

I chanced upon the theme which I hope will be found to be important enough to lay before the Foundation tonight while reading the inscription on a relatively obscure tomb, a source which Scholars in this Foundation will readily recognise as being of almost equal importance to the deciphering of apparently cryptic dedications in books, the teasing out of previously unperceived acrostics in works of poetry, and the careful scrutiny of overlooked erratum slips, in the advancement of Crabtree studies. The tomb was in that City church named after St. Benet — a church, I should say, not named after a distinguished earlier Orator — and the tomb was that of Gregory King. As the inscription on the tomb has it, Gregory King, who lived from 1648 to 1712, was 'a skilful herald, a good accomptant, surveyor, and mathematician, a curious penman, and well versed in political arithmetick...'

Among economic and social historians in recent years, Gregory King has come to occupy the leading place he deserves among the precursors of numeracy in the study of society. We now know that in the 1690s he was the first contemporary ever to attempt to calculate more or less reliable population figures for England and Wales, over a century before the first formal census. His demographic data for family size and household structure lay the basis for our knowledge of what the French demographic historian Louis Henry has otherwise called 'the pre-statistical past'. Gregory King's 'Scheme of the Income and Expense of the Several Families of England calculated for the Year 1688' lays the basis of national income accounting perceived historically, and all modern attempts to explain the origins of economic growth start with King's figures. His contemporary William Petty coined the term 'political arithmetick' in the 1670s to refer to the numerical study of social facts, and it was John Graunt's *Natural and Political Observations on the London Bills of Mortality* which in 1662 pioneered a fundamentally new and original approach to what can legitimately, from the late seventeenth century on, begin to be called the social sciences.

The 'scientific revolution' of the seventeenth century is well known. The parallel revolution in the social sciences, however, is sometimes lost to view. The pioneering work of Graunt, Petty and King in the late seventeenth century is often seen as petering out in the eighteenth century, not to be revived until the Victorian statistics-gatherers of the mid-nineteenth century recreated in various statistical forms what the late seventeenth century has known as 'political arithmetick'. In the existing literature, there is a puzzling gap between the political arithmeticians of the late seventeenth century and the social statisticians of the nineteenth century, by which time the scientists of the Royal Society had begun to focus exclusively on the easy and straightforward observation of the natural world rather than the infinitely more complex study of man in society. It is my thesis, Mr. President, that this puzzling gap is to be explained by the conspiracy of silence which grew up around Joseph Crabtree. Crabtree, gentlemen, is in fact no less than the missing link between the political arithmetick of the late seventeenth century and the social sciences as we have known the field in the last hundred and fifty years or so.

My researches have thrown important new light on our whole perception of social thought in Crabtree's lifetime, and the history of this College and Crabtree's role in it, on which I have things to say that might almost amount to revelations, but for the moment I wish to address myself to the question you will be asking yourselves: how did Crabtree come to be connected to political arithmetic? And why has this crucially important theme not been previously drawn to the attention of Scholars?

Over twenty years ago, Tay noted Crabtree's connection with Malthus and Crabtree's propounding of the precursor of the oral contraceptive pill in 1797, and Tay also perceptively identified Crabtree as the author of the famous paper on the anatomy and physiology of Bulgarian women in 1804, but he did not develop the theme or answer the question I hear you all asking. I am able to suggest an answer. A turning-point in Crabtree's life — there were many, but I am almost inclined to argue *the* turning-point — occurred in 1769, when he first met Richard Price. Richard Price, the great dissenting minister who was a Fellow of the Royal Society and who spoke and wrote extensively on issues of morality, politics and economics, was then living at Newington Green — the Hampstead, as it were, of his day — and he gathered around him the most advanced and liberal thinkers of the time. Crabtree's *entrée* to the society in which he was to move for the rest of his life was achieved through Richard Price, to whom he was probably introduced by Joseph Banks, soon after returning from his voyage with Captain Cook. Crabtree was a precocious and receptive fifteen, and he was evidently captivated by the sophisticated conversation of Price's circle at Newington Green after the crudities of shipboard life so well

described by Freeman.

Richard Price himself was somewhat taken by the young Crabtree, and was soon having him running messages. Soon after Crabtree went to live at Newington Green, in April 1769, he was entrusted with the task of delivering to Benjamin Franklin the letter which Price had addressed to Franklin and which was subsequently published in the *Philosophical Transactions* of the Royal Society as Price's famous paper entitled 'Observations on the Expectations of Lives, the Increase of Mankind, the Influence of Great Towns on Population, and particularly the State of London with respect to Healthfulness and Number of Inhabitants'.

Crabtree — one of nature's historians — had long been in the habit of reading other people's correspondence, and had long mastered the art of opening letters without breaking the seal. Assuming that Price's letter to Franklin would afford him as much private pleasure as other correspondence he had intercepted, Crabtree eagerly found an early opportunity to open the letter, and I do not exaggerate when I say that what he read was to revolutionise his life. Expecting intimate disclosures of a sort to which he was already well attuned, Crabtree found instead a careful consideration of life expectancy, of birth-rates and marriage rates, comparative figures for immigration rates into London and Paris and Breslau and Rome, as well as Norwich and Northampton, all matters which appeared to an impressionable adolescent uniquely to connect the general and the individual and about which over the next few weeks he found himself dreaming dryly.

Thus it was that Crabtree discovered his life-long passion for political arithmetick. 'Only connect', Larrett has suggested is the motto for Crabtree scholarship, and in the years after 1769 Crabtree found himself making the sort of connections that were to lay the basis for the scientific study of what, to less perceptive minds, was mere individual variety. In the following years, Crabtree was responsible for a great many advances in knowledge, in terms both of empirical research and of theoretical developments, for which at the time he had to allow others to take the credit.

Let me give just one example. The studies which Crabtree embarked on under the inspiration of Richard Price were of most obvious practical application to the actuarial calculations of the burgeoning life-insurance companies of the time. The life-insurance companies had various rules of thumb on which they operated but, before Crabtree, they were working in the dark. Annuities were calculated on a basis that general usage would describe as 'random', but which in fact was anything but statistically 'random'. The only tables of life-expectancy were not fully reliable, and the effects were financially disastrous. The subject was not put on a proper basis until the publication in 1771 of Richard Price's *Observations on Reversionary Payments* in which, for the first time, the number of people who might have lived to a given age was accurately calculated, based on introducing the concept of 'fictitious lives'. 'The combination of two or more real lives' — I quote — 'will be very near the same as the combination of so many corresponding fictitious lives, and therefore an annuity granted upon one or more real lives is nearly the same value as an annuity upon a fictitious life'.

The revolutionary concept of 'fictitious lives' is usually ascribed either to Price or to Abraham De Moivre, the Protestant French mathematician who settled in England after 1688, famous in early eighteenth-century coffee-houses for his devastating ability at calculating odds for gamblers. De Moivre died in 1754, the year of Crabtree's birth, and along with Gregory King, he became one of Crabtree's heroes. Both De Moivre and Price are accredited with suggesting the actuarial calculation of 'fictitious lives', but which of us can doubt that this concept was in origin Crabtree's? It is true that direct evidence is lacking, but everything surely points in Crabtree's direction.

The circumstantial evidence is strong. 'Billy, do you know anything of mathematics?', Price said to his nephew William Morgan in 1771. 'No, Uncle, but I can learn' was recorded as Billy's famous but improbable reply. William Morgan became well-known as 'Actuary Morgan', the man who made the reputation of the Equitable. The imbecile Billy was clearly a cipher for Crabtree, the intellectual master of political arithmetick and the *éminence grise* of insurance, the true father of old-age pensions. The brilliant conceptualisation of 'fictitious lives' was to prove extremely profitable for Crabtree, despite the intellectual credit having been denied him for so long. Crabtree's actuarial contribution was privately amply acknowledged: half-yearly, from 1771, for the rest of his life, he was to receive agreeable slips of paper headed 'Bank of England', which went on to mention the sum of 500 guineas. Gentlemen, 1,000 guineas a year from the associated insurance companies, regularly paid for the rest of his life — how were they to know that the formulator of the concept of 'fictitious lives' was himself to live to be 100? It was this agreeable annuity which enabled Crabtree to undertake so much that has otherwise appeared difficult to explain or to comprehend.

Crabtree's meeting with Richard Price in 1769 also throws light on other episodes in Crabtree's life which

previous Orators have partially illuminated. At Newington Green, Crabtree met a man who was to become one of the closest friends of his life — Price's friend, known, when Crabtree met him, as Lord Shelburne. Through Shelburne, Crabtree was to become a friend of the Younger Pitt, as has been recorded, and it was also through Shelburne, as Gee's researches failed to show, that Crabtree was recruited as an undercover government spy.

Shelburne, attracted by the youthful Crabtree as well as by the growing mastery of his contributions to political arithmetic, introduced Crabtree to many of the leading political figures of the time. Crabtree was dazzled by Shelburne, who he soon came to realise was the great-grandson of William Petty, who was one of the founders of the supposedly almost forgotten 'political arithmetick' of a century before, the William Petty who had indeed created the very term. Crabtree took up Shelburne soon after he met him at Newington Green as eagerly as Shelburne took up Crabtree. Crabtree, it cannot be disguised, was especially taken by Shelburne's formal changes of name, and this could well have been a powerful influence on him. Shelburne was born William Fitzmaurice; in 1751 he took the name of William Petty; in 1761 he became Lord Wycombe; and in 1764 he succeeded his father as Earl of Shelburne. In 1784 he named himself after a suburb of Bath when he took the title of Marquess of Lansdown. Fitzmaurice: Petty: Wycombe: Shelburne: Lansdowne: five legitimate names that provoked Crabtree to an agitation of jealousy. It is this, surely Mr. President, that explains Crabtree's penchant for pseudonyms and aliases and *noms-de-plume* that appears to dog his life. When Crabtree went to Germany in 1779, to the well-known meeting with Goethe recorded by Larrett, Crabtree is mentioned as *Batty*, surely a poorly transliterated variant of *Petty*, the name he was affecting as that not only of his influential friend, but also of the great-grandfather he had come to revere of the friend he had come to admire. Germans in pronunciation can notoriously not distinguish between P and B and so *Petty* inevitably came to be recorded as *Batty*. This surely confirms Larrett's argument, as it does the brilliant thesis of dos Santos, who perceptively noted that Crabtree was recorded in Portuguese sources as *Berti*. After Crabtree in Naples in 1787 met Emma Harte, my distinguished kinswoman, the Germanisation of *Petty* into *Batty* became Italianised into Portuguese as *Berti*.

Soon after Crabtree returned from Germany in 1779, he introduced into English the word 'statistics', a word the first use of which is usually mistakenly ascribed to Sir John Sinclair in 1798, but this was, as Karl Pearson put it, 'a bold, bare-faced act of robbery' committed by the Scotsman. Crabtree was of course familiar with the work of Gottfried Achenwall and the Göttingen school of political economists, who introduced into German the word *Statistik* for the science of reasoning about the state in the 1750s, but Crabtree himself always preferred the good old English term 'political arithmetick', and it is ironic that during his lifetime the word 'statistics', which he himself had introduced into English, but rejected, came increasingly to be used for the field which he shaped. It was Crabtree who was responsible for publishing Gregory King's autobiography, unassumingly tucked away in J. Dalloway's *Inquiries into the Origin and Progress of the Science of Heraldry in England*, published at Gloucester in 1793 by an old school friend of Crabtree's. It was Crabtree who arranged for the first proper publication of Gregory King's pioneering calculations in George Chalmers's *Estimate of the Comparative Strength of Great Britain* in 1804. Crabtree felt an affinity with Gregory King, who published nothing under his own name during his lifetime, and did his best to restore King to his rightful importance alongside William Petty as one of the masterminds of modern times.

It was Crabtree too who was responsible for turning one of Gregory King's dreams into reality. In the 1690s, King had realised that in order to provide a proper empirical basis for systematic political arithmetic, it would be necessary to conduct a full census of the population. Crabtree, working behind the scenes with Shelburne and the younger Pitt, was able to overcome all the reactionary objections to a census and he was able to arrange for the first national census to be held in 1801. It was in 1797, when Crabtree was single-handedly conducting the pilot census at Porlock in Somerset, that he was surprised, questionnaire in hand, to find himself calling on his friend Coleridge, who was so taken aback by being asked how many persons he lived with, and how many children he had, that he notoriously used Crabtree's visit as an excuse for not finishing *Kubla Khan*. Is it not ironic, gentlemen, that Crabtree, himself no mean poet, should have been responsible for the symbolic triumph of Social Science over Art? Coleridge could not complete *Kubla Khan*, but Crabtree had done the groundwork that enabled the first census of 1801 to go ahead. Crabtree's subsequent work on the censuses of 1811, 1821 and 1831, much of it ascribed to his minion John Rickman, was to lay the foundations of demography as a discipline.

All this meant that when this College, at the time of its foundation in 1826 as the University of London, announced that among the chairs it proposed to establish was one of political arithmetick, Crabtree's claims on it were not to be easily overlooked. Crabtree, ever unwilling to step into the limelight, had his reservations about accepting. It is true, as Carter has shown, that in 1808 he accepted a chair at Vilno University in Poland, but he accepted on the basis that there were to be no duties whatsoever attached to the post. In the following year,

1809, as Hargrove has revealed, he was persuaded to accept the newly-established Readership in Criminology at Oxford, but he accepted on the basis that the duties were to be even lighter than those at Vilno, a stipulation that the University of Oxford found entirely acceptable.

But the new University of London was a different matter. Crabtree was very concerned that the establishment founded by his friends Campbell and Brougham, and supported by his old friend Bentham, should be a success. He played, as Scott has shown, a notable part in its foundation. Moreover, Crabtree in his years of maturity was very concerned that political arithmetick should thrive and grow as a subject. Gentlemen, Crabtree accepted the chair of political arithmetick here on the basis that as little publicity as possible should be given to his appointment. There was in any case a good deal of opposition to the appointment of so controversial a figure, and it was in everyone's interest that Leonard Horner, the first — and, as it transpired, the only — Warden, decided that Crabtree should become the first Professor of Political Arithmetick *in petto*, as popes had sometimes created cardinals whose appointment it would be unwise to disclose. Mr. President, Crabtree's appointment as Professor of Political Arithmetick *in petto* has remained undisclosed to this day.

I regret to have to say that I have not been able to trace a copy of Crabtree's inaugural lecture, strikingly entitled 'Sex among the Dead', but it evidently created something of a stir among the fashionable audience to whom it was addressed in 1828. The classes in 'applied political arithmetick' which Crabtree subsequently arranged did little to disarm his critics. The College carefully avoided any mention of Crabtree's activities in its official publications, but some of Crabtree's researches were so seminal that a degree of notoriety was inevitable. In 1830 the problems boiled over, and when the College attempted to sack both Crabtree and Granville Sharp Pattison, the Professor of Anatomy, the first student riot and the attendant polarisation of opinion among the professors provoked a crisis, only papered over by the resignation of Leonard Horner as Warden. Crabtree's role in these troubled times was suppressed by Hale Bellot, and I was persuaded by John North that the matter was too sensitive to be dealt with in Harte and North.

After 1830, Crabtree's position in the College was increasingly equivocal. He had been appointed Professor of Political Arithmetick *in petto*, in Horner's breast, but Horner had had to go. He had no successor. Crabtree's classes, despite not being listed in the *Calendar*, were attracting embarrassing numbers of students, keen students of 'applied political arithmetick' in its various aspects, but they were increasingly a potential threat to the College's attempt to re-establish its insecure reputation. Rumours leaked out that persons of the female sex began to be involved. John Elliotson, Crabtree's choice as Professor of the Theory and Practice of Medicine from 1831, began to toy with experiments in mesmerism, as Clarke has shown, and Crabtree's activities with the Okey sisters became the subject of widespread disapproval.

At all events, by then Crabtree had undergone a change which it is my final duty to reveal to you. No Oration in recent times has created so much controversy as that delivered ten years ago by Tattersall, when he revealed that Crabtree underwent an unhappy operation in 1816. I do not wish to dwell on the painful experience which followed. Not all Scholars have accepted what Tattersall claimed Byron told Scrope Davies Shelley had told him Keats had said about what happened to Crabtree. Nevertheless, there is a certain amount of evidence to suggest that Crabtree's restless sexuality was obliged to flow in alternate channels after 1816. The evidence is that the flow was not unabated, but it seems likely that Crabtree, especially when conducting his 'applied political arithmetick' classes after 1826, found himself somewhat restricted in being a sort of footnote to Malthus's otherwise limited varieties of 'positive checks to the increase of population'.

Crabtree found himself increasingly musing about Jeremy Bentham. It was well known in Benthamite circles that Bentham proposed to leave his body for 'the greatest good of the greatest number'. Bentham had long declared his intention that 'mankind may reap some small benefit in and by my decease'. His will directed his medical disciple, Southwood Smith, to 'take the requisite and appropriate measures for the dispersal and preservation of the several parts of my bodily frame ...'. Gentlemen, Crabtree knew what parts he was interested in. When Bentham eventually died in 1832, Crabtree knew that he had to get Southwood Smith to move fast. Bentham had directed that his skeleton was to be formed into an 'auto-icon' and dressed appropriately, while his organs were 'to be preserved in whatsoever manner may be conceived to render their preservation the most perfect and durable ...'. Crabtree was home, if not dry. Gentlemen, in June 1832, Southwood Smith performed the first known unrecorded organ transplant operation. It was done, Mr. President, without the benefit of your own professional expertise: alcohol played its part, as it did throughout Crabtree's life, but other forms of anaesthetics were as yet unknown.

In Southwood Smith's published account of the dissection of Bentham's body, any reference to Bentham's most vital organ is entirely omitted. The omission is striking. Which of us can therefore doubt that Crabtree's hand

cannot have been far away? When presented with a copy of Bentham's *Table of the Springs of Action*, Byron had said, 'What does the old fool know of springs of action? My — has more spring in it'. Crabtree, it is true, might well have wished that his own 'small benefit in and by my decrease', as Bentham had put it, might have been larger. But after 1832, Crabtree was re-enabled to play a part in his own way of acting on the principle of felicity, his own way of spreading the greatest happiness to the greatest number.

In his later years, Bentham had been in the habit of employing a succession of young men to sleep in his chamber to act as amanuenses in case he needed to make a note in the night. There is no suggestion, Mr. President, that Bentham's organ was much exercised, or indeed ever exercised. But Crabtree's reputation after 1832 suggests that it was still in working order. The absence of proof does not in this case mean proof of absence. There are two further pieces of confirmatory evidence that in 1832 Crabtree had a Reform Act of his own. First, there was that sudden outburst of creative algebraical energy to which Lighthill so brilliantly drew our attention. Secondly, after 1832, there closed one of the most notorious, if poorly documented, of those secretly influential locales in the louche environs of Cleveland Street behind UCH, the establishment known since 1816 as 'Your Dildo or Mine'. No further references are to be found, Mr. President, of this establishment after 1832. Crabtree's reputation, however, became more dubious than ever.

The increasing rate of absences of references to Crabtree in the surviving writings of his friends after 1832 becomes more and more evident. The historian cannot but pick up the scent of a cover-up, perhaps begun by well-intentioned friends with his own best interests at heart. Sutherland, in 1954, wondered whether the neglect of Crabtree amounted to a 'conspiracy of silence'. How true his words were. As an earnest drive for Victorian respectability settled on the College, Crabtree seemed to many to be left over from an earlier, more raffish period, and a potentially unpredictable source of embarrassment. There can be no doubt that there was an orchestrated campaign to marginalise Crabtree, and it began, I regret to have to say, in this College.

A glimpse of how Crabtree was treated can be obtained by looking at what happened to that famous dining club which Crabtree had established together with Richard Price and Lord Shelburne in 1788, after Price's sermon before the Society for Commemorating the Glorious Revolution of 1688. The club's convivial annual meetings provided Crabtree with some of his happiest moments. In 1838 he joyfully arranged its jubilee meeting at University College, but the occasion was subsequently banned by the College authorities, and the club was driven underground by the hard cold shoulders of the College. No further recorded meetings were held until, in the more tolerant climate of the early 1950s, open meetings could be resumed.

As President of this Foundation, Sir Ifor Evans once spoke of the time when W.P. Ker nearly referred to Crabtree in a lecture. One could add references to the two or three occasions when Karl Pearson nearly referred to him. I believe that forensic evidence would show that it was Sir Gregory Foster's scissors which, early this century, excised all reference to Crabtree from the College archives. Neither A.F. Pollard nor R.W. Chambers ever consciously referred to him. Indeed, in his memorable centenary lecture in 1927, Chambers could define the humanities as 'those studies which have no affinity with mathematics'. Mr. President, it was Crabtree's darkest hour.

Crabtree was in many ways his own worst enemy. One regrettable by-product of the campaign against Crabtree was that an unspecific odour of disrepute gathered around political arithmetick and spread to the social sciences more generally. Dare I suggest, Mr. President, that in some quarters of this College traces of this disparagement survive? But which of us does not feel that the social sciences should be approached in Crabtree's grand manner, that linking of the literate and the numerate, which transcended the Arts and the Sciences? Which of us does not regret that stamping out the Crabtree tradition here led to the foundation of the London School of Economics by that lesser, meaner-minded midget Sidney Webb, a very non-Crabtree sort of person?

I have stuck to the facts that are firmly based in the sources. But I end with a question. While reading the *Annals of the Royal Statistical Society* to see with what skill Bonar and Macrosty had written Crabtree out of the Society's history, I came across this photograph with its caption (see page 319), which strongly suggests that it is indeed a photograph of Crabtree, a vigorous but not unequivocal figure, gentlemen, then in his late 90s. I hope, Mr. President, a historian may be allowed an occasional moment of speculation to relieve the burden of gathering so many facts. So as I resume my seat I ask: do we not see before us a picture of Crabtree, the greatest of political arithmeticians?