

ROBERT THE BRUCE AND LEPROSY

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The inspiration to write the review was the inspection of the most recent facial reconstruction of Robert the Bruce. This gave the impression of a fearsome, ruthless and cunning warlord; the type of individual required to defeat opposition in Scotland, keep Edward I at bay, and hammer his pleasant but less effective son into the ground. Another feature was that loss of his upper incisors and associated alveolar maxillary bone indicated that he might have suffered from leprosy, a condition rare amongst medieval royalty.

ROBERT THE BRUCE

Excavation of Remains

While much is known and has been written about the events associated with the life and times of Robert the Bruce (1274–1329), King of Scotland, there has always been some doubt as to whether he suffered from leprosy. Pearson,¹ for example, has suggested that his condition could have resulted from 'sporadic syphilis', which in the Middle Ages was commonly confused with leprosy. While no direct analysis of his skeletal remains has been carried out to unequivocally establish that he suffered from leprosy, there is evidence in favour of this from the analysis of what is believed to be the extremely accurate plaster of Paris cast of his skull and mandible prepared by W. Scouler, when Bruce's skeleton was formally exhumed in 1819. This took place in the presence of the King's Remembrancer, Sir Henry Jardine, several Barons of the Exchequer, Dr Alexander Monro *tertius* (1773–1859), Professor of Anatomy at the University of Edinburgh, Dr James Gregory (1753–1821), Professor of Medicine at Edinburgh University and His Majesty's first Physician for Scotland, and other gentlemen of science. The contemporary description of the exhumation, and the events that led up to it, are described in detail by Jardine.²

During 1817, the Magistrates of the Burgh of Dunfermline resolved to build a new church, as the parish church that occupied the nave of the ancient cathedral was in ruins and could no longer be used as a place of worship. Plans were drawn up by a local architect, and it was proposed to retain the original nave, but add to it an entire new church which would occupy nearly all the land formerly occupied by the ancient cathedral. It was appreciated that the plans might interfere with the site where the ancient Kings and Queens of Scotland were believed to be buried, and for this reason the Magistrates applied in January 1818 to the Lord Chief Commissioner (Baron Adam) for permission to remove any Royal remains that might be found to another part of the churchyard, near to the tombs of King Malcolm and Queen Margaret.

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During clearance of the site, on 17 February 1818, the workmen came by accident on what appeared to be a Royal tomb. This was located at the very centre of the ancient cathedral in front of where the high altar had formerly stood, and was protected by two large stones, a headstone and a much larger stone (six feet in length) into which six iron rings had been fixed by lead. When these stones were removed, they found the complete skeletal remains of an individual entirely enclosed in two layers of lead, with what remained of an embroidered linen cloth shroud over it, the fine linen material being interwoven with threads of gold. Over the head of the individual, the lead was formed into the shape of a crude crown. The find was reported to their Lordships, who directed the Sheriff to secure the tomb. Large stones were placed over the vault, and these were secured in place with strong iron bars.

On 5 November of the following year, the tomb was opened in the presence of the King's Remembrancer and the other witnesses indicated above. When access was gained to the vault, it was found that the lead was in a poorer state than when observed the previous year. At the bottom of the vault, several inches of material represented all that remained of a wooden coffin. All was otherwise as previously noted, except that the lead crown was missing, having been removed by spectators when the tomb was first opened (Figure 1). The lead covering the head was sawn off to isolate the skull and mandible (Figure 2).

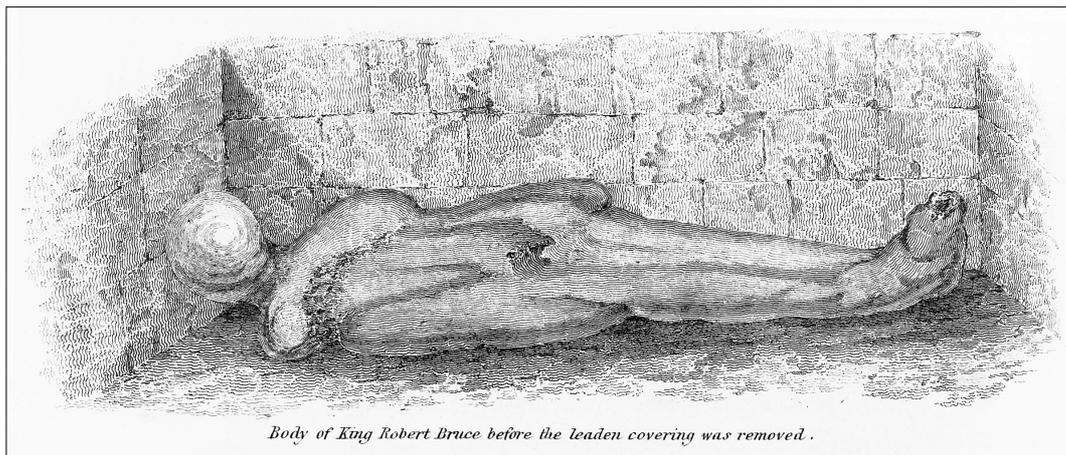
According to Jardine:

The whole teeth in the under jaw were entire and in their places, but there were four or five in the upper jaw wanting, with a considerable fracture of the jaw bone in front, evidently occasioned by a blow, which the King is supposed to have received in one of these many extraordinary adventures to which he was exposed in the early part of his life.³

After drawing attention to the excellent state of preservation of the other components of the skeleton, and noting that all the soft tissues had entirely disappeared, Jardine drew particular attention to the appearance of the sternum. This:

...had been sawed asunder longitudinally from top to bottom - the most satisfactory evidence that it was the body of King Robert Bruce; as it proved beyond doubt that it had taken place prior to his interment, in order to get at the heart, which...he had directed to be carried by Douglas to the Holy Land, and which the ignorance of the anatomists of those days had made them perform, in order to comply with their Sovereign's last commands.⁴

When Douglas was slain in battle against the Moors in Spain, Douglas' body and the silver box containing the King's



Body of King Robert Bruce before the leaden covering was removed.

FIGURES 1 AND 2

Illustrations from H. Jardine's *Report to the Right Hon. the Chief Baron, and the Hon. the Barons of His Majesty's Court of Exchequer of Scotland, by the King's Remembrancer, Relative to the Tomb of King Robert the Bruce, and the Cathedral Church of Dunfermline* (1821). Figure 1 is entitled 'Body of King Robert Bruce before the leaden covering was removed'. Note that the crude crown made of lead had been removed by spectators when the tomb was first opened. Figure 2 is entitled 'Body of King Robert Bruce after removing the leaden covering'. Note that the appearance of the pre-maxillary region indicates that the upper incisor teeth were already absent when the lead coverings were removed, and that these did not fall out when the plaster of Paris cast was made.



Body of King Robert Bruce after removing the leaden covering.

embalmed heart were returned to Scotland under the charge of Sir William Keith. The King's heart was afterwards buried in Melrose Abbey, by the Earl of Moray. The box containing the heart was recently excavated and re-interred in another site close by.⁵

On 10 November, the workmen found a copper plate on which was inscribed *Robertus Scotorum Rex*, the letters resembling those on the coins of the King. This was found in the rubbish which had been removed from the vault on 5 November, and was believed to have been attached to the underside of one of the stones that covered the tomb. As the plate had holes at each corner, it was believed that these allowed it to be fixed to the lid of the coffin. This finding, with the appearance of the sternum, provided definitive evidence that this was indeed the skeleton of King Robert the Bruce. The metal plate was transferred to the Museum of the Society of Antiquaries of Scotland, but it subsequently emerged that the plate was a fake carried out by a young artist, Thom, assisted by a Mr Nimmo, son of an Edinburgh printer. The full details of the forgery were only published half a century later in the *Proceedings of the Society of Antiquaries of Scotland*.^{6,7}

Several weeks after the skeleton had been minutely examined and appropriate measurements taken, it was wrapped up again in lead coverings and the whole deposited in a large lead coffin. Into the latter molten pitch was first poured to a depth of about four inches, and then a selection of contemporary articles placed within the coffin, including five books, two of which were the 1714 edition of Barbour's *Life of Bruce*⁸ and Kerr's *History of Scotland*,⁵ and seven gold and nine silver coins. The coins were first put into a small copper box, which was then enclosed in one of lead, while the books were included in leaden boxes. The skeleton was then lowered into the coffin. Gregory had recommended that Bruce's remains be embedded in pitch 'to preserve his remains from further decay'.⁹ The vault was then closed, initially with bricks and mortar, and then sealed with about two inches of molten pitch into which was inscribed, 'King Robert the Bruce, 1329-1819'. According to Jardine 'The sides of the vault were then built up with bricks, the whole arched over, and a strong stone, 18 inches thick, was built all round the brick arch'.¹⁰

In the 1770s, when a monument was erected to the Earl of Elgin (who died in 1771), in the immediate vicinity

of Bruce's tomb, the workmen came across a similar but smaller vault which contained the skeleton of a female. Because of its position in relation to that of the King, it was believed to be that of his Queen. The skeleton was removed from the tomb, and relocated elsewhere at the time.

In addition to providing full details on the genealogy of Bruce, information regarding the finding of the tomb, and analysis of its contents, Jardine's volume has three appendices:

- A. Anatomical remarks on the skull, by Robert Liston, Esq., Surgeon.
- B. Phrenological remarks on the development of the brain, as indicated by the skull, by George Combe, Esq., to which is added 'extracts from *Illustrations of Phrenology*, by G. S. Mackenzie, Bart,¹¹ relative to the skull of King Robert Bruce'.
- C. Extracts from the Chamberlain Rolls, in Latin, covering the period from 1329-1331.

What is particularly curious is that despite the fact that Drs Monro *tertius* and Gregory were the only medical men amongst the distinguished gathering who were named, the only anatomical account that appears in Jardine's Report² was provided by Liston, whose knowledge of the anatomical features of the skull would, in the normal course of events, be expected to be less than that of the Edinburgh Professor of Anatomy. In this regard, it is equally unclear why Barclay was not invited to attend, as he was arguably the most distinguished anatomist in Edinburgh at the time.

Liston's description of the skull and mandible, published in Appendix A, is extremely brief. While it draws attention to the massiveness of the mandible, the fact that the sites of all muscle insertions were particularly marked, and that 'There is a kind of mark on the right side of the sagittal suture, most probably the consequence of a severe injury, and of subsequent exfoliation', he makes no mention of the 'considerable fracture of the jawbone' as noted by Jardine (see above); nor does he mention that a plaster of Paris cast was made of the skull, should further craniometric measurements need to be made on the skull.

It is also of interest that a considerable portion of the left zygomatic arch is missing from the cast. According to Pearson 'The cast lacks the left zygomatic ridge, whether broken off in the skull or more recently from the cast is not clear'.¹² As a detailed analysis of the cast strongly suggests that this deficiency was present when the cast was made, and the two ends of the arch appear to show evidence of healing, it is particularly curious that this feature had not been observed by Jardine, or mentioned by Liston. As there appears to be no obvious signs of the 'considerable fracture of the jaw bone in front' as described by Jardine³ (see above), the possibility exists that he may have, in error, been describing the damage to the left zygomatic arch rather than that to the mandible. It is possible that this occurred either because he was relying on his memory when he made this observation, or because he was unfamiliar with the anatomical terminology.

Pearson,¹ in his account of the isolation of the skeleton of Bruce, drew attention to the fact that others present also published contemporary accounts of the event, but it is of interest that sections from these were not included in Jardine's definitive Report. Jardine also published a separate account of the events in the *Transactions of the Society of Antiquaries of Scotland*,¹³ in which Liston's findings appear as

Appendix A, and the extracts from the Chamberlain Rolls appear as Appendix B. The phrenological observations are, however, curiously missing. As well as including all of the plates that had been published in the formal Report,² an additional plate was published in the *Transactions of the Society of Antiquaries of Scotland*, termed Plate XIV.¹³ This contains three figures: Figure 1 shows a coin of Robert the Bruce; Figure 2 is entitled *Body of King Robert Bruce before the leaden covering was removed* (Figure 1), and must relate to the excavation of 1819 as there is no evidence of a crown on the head; and Figure 3 is entitled *Body of King Robert Bruce after removing the leaden covering* (Figure 2). This second additional engraving is very naively delineated, but is of interest because it shows evidence of pre-maxillary erosion, and absence of the upper incisor teeth. This does not appear to agree with Gregory's account (see below), which strongly suggests that these teeth were present up to the time that the cast was made. All of the engravings on Plate XIV were undertaken by W. H. Lizars, who also undertook all the engravings in Jardine's original Report.²

Gregory had earlier published his observations, drawing attention to the fact that during the proceedings 'two or three of his teeth, which were very entire, but so loose that they came out on taking a cast...of his skull, and one, or perhaps more, of his smaller bones were stolen'. An unnamed individual who accompanied Gregory convinced him that he 'had not returned empty-handed, by producing a metatarsal (*sic*) bone of King Robert, very little decayed'.¹⁴

What is even more curious is that George Combe was requested to provide 'Phrenological remarks on the development of the brain, as indicated by the skull', and that this was included in Jardine's book as Appendix B, along with an extract from the relevant section of Mackenzie's *Illustrations of Phrenology*.¹¹ It is unclear whether Combe analysed Bruce's skull or the cast that had been prepared by Scoular. No measurements were provided in this analysis. Another phrenological report on the cast was subsequently prepared by William Scott, but this was not published until 1824, when it appeared in the *Transactions of the Phrenological Society*,¹⁵ this being the earliest of the journals published by the Edinburgh Phrenological Society. The article is entitled 'Remarks on the cerebral development of King Robert Bruce, compared with his character as appearing from history', and it is almost certain that this analysis must have been carried out on the cast, despite the fact that Scott indicates that the measurements were 'taken from the middle of the surface of each organ as indicated on the skull'.¹⁶ It is of interest that the sizes of the various 'organs' differ slightly between the two phrenological reports.

Combe provided observations on the 34 'organs' described at the time, based on an amended version of Spurzheim's system published in *The Physiognomical System of Drs Gall and Spurzheim*.¹⁷ The frontispiece to the latter contains a composite engraving consisting of three diagrams, the unnumbered 'organ' located between 16 and 33 is here referred to by Combe as 'organ 34'. The fact that it was unnumbered by Spurzheim in 1815 is because, at that time, the exact role of the organ at that site had yet to be determined.¹⁸ A perusal of both Combe's and Mackenzie's observations would seem to indicate that, while they were full of phrenological terms, they were clearly either consciously or subconsciously based on earlier accounts of Bruce's personality. The fact that these reports were included in Jardine's book strongly supports the seriousness with

which the phrenological findings were taken at the time. It is of interest that Scott¹⁹ only refers to ‘organs’ 1 to 33 in his analysis. A later analysis of the ‘cerebral development of King Robert Bruce’ is available in the Henderson Trust’s collection. This document is believed to date from 1832, and must have been carried out after 1825, as the sizes of 35 ‘organs’ are measured according to the amended system described by Spurzheim.²⁰

Anatomical evidence of leprosy

Because of the very serious doubts that have been raised during the present century regarding Bruce’s leprosy, the plaster of Paris cast provides the key to all subsequent observations on Bruce’s clinical condition, whether he had leprosy or otherwise, and for this reason it is relevant to briefly discuss its provenance. All available evidence suggests that the original copy of the cast is now located in the Anatomy Museum, University of Edinburgh (Figures 3 and 4). This cast was found at Canaan Lodge, the residence of Dr Gregory, by Dr T. Burn Murdoch and presented by Mrs Leith, Dr Gregory’s grand-niece, through him to the Anatomy Museum. Pearson¹ was of the view that, as the Phrenological Society was instituted on 22 February 1820, the cast could not have been taken on its initiative. The explanation is provided by Gregory who stated that ‘Dr Monro, who was also at the resurrection, brought with him an excellent artist (sculptor), Mr Scouler, to take casts of the king’s head.’²¹

There are a considerable number of copies of the cast, four of which are still located in the Anatomy Department. Three are believed to be based on Gregory’s copy, which has significantly sharper features than the others. It is this latter cast that was used by the sculptor Mr C. d’O Pilkington Jackson, assisted by the then Professor of Anatomy, G. J. Romanes, to produce the portrait head of Bruce that was displayed in the Royal Scottish Academy in 1958 (Figure

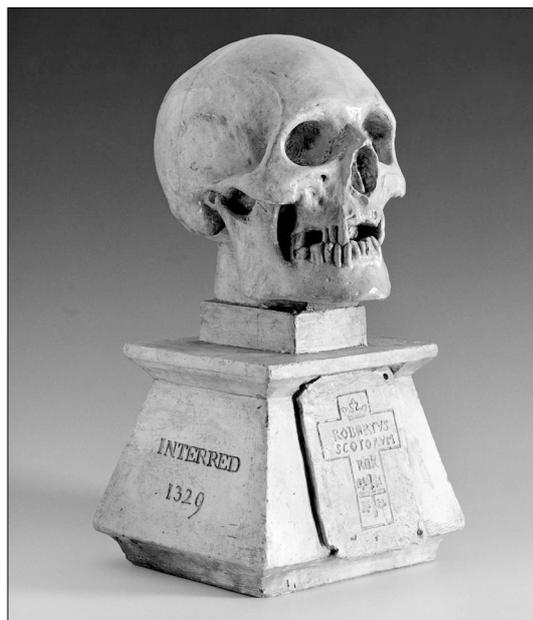
5). A copy of the bust was purchased by the Henderson Trustees from the sculptor, and this is also now displayed in the Anatomy Museum. The same sculptor produced an equestrian statue of Bruce, on a ‘heroic’ scale, the previous year. This is now located at Bannockburn. More recently, Gregory’s cast of the skull has formed the basis of a clay reconstruction prepared along similar lines to those used to reconstruct the facial features of George Buchanan,²² and a computer-aided reconstruction has also been prepared by Professor Vanesis of the Forensic Medicine Department of the University of Glasgow.

While Pearson¹ was of the view that the cast displayed evidence of ‘sporadic syphilis’, Møller-Christiansen,²³ an authority on the osteological appearance of leprosy, claimed that it showed all the features of *facies leprosa*, and not those of *calvaria syphilitica* (syphilitic osteitis). According to the latter authors, the cast displays ‘antemortem loss of the central and right lateral incisors, and possibly the left lateral incisor’. Similar features were displayed in other cases of this condition discussed in their article. The authors continue:

There are no signs of loss of teeth caused by trauma *in vivo*. But the most important component of the *facies leprosa*, the inflammatory changes in the hard palate, cannot be verified in this case because the plaster cast does not show the hard palate, and so does not allow investigation. The diagnosis must therefore be: The plaster cast of Robert the Bruce shows clear signs of *facies leprosa*, but to be one hundred per cent sure of the diagnosis of leprosy, we would have to unearth his skeleton once more and make a proper examination.

Contemporary history of Bruce’s health

In his analysis of the prevalence of leprosy in England and Ireland in antiquity, MacArthur²⁴ makes no mention of Robert the Bruce. He emphasised the difficulty of making



FIGURES 3 and 4

Left frontal (3) and right frontal (4) views of the plaster of Paris cast of the skull and mandible of King Robert the Bruce. Note that while the two upper canine teeth are still present, the upper incisor teeth are missing, and that this is associated with pre-maxillary erosion resulting either from leprosy or from a traumatic blow to this region of the skull. Note also that the left zygomatic arch is missing. On close inspection of the cast, it appears likely that this region of the skull was absent when the cast was made.



FIGURE 5

Right lateral view of the portrait bust of Robert the Bruce produced by Pilkington Jackson.

a firm diagnosis of this condition due to the scanty clinical information provided at that time, particularly because of the extreme difficulty of distinguishing it from the numerous skin conditions that were commonly encountered in the Middle Ages. There can be no doubt that this condition existed at that time, only that its prevalence was undoubtedly exaggerated because of ignorance, not helped by numerous biblical references, the majority of which probably did not refer to this condition. The prevalence according to MacArthur²⁴ was slight at most.

Apart from the physical evidence provided by the cast of the skull, the account of the last illness and death of Bruce at the age of 55 has been variously interpreted over the years. The generally accepted account is that 'he suffered much pain in his later years, which incapacitated him for action in the field, and that this was due to leprosy of which he died'.²⁵ The first mention of the possibility that Bruce might have suffered from leprosy appears in the *Chronicon de Lanercost*, a general history of England and Scotland from 1210–1346 which has been attributed to an unknown Franciscan friar at Carlisle. This states that Bruce deputed the command of the army during the Weardale campaign in 1327 'because he had become leprosy' (*Dominus autem Robertus de Brus, quia factus fuerat leprosus, illa vice cum eis Angliam non intravit*). This assertion is also repeated in the notice of the King's death (*Mortuus est dominus Robertus de Brus, rex Scotiae, leprosus*).²⁶ According to MacArthur 'Bruce was absent from the Weardale expedition not through leprosy, or any other disease, but because he had gone to Ireland in an attempt to create a diversion there'.²⁷ This information is confirmed from two contemporary state papers located in the Public Record Office that bear directly on his whereabouts at that time. It is also clear that the author of the *Chronicon* was unaware of this simple explanation.

It is probably relevant to note that none of the three of his comrades who lived and served with him, John of Fordun, John Barbour and Andrew Wyntoun, make any mention of his having leprosy.²⁸ In addition to suggesting that Bruce's

symptoms might have been due to 'sporadic syphilis', Pearson was of the view that the peculiarities of his upper jaw might have been secondary to a war-time injury. In a footnote associated with the translation of the term *endfundeyng* (his condition was described in terms of 'This malice of *endfundeyng*', quoting from Barbour, and cited by Pearson²⁹), the additional suggestion is made that we should consider Raynaud's disease as another possibility resulting from his lying in the damp, and that his symptoms just possibly might be confused with leprosy.

An analysis of the contemporary evidence by MacArthur³⁰ suggests that Bruce did not in fact suffer from leprosy. While Bruce was despised by his English and Scottish enemies, as well as by the Pope, none could find words vile enough to describe him. Of the terms used, and most these days would be considered unprintable, it is curious that he was never referred to as a 'leper', as this was probably the most offensive term available at that time. This alone very strongly suggests that there was probably no contemporary evidence that he suffered from this condition.



FIGURE 6

Ruin of chapel to leper hospital in Prestwick endowed by King Robert Bruce. The upper surfaces of the walls have been reconstructed to prevent them from further erosion.

ACKNOWLEDGEMENT

We thank Dr Joe Rock for photographing the plaster cast of Bruce's skull and the portrait head of Bruce, both in the Anatomy Museum, University of Edinburgh.

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- 2 Jardine H. *Report to the Right Hon. the Chief Baron, and the Hon. the Barons of His Majesty's Court of Exchequer of Scotland, by the King's Remembrancer, Relative to the Tomb of King Robert the Bruce, and the Cathedral Church of Dunfermline*. Edinburgh: Hay, Gall & Co.; 1821.
- 3 *Ibid.* p. 36.
- 4 *Ibid.* p. 37.

- ⁵ Kerr R. *History of Scotland during the reign of Robert I Sirnamed the Bruce*. In two volumes. Edinburgh: W Creech, A Constable & Co., Blackwood IW, Anderson J, and Brown and Crombie; London: Longman, Hurst, Rees, Orme & Brown and J Murray; 1811; Volume 2: 507. Bruce's heart was removed from its silver box in Medieval times and sealed in a cone-shaped lead casket in which it is now located.
- ⁶ Anon. Donations to the Museum. *Proceedings of the Society of Antiquaries of Scotland* 1870; **8**:360 (see the figure showing a portion of marble moulding and a small portion of a sandstone coffin from the supposed tomb of Robert the Bruce at Dunfermline, discovered in 1818). 413-4 - 'a collection of antiquities &c. comprising a small number of fragments of marble carvings and pillar-like ornaments from the tomb'. It also briefly mentions the forgery of the plate of copper with the inscription 'Robertus Scotorum Rex', &c. It was not until some time afterwards that the true state of the case became known.
- ⁷ Johnston TB. The story of the fabrication of the 'coffin plate' said to have been found in the tomb of King Robert Bruce in Dunfermline Abbey. *Proceedings of the Society of Antiquaries of Scotland* 1878; **12**: 466-71. (According to Mr Nimmo, one of the culprits, 'the engraving contains a serious blunder in the date, as the finding of the plate took place in 1821, not in 1819'. This suggestion would seem to be an error in the memory of the perpetrator, and is inconsistent with the various other reports on this incident, e.g. Jardine [1821]).
- ⁸ Barbour J. *The life and acts of the most victorious conqueror Robert Bruce King of Scotland. Wherein also are contained the martial deeds of the valiant Princes: Edward Bruce, Sir James Douglass, Earl Thomas Randell, Walter Stewart, and others*. Edinburgh: Gedeon Lithgow, Printer to the University of Edinburgh; 1648. (The 1714 edition of this book was put into Bruce's coffin with various articles; see text).
- ⁹ Gregory J. Exhumation and re-interment of Robert Bruce. *Quarterly Journal of Science, Literature, and Arts* 1820; **9**:138-142. (This item is signed 'G' and is said to have been written by Gregory; it is addressed from Edinburgh, Thursday February 10 1820).
- ¹⁰ Jardine, op. cit. ref. 2, 43.
- ¹¹ Mackenzie GS. *Illustrations of Phrenology*. Edinburgh: Archibald Constable & Co.; 1820:241-5.
- ¹² Pearson, op. cit. ref. 1, 264.
- ¹³ Jardine H. Extracts from the Report made by Henry Jardine, Esquire, His Majesty's Remembrancer in Exchequer, relative to the tomb of King Robert Bruce, and the Church of Dunfermline. *Transactions of the Society of Antiquaries of Scotland* 1822; **2** (Part 1):435-55 (Communicated to the Society of Antiquaries of Scotland, 10 December 1821).
- ¹⁴ Gregory, op. cit. ref. 9,142. It is relevant to note here that a bone that purports to be one of those removed at the time of the exhumation by one of Gregory's party was presented to the Museum of the Department of Anatomy. In a covering letter, dated 1 January 1894, a copy of which was transcribed into the 1886-1931 *Anatomical Museum Day Book* (see p. 56), Sir Edward Albert Sharpey-Schafer (a physiologist, 1850-1935) states:
- It is believed that the 'surgeon present at Dunfermline in 1819' was Robert Liston, a contemporary of Sharpey at University College where he was Professor of Surgery, 1834-1847. The bone came into Sharpey's possession on Liston's death in 1847. The bone is a second metacarpal of the right hand, and is presently located in the Anatomical Museum, University of Edinburgh. It is in a small cylindrical glass museum jar, and bears the handwritten label, believed to be circa 1819, 'Metacarpal Bone. Robert the Bruce'.
- ¹⁵ Scott W. Remarks on the cerebral development of King Robert Bruce, compared with his character as appearing from history. *Transactions of the Phrenological Society* 1824; 247-80.
- ¹⁶ *Ibid.* p. 254.
- ¹⁷ Spurzheim JG. *The physiognomical system of Drs Gall and Spurzheim; founded on an anatomical and physiological examination of the nervous system in general, and of the brain in particular; and indicating the dispositions and manifestations of the mind*. London: Baldwin, Cradock & Joy; 1815.
- ¹⁸ Kaufman MH, Basden N. Marked phrenological heads: their evolution, with particular reference to the influence of George Combe and the Phrenological Society of Edinburgh. *Journal of the History of Collections* 1997; **9**:139-59 (see Figures 12 and 13).
- ¹⁹ Scott, op. cit. ref. 15, 253-4.
- ²⁰ Spurzheim J. *Phrenology, or, the doctrine of the mind; and of the relations between its manifestations and the body*. London: Charles Knight; 1825. Third Edition.
- ²¹ Gregory, op. cit. ref. 14, 142.
- ²² Kaufman MH, Hill B, MacLeod RI. Reconstruction of the facial features of George Buchanan: tutor of James VI and founder of the Tounis College of Edinburgh. *Proceedings of the Royal College of Physicians of Edinburgh* 1996; **26**:272-81.
- ²³ Møller-Christensen V, Inkster RG. Cases of leprosy and syphilis in the osteological collection of the Department of Anatomy, University of Edinburgh, with a note on the skull of King Robert the Bruce. *Danish Medical Bulletin* 1965; **12**:11-8.
- ²⁴ MacArthur W. Some notes on old-time leprosy in England and Ireland. *Journal of the Royal Army Medical Corps* 1925; **45**:410-22.
- ²⁵ Pearson, op. cit. ref. 1, 265.
- ²⁶ MacArthur, W. Some notes on old time leprosy: the case of King Robert the Bruce. *Journal of the Royal Army Medical Corps* 1926; **46**:323.
- ²⁷ *Ibid.* pp. 324-5.
- ²⁸ *Ibid.* p. 322.
- ²⁹ Pearson, op. cit. ref. 1, 266.
- ³⁰ MacArthur, op. cit. ref. 26, 329-330.

...and I believe actually, is a metacarpal bone of Robert the Bruce. It was given to me by Sharpey. I do not know exactly when and how it came into his hands but he informed me that it had been removed by a surgeon who was present at the examination of the contents of the tomb at Dunfermline in 1819.