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Article (Accepted Version)

Cooper, Maxwell, Morris, Hilary and Whiston, Benjamin (2019) Sir Matthew Tierney and the foundation of the 1804 Sussex Vaccine Institution. *Journal of Medical Biography*. ISSN 0967-7720

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Abstract

Irish physician Sir Matthew John Tierney (1776-1845) was a vaccine pioneer who learnt the procedure directly from Edward Jenner in Gloucestershire. In 1802 Tierney completed an MD at Glasgow on vaccination and moved to Brighton, where he was appointed physician to the Prince of Wales (the future King George IV). This paper considers Tierney's role in the foundation of the 1804 Sussex Vaccine Institution. Tierney was the first president of the Institution's Medical Council. His leadership lay in his knowledge of vaccination (including transporting cowpox material) and his close relationship with the Prince of Wales. The Institution's official name was the Royal Sussex Jennerian Society for the Extermination of the Small-pox and offered vaccination at 16 stations across the county and one in Kent. Vaccination was undertaken by local surgeons at their houses at set hours. In its first year, the Institution vaccinated 946 individuals, of whom 509 for free. Despite this, concerns were raised over uptake by poorer members of society. The Institution's Brighton station was probably absorbed into the new 1809 dispensary. Tierney's promotion of vaccination and instructions for new practitioners represent the embryonic beginnings of modern medicine and medical education in Brighton.

Sir Matthew John Tierney (1776 - 1845) was an Irish physician who learnt vaccination directly from Edward Jenner in Gloucestershire.¹ They first met in 1798 after Tierney's appointment as surgeon to Lord Berkeley's regiment of militia.¹ Tierney quickly began vaccinating soldiers of the South Gloucestershire Militia, an act considered the first ever attempt at mass vaccination.² He then took his new expertise in vaccination to Scotland, having received "vaccine virus from Dr. Jenner" and immunized the sons of university professors at Edinburgh (1800) and Glasgow (1802).³ It was thus, Tierney states³, that "the cow-pock [vaccination] was established in Glasgow and Edinburgh", although there is evidence of earlier vaccination in Scotland.⁴ Tierney graduated as Doctor of Medicine in 1802 from Glasgow University with his thesis "De Variola Vaccina"⁵, which offers further evidence of his interest in vaccination.

Tierney left Scotland and travelled south to Brighton in May 1802. His reasons for choosing Brighton are unclear. Given that Tierney was later reported to be an authority on the "fashionable field of mineral springs",² he may have been motivated by an interest in the health benefits of water. At Brighton, Tierney was introduced by Lord Berkeley to the Prince of Wales.¹ The Prince appointed Tierney physician to his household¹ and, on one occasion, bled the Prince even though his physical state was so severe that "to bleed him seemed to kill".⁶ Despite such practices, Tierney established a successful clinical practice in Brighton and received numerous titles including Physician in Ordinary to the Prince of Wales (1816) and William IV, Baronet (1818 and 1834), and Knight Commander of the Royal Guelphic Order of Hanover (1831).¹ Tierney appears to have developed a way of preserving and transferring vaccine material using a quill tooth pick⁷. He remained in Brighton until

his death in 1845, reportedly from gout.⁸ Tierney's reputation and achievements have been well documented in various biographies.^{1, 9} However, one major omission in such works - which this article seeks to address - relates to Tierney's purported role in founding the 1804 Sussex Vaccine Institution and the activities of this organisation.

The 1804 Royal Sussex Jennerian Society

In his 1804 Statement on its foundation, Tierney describes the establishment in Sussex of the first ever county vaccine institution³. This is assumed by Munk to have been located at Brighton¹. The foundation date of the Institution is given as the 12th May 1804 and its inception may have been in response to an outbreak of smallpox "accidentally introduced" in Brighton "February last"¹⁰.

Tierney's statement records that the Institution was formed in cooperation with the Royal Jennerian Society (of London). This relationship is evident in its formal title of "The Royal Sussex Jennerian Society for the extermination of the Small-pox"¹⁰, although this was frequently shortened to "Sussex Vaccine Institution". In 1845 Tierney recollects his role in its establishment thus, under the auspices of Lord Pelham, the County Lieutenancy and the patronage of the Prince of Wales:

*"Lord Pelham, with a laudable anxiety to extend the advantage of cow-pock, requested me to put on paper a plan to be submitted to the County. This plan was laid before the Deputy Lieutenants, at Lewes, and afterwards before the Grand Jury at Horsham, who expressed their confidence in cow-pock, and the advantage of an Institution for the County, to co-operate with the Royal Jennerian Society of London. His Royal Highness the Prince of Wales was applied to, and was pleased to become the patron of the proposed society; and thus in Sussex was established the first County Vaccine Institution, the medical gentlemen zealously and liberally supporting and forwarding its objects in the county."*³

Tierney's claim to have been instrumental in its founding is corroborated in the "Address, Plan and Regulations of the Royal Sussex Institution" (hereafter referred to as the Address).¹⁰ This states that he was not only first president of its Medical Board but also party to formative early discussions:

*"Lord Pelham having availed himself of Dr Tierny's [sic] experience in a complaint that was then prevalent in his regiment and which had proved fatal to many of the men [of the Sussex militia] had some conversation with him upon this subject also and requested him to put upon paper in the form of a plan to be submitted to the county the substance of their conversation"*¹⁰

Tierney's links with the institution and other vaccine pioneers is also evident in the online-accessed copy of the Address. This is inscribed by hand "To Dr Lettsom with Dr Tierny's [sic] best respects". John Coakley Lettsom (1744–1815) is notable not only for founding the Medical Society of London (1773) but for his part in the development and public support of vaccination beginning with his early

correspondence with the Gloucestershire surgeon and apothecary, Dr John Fewster (1738-1824)¹¹.

The Address contains considerable information about the Sussex Vaccine Institution, namely the Board of Directors, Medical Board, Address to the Public, Plan and Regulations, Vaccination Stations, Instructions for Vaccine Inoculation, an Address to be presented by Clergymen at the Baptism of Children and a "Form of Register". The latter was to record the following details of vaccination cases: Name, Age, Parish, Virus from whom obtained, Date of Inoculation, Progress of Infection, Constitutional Symptoms and Remarks. The non-clinical content of the Address is largely a summation of reports presented in local newspapers prior to the Institution's foundation and first anniversary. Contemporary newspaper accounts are presented below in chronological order to illustrate the key steps in its establishment.

Chronology of the founding of the Sussex Vaccine Institution

The earliest references to the Institution come from the same newspaper page on March 10th, 1804. While neither names Tierney, they corroborate his own account of how the institution was established. The proposal for the Sussex institution is first laid down in the following short and otherwise untitled advertisement:

"LEWES, March 10, 1804

AT a General Meeting of the LIEUTENANCY, after the business of the day was concluded, - A PLAN for an INSTITUTION in the COUNTY of SUSSEX, for the Extermination of the SMALL-POX, was submitted to the Gentlemen present, which was unanimously approved; and it was resolved to recommend it to the confederation of the Gentlemen assembled at the Assizes.

PRESENT,

Lord Gage, Lord Sheffield, Lord Pelham, Sir John Bridger, George Shiffner, Esq; Thomas Kemp, Esq; I. Thomas, Esq; H. Thurice Shadwell, Esq; Rev. Henry Poole, Thomas Partington, Esq." ¹²

Approval of the Assizes took place on 19th March, 1804 at Horsham, Sussex. A contemporary report named 15 subscribers and conveys a general approval for the "Jennerian system of Inoculation", rather than specific reference to founding a new vaccine Institution in Sussex. Resolution 4 again emphasized the role of Tierney in vaccination locally:

"Resolved, 4, That the Thanks of the Grand Jury be given to Dr. Tierney, of Brighton, for his plan delivered in [sic] for promoting Vaccine Inoculation" ¹³

Payment of a subscription of "five guineas at one payment, or of one guinea annually" was required to be a "Governor", i.e. someone entitled "to recommend patients for the benefit of this institution".¹⁰ Ongoing financial support for the institution is evident in a letter written by one new subscriber, Reverend Robert Ellison of Slaugham, Sussex. He presents a table of parish deaths to highlight the

impact of smallpox to show that “very nearly, one twelfth part of all the persons buried... within 54 years, have died by the Small Pox”.¹⁴ No mention, however, is made of the impact on mortality of vaccination – presumably because vaccination had not yet been introduced in Slaugham at the time.

The first recorded meeting of the Medical Council of the Institution took place in Brighton on the 18 May 1804.¹⁵ This report offers the following resolution of the society: “That all the Medical Gentlemen in the County be requested to co-operate, in carrying into effect the views of this institution” and conveys the notion of a countywide organisation in calls for further meetings of “neighbouring Medical Gentlemen” “at the Castle, Brighton; at the Swan, Chichester and at the George, Battle”.¹⁵

A “General Meeting of the Members” of the Royal Sussex Jennerian Institution was advertised by Wm. Brewster in July 1804.¹⁶ The venue of the meeting, due to be held on 18th of August, was the White Hart Inn, Lewes (see image). The Address shows that William Brewster was the Institution’s first secretary and states that the Medical Council shall meet “the first Thursday of every month... alternately at Brighton and Lewes”¹⁰. The Lewes White Hart, also famous for its association with the political writer Thomas Paine (1737-1809), appears to be the only meeting venue of the Medical Council that still stands, although its association with the vaccine institution has hitherto been unrecognized. Following this meeting it appears that progress in developing the institution was rapid:

“We understand that, at a most respectable meeting in this town [Lewes], on Wednesday last of the Governors of the Royal Sussex Jennerian Institution, an address, plan, and regulations, were arranged and ordered to be printed. Sixteen stations in this county are already appointed, where Vaccine inoculation, will immediately take place”.¹⁷

Vaccination was also initially reported to have started immediately and with rapid success in reducing cases of small pox. This assertion comes in a report from September 1804, which also reveals more details about key figures in the institution:

“the beneficial exertions of the Royal Sussex Jennerian Institution... established on the 12th of May last, have already attended with great success; as there has been scarcely an instance of that loathsome disease, in this extensive county, since the establishment of that excellent institution... His Royal Highness the PRINCE OF WALES is the Patron; the Right Hon. Lord Pelham, President, and George Shiffner, Esq. Vice President, of the Board of Directors; and Drs. Tierney and Blair, President and Vice President of the Medical Board”¹⁸

The following week, however, the journal corrects its previous assertion, stating that the “very few instances of the Small Pox... in consequence of the establishment of the [Royal Sussex Jennerian] Institution appears to be somewhat erroneous”.¹⁹ It goes on to confirm that, in fact, no inoculations had yet taken place under the auspices of the Institution.

The formal announcement of the new Institution appeared in October, written by William Brewster.²⁰ This states the sixteen “stations” to be: Chichester, Arundel,

Midhurst, Petworth, Worthing, Steyning, Horsham, Brighton, Lewes, East Grinstead, Seaford, East-bourne, Battle, Tunbridge Wells, Hastings, Rye and Ticehurst. This contains 17 rather than 16 stations, presumably because Tunbridge Wells (i.e. in Kent) was added after the initial plans for the county of Sussex. For each station there is named at least one surgeon and the days on which “persons as choose to apply” may attend “between Nine and Ten o’clock in the Forenoon” to be inoculated “free of expence [sic]”. Vaccination was to take place at the “House of the surgeon” [i.e. where he practised] and when more than one surgeon’s name was listed under any station these were to be alternated every three months. For Brighton the following surgeons are named: “Barratt and Co. Hall, Bond and Brewfter, Scutt, Weekes”. Certain towns also have a named physician: Chichester (Dr Sanden’s [sic]), Arundel (Dr Plowden), Brighton (Dr Tierney), Lewes (Dr Blair) and Tunbridge Wells (Dr Sarterly). The following clinical roles are given in the Address: Surgeons were required to “innoculate gratis”, “keep a register” and to “preserve virus according to the directions of the Medical Council”.¹⁰ Physicians were expected to “attend gratis... for the purpose of consultation on any doubtful cases that may arise; or on any other circumstance relating to this subject, that may require their attention”.¹⁰ It is noted that the next meeting will take place on the 4th October at the Star Inn, Lewes.²⁰

The First Anniversary

The final mention of the Society in the year of 1804 comes from December. Here Mr. Brewster advertised that the next meeting “of the Members of the Medical Council” will be held at the Castle Inn, Brighton, the following week.²¹ No account of this meeting, however, appears to have been reported in the following weeks. Similar advertisements continued to be published by Mr. Brewster for forthcoming meetings of the Institution.^{22 23} The latter advertises the “anniversary festival” of the Institution (17th May 1805) at the Castle Inn, Brighton, and notes that the date was chosen on the grounds of being Edward Jenner’s birthday.²³

The first anniversary meeting proceeded to nominate an entirely new medical council of twelve members “according to the regulations”.²⁴ Among the new members were Dr. Blair of Lewes (president) and “A. Bond, Esq, Surgeon of Brighton” (Vice-President). In addition to noting that the next meeting was to be on June 6th at the White Hart Inn, Lewes, it was agreed that all present still had faith “in the efficacy of Cow Pock”. It was also recorded that “several gentlemen” expressed the following concern:

“from negligence or prejudice, many of the lower classes were backward in bringing their children to the be inoculated for Cow Pock. The Society hope the respectable inhabitants of each parish will take pains to persuade their poorer neighbours, to avail themselves, *without delay*, of the advantage so liberally offered them by this Institution”²⁴

This admonition is, however, not entirely backed up by data presented in the Institution’s first Annual Report.²⁵ This states the following number vaccinated by nine Institutions that returned “lists” (including Brighton under its original name Brighthelmston[sic]): 946 of whom 509 were inoculated “gratuitously”. This total is, however, considered “less than it otherwise would have been” by the Medical Council.

Reasons cited for this include the observation that “upwards of ten thousand persons had been inoculated previous to July 1804”, including by non-medical people. There is a further rallying call, in particular that the parish poor be vaccinated by parish surgeons and for the support of the clergy.²⁵ Indeed, Tierney’s account includes an “address to be presented by clergymen at the baptism of children” for this very purpose.³

The 1809 Brighton Dispensary and the fate of the Institution

How long the Sussex institution survived is unknown. Given that another similar vaccine institution in Nottingham lasted for 8 years²⁶, the Sussex institution may well still have been in existence at the founding of the Brighton dispensary in 1809. The initial annual reports of the Brighton dispensary, however, make no mention of Tierney’s Institution.²⁷

The assumption that the Sussex Vaccine Institution was subsumed into the new dispensary is supported by its close association with both the Prince of Wales and Tierney. The Prince of Wales was named as Patron to the new dispensary, with Tierney listed as both a physician and personal subscriber.²⁷ Moreover, it is certain that the core purpose of the Sussex institution in providing free vaccination was taken up by the dispensary. This is evident in the following aims of the new dispensary, presented on the title page of its first annual report in 1810:

“for administering to the sick poor, advice and medicine gratis: and for promoting vaccination”²⁶

The first annual report of the Brighton dispensary is also important as it highlights ongoing challenges to promoting vaccination in Brighton more than a decade after Jenner’s seminal research. This suggests that the Institution must also have struggled to persuade people to accept vaccination:

“The Committee are sorry to remark that the Dispensary has not been so efficient as it ought to have been in the important branch of vaccination; but this is wholly to be attributed to the prejudices of the poor: these prejudices it is hoped may at length subside, and the friends of this Institution are earnestly requested to use all their influence in inducing their indigent neighbours to resort to this effectual means of preventing the dreadful ravages of Small Pox²⁶

Attempts at vaccination research

As early as 1798, Tierney hints at undertaking empirical experimentation on a “large scale” in Sussex on an earlier deployment to Horsham with his own regiment³. His “testing” comprised exposing soldiers of the South Middlesex militia who had been “submitted to vaccination” to colleagues “in various stages” of smallpox³. This method is consistent with Tierney’s communication with Jenner stating that he had challenged four vaccinated soldiers with smallpox.²⁸

Tierney also recorded his observations on the natural history of the pustule in variolation and vaccination, for example, in 1798 stating that “the arms of many who

were inoculated after having had the Cow Pox inflamed very quickly and that in several a little ichorus fluid was formed".²⁸ It is also recorded that, before 1803, Tierney undertook a basic comparison of the natural history of the cow pox pustule in "thirty persons with one species of spurious [vaccine] matter; and seventy with another".²⁹

It is notable that Tierney states that one purpose of the Sussex Institution was "to keep regular registers of such vaccination; to shew at one view the progress of the institution".³ It is unknown if he sought to go further by measuring the impact of vaccination on mortality in parts of Sussex. Such an undertaking is not impossible to envisage given that Tierney must have been aware of the work of Dr. Anthony Relhan (1715–1776), a fellow Irishman, comparing overall mortality in Brighton and London³⁰. Furthermore, some contemporary basic mortality data to show the impact of vaccination was published by the London Vaccine Pock Institution.³¹

Conclusion

This article provides new information about the development of the Sussex Vaccine Institution, including its formal title. No previous research has considered in detail its foundation or activities. This research is, however, limited by largely drawing upon Tierney's Statement, the Address and hand searched microfiche newspaper evidence from 1804 and 1805. Other than its "Instructions for Vaccine Inoculation", The Address is extensively based upon newspaper content presented in this paper. By analyzing newspaper reports, this study offers additional insight through its prospective and chronological approach.

This research corroborates Tierney's claim to have been central to the foundation of the Institution, although it is apparent that his close relationship with the Prince of Wales was also key. A central role for Tierney arose not only from his experience in vaccination but also his knowledge of preserving and transporting cowpox material. Contrary to previous assumptions¹, this research shows that the Institution was truly countywide - not just based in Brighton – with its operations extending at least as far as Kent. It is clear that its Medical Council, however, congregated only in Brighton and Lewes. Vaccination at the Institution was undertaken by local surgeons, a conclusion consistent with the contemporary division of medical practice. Alongside injuries, fractures and swellings, the skin (by dint of being external to the body) was considered the province of the early nineteenth century surgeon.³² It remains uncertain, however, why official roles for physicians are only described for some of the vaccination stations in Sussex.

Jenner's ideas soon provoked an "acrimonious controversy" within the medical world, including a "disgraceful warfare" of "nicknames, handbills, squibs and caricatures" to undermine the merits of vaccination.³³ The present research, however, revealed evidence of resistance to vaccination only in the form of soldiers who "falsely stated that they had had the small pox or cow-pox"³ and among "poorer" members of society.²³ No regional or institutional anti-vaccination movement and no pamphleteering was identified. This observation is consistent with the notion that

organized, nationwide resistance was largely stimulated by the British Vaccination Act of 1840.³⁴ Despite no specific accounts of resistance to vaccination in Sussex, the first annual reports of the Vaccine Institution and the new 1809 dispensary hint at underlying and longterm challenges to promoting vaccination in Brighton.^{25,27} It is unclear whether the practice of variolation had any impact on vaccination uptake in Sussex. No specific reference to variolation in Sussex was identified during this research; however, the accidental introduction of smallpox to Brighton reported in the Address suggests it may have been practised in the area.¹⁰ An alternative explanation to link this outbreak with resistance to vaccination could lie in the use of cowpox material contaminated with smallpox virus. One contemporary account of the mistaken use of smallpox matter for vaccination is reported elsewhere at Petworth, West Sussex.³⁵

No evidence was identified to show that Tierney's Institution undertook formal research. That is despite his having undertaken some early empirical "testing" of vaccination in Sussex. In lieu of formal research activity, the Institution was focused on detailed record keeping of vaccination cases to monitor clinical outcome with a view to promoting public trust in the procedure. It is probable that the Brighton station of the Sussex Vaccine Institution was absorbed into the new 1809 dispensary. Further study is needed to discover more about the Institution's ongoing activities and its eventual fate.

Tierney appears to have been the first person to attempt mass vaccination and to adopt a countywide approach to smallpox prevention. These measures – which included free vaccination - reveal an understanding of the importance of a population approach to smallpox prevention, a strategy in stark contrast to the individualistic and lucrative practice of variolation. An argument can be made that by implementing Jenner's research findings, Tierney's early vaccination represents the inception of evidence based medical practice in Sussex. Likewise, his promotion of "Instructions for Vaccine Inoculation"³ may also be considered to represent the embryonic beginning of modern medical education in Brighton. For these reasons, Tierney deserves greater recognition as a pioneer in promoting vaccination in Sussex and beyond.

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