

Tenotomy and Poliomyelitis

- William John Little -

- Robert Thompson -

- Dr Thomas Inglis -

After the Abercrombie case, the disease became increasingly less rare. In 1838, William John Little of London, introduced to Britain the Stromeyer operation of subcutaneous tenotomy. It was initially used in dividing the Tendo-Achilles in cases of talipes-equinus, or equino-varus, a deformity sometimes acquired after poliomyelitis.

Subcutaneous tenotomy became quickly the vogue. At that time Little had not yet distinguished the category of palsies, we now call Little's disease. Nor was the tardy appearance of paralysis, due to latent developmental defects, (which Professor Mercer has stressed) then recognised. Little, himself, had been lamed by poliomyelitis in 1810 at London when he was 2 years old. And every paralysed limb that had escaped notice at birth was then apt to be classified as acquired, and labelled infantile paralysis. Hence this disease seemed suddenly to become prevalent about 1840.

Tenotomy was performed then at all ages. Robert

Thompson of Dundee, in the Edinburgh Medical and Surgical Journal (p. 63 vol. 54 1840) reported 15 such operations of which 10 were said to be for non-congenital deformities; and of these 7 were probably poliomyelitis. In one of these cases this disease had occurred north of the Forth in the year 1816.

The first case reported from Glasgow was Dr Thomas Inglis. If his talipes-equinus was, as is likely, really poliomyelitis, Dr Inglis' was probably an earlier case even than Dr Abercrombie's (Lancet 1837 Oct. 28 p. 184).

Thus between 1810 and 1820 three cases have been noted. One by Dr Thomas Inglis in Glasgow, one by Dr Abercrombie of Edinburgh, and one by Mr Robert Thompson of Dundee. Further research may disclose more and earlier cases, but as far as is known at present, the endemic era in Scotland began about 1810, and these three cases occurred in its second decade 1810-1820.

In the third decade 1820-1830 presumably sporadic cases continued to occur in the areas where the disease had already appeared, but the only instances I have found in print are three recorded by Robert Thompson of Dundee, one in 1821, another in 1827 and a third in 1828.

Charles Bell, one of the greatest neurologists the world has ever known, came back to Edinburgh in 1836, as Professor of Surgery.

He was familiar with poliomyelitis in London, and had written about it there. But in the Edinburgh edition of his great work on the nervous system he does not mention its presence in Scotland. Neither does Robert Uwins in his text book on nervous diseases which was then popular in Scotland. And the only cases I have found recorded for the fourth decade of the endemic era (1830-1840) are three reported by Robert Thompson.

CHAPTER XI

Hospital records obscure the prevalence of
Poliomyelitis in the 5th Decade.

The reports of the Royal Infirmary of the period are unfortunately not helpful. The disease was undoubtedly then treated there; but if recognised the cases are lost statistically, under the classification 'partial paralysis.'

In the "Statistical Tables of the Royal Infirmary," of the patients admitted between 1st July 1839 and 1st October 1841, Professor Reid lists (table 1, p. 2) under the heading "Nervous System" -

Partial Paralysis - 42

Male 30: Cured 13

Female 12: Cured 4

In 1844, Professor John Hughes Bennett, under the same heading lists:-

Paralysis - partial 8

Spasm 4

Hysteria 22

In 1865, the Royal Infirmary listing read -

"Paralysis - facial 4

partial of limbs 9

obscure nervous
affections 2

hysteria 27"

Analogous entries are found in the Annual Reports of the Glasgow Royal Infirmary. As partial paralysis may arise from poisoning by lead, alcohol, arsenic, mercury; from all kinds of neuritis; from accident and from other causes, these statistics give no clue to the prevalence of poliomyelitis in the two Infirmaryes for the years of the Reports.

CHAPTER XII

Sir James Young Simpson reports -

"Local Paralysis in Infancy"

- The Silent period 1850-1880 -

The disease is named and the
name varies with our knowledge

In the Monthly Journal of Medical Science, published in Edinburgh in 1851, that great all round genius, Sir James Young Simpson, under the caption, "Local Paralysis in Infancy" (vol. 12 p. 92), talks of the disease as familiar to him, mentions 7 separate cases, and alludes to others. He saw the classic type, for he says: "The paralysis most frequently seems to affect a single limb ... The upper and lower extremity when paralysed in infancy do not seem to grow in relative proportion with the corresponding healthy parts ... The paralysed limb does not seem to want sensation ... It supervenes very suddenly sometimes in the course of a single night ..."

As Sir James Young Simpson became familiar with poliomyelitis in the eighteen forties, one approaches the sixth decade (1850-1860) with the feeling that the disease was then becoming increasingly prevalent. But from 1850 almost to 1880, Scottish clinicians are strangely silent

about this condition.

It is true that Syme, Lizars and other Scottish surgeons from time to time reported tenotomies, occasionally in detail sufficient to suggest that the deformity was not congenital but acquired; and that it might have arisen from poliomyelitis; but apart from a single suggestive case published in the Edinburgh Medical Journal by Benjamin Bell in 1870 as occurring at George Watson's Hospital, in one of the schoolboys, there was a silence about the disease in Scotland for 30 years. Between Simpson's great report in 1851, and Sir Byrom Bramwell's demonstration of his pathological specimens of poliomyelitis in 1881, I can find practically no printed reference to the disease in Scotland.

Abercrombie had not named the palsy in his case. Sir James Young Simpson in 1851 speaks of poliomyelitis as "Local Paralysis in Infancy." George W. Balfour in an article on "The Medical Uses of Electricity" in 1879, called it "Spinal paralysis of children."

Sir Hector Cameron in 1881 speaks of it as "infantile paralysis," and at the same time Joseph Coats styles it poliomyelitis; and our own Sir Byrom Bramwell that very year showed his specimens from a "case of acute anterior poliomyelitis." In other words, during the thirty year period of printed silence, knowledge of the nature of the

disease had increased in Scotland, and its name had varied with our knowledge.

True a dearth of the disease may have occurred here during the 30 years' silence; but more likely there was merely a failure to publish its presence. For in the early eighties poliomyelitis is reported from all over the mainland of Scotland as well as from the Isle of Mull.

CHAPTER XIII

Dr Joseph Coats and the Mull Case

- Hospital incidence in 1883 -

"The virus" becomes widely seeded

The Mull case was unequivocal. It was reported by Joseph Coats, a distinguished neurologist and an editor of the Glasgow Medical Journal, to the Medical Chirurgical Society of Glasgow on November 4 1881, the patient A. McC., aged 20, a shepherd from Mull, was admitted on the 14th September, 1881, with paralysis of the right leg of 14 months' duration. There was atrophy of this limb without sensory loss. Its temperature was 5° F lower than that of the left. The faradic and galvanic response was absent on the right, as were also the deep reflexes. In addition, the right leg showed abnormal flaccidity and could be easily moved into abnormal positions.

Besides Coats, others, such as Renfrew and Finlayson, also recorded cases of poliomyelitis in Glasgow at that time.

The first Annual Report of the Glasgow Sick Children's Hospital lists 7 cases of Infantile Paralysis, with no deaths. Some of these 7 may not have occurred that year but have been awaiting the opening of the Hospital; for in the 1887 report the number of such cases is only 4.

In 1883, the Aberdeen Sick Children's Hospital reports 8 cases of "paralysis" of which 1 was cured, 2 were improved, 3 discharged and 2 remained in Hospital.

Statistics of 1883 are cited merely because it is the earliest year for which the Reports of the Glasgow and of the Edinburgh Children's Hospital are available. There was otherwise nothing exceptional about that year.

In 1883 there were 2 cases of poliomyelitis admitted to the Royal Infirmary of Edinburgh and 4 cases to the Royal Infirmary of Glasgow.

Omitting the figures from Aberdeen, because of their ambiguity, leaves 4 of the great Scottish Hospitals which serve a considerable area of the country. To these 4 a total of (7 + 3 + 2 + 4) 16 cases were admitted in 1883. These figures, of course, represent only a fraction of the cases in the nation that year. They have no absolute value. They indicate, however, with certainty, that the incidence of the disease had greatly increased; and suggest that since the days of Abercrombie, when the disease first became definitely endemic in Scotland, the country had been gradually, imperceptibly and widely seeded with the virus of poliomyelitis.

In the 2nd, 3rd and 4th decades, only 9 cases were traced. Simpson, himself, may have seen as many in the 5th decade. From 1810 to 1851, the total number traced

in Scotland is only 18.

From 1851 to 1881, although there is practically no record of the disease, we may assume that at least other 18 cases occurred.

The total for 1883 was over 16. For the eighteen eighties perhaps we may assume at least (16×10) 160 cases. And for the eighteen nineties at least 160 more. This gives a tentative total of $(18 + 18 + 160 + 160)$ 356 cases in Scotland until the end of the nineteenth century. Hence to the end of the nineteenth century, although the disease is reported from Aberdeen, Glasgow, Mull, Dundee and Edinburgh, only a few hundred cases had occurred; and Scotland though widely was still sparsely seeded.

(1) Diagram showing the admissions of 'Polio.' Cases to the Infirmaries of Edinburgh, Glasgow, Aberdeen, The Royal Edinburgh Hospital for Sick Children, illustrating the incidence of Poliomyelitis during the period 1880-1899.

* Taken from the official records available of the Royal Infirmaries of Edinburgh, Glasgow, Aberdeen and the Royal Edinburgh Hospital for Sick Children.

<u>Year</u>	<u>E.R.I.</u>	<u>G.R.I.</u>	<u>A.R.I.</u>	<u>R.Ed.</u> <u>H.S.C.</u>	<u>Total</u>
1880	-	2	-	-	2
81	-	-	-	-	-
82	-	2	1	-	3
83	2	4	1	3	10
84	-	3	-	-	3
85	-	4	-	-	4
86	-	3	-	-	3
87	-	4	-	-	4
88	-	13	-	1	14
89	-	4	-	-	4
Total	2	39	2	4	47
(2)	<u>E.R.I.</u>	<u>G.R.I.</u>	<u>A.R.I.</u>	<u>R.Ed.</u> <u>H.S.C.</u>	<u>Total</u>
1890	-	2	-	-	2
91	-	-	-	-	-
92	4	2	-	3	9
93	2	-	1	2	5
94	3	-	-	2	5
95	3	-	-	3	6
96	9	-	1	3	13
97	5	-	2	6	13
98	3	5	1	7	16
99	-	-	2	18	20
Total	29	9	7	44	89

* Extensive enquiry with the co-operation of the Registrar, R.I.E., has failed to disclose Statistical Tables enumerating the admissions under classified diseases for the period 1880-1891. They are not in the Annual Reports for these years. Enquiry at the Darien Press has likewise failed to reveal any published statistics for the period. It may be that if there were any they were destroyed in a recent fire at these premises.

(3) Diagram of admissions of 'Polio.' cases to the Infirmarys of Edinburgh, Glasgow, Aberdeen and the Royal Edinburgh Hospital for Sick Children, illustrating the increased incidence during the first decade of the 20th Century.

<u>Year</u>	<u>E.R.I.</u>	<u>G.R.I.</u>	<u>A.R.I.</u>	<u>R.E. H.S.C.</u>	<u>Total</u>
1900	7	-	2	5	14
1	3	1	2	13	19
2	7	1	2	22	32
3	17	7	2	17	43
4	8	4	2	12	26
5	3	6	2	24	35
6	9	4	2	41	56
7	15	4	-	36	55
8	18	10	2	31	61
9	4	6	1	11	22
Total	91	43	17	212	363
<u>Year</u>	<u>E.R.I.</u>	<u>G.R.I.</u>	<u>A.R.I.</u>	<u>R.E. H.S.C.</u>	<u>Total</u>
1910	11	9	1	37	58

Years 1880 - 89

47

1890 - 99

89

1900 - 1909

363

CHAPTER XIV

The seeding is speeded up

- Dr Low's "Epidemic" -

Harvieston sounds the 'Shofar' for Scotland

At the beginning of the 20th century, the process of seeding Scotland with the virus of poliomyelitis that was annually yielding an ever-increasing harvest of cripples, speeded up. The records of the period 1900-1910 reveal that the following cases of Anterior Poliomyelitis were reported in the wards of the Edinburgh Royal Infirmary and in the wards of the Sick Children's Hospital and, in addition, Dr Bruce Low reported 62 cases.

* No. of Admissions of Cases of Poliomyelitis

(1) Edinburgh Royal Infirmary 1900-1910	95
(2) Royal Edinburgh Hospital for Sick Children 1900-1910	244
(3) Dr Bruce Low in 1910 reported	62

Edinburgh alone had 401 cases between 1900-1910.

* Figures taken from -

- (1) Statistics Royal Infirmary Annual Reports 1900-1910
- (2) Annual Reports of the Royal Ed. Hospital for Sick Children 1897-1911
- (3) Dr Bruce Low. Acute Poliomyelitis. An analysis of 62 cases occurring in and around Edinburgh in the Epidemic of 1910.

Perhaps a clearer conception of the extent to which this seeding had taken place may be gathered from the report of Dr Low on what he styled the 'Edinburgh epidemic' of 1910 in which cases occurred in the following districts of the city and in two towns just outside the city boundary:

2 cases in Bruntsfield
 2 cases in Corstorphine
 2 cases in Broxburn
 2 cases in Tranent

As Dr Low established both direct and indirect school contacts it is strange that more cases did not arise in the city.

Of the other cases reported at this time, 3 came from Kelty, 4 from Kirkcaldy; and the rest were isolated, scattered through Forfar, Sutherland, Perthshire and Fife.

In Biblical days, the Jews regarded a disease as manifesting epidemic proportions when the number of cases recorded reached 3; and then they proceeded to warn the people by sounding the Shofar. The five cases at Harvieston in 1910, sounded the Shofar for Scotland.

CHAPTER XV

The clinical type of 'Polio.' remains constant
in spite of increased incidence.

- Sir Byrom Bramwell's Analysis of 76 cases -

Harvieston heralds the shift from the classical concept

During the endemic era in Scotland, the clinical type of the disease did not appreciably change. In fact, as late as 1908, Sir Byrom Bramwell had met no other than the primary type of poliomyelitis, the type he had been describing since he began to teach.

In Volume VI of "Clinical Studies" (1908) he has two articles on this Disease. The first is a dissertation on poliomyelitis anterior acuta, relating none of the vagaries attributed to it abroad, but emphasising its clinical constancy in Scotland for which he could then vouch from over 28 years' experience. This article is immediately followed by another in which Sir Byrom Bramwell analyses all the cases of poliomyelitis he has then seen "in hospital and private practice." The total was 76. Assuming, without warrant, that all 76 occurred in Scotland between 1880 and 1907, reduced the leading Edinburgh authority of that period to a poliomyelitis practice of 3 cases a year. So, Sir Byrom Bramwell's

pre-epidemic poliomyelitis practice in Scotland, and Medin's in Sweden, were about the same size.

There may have been some years in which Sir Byrom Bramwell had less than three cases and others in which he had more, but the analysis gives no hint that up to 1908 he had ever seen any but occasional, scattered, single cases of poliomyelitis in Scotland. And each and all of these he had recognised clinically, not epidemiologically.

Among Sir Byrom Bramwell's 76 cases of poliomyelitis there was no fatal case. If anyone did die from poliomyelitis in Scotland between 1900 and 1910 the death has escaped me; and if it were reported as such to the Registrar General he classified it with the deaths from "Nervous Diseases." In that category, after "Meningitis (not tuberculous) and cerebral haemorrhage," it has now sunk for ever out of sight among the nameless fatalities registered in the mortality tables under deaths from "other nervous diseases."

* Among Sir Byrom Bramwell's 76 cases, the initial paralysis affected:-

Both legs	18
Rt. leg	12
Left leg	17
Rt. arm	6
Left arm	5
All 4 limbs	6
All 4 limbs and trunk	4
Rt. arm Rt. leg	3
Rt. arm and left leg	1
Rt. arm left Sterno Mastoid and Trapezius	1
Both legs and Rt. arm	1
Both legs and left arm	2
	76
	76

In one case the distribution of the residual paralysis was unknown and in another the cure was so complete that no trace of paralysis could be detected.

Sir Byrom Bramwell, of course, never recognised sub-clinical or abortive forms. If he ever saw neuritic, cerebellar or encephalitic cases, he did not identify them as poliomyelitis.

In his whole series there is no mention of a single cranial nerve palsy. As he was our greatest authority on this disease, those whom he taught may believe that no cranial nerve palsies had then occurred in Scotland, while others are free to think such palsies happened and were unidentified. In any event, until 1910, there is no recorded shift either in the clinical aspect of the disease or in its fatality although there is a marked increase in its incidence.

I have often wondered what he thought as he presided over the meeting at which his brilliant son described an epidemic of what must have seemed to him a very strange disease, and yet was demonstrably the same poliomyelitis he had been teaching for years, suddenly and almost unrecognisably changed. True it was still not fatal. But undoubtedly it was contagious, epidemic; and instead of the classic clinical type he had so long taught, it now showed a sub-clinical type and a form with cranial nerve palsy.

CHAPTER XVI

Subsequent epidemics

Increased local and adult incidence - Protean forms

- Fatalities -

The second epidemic occurred in Aberdeen in 1916 and was reported by Professor Matthew Hay.

In 79 cases he had 2 deaths and in addition two other fatalities occurred which he attributed to Landrey's paralysis and disallowed as poliomyelitis.

In this epidemic the disease in Scotland acquired, for the first time, its full epidemic stature, sudden increased local incidence, increased adult incidence, protean forms and fatalities.

From 1916 onwards epidemics have been reported in Glasgow 1928, Fyvie (Aberdeenshire) 1928, Stronsay 1929 (Orkney), Skye 1933, and the nation-wide epidemic of 1947 in which the cases totalled 1,434.

CHAPTER XVII

S U M M A R Y

- I The classic conception of the disease in Scotland relied mainly on the teachings of Sir Byrom Bramwell who demonstrated before the Edinburgh Medical Chirurgical Society 1881 a series of microscopical preparations and drawings illustrating the spinal cord changes in Poliomyelitis.
- II Sir Byrom Bramwell taught that before 1910 he had never seen anywhere, not even in the same family, more than one case of the disease occurring in a single place at any one time.
- III Hospital Statistics in Scotland reflect the exigencies of teaching, the availability of beds, the interest or disinterest of the admitting Physicians, as well as the incidence of the disease and, hence, have no absolute value. But if we imagine their inaccuracy to be constant, they afford a workable index of the trend of the disease in the country.
- IV There are no Archaeological evidences as yet of the existence of the disease in Scotland in ancient days.

- V The earliest recorded case occurred in Feb. 1773 in College Wynd, Edinburgh, the victim being Sir Walter Scott, who described his attack in 1808. From the description, the attack seems to have been precipitated by excessive exercise.
- VI Scott's attack was probably an alien importation to the Royal Infirmary conveyed to him by his maternal grandfather, John Rutherford, for no subsequent case is recorded for 40 years.
- VII Poliomyelitis became endemic in Scotland during the decade 1810-1820.
- VIII The disease was familiar to Sir James Young Simpson who reported having seen a number of cases in 1851.
- IX Between 1850 and 1880 there was a 30 years' silence, due either to a dearth of the disease in Scotland or to a failure to publish its presence.
- X In the early 'eighties' Poliomyelitis is reported all over the mainland of Scotland as well as from the Isle of Mull.

XI Hospital Statistics from 1880 - 1900 extracted
from -

The Edinburgh Royal Infirmary,
The Glasgow Royal Infirmary,
The Aberdeen Royal Infirmary,
The Royal Edinburgh Hospital for Sick
Children,

show an increasing incidence all over Scotland,
so that by the end of the nineteenth century
Scotland had been widely but still sparsely
seeded.

XII Considerable increase in the diffusion of the
disease culminating in 1910 with the first
epidemic in Scotland at Harvieston near
Tillicoultry.

XIII Subsequent epidemic history of the disease in
Scotland.

A P P E N D I X

- I. Epidemics in Scotland.
- II. Relevant details of Epidemics in Scotland.
- III. Relevant extracts on Poliomyelitis from -
Annual Reports, Scottish Board of Health, and
Annual Reports, Department of Health for Scotland.
- IV. Diagrams with statistics showing -
Admissions of Poliomyelitis cases during the
Period 1880 - 1910
 - (A) Edinburgh Royal Infirmary
 - (B) Glasgow Royal Infirmary
 - (C) Aberdeen Royal Infirmary
 - (D) Royal Edinburgh Hospital for Sick Children
- V. Diagrams with statistics 1921 - 1947
 - (a) Case incidence and official deaths.
 - (b) Arrangement of cases from 1910 - 1947
according to numerical incidence.
 - (c) Deaths from Poliomyelitis in 5 year periods.
 - (d) Years reporting more than 100 poliomyelitis
cases.

VI. Early recorded cases of poliomyelitis in
chronological order.

VII Photographs and Reflex copies of original literature.

VIII Personal communications, (copies).

IX Miscellaneous.

	Year	Number of Cases	Deaths
Barrow	1910	5	2
London	1910	73	2
St. George	1911	41	2
Lyric (Northampton)	1913	13	1
St. George (London)	1914	17	1
St. George	1915	17	1
St. George	1917	12	1

A P P E N D I X I

Epidemics in Scotland

	<u>Year</u>	<u>No. of cases</u>	<u>Deaths</u>
Harvieston	1910	5	Nil
Aberdeen	1916	79	2
Glasgow	1928	91	8
Fyvie (Aberdeenshire)	1928	13	1
Stronsay (Orkney)	1929	17	4
Skye	1933	16	1
Edinburgh	1947	1,434	131

A P P E N D I X I I

(i) Harvieston Epidemic 1910

<u>House</u>	<u>Children</u>	<u>Ages</u>
A	2. AA. BA.	AA. 5 yrs. BA. 2½
B	4. AB. BB. CB. DB.	AB. 7½ yrs. BB. 5½ CB. 4 DB. 7/12
C	4.	All over 8 yrs.
D	2. AD. BD.	AD. 2 yrs. BD. few months
 Cases	 BB.	 12th Sept. back to school Sept. 26
	AB.	16th Sept. Typical
	DB.	18th Sept.
	BA.	20th Sept.
	AA.	24th Sept. Typical

D. W. Currie and Edwin Bramwell

In Tillicoultry, two miles from Harvieston, three cases of poliomyelitis occurred in 1910 -

Sept. 15, Sept. 20, Oct. 7

Ages 7/12 2 years

No communication between the Tillicoultry cases and Harvieston.

There had been no cases in Tillicoultry for years.

D. W. Currie and Edwin Bramwell

ABERDEEN EPIDEMIC 1916

Writing in the British Medical Journal July 22, 1916, of the Aberdeen epidemic, Professor Matthew Hay, M.O.H. Aberdeen, reported that during June, 29 cases of acute anterior poliomyelitis were notified in the city and 10 additional cases during the 1st week of July.

With the exception of 3, all were 3 years or under. Only in a very few instances had a connection between cases been traced.

A further reference to this epidemic occurs in British Medical Journal 1916, p. 305, col. 2.

29 cases June.

26 cases July. Onset fretfulness. For a few days some fever, vomiting. Some cases no palsy for a week or more.

The paralysis was mostly leg palsies: occasional facial, 2 combined leg and face.

Hay reported 2 deaths from ascending myelitis - not, says Hay, poliomyelitis.

B.M.J. 1916, Sept. 2, p. 338.

Dr Watt, M.O.H., Aberdeenshire, reported Aug. 26
5 cases in Fraserburgh, 66 cases in city of Aberdeen,
added to list of compulsorily notifiable diseases.

B.M.J. 1916, Sept. 23, p. 431.

Dr Matthew Hay - 12 additional cases during August.
Total in city 67. Sept. 8 - 2 new, 6 belated reports.
Only 2 cases over 4 years. Two in same family became
ill same day. None of the cases notified in August and
September had any discoverable association with any pre-
viously known case.

B.M.J. Oct. 28, p. 602.

"From commencement of outbreak to end of September,
76 cases + 3 notified in between."

Comparison of cases among infants in proportion to the total number of cases, Aberdeen and New York Epidemic 1916.

Cases among infants were in proportion to the total cases somewhat fewer in New York than in Aberdeen and the cases among persons above 5 years of age somewhat more numerous but the proportion of adult cases was not high in either town.

1916 B.M.J. vol. 28. p. 602

<u>Age</u>	<u>Aberdeen</u>	<u>New York</u>
Under 1	21	11
3	55	57
5	15	18
10	8	14
Over 10	1.3	2.7

GLASGOW EPIDEMIC 1928

In 1928 two outbreaks of poliomyelitis are recorded in the 10th Annual Report, Scottish Board of Health, Edin. 1929. The total number of cases notified was 195 as compared with 53 in 1927.

"Two outbreaks, one in Glasgow and one in Aberdeenshire. Other areas particularly in the West had abnormally heavy incidence. The prevalence of the disease in the second half of the year was very marked.

Quarter 1st	2nd	3rd	4th
8	10	54	123

There were 36 deaths as against 25 in 1927."

The Glasgow outbreak in 1928 was the first of its kind to be recorded in the city. It lasted from July to the middle of October and involved 91 persons with 8 deaths ... The age distribution was over 5 years of age 23; under 5 years of age 68.

The residences of the patients were widely distributed throughout the city, without any apparent association of one with another, except that a group of 6 cases occurred in a public school in the South eastern division.

FYVIE (Aberdeenshire) 1928

The Aberdeenshire epidemic of 1928 occurred in the Fyvie district in which there were 13 confirmed cases of poliomyelitis and one death. (10th Annual Report, Scottish Board of Health).

STRONSAY EPIDEMIC 1929

In 1929 there occurred in Stronsay, one of the Orkney Islands, 17 cases of poliomyelitis in which there were 4 deaths. The population of Stronsay was about 1,000.

SKYE EPIDEMIC 1933

Special Report of the
Department of Health for Scotland
for the year 1933

In the Skye epidemic of 1933 there occurred
16 cases of poliomyelitis with one death.

EPIDEMIC SCOTLAND 1947

Extract from Report of the
Department of Health for Scotland
for the year 1947

Chapter 5 - Local Authority Health Services

"2. Poliomyelitis - The number of cases of poliomyelitis notified in 1947 was much above any previously recorded. The total number of notifications received was 1,698, of which 264 were not confirmed as cases. Out of the total of suspected cases, 1,532 were reported between 1st June and 31st October. In June and July together, about 100 cases were notified. Approximately 520 cases were reported in August, and 590 in September. Thereafter the numbers fell to 325 in October, 100 in November, and 43 in December.

"Suspected cases were reported in every county except Orkney and Ross and Cromarty, and in every large burgh except Inverness. The greatest number of cases reported in any one area was 483 in Glasgow. 138 cases were reported in Edinburgh, 51 in Aberdeen and 39 in Dundee. In the county areas the greatest number of reported cases was in Ayrshire, with 108 cases. Lanarkshire had 105 cases and Morayshire and Fife, 56 each. No other county or large burgh had more than 50 cases.

"Deaths from poliomyelitis usually amount to about 5 to 10 per cent. of the cases, and in the 1947 epidemic the total number of deaths recorded in Scotland during the year was 131 out of 1434 cases or about 9 per cent.

"The occurrence of the disease in such numbers has been a matter of serious interest to the medical profession and the public generally. Up till last year Great Britain had been fortunate, for in other countries there have been widespread outbreaks since the beginning of the century, many of them much more severe than that just experienced in this country. In the United States, for example, the endemic level is high and there have been years, such as 1946, of epidemic prevalence. Australia had a very severe epidemic in 1936-38, and so had New Zealand. The Scandinavian countries have also had high prevalences and epidemics.

"It is possible that Scotland experienced in 1947 the invasion by poliomyelitis which has been the experience of other countries since the first world war. In general, the disease had been most prevalent in countries with Continental climates, and it has been noted that it has gradually spread to countries with less pronounced seasonal variations of climate. It should be recorded, without attempting to forecast, that the disease has been difficult to dislodge once the epidemic invasion has occurred, at least outside the United Kingdom. Climatically,

1947 was an abnormal year; the winter was prolonged and unduly cold, and the summer unusually warm. If climate does have an effect it may operate indirectly through an increased prevalence of insects capable of transmitting the virus; but it is not known what insects, if any, are concerned in the spread of the disease.

"Another question to which much attention has been given is whether a new type of the causative virus gained access to Scotland in 1947. Direct evidence on this point would have to come from laboratories and the techniques available for studying the virus have not reached the stage where an answer can be supplied. The answer is therefore dependent on the interpretation of indirect evidence. The first indirect assessment is by the clinical type of the disease; present information is that the disease did not differ markedly in clinical type from poliomyelitis as already known in Scotland. The second assessment is by the mass manifestations of the disease. These are at present under study, but one important feature can already be roughly defined: poliomyelitis remained in 1947 mainly a disease of children, but there was an undoubted tendency towards a higher average age at the time of attack. The simplest interpretation of this fact is that the type prevalent in 1947 was not warded off, in older persons, by their having acquired immunity during its prevalence in preceding years. In other words, the 1947 type may have differed from its precursors.

"Much attention has been paid to possible methods of spread of the disease. There is ample evidence that the virus is excreted from the bowel and it can be recovered from sewage. In the 1947 outbreak, however, there were features which lent support to the theory that the causative agent was mainly transmitted by aerial spread from the upper respiratory tract rather than by infectious bowel discharges.

"The effects of the epidemic will be apparent for some time; indeed there will be a legacy of cases with paralysis varying from a minor disability to extensive loss of muscular power. Fortunately, however, the majority of sufferers recover without severely disabling handicaps and many recover completely. The arrangements for orthopaedic treatment in hospital and the follow-up of the patients after discharge from hospital have proceeded smoothly on the whole, and thus everything possible is being done to mitigate the effects of the disease in the individual patient.

A P P E N D I X I I I

Extracts Annual Reports, Scottish Board of Health

In the 6th Annual Report, Scottish Board of Health, for 1924, Edinburgh 1925, there appears the following extract, p. 78.

"An attempt has been made to ascertain the number of cases of poliomyelitis anterior acuta, sometimes known as infantile paralysis, in Scotland. Neither the Registrar General's figures nor the returns of notifiable infectious diseases are of much assistance in determining the prevalence of this condition, since the Registrar General classifies it as "nervous" while notification as an infectious disease is far from general.

"Recourse has therefore been had to the Reports of School Medical Officers, which, with few exceptions, give the number of recognised cases among the children medically examined. The last report for each area has been taken, and these show a total of 313 recognised cases out of 209,370 routine examinations. As the school population is roughly 867,000, and as the age groups examined are broadly representative of the whole school population, the total figures may be estimated at 1,300, apart from cases among children of pre-school age.

"In order to arrive at the true prevalence, some allowance would also have to be made for fatal cases (10 - 12 per cent) and for mild cases leaving no recognisable effects.

Of the various Authorities, Aberdeen Borough where the disease is notifiable, and Dumfries and Roxburgh borough counties show the highest incidence, and reference to previous years shows that undue incidence continued over a period."

The following extracts from annual reports Department of Health for Scotland between the years 1929 and 1938 well illustrate the trend of poliomyelitis during this period.

1st Annual Report 1929, Edin. 1930.

2nd Annual Report 1930, " 1931:-

P. 89.

"The number of cases of acute poliomyelitis fell from 82 in 1929 to 73 in 1930; and (deaths number 19) of acute polioencephalitis from 28 to 5."

3rd Annual Report 1931, Edin. 1932.

Poliomyelitis p. 73.

Poliomyelitis p. 73.

"There were 31 cases with 15 deaths notified in 1931, as compared with 73 the previous year. Polioencephalitis was responsible for only 2 cases as against 5 in 1930."

4th Annual Report 1932, Edin. 1933.

P. 87.

"Acute poliomyelitis and acute polioencephalitis both showed increased but low prevalence, the number of cases notified being 38 (with 18 deaths) and 8, as against 31 and 2."

5th Annual Report 1933, Edin. 1934.

P. 72.

"There were 148 notifications of acute poliomyelitis (including polioencephalitis) as against 37 notifications received in 1932. There were 24 deaths, an increase of 6 on the previous year. A report was received by the Department from the County M.O.H. for Inverness, on 16 cases of poliomyelitis which occurred in Skye in the late Summer. There was one death."

6th Annual Report 1934, Edin. 1935.

Appendix xiv (31 Dec. 1933 to 29 Dec. 1934).

"Acute poliomyelitis 4, 5, 10, 11. Total 30.
No information on polioencephalitis. No
deaths noted."

7th Annual Report.

P. 171. Appendix xix. For year ended Dec. 31, 1934.

Infantile 29

Polioencephalitis 1

7th Annual Report 1935, Edin. 1936.

P. 167. Appendix xvi.

"Acute poliomyelitis 2, 4, 14, 5. Total 25."

8th Annual Report from 29 Dec. 1935 to 2 Jan. 1937.

1936, Edin. 1937.

P. 159. Appendix xix.

Total for the year 1935 notifications.

Acute poliomyelitis 24

No mention of encephalitis.

Estimated population June 1935, 4,995,600.

Appendix xx, p. 161.

Infantile Paralysis 0

Poliomyelitis 24

9th Annual Report 1937, Edin. 1938.

Appendix No. xviii.

Estimated population 1936, June, 4,971,200.

Infantile Paralysis 0

Acute poliomyelitis 154

No comment in text.

10th Annual Report 1938, Edin. 1939.

Appendix xix.

Estimated population June, 1937, 4,979,700.

Acute poliomyelitis 33

No mention of infantile paralysis nor of
polioencephalitis.

EDINBURGH ROYAL INFIRMARY

A P P E N D I X IV

A

Admission of cases of Infantile Paralysis and
Anterior Poliomyelitis during the period 1880-1910.

ANTERIOR POLIOMYELITIS

INFANTILE PARALYSIS

Year	Male	Female	Died	Male	Female	Died	Total
1880							
1881							
1882							
1883	2						2
1884							
1885							
1886							
1887							
1888							
1889							
1890							
1891							
1892	3	1					4
1893	1	1					2
1894	2	1					3
1895	1	2					3
1896	8	1					9
1897	4	1					5
1898	2	1					3
1899							
1900	5	2					7
1901		3					3
1902	4	3					7
1903	11	6					17
1904	7	1					8
1905				2	1		3
1906	4	5					9
1907	11	4					15
1908	12	6					18
1909	3	1					4
1910	10	1					11

Total 133

ABERDEEN ROYAL INFIRMARY

A P P E N D I X I V

C

INFANTILE PARALYSIS

ANTERIOR POLIOMYELITIS

Patients from 1880 - 1910

Year	Male	Female	Died	Male	Female	Died	Total
1880	-	-	-	-	-	-	-
1881	-	-	-	-	-	-	-
1882		1 (UR)					1
1883	1 (UR)	-	-	-	-	-	1
1884	-	-	-				
1885	-	-	-	-	-	-	
1886	-	-	-	-	-	-	
1887	-	-	-	-	-	-	
1888	1 (UR)						1
1889	-	-	-	-	-	-	
1890	-	-	-	-	-	-	
1891	-	-	-	-	-	-	
1892	-	-	-	-	-	-	
1893	1 (R)						1
1894	-	-	-	-	-	-	
1895	-	-	-	-	-	-	
1896		1 (R)					1
1897		1 (R)		1 (R)			2
1898				1 (UR)			1
1899	1 (R)			1 (UR)			2
1900	1 (R)			1 (R)			2
1901	1 (R)			1 (R)			2
1902	1 (R)	1 (UR)					2
1903		1 (R)		1 (R)			2
1904		1 (R)					1
1905	2 (R)						2
1906				2 (R)			2
1907	-	-	-	-	-	-	-
1908					1 (R)		
1909				1 (R)	1 (UR)		2
1910					1 (R)		1
	9	6		9	3	=	27

ANNUAL REPORTS R.E.H.S.C. 1897 - 1911

A P P E N D I X IV

D

Classification of the Diseases and Result of Treatment
in the cases admitted.

Year	Under 1 year		From 1-2 yrs.		2-7 yrs.		7-13 yrs.		Total
	M	F	M	F	M	F	M	F	
1897	1	1	3		2	3			10
1898		1	2	1	2	1			7
1899	2	1			6	3	3	3	18
1900			2	1			2		5
1901					6	4	2	1	13
1902	1		5	4	5	5		2	22
1903			1		9	8			18
1904				1	7	3		7	18
1905	1		5		8	4	5	1	24
1906			10	4	12	9	3	3	41
1907	2		6	2	11	11	2	2	36
1908	2		3	4	9	10		1	29
1909	1				1	4	1	4	11
1910		1	6	6	7	13	3	1	37
1911	1	1	6	2	11	15	1		37

A P P E N D I X V (a)

Official notifications and official deaths

Poliomyelitis 1921 - 1947 in 5 year periods

Year	No. of cases	Deaths
1921	47	17
1922	34	21
1923	5	10
1924	31	11
1925	27	21
1926	51	22
1927	66	25
1928	195	36
1929	110	21
1930	78	19
1931	33	15
1932	46	18
1933	148	24
1934	30	7
1935	24	10
1936	154	24
1937	33	11
1938	193	16
1939	39	10
1940	133	12
1941	162	24
1942	46	10
1943	29	10
1944	174	16
1945	33	12
1946	52	15
1947	1698	131

v (b)

Over 50 but under 100 cases notified

1910, 16, 19, 27, 30, 46.

Over 100 but less than 150 cases notified

1929 - 110 cases.

1940 - 133 cases.

Over 150 but less than 200 cases notified

1928, 1936, 38, 41, 44.

Over 200 cases notified

1947 - 1,698 cases notified.

These figures indicate the increased incidence of the disease which had taken place since the initial epidemic at Harvieston in 1910.

(c)

Scotland

Deaths from Poliomyelitis in 5 year periods.

	<u>Probable Average</u>	<u>Arithmetic Average</u>
1921 - 25	17	16
26 - 30	22	24.5
31 - 35	15	14.8
36 - 40	12	14.6
1941 - 45	<u>12</u>	<u>14.4</u>
25 years	15	16.86

1921 - 45

Say $(15 + 16.86 \div 2)$ Average Annual deaths 16

1934 ... low ... 7

1928 ... high ..36

20 deaths or over

1922 . . .	21 deaths
25 . . .	21
26 . . .	22
27 . . .	25
28 . . .	36
29 . . .	21
33 . . .	24
36 . . .	24
41 . . .	24
1947 . . .	131

30 deaths or over 1928 . . . 36 deaths

40 " " "

50 " " "

60 " " "

70 " " "

80 " " "

90 " " "

100 " " " 1947 . . . 131

(a)

Scotland

Years reporting more than 100 poliomyelitis cases

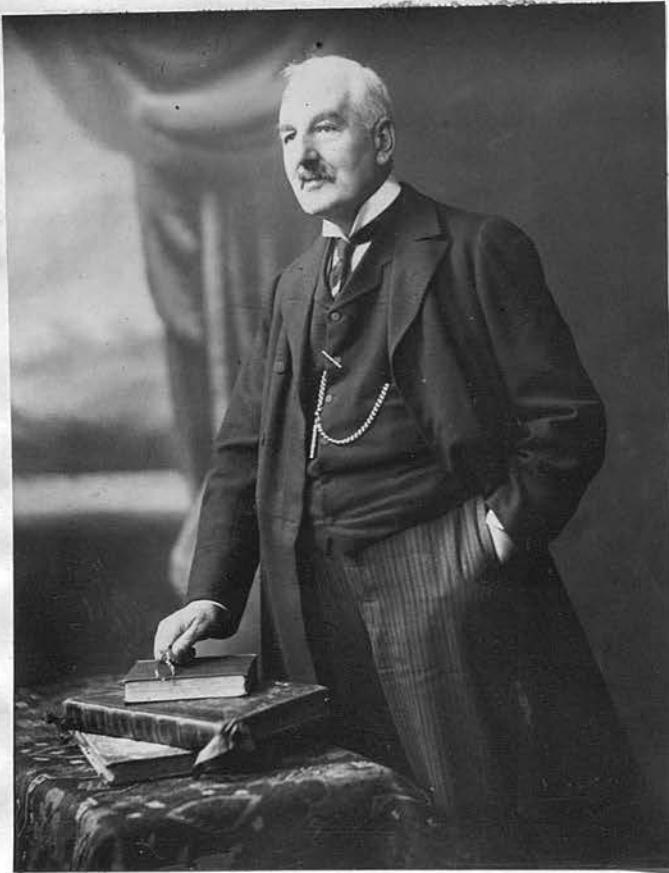
			<u>Mortality</u>
1928	195	36 deaths	18.4%
1929	110	21	19.1%
33	148	24	16.2%
36	154	24	15.7%
38	193	16	8.3%
40	133	12	9%
41	162	24	14.8%
44	174	16	9.2%
47	1,698	131	7.7%
1921-30	644	202	31.3%
1931-40	833	147	17.6%
41-46	496	87	17.5%
1947	1,698	131	7.7%

A P P E N D I X VI

Early cases of Poliomyelitis in Scotland
arranged in chronological order

- 1773 Sir Walter Scott (self reported 1808), published
Lockhart 1837: occurred Feb. 1773.
- 1812 Dr John Abercrombie (reported 1828).
- 1816)
1821)
1827) Mr Robert Thompson, Dundee, (reported 1840).
1828)
- 1848 Unknown Reviewer of Dr West's Book (E.M.J.)
- 1850 Sir James Young Simpson series.
- 1870 Dr Benjamin Bell (case in George Watson's Hospital).
- 1880 Byrom Bramwell, Finlayson, Coats, Patterson -
Sick Children Hospital Reports, Glasgow and
Edinburgh.
- 1882 Sir Byrom Bramwell.
- 1910 Prof. Edwin Bramwell.

A P P E N D I X VII



Sir Byrom Bramwell
1847 - 1934.

1869 M.B. Edin.

1877 M.D.

1871 Lecturer Med.

Ju. Univ. of Durham
College of Med.,
Newcastle-on-Tyne.

1875 Hon. Phys. and
Path. to Royal Infir-
mary, Newcastle; and
Lecturer in Clin. Med.

1879 Returned to Edin.
Lecturer on Practical
Medicine and Medical
diagnosis in the extra
Academical School.

First paper in Edin.

Medical Chir. Soc.

June 4, 1879.

"Patellar Tendon Reflex."

1880 Edin. M.R.C.P. 1879

F.R.C.P. 1880

P.R.C.P. 1910-1912

1882 Path. Royal Infirmary
Assist. Phys: Phys.

Sir Byrom Bramwell, 1911.

the leg, the result of a cellular tissue slough. It measured five inches in diameter, and was from a quarter of an inch to half an inch deep. The greater part of it was half an inch deep. There was still, at the time of the commencement of the experiment, a slough of considerable size in one part. It had all along been in a putrefactive condition, and continued so during the experiment. A piece of sponge of fine texture, after being specially prepared, was cut so as exactly to fill the space—that is to say, it was five inches in diameter and from half an inch to a quarter of an inch thick. In a few days after application it was found to be adhering to the surface. In from ten days to a fortnight, it had become vascular on the surface, so that if pricked it would bleed. In a month a great part of it had disappeared, and its place was now taken by organizing granulation tissue. At the date of exhibition of the patient the whole of the sponge had become organized, and had disappeared in the wound. The wound was in a beautifully healing condition, and only from an inch to an inch and a half remained to be covered by epithelium. There was a tumour-like mass of new tissue opposite where the sponge had been applied. There was far less cicatricial contraction of the limb than there would be in healing by ordinary means. Microscopic examination of an excised portion entirely bore out the theory which had suggested the experiment. Further details will be given by Mr Hamilton in a paper to be published shortly.

X
V. *Dr Byrom Bramwell* showed a series of MICROSCOPICAL PREPARATIONS AND DRAWINGS illustrative of the pathology of infantile paralysis, and said: Although, Mr President, infantile paralysis is frequently met with in practice, yet it seldom happens that we have an opportunity of examining such cases post-mortem; indeed, so rarely is this the case, that in the list of *desiderata* lately issued by the Pathological Society of London infantile paralysis is mentioned as one of the subjects requiring illustration. I have thought, therefore, that it might be not uninteresting to the Society if I were to bring before your notice this evening some sections of the spinal cord of a case of infantile paralysis which, through the kindness of Dr Hamilton, I had an opportunity of examining when working in the Pathological Laboratory of the University. I have, too, to thank Dr Bishop and Dr W. Cash Reid for having kindly procured for me the following particulars of the case:—

The patient, a boy æt. 2½ years, was admitted to the North-Eastern Hospital for Children, under the care of Dr A. E. Sansom, on the 21st of March 1879, suffering from infantile paralysis, and died from diphtheria on 9th May of the same year. The attack of paralysis was of three months' duration. It was incomplete, and involved the right lower extremity.¹

¹ In the brief notes which I have received it is not stated whether the left leg was paralyzed or not.

DR BYRON BRAMWELL'S CASE OF INFANTILE PARALYSIS.

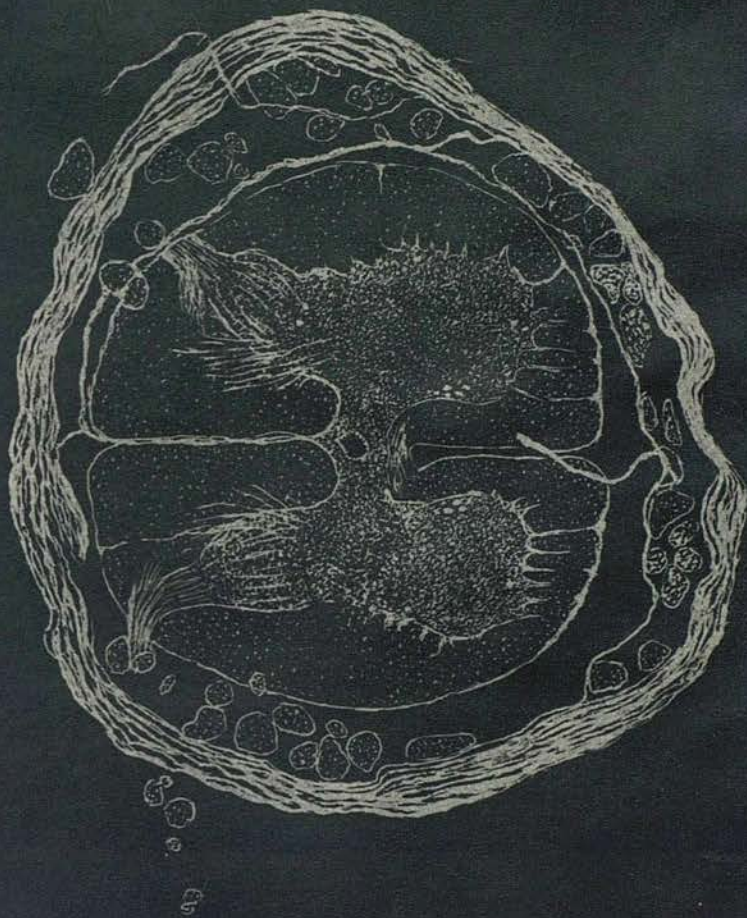


FIG. 1.—Transverse section of the lumbar portion of the spinal cord from a case of Infantile Paralysis; the membranes and transversely divided nerve roots *in situ*. Stained with carmine, cleared with oil of cloves, and mounted in dammar. X 20 diameters.

B. H. del. and nat. et lith.

DR BYROM BRAMWELL'S CASE OF INFANTILE PARALYSIS.

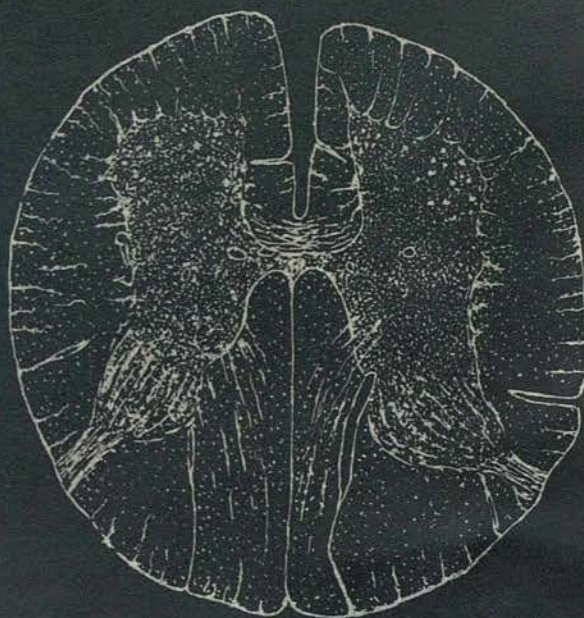


FIG. 2.—Transverse section of the lumbar portion of the spinal cord of a child, showing the normal condition of the anterior horns of gray matter. Stained with carmine, cleared with oil of cloves, and mounted in dammar. X 20 diameters.

DR BYROM BRAMWELL'S CASE OF INFANTILE PARALYSIS.

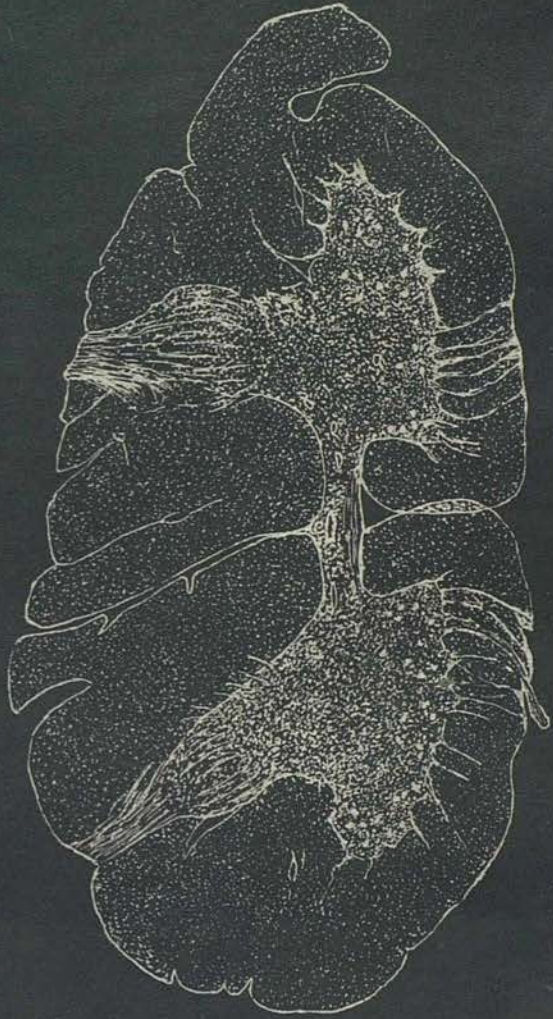


FIG. 3.—Transverse section of the cervical region of the spinal cord from a case of Infantile Paralysis, showing a (congenital) malformation of the lateral column. Stained with carmalum, cleared with oil of cloves, and mounted in dammar. X 20 diameters.
R. B. del. and int. et lith.



FIG. 4.—Large multipolar nerve cells from the anterior horn of the lumbar region undergoing fatty degeneration, stained with permanganic acid, and mounted in dammar. X 250.



FIG. 5.—Portion of the anterior horn of gray matter in a case of Infantile Paralysis; the nerve cells have disappeared and are replaced by fatty particles, stained with osmic acid. X 200 diameters.

Note.—The fatty particles are not sufficiently black in the plate.

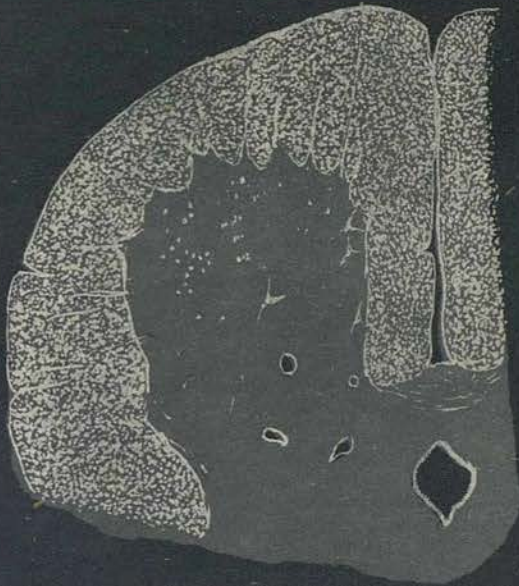


FIG. 6.—Transverse section through the anterior horn of gray matter in a case of Infantile Paralysis. Nearly all the nerve cells have disappeared and are replaced by fatty particles. X 36 diameters.

DR BYROM BRAMWELL'S CASE OF INFANTILE PARALYSIS.

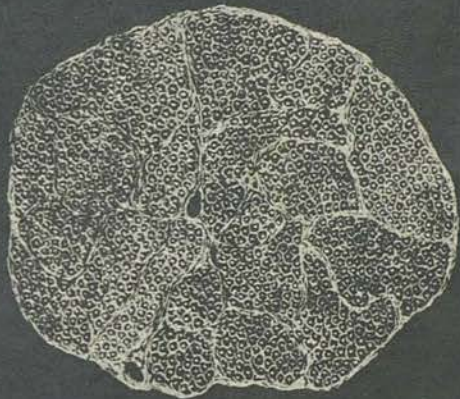


FIG. 7.—Transverse section of a healthy anterior nerve root from the preparation shown in Fig. 1. Stained with carmine, cleared with oil of cloves, and mounted in dammar. X 250 diameters.



FIG. 8.—Transverse section of an anterior nerve root from a case of Infantile Paralysis, showing marked degeneration. The preparation is one of the anterior nerve roots seen in Fig. 1, more highly magnified. X 250 diameters.



Professor Edwin Bramwell, 1920.

A LOCAL EPIDEMIC OF ACUTE POLIOMYELITIS.*

By D. W. CURRIE, M.D., B.Sc., D.P.H.

and

EDWIN BRAMWELL, M.B., F.R.C.P.,

Introductory—The Harvieston Epidemic—(a) *Record of Cases*; (b) *Observations Relating to Symptomatology*; (c) *Observations Relating to Contagion and Incubation Period*; (d) *Observations Relating to Etiology*—Prevalence of Poliomyelitis during the Autumn of 1910—Poliomyelitis and Epidemic Cerebro-spinal Meningitis. Is there a Possible Relationship?

INTRODUCTORY.

No disease has occupied such a prominent place in neurological literature during the past two or three years as has acute anterior poliomyelitis. The reason is to be found in the numerous epidemics which have recently occurred in various parts of the world. It is true that the disease appears to have been met with in "epidemic" form in Scandinavia for more than two decades, but in other parts of Europe and in the United States epidemics were almost unknown prior to the commencement of the present century.

We propose in this paper, *firstly*, to describe a localised "epidemic" of acute anterior poliomyelitis which has occurred recently in the practice of one of us (D. W. C.), and, *secondly*, to bring forward evidence which seems to justify the assertion that the disease has been more prevalent than usual in many parts of the country during the autumn of 1910.

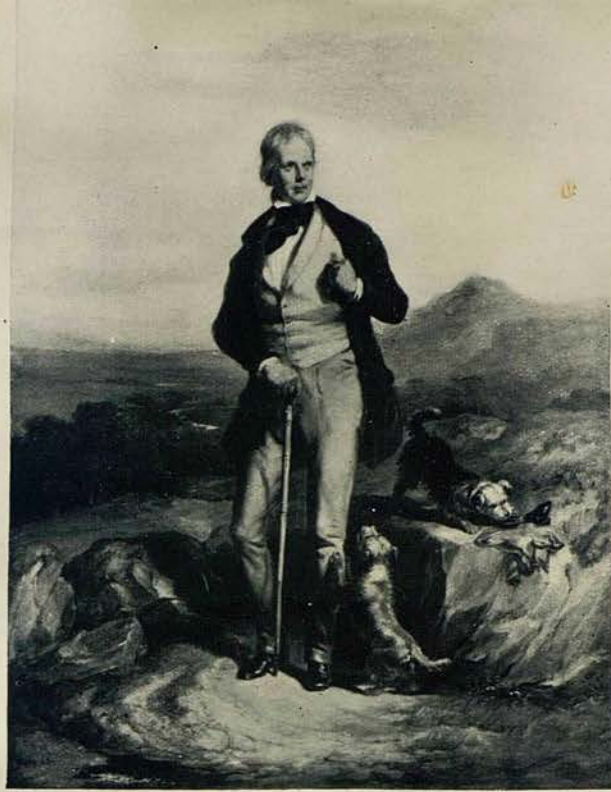
The "epidemic" here recorded is, we venture to think, of very exceptional interest and importance from the suggestive data it affords in relation to the incubation period of the disease.

THE HARVIESTON EPIDEMIC.

The five cases reported in this paper all occurred in a farmstead consisting of four houses situated on a private estate some distance from the main thoroughfare and two miles from the town of Tillicoultry (population 3600) in the county of Clackmannanshire.

The four houses may be conveniently designated A, B, C, and D. House A is occupied by the factor or land steward, the three adjacent cottages by farm employees and their families.

Read before the Edinburgh Medico-Chirurgical Society, January 1911.



55. SIR WALTER SCOTT. (36" x 28")
Sir William Allan, P.R.S.A.

nor the pride which renders the most detested labour better than dependence or contempt. His career was as unfortunate as might be augured from such an unhappy combination, and after various unsuccessful attempts to establish himself in life, he died on his return from the West Indies, in [July 1806].

Having premised so much of my family, I return to my own story. I was born, as I believe, on the 15th August, 1771, in a house belonging to my father, at the head of the College Wynd. It was pulled down, with others, to make room for the northern front of the new College. I was an uncommonly healthy child, but had nearly died in consequence of my first nurse being ill of a consumption, a circumstance which she chose to conceal, though to do so was murder to both herself and me. She went privately to consult Dr Black, the celebrated professor of chemistry, who put my father on his guard. The woman was dismissed, and I was consigned to a healthy peasant, who is still alive to boast of her *laddie* being what she calls a *grand gentleman*.* I showed every sign of health and strength until I was about eighteen months old. One night, I have been often told, I showed great reluctance to be caught and put to bed, and after being chased about the room, was apprehended and consigned to my dormitory with some difficulty. It was the last time I was to show such personal agility. In the morning I was discovered to be affected with the fever which often accompanies the cutting of large teeth. It held me three days. On the

* She died in 1810.—[1826].

fourth, when they went to bathe me as usual, they discovered that I had lost the power of my right leg. My grandfather, an excellent anatomist as well as physician, the late worthy Alexander Wood, and many others of the most respectable of the faculty, were consulted. There appeared to be no dislocation or sprain; blisters and other topical remedies were applied in vain. When the efforts of regular physicians had been exhausted, without the slightest success, my anxious parents, during the course of many years, eagerly grasped at every prospect of cure which was held out by the promise of empirics, or of ancient ladies or gentlemen who conceived themselves entitled to recommend various remedies, some of which were of a nature sufficiently singular. But the advice of my grandfather, Dr Rutherford, that I should be sent to reside in the country, to give the chance of natural exertion, excited by free air and liberty, was first resorted to, and before I have the recollection of the slightest event, I was, agreeably to this friendly counsel, an inmate in the farm-house of Sandy-Knowe.

An odd incident is worth recording. It seems my mother had sent a maid to take charge of me, that I might be no inconvenience in the family. But the damsel sent on that important mission had left her heart behind her, in the keeping of some wild fellow, it is likely, who had done and said more to her than he was like to make good. She became extremely desirous to return to Edinburgh, and as my mother made a point of her remaining where she was, she contracted a sort of hatred at poor me, as the cause of her being

Dr John Rutherford
Sir Walter Scott's
Maternal Grandfather.



JOHN RUTHERFORD.



Affect^y Yours

John Abernethy

This produced most severe erysipelatous inflammation, which, beginning upon the affected arm, extended afterwards over the whole body.*

Little has hitherto been done on this curious and interesting subject, but it certainly promises most important results, when it shall be more extensively cultivated. For we have every reason to believe, that both the nerves themselves, and the investing membrane, are liable to affections which may be the source of many obscure diseases. It is now upwards of fifteen years since I first saw a girl, aged at that time about 18 months, and previously enjoying excellent health. She had been left for some time sitting upon damp grass, and was immediately seized with fever, accompanied by such a degree of oppression, as led to an apprehension of an affection of the brain. These symptoms, however, passed off in a few days, and, upon her recovery from them, it was found that she was entirely paralytic in the right lower extremity. She has from that time enjoyed uninterrupted health, and is now a big and strong young woman, but the right lower extremity has continued entirely paralytic. It is also a great deal smaller than the opposite extremity, and several inches shorter. All the joints are remarkably relaxed, and the muscles flaccid; but there is no other appearance of disease in any part of it, or in the spine. Very lately I was consulted about a young man, aged 14, who had nearly lost the muscular power of the upper part of both his arms, accompanied by a most remarkable diminution of substance of the principal muscles. The deltoid and biceps are reduced to the appearance of mere membranes,

* Med. Chirurg Trans. vol. viii.

and the same affection extends in rather a less degree to the muscles upon the scapula; the muscles upon the fore-arm, however, are full and vigorous. No disease can be discovered about the spine, and in other respects he is in perfect health. The affection has come on gradually, and cannot be traced to any cause.

It is impossible, I think, to explain such cases as these, except upon the principle of local affections of nerves, which are at present involved in much obscurity. There are various other affections which can only be referred to the same subject, and which present some very singular phenomena, though the facts relating to them have not yet been brought together in any connected form. Some time ago I was consulted about a singular disease of this nature, which occurs in paroxysms, and affects in the same manner two individuals of one family, a young lady of 25, and a young man of 22. The lady describes the attack in the following manner. She is first affected with blindness of the right eye, which comes on gradually as if a cloud passed slowly over the eye; about a quarter of an hour after this, she feels a numbness of the little finger of the right hand, beginning at the point of it, and extending very gradually over the whole hand and arm, producing a complete loss of sensibility of the parts, but without any loss of the power of motion. The feeling of numbness then extends to the right side of the head, and from this it seems to spread downwards towards the stomach. When it reaches the side of the head, she becomes oppressed and partially confused, answers questions slowly and confusedly, and her speech is considerably affected; when it reaches the stomach, she sometimes vomits. The feeling of numbness then begins to subside, and as it goes off, she is seized with violent



EDINBURGH OBSTETRICAL SOCIETY.

SESSION X.

MEETING I.—December 11, 1850.—Professor SIMPSON, President, in the Chair.

CASE OF THE DELIVERY OF A DOUBLE MONSTER. BY DR STUART, OF CHIRMSIDE.

[This case will be found detailed at full length among our Original Articles, p. 5.]

CASE OF PERFORATION OF THE PERINEUM BY THE ARM OF THE CHILD DURING LABOUR. BY DR GRAY, OF PERTH.

[This communication will be found at full length among our Original Articles, p. 7.]

CENTRAL LACERATION OF THE PERINEUM. BY DR THATCHER.

Mrs C—, in her first pregnancy, had been in labour for some hours previous to her sending for me. The first stage was over, and the head advancing correctly in the pelvis, and nearly on its outlet. The parts were well relaxed; the pains moderate; but the patient unhappily most restless and impatient,—in fact scarcely controllable. The sacral part of the vagina appeared much *deeper* than natural, and the head was constantly pressing backwards forcibly, as if wishing to be extruded through the posterior part of the perineum and anus, instead of the superior and natural direction. As the perineum distended, it was quite evident that it was unusually elongated; the *set* of the pelvis reminded me much of that of the Hottentot Venus, pressing pubis and sacrum *out* of the ordinary line. Every exertion was made to guide the head superiorly to its proper position by the fingers, but this was of little use; and before the forceps could be employed, a sudden terrific pain, aided by the *over-exertion* of the patient,—to my surprise and great distress, and despite of every retarding exertion,—forced the head through the perineal space, between the lower commissure of the labia and the anus, keeping the lower frænum of the labia entire, as also, fortunately, the sphincter ani. The body was extracted in the same manner, as also the placenta. The patient was told that she had hurt herself by this unhappy exertion.

In the afternoon the parts were examined, and the above statement confirmed. The divided perineum was uniting at its edges, and appeared like two portions of a saw closing. They were kept united by ligature, and healed most favourably. The vagina also was kept clean, and after a fortnight all the parts were in their normal state. I have heard of two other similar cases, but this rare case is one evincing what may occur in any deviation from natural conformation, in defiance of the best care and aid.

LOCAL PARALYSIS IN INFANCY. BY DR SIMPSON.

Dr S. called the attention of the Society to the frequency of local paralytic attacks during infancy and childhood, and pointed out the following circumstances as the most important points in their history:—

1. The paralysis most frequently seems to affect a single limb—as one leg or one arm—sometimes a few fingers only; occasionally it appears in the form of hemiplegia, affecting one whole side; sometimes in the form of paraplegia. Dr S. mentioned a case in which the paralysis occurred in early infancy, and affected both lower extremities, the left upper extremity, and the left side of the face, the child, now several years old, being very acute and intelligent. 2. The side of the face, but more particularly the upper and lower extremity, when paralysed in infancy, do not grow in relative proportion with the corresponding healthy parts; so that, when the individuals affected reach adult life, the para-

lysed extremity appears small, diminutive, and shorter than natural. 3. The paralysed limb does not appear to want sensation, and the motory muscular power, although greatly diminished, is not entirely abolished. When the local paralysis is seated in the leg, the person hence usually walks imperfectly, throwing out the foot at each step with a flap-like motion, and often with the toes or external surface of the foot somewhat drawn in, as the leg is each time extended. 4. The disease generally comes on during the first three years of life, and especially during the currency of that morbidly irritable state of the nervous system, which co-exists with teething. Dr S. had seen an instance in which two children of the same family were affected within a week of each other. 5. The disease generally supervenes very suddenly, sometimes in the course of a single night, and is often, at the time of the attack, accompanied with little or no constitutional derangement; but occasionally it comes on with a fit of convulsions, or other symptoms of some temporary cerebral derangement. 6. The affection is frequently first noticed immediately after fever, especially after the eruptive fevers; and occasionally it comes on during the period of convalescence from them. Dr S. described a case of paraplegia in a child three years old, which came on during the convalescence from scarlatina—the patient going to bed apparently well, and waking paraplegic, and astonished at her own want of power of movement in both her legs. Intestinal irritation in some cases appears to be the exciting cause. 7. When the patients do not recover from the paralysis within a few days after the attack, under antiphlogistic measures (when the state of the system has allowed them), and careful correction of the condition of the intestinal canal and other functions, the paralytic affection almost always proves chronic, and, indeed, permanent. Dr S. had seen counter-irritation to the spine, galvanism, &c. &c., employed, but without success. He had seen three instances in which small and long-continued doses of nuxvomica had appeared to act beneficially in diminishing the state of paralysis. Keeping all the functions of the body as near the standard of health as might be, friction and bathing of the affected limbs, and inculcating as much muscular exercise of them as possible, seemed to be the principal indications of treatment, when the disease had already passed into the chronic type. 7. The true pathology of the disease was as yet little known, though the affection was of frequent occurrence. Autopsic investigations appear to have been made with the view of ascertaining the state of the brain, spinal cord, and nerves, in the local paralysis of infancy.

RAVAGES OF THE CHOLERA IN JAMAICA.

A letter, of the 27th November last, from Dr Gilbert Macnab, of Kingston, Jamaica, to his brother, superintendent of the Botanic Garden here, gives a fearful account of the devastations of the malignant cholera on that island. In Kingston alone, out of a population of about 30,000, no fewer than 6,000 have been already buried. Among these, we regret to learn, is the well-known physician and botanist, Dr M'Fadyen, author of the "Flora of Jamaica." He expired on the 24th ultimo, of cholera, brought on apparently by excessive exhaustion and fatigue, from attending to his practice. Those who had to do with the comparatively mild visitation of the disease in the large cities of this island, can alone form an adequate idea of the labours and anxieties of their brethren in Jamaica; who, alas! can, in these straits, receive, from their distant professional friends, nothing but sincere sympathy. Dr Macnab, "fagging night and day, and having himself had two smart attacks of cholera," alone attended Dr M'Fadyen on his death-bed, put the body unaided into the coffin, and, without help, buried him. The second volume of the "Flora of Jamaica" was nearly finished, and will be published by Dr Macnab, if he escapes the fearful epidemic.

A P P E N D I X V I I I

PERSONAL COMMUNICATIONS

Major General E. A. Sutton
C.B., C.B.E., M.C.,
Superintendent

The Royal Infirmary,
EDINBURGH, 3. 25th June, 1949.

Dr Maurice B. O'Neill,
11 Durham Square,
Portobello,
Midlothian.

Dear Dr O'Neill,

As requested in your letter of 20th June 1949, I enclose herewith, the details of cases of Poliomyelitis Anterior admitted to the wards of the Royal Infirmary of Edinburgh during the period 1st January to 31st December 1883.

I also enclose details of 5 cases of Talipes Equino Varus admitted to the Royal Infirmary for treatment during the same period.

Yours sincerely,

(Sgd.) E. A. SUTTON,

Major-General.
Superintendent.

Encl.

THE ROYAL INFIRMARY OF EDINBURGH

Cases of Poliomyelitis Anterior admitted during the
year 1883:

<u>Case Number</u>	<u>Age</u>	<u>Ward</u>	<u>Sex</u>	<u>Residence</u>	<u>Diagnosis.</u>
<u>July:</u>					
4450	17	23	M.	Newcastle	Poliomyelitis Anteroid.
5155	17	22	M.	Killing- worth	Infantile Paralysis.

1883

March	No. 2769	9 months	Talipes Varus
June	No. 4284	12 years	Talipes
June	No. 4328	12 years	Talipes
July	No. 4665	13 years	Talipes Equino
July	No. 4717	2 years	Talipes Equino Varus.

Thomas Bryson, M.B., Ch.B.,
Superintendent

Royal Infirmary,

GLASGOW, C.4.

Telephone BELL 3535

12th July, 1949.

Dr Maurice O'Neill,
71 Moira Terrace,
EDINBURGH, 7.

Dear Dr O'Neill,

With reference to our conversation, I enclose a list of cases of Infantile Paralysis and Anterior Poliomyelitis admitted to Glasgow Royal Infirmary during the period 1880 - 1910.

You will notice that the first record of the use of the term "Anterior Poliomyelitis" occurs in 1887. After this year some of the admissions are noted under the term "Infantile Paralysis" and the rest are noted under "Anterior Poliomyelitis."

I presume that some of the Physicians adopted the new nomenclature while others preferred to use the old term "Infantile Paralysis."

Yours faithfully,

(Sgd.) THOMAS BRYSON,
Superintendent.

Enc.

North-Eastern Hospital Region, Scotland.

Board of Management for the
Aberdeen General Hospitals.

Royal Infirmary,
Foresterhill,
ABERDEEN.

Telephone No. 6060.

AMM/TW.

6th August, 1949.

Dr Maurice B. O'Neill,
71 Moira Terrace,
Edinburgh 7.

Dear Dr O'Neill,

I now enclose herewith a Pro Forma completed as you wished it, showing the number of Infantile Paralysis and Anterior Poliomyelitis cases admitted to the Aberdeen Royal Infirmary during the period 1880 to 1910. This is a complete extract from the Registers for those years.

As you can well understand this list can be nothing like the grand total which must have occurred in this area during the period in question. I should think the majority of cases would have been sent to the Infectious Diseases Hospital, i.e. the City Hospital, Urquhart Road, Aberdeen. I have made enquiries there and find that their records for the whole period have been destroyed and you will, therefore, be unable to obtain any further information from that source.

I trust, however, that the enclosed will be of some use to you.

Yours faithfully,

(Sgd.) A. M. MILNE,

Medical Superintendent,
Aberdeen General Hospitals.

Encl.

A P P E N D I X IX

1849 Infantile Paralysis in Edin.

E.M.S.J., vol. 71, p. 453 - 1849

Commenting on 20 cases of the disease reported
by West.

"These are undoubtedly strong facts; but it was to be wished that they had been more numerous. We have seen and known cases of palsy, of the kind now mentioned, take place as the effect of attacks which would have been regarded as indicating the presence of hydrencephalus, or encephalitis, cases in which, that is to say, recovery had taken place; as the effect of attacks of obscure and anomalous disorders of the brain and alimentary canal; and as the effect of attacks of chorea.

(Reviewer unnamed)

A P P E N D I X IX

Cameron (Hector)

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Acquired talipes

"We are familiar with ordinary cases acquired by infantile paralysis, where one set of muscles is paralysed, and the opposing set twists the foot in the opposite direction." P. 64, Glas. Med. Journal vol. XVII 1882.

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