TONY WRIGLEY

Edward Anthony Wrigley

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Summary. Tony Wrigley played a central, indeed pioneering, role in determining how the demographic history of England would be measured, described and explained between the middle of the 16th century and the mid-Victorian period. Furthermore, he situated his analysis of demographic history within another element of his career, as an economic historian who made unique and fundamentally important contributions to the understanding of how England moved from being a second rank European economy to the most heavily urbanised and industrial society globally. He maintained a striking momentum in his research and publication, whilst having a significant impact on a remarkably large number of institutions to which he belonged and whose development he nurtured. He was a truly interdisciplinary social scientist who held academic posts in UK university departments of geography, demography and history. He displayed a noteworthy capacity to collaborate with others, whether in group-based research or working as a chair or president at the helm of numerous institutions (including President of the British Academy 1997–2001). He was always careful to be well briefed, reaching deeply considered views which he presented with great clarity and not a little determination. He remained an intellectually driven figure throughout an academic career lasting almost three quarters of a century, which brought him notable public recognition. Nonetheless he never lost a noteworthy modesty, and maintained a distinctive lightness of touch in debate that was a key feature of his personality.

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Edward Anthony Wrigley

Tony Wrigley's roots lay either side of the Mersey in south Lancashire and north Cheshire. He was born in Chorlton-cum-Hardy in Greater Manchester on 17 August 1931, the second child of Edward Wrigley and his wife Jessie. He had an elder sister and a younger brother. Both his father, born in Worcestershire, and his father's father were Unitarian ministers, the latter largely based in the West Midlands. Jessie's father had been born in Devon at the height of the agrarian depression, and had moved in the late 19th century to Rugeley in Cannock Chase to seek work as a coal miner. Jessie was one of eight children, but her talents enabled her to excel at grammar school and to graduate with distinction from the University of Birmingham in 1914, before going on to be a schoolteacher, rising to become a head teacher by her late twenties. She had married Edward Wrigley in Wandsworth in 1923, who she met while a student and he a minster in Stalybridge. Both Edward and Jessie were active members of the Labour Party. Jessie had to quit as a teacher on her marriage, but after Edward's death in 1953 she returned to school teaching. She died in 1976, aged 84.

Tony experienced a somewhat peripatetic childhood, both because of his father's profession and the impact of the Second World War. When war broke out Tony was eight years old, and his father was the minister at the Domestic Mission, Mill Street, Liverpool, situated close to the docks in a deprived neighbourhood where poverty had been exacerbated by the Great Depression of the 1930s. Tony's mother taught Sunday School at the Domestic Mission in class sizes often approaching 100 pupils. The Domestic Mission also pursued a wider educational outreach and annually took children, including Tony and his siblings, from Liverpool on vacations to Great Huclow in the Derbyshire Peak District, where there was a very significant Unitarian presence. Tony's own children maintained this family tradition. At the outbreak of the war the Wrigley family resided in Sydenham Avenue in the Sefton Park area of Liverpool, in what by the standards of the time was a relatively comfortable and pleasant environment. Heavy bombing of Liverpool, the key port linking Britain with the USA, did not begin until the autumn of 1940. His sister Rachel was the first member of the family to be evacuated and went with her school *en masse* to Shrewsbury. Tony and his younger brother Nick were moved initially with their mother to Llanrhaeadr in Denbighshire, but they were soon relocated to another house and family for a few months. Jessie soon returned to Liverpool, and the boys then went to Graigfechan, also in Denbighshire, to reside with a Mrs Davies whose first language was Welsh. The two brothers remained with her until 1944. Initially they attended a local school where the teaching was in Welsh, but eventually the number of evacuated children, mainly Liverpudlians, expanded so that a school based in a local chapel was set up exclusively for them to be taught in English.

Tony's memories of the time spent in Mrs Davies' household were generally warm, and in later life he frequently recalled with approval the relatively egalitarian nature of Graigfechan's society, set within a rural community lacking a squire and Anglican parson

or an overwhelmingly dominant landowner, with their associated agricultural labourers and household servants. Mrs Davies' household was resolutely focused on the chapel and frequent attendance at its services resulted, although perhaps not a major change of Tony's habits as they had been in Liverpool. The village itself was self-centred, with minimal links to the nearby town of Ruthin. The cottage possessed no hot water or inside lavatory and lighting was by oil lamp, but food rationing was never an issue given the abundance of rabbits along with what could be gleaned from fields, hedgerows and orchards.

Life in the countryside was much to Tony's liking, particularly the freedom to roam and the opportunities to become acquainted with the abundant bird and animal life. He struck up a friendship with the distinguished naturalist Norman Ellison, living locally and himself a migrant from wartime Merseyside, then in his late forties and well published and later to be a regular presenter on BBC's Children's Hour. Ellison's encyclopaedic knowledge of the natural world seeded in Tony an enthusiasm for bird watching, leading Tony, in these austere times, to save his limited pocket money to purchase what was then the bird watcher's bible, H.F. Witherby, F.C.R. Jourdain, N.F. Ticehurst and B.W. Ticker, *Handbook of British Birds* (5 volumes; London, 1938–41). It is hard not to regard this longstanding interest as having a profound influence on how he came to perceive the interactions between species (including humans) and their material environments that were always so important to him.

Notwithstanding what may have been rudimentary school-teaching, provided in classes with little age-differentiation, Tony was entered for a Lady Margaret Bryce scholarship examination to gain admission to the Liverpool Institute. In fact, though he was awarded that scholarship and spent a brief period at that school, his father moved from Liverpool late in 1944 to a be minister at the Dean Row and Styal chapel in Cheshire, while the family resided in nearby Wilmslow.[1]

There is little doubt that Tony felt that a substantial void had been created for himself and his brother in their relationship with their older sister Rachel and their parents because of the protracted war-time separation. Rachel had already left home for Manchester University before her brothers' return from Wales, although she eventually moved back to the area and became a leading member of the Dean Row and Styal chapel community, where she was for many years a Sunday school teacher, as her mother before her. Tony left for university in 1949, while his father died in 1953. Yet his relations with his mother were clearly fulfilling and especially influential. She most definitely was a force fashioning and encouraging his academic orientation. Indeed, that influence was formidable since all three Wrigley siblings went on to higher education.

[1] The above account of Tony's early life owes much to information that Tony's oldest daughter Marieke collected in interviews with her father, and now lodged with his personal papers in the possession of Tamsin Wrigley.

Having moved to Wilmslow, Tony entered The Kings School Macclesfield, where his all-round achievements were notable. His school reports, which abounded with his teachers' recognition of his extremely high academic qualities, also leave no doubt that he was an allrounder excelling in chess, cricket, tennis and some noteworthy triumphs in long and high jump. He later recalled that he wanted to include Mathematics in his Highers but the school's formidable headmaster, T.T. Shaw, despite the protestations of his father, refused that request.[2] His teachers clearly recognised his mathematical talents, based on their reports extending into his first year of sixth form studies, but for his Highers he was straightjacketed into a subject combination of History, Geography, English and French, and certainly regretted that his education in Mathematics was limited. He did nonetheless acknowledge the inspiration gained from his history teacher, Ron Clark, whose distinctive wartime experiences left their mark on Tony, and for many years he maintained regular contact with his old teacher. Tony had his plans clearly set on an undergraduate career in Oxford, but in December 1948 he entered, principally for the experience that a dry run offered, the Cambridge entrance examination to read History. In fact, he gained a scholarship to read History at Peterhouse, which he took up in October 1949, only two months after his 18th birthday. There was no 'gap' year, nor, very unusually for the times, national service.[3]

When Tony entered Peterhouse the college was especially well endowed with historical luminaries, three eventually knighted and two to become Cambridge regius professors—namely Herbert Butterfield, David Knowles, Dennis Brogan and Michael (Munia) Postan. He became particularly close to Postan, his acknowledged mentor as professor of economic history, but he also spoke warmly of the individual one-to-one teaching of Brian Wormald and Dennis Mack Smith, the latter also his undergraduate tutor. All these individuals would eventually be his colleagues in the Peterhouse fellowship. At Peterhouse Tony soon expressed a wish to move to Geography Part II after completing History Part I at the end of his second year, since he clearly had already well-developed ideas about how his academic interests inter-meshed. The college, which had no geography fellow, agreed to such a shift only on the condition that he secured firsts in both parts of the History Tripos. That he did in 1951 and 1952, being the only Petrean on the History first-class honours lists, which in both years contained among others the names of John Elliott, John Prest and Douglas Hurd. In 1952 Patrick Collinson joined that same group of firsts at Part II, thereby forming a cohort the members of which would go on to be a distinguished British politician and some of Britain's leading historians, if the award of knighthoods and their appointment to Oxbridge regius chairs are

[2] Interview of E.A. Wrigley by Alan Macfarlane, 23 July 2007. Currently available at https://sms.cam.ac.uk/media/1139340

[3] It is not known why Tony did not undertake national service, but, given his health was good, perhaps he was a conscientious objector. We are grateful for the advice of Professor Richard Vinen on this point.

employed as yardsticks of achievement. In 1953 Tony was once again on a first-class Tripos list but this time for Geography Part II. Obtaining a triple first like this was and remains highly unusual.

His great appreciation of the teaching that he received from Brian Wormald and Dennis Mack Smith is reflected in the choice of questions Tony made in his Part I examinations based on the work in his first two undergraduate years. His examination papers, taken as an undergraduate, are annotated and show the questions he answered. It would be revealing to know how he tackled the question in the paper on 'The Economic and Constitutional History of Great Britain and the British Empire after 1688' which was posed in the form 'Can it be said that the increase of population played any substantial part in the agricultural and industrial change of the second half of the eighteenth century?' By Part II we can begin to see a definite consolidation of his interests since he took as his special subject 'The British Economy during the Napoleonic Wars'. At Part II Geography he took two papers in 'Historical and Political Geography' and three papers in 'Economic Geography'. In Historical Geography his interests were perhaps crystallising further, since he answered questions on industrialisation in the West Midlands in the 18th century and on the early shift from water- to steam-driven cotton mills in early 19th-century Lancashire. There was also an observable focus on population-related matters reflected in his choice of questions in 'Economic Geography', such as that on demographic growth and resulting pressures on land use in Malaya, and the best ways of measuring overpopulation in Egypt.

It would however be wrong to perceive Tony as an undergraduate who focused solely on academic pursuits. In a reference written for him to support his application for a fellowship in the United States, by his tutor Mack Smith early in 1953, it is stated that 'Quite apart from his work, I should call him the outstanding undergraduate of his year. He has been Secretary of Tennis in the College, has regularly played cricket for the First Eleven, has represented it in squash and chess. This year he has been elected by the junior members as president of their common room.'[4] From that reference we can already detect early signs of Tony's ability to multi-task with no damaging impact on his academic momentum.

In the autumn of 1953 he began research for a PhD, but spent his first post-graduate year away from Peterhouse as the beneficiary of a Volker Fellowship at the University of Chicago's Committee of Social Thought, then headed by the prominent economic historian John Nef. Nef along with the University of Chicago's mercurial young president Robert Hutchins had founded that committee just over a decade earlier as the United States entered the Second World War. Their aim was that study and research should be based upon the broadest background knowledge stretching across the humanities and

[4] Letter in the possession of Tamsin Wrigley. Hereafter 'Wrigley correspondence'.

social sciences, with a deep commitment to interdisciplinarity. Tony clearly had a developing interest in the role played by coal in stimulating past European industrial development. But his hopes that he might gain some intellectual inspiration from John Nef, who had completed at that date the most detailed study of the early development of the coal industry in England, were not fulfilled as Nef was preoccupied with coming to terms with his wife's death. Tony does recall the stimulus particularly provided by the seminar he attended that was run by Frederik Hayek, as well as exposure to other disciplines he had previously never encountered.[5]

The University of Chicago and the Committee of Social Thought opened his eyes to an academic world where History did not stand in such a domineering position relative to many other disciplines as it did in Cambridge. He soon discovered that Sociology, especially Urban Sociology, Anthropology and indeed Geography, which had been a graduate subject in Chicago since 1903, each had high status. Contrastingly, in Cambridge Sociology had no formal presence whatsoever, and Anthropology was still somewhat old fashioned, combining the study of material culture, functionalism and in particular colonial administration. He also discovered that the Harper Library at the University of Chicago, although only established in the 1890s, had acquired rich holdings in 19th-century European social thought and official publications central to the kind of research he wished to pursue which were largely absent from the shelves of the University Library in Cambridge.

Tony's fourth-year undergraduate submersion in Part II Geography at Cambridge already reflected an emerging commitment to regional and economic geographical analysis in the approach he would take to his doctoral research, notwithstanding the fact that it was pursued within Cambridge's History Faculty. His PhD dissertation, which on his return to Cambridge was completed in less than three years, was initially supervised by Postan who, though primarily a medievalist, had taught a special subject on British economic history of the late 19th and early 20th century with John Habakkuk, and in 1952 had published the volume on war-time production in the official British history of the Second World War. Postan was steeped in European history and habits of mind, and had inspired Tony since he attended his lectures as an undergraduate, and if Postan lacked expertise in his area of research, Tony relished the fact that he was able to say something interesting about almost any topic.

Tony described his PhD as essentially an exercise in technique that arose from his strongly held position on the need to rectify the shortcomings of the study of past society created by an undue focus on national units.[6] His intention was to reveal the analytical

[5] Interview of Wrigley by Macfarlane.

[6] E.A. Wrigley, 'Coal Production and the Growth of Industry in the Coalfields of N. W. Europe in the later Nineteenth Century', PhD thesis (Cambridge, 1957).

advantages that could flow from the adoption of a regional approach. As he put it in the book of the thesis, 'the tendency … to think in terms of national areas as the natural units for study, may be a severe handicap to the understanding of some aspects of economic growth and demographic conditions. Neither the similarities across national frontiers, nor the dissimilarities within them are always given sufficient attention.'[7] Such views contrasted markedly with the national accounts framework, which was then a cutting edge of economic history, as well as an older tradition that emphasised the significance to economic performance of national policies such as mercantilism. It also bore witness to the profound influence of the geographical analysis encountered in his last year as an undergraduate.

In investigating the relationship between industrial development, growth of population and their determinants, he chose to study an area and period for which it was possible to undertake an extensive regional analysis using for the most part a set of common source types and data sets. He selected the region of what he called the Austrasian coalfield, extending from the Pas de Calais through the Sambre-Meuse valley as far east as the Ruhr – a coalfield region that spread across three nation states each with distinctive economic histories and institutional frameworks. He showed, based on the evidence relating to coal output, even though the field was broken politically into three national sections, that in the second half of the 19th century it was the distribution, physical characteristics and accessibility of coal reserves which determined the growth of coal production uniformly throughout the field. Where geological conditions were favourable, the output resulting from the investment of each unit of capital was high, prices were low, growth rapid and productivity good.

In the absence of consistent data relating to industrial output and the composition of industrial labour forces, he was obliged to resort to population growth as an acceptable substitute for a direct measure of the physical volume and value of industrial production. The approach had been used in an early 20th-century study of the French Nord by the regional geographer Raoul Blanchard that caught his attention, and Tony applied it more extensively with several methodological refinements to two French, two Belgian and four German areas within the coalfield.[8] He constructed what he termed a measure of the putative industrial population of each area, charting remarkably close congruity between increases in it and coal production in all the political divisions, which he saw as consistent with arguments famously made a century earlier by W.S. Jevons.

However, Tony was not content to leave the inter-connections at this point, but wished to disentangle the demographic processes that underpinned the population trends.

[7] E.A. Wrigley, *Industrial Growth and Population Change: A Regional Study of the Coalfield Areas of North-West Europe in the later Nineteenth Century* (Cambridge, 1961), p. ix.
[8] Raoul Blanchard, *La densité de population du Département du Nord du XIXe Siècle: étude de dix recensements de population* (Lille, 1906).

Such work required tuition in the use of technical demographic skills unavailable in Cambridge, so Tony came under the supervision of David Glass who was then Britain's leading demographer and based at the London School of Economics. It is also noteworthy that Glass himself had read for the BSc Econ degree with Geography. However, Glass's geographical interests were not sustained, and his research was ultimately drawn into demographic matters for which he secured his lofty reputation with the publication of *Population Policy and Movements in Europe* (Oxford, 1940). No one in Britain would have been better equipped to oversee Tony's work using 19th-century European demographic statistics.

While Tony's dissertation won the Ellen McArthur prize in 1958, the resulting book *Industrial Growth and Population Change* contained a significant enhancement of the original doctoral demographic analysis in the final two chapters that formed the largest part of the book. That demographic analysis, undoubtedly facilitated by Glass, was significantly more sophisticated and technically advanced than most published previously. The focus in these chapters was largely on demographic comparisons drawn between the French and German parts of the coalfield, since Belgian data were unsatisfactory for his needs. As Tony admitted, the search for the mechanisms of demographic growth was a more demanding test of the efficacy of the regional focus adopted in earlier chapters. His approach was premised on the need to have information on other regions as controls, in addition to the coalfield proper, so he extended his demographic investigation to French and German agricultural areas immediately adjacent to the coalfield, other more remote agrarian areas, and the large urban populations of Paris, Marseilles and Berlin.

It was reassuring to Tony, supportive of his basic argument, that he found life expectation to have been the same in areas of France and Prussia experiencing similar economic and social conditions, notwithstanding the fact that national expectation of life in France was considerably higher than in Prussia. Tony showed that most of the population growth in the coalfield areas came from natural increase, as was the case in rural France, while the growth of the great cities and port towns in both France and Prussia required significant in-migration. In this innovative section of the book there are frequent sightings of concerns he later explored as a decidedly more self-conscious historical demographer. These varying geographical patterns already indicated to Tony that any overarching model of the Demographic Transition, as it was then being formulated, especially in the burgeoning postwar demography and sociology departments in North American universities, would need very substantial modification when allowances were made for a variety of European regional settings and the analysis of data at a range of geographical scales.

In 1956, just before his PhD was completed, Tony was appointed as a demonstrator in the Department of Geography. His prowess, based on a Part II Geographical first, the regional orientation of his historical research and its undeniably statistical bent, had

caught the attention of a Cambridge University department located in the School of Physical Sciences which at the time had a strong scientific and physical geographic orientation and was headed by a distinguished coastal geomorphologist, J.A. Steers. In addition, a remarkable glacial scientist, W. Vaughan Lewis, a Trinity College mathematics graduate also in that department, was pursuing mathematically driven research. Until his untimely death in a car crash in 1961, Vaughan Lewis was a highly energetic promoter of quantitative ideas and methods, much influencing Tony. In 1958 Richard Chorley was appointed a demonstrator in the department, fresh from spells in Columbia and Brown Universities where he had become well versed in the application of quantitative approaches to landform evolution as well as systems modelling. A year before Chorley's arrival, Peter Haggett, a Cambridge geography graduate in 1954, the year after Tony, returned as a demonstrator in the department in 1957, after two years at University College London where he had promoted quantitative methods in his teaching. Haggett was promoted to lecturer subsequently, as was Tony in 1958, when he was simultaneously elected to a fellowship at Peterhouse. An innovative cell of young advocates for methodological and conceptual change was then in place, and Steers in a noteworthy benign fashion enabled them to carry out a true revolution in the way in which Geography was conceived and particularly the methods used to research it. Tony was clearly part of that Cambridge revolutionary movement which made some very distinctive contributions to the transformation of the ways Geography was practised and at the same time gained a significant enhancement of its academic standing.[9] He was fully aware of the contrast between the traditional toolbox of historians and the extent to which quantitative methods and modelling tools were increasingly welcome in Geography. It is in that context that it becomes readily apparent why Tony felt that he had been done a disservice when prohibited from taking Mathematics in his Highers a decade previously.

In the late 1950s the Cambridge University's Extra-Mural Board based at Madingley Hall encouraged summer schools. Beginning in 1963, Haggett and Chorley used this vehicle as a means of diffusing their new approaches to sixth form teaching. Tony was a prominent lecturer in these annual courses, contributing two significant essays to a classic collection arising from the courses. One of these concerned developments in geographical philosophy which is noteworthy for what it has to say about the changing place of the 'region' in geographical ideas and practices, and for how he framed his reflections, as he so frequently did, within a comparison he drew between approaches that were appropriate for assessing conditions before and after the industrial revolution.[10] He could observe the clear relevance of the approach that the pre-eminent French

[9] Peter Haggett, 'The Local Shape of Revolution: Reflections on Quantitative Geography at Cambridge in the 1950s and 1960s', *Geographical Analysis*, 40 (2008), 336–52.

[10] E.A. Wrigley, 'Changes in the Philosophy of Geography', in R.J. Chorley & P. Haggett (eds), *Frontiers in Geographical Teaching* (London, 1965), pp. 3–20.

geographer, Paul Vidal de la Blache, provided from the 1890s to *c.* 1920 in his own regional studies and those of his many disciples. That approach, when taken to situations before the industrial revolution, refused to position the physical and social environments of man over and against one another. The setting within which an intimate connection between man and land had grown up over the centuries formed a unit, a 'region', which Tony regarded as a proper object for geographical study in that type of economic setting. Of course, such an approach prioritised the 'local' which was fundamentally rural, with the bulk of the population either working on the land or serving those that did. Tony was much taken with the arresting imagery that Vidal used in his *Tableau de la géographie de la France* (Paris, 1903) regarding the continuity of essential traits of such societies. Vidal's regional approach was an early evocation of 'histoire immobile' which inspired early members of France's innovative and influential *Annales* School. It emphasised how the surface of a pond could be ruffled by a passing breeze so that the eye of the watcher is unable any longer to see the pond's bottom, but as soon as the wind died down and the waters were again calm, the bottom once more became visible. In just the same way, the advent of war, famine, pestilence and rebellion might appear to disrupt a region and throw its routines into chaos, but only temporarily since with the crisis over the long-established pattern of life would reassert itself. Tony viewed Vidal's as a legitimate and powerful vision of the functioning of societies through most of European history, but realised, as had Vidal, that it was a vision which could not cope with the industrial revolution and its aftermath. In the 1980s he came to the same conclusion regarding Malthus.

Tony's interest in the division separating the population geography of society before and after the industrial revolution once again served as an organising concept for the second essay based upon another Madingley Hall lecture.[11] In reflecting on pre-industrial population as largely distributed relative to the distribution of land that was of good quality, he invoked the model offered by Frédéric Le Play in 1855 in which he formulated three heads under which information should be brought together and analysis undertaken: Place, Work and People, or physical environment, material technology and economic and social organisation, including the size and distribution of population.[12] However, reflecting on these issues from the contemporary perspective of 1965 it might, Tony claimed, be more accurate to invert this three-part sequence and to begin with population itself to explain the distribution of both secondary and tertiary employment. He suggests that this characteristically modern locational pattern can be most clearly seen in countries which escaped the 19th-century industrial revolution but had nonetheless

[11] E.A. Wrigley, 'Geography and Population', in Chorley & P. Haggett (eds), *Frontiers in Geographical Teaching*, pp. 62–80.

[12] M.F. Le Play, *Les ouvriers européens: études sur les travaux, la vie domestique et la condition morale des populations ouvrières de l'europe; précédées d'un exposé de la méthode d'observation* (Paris, 1855).

developed a full range of manufacturing industries. He makes considerable use of mid-late 20th-century Australia, where the relatively small number of state capitals contained three-quarters of the nation's industrial production and significantly more than half of the total national population.

Tony's first paper in a refereed academic journal was published in the *Economic History Review* in 1962, showing again his preoccupation with the economic transitions before and during an industrial revolution.[13] The issues addressed in this paper were such that they could just as appropriately have appeared in a geographical as opposed to an economic history periodical, though Tony rarely published in the former. Tony's geographical interests and organising principles emerge as prominent features throughout the paper, employing a significant number of geographic concepts. It engages with the issue of land-use competition between acres devoted to food production and those needed to supply such key raw materials as wood, wool and leather. Such competition Tony viewed as absent in the production of inorganic mineral materials. While the tension might to a degree be temporarily assuaged by a rise in agricultural productivity, this could not be a long-run palliative. Another difference of great importance arises between raw material supply in organic and inorganic economies, and is reflected in the spatial difference in the production process in the two settings. Inorganic, mineral-based, output is, he argued, unambiguously *punctiform*, and vegetable and animal production is *areal*. Hence the demands of a transport system shifting the output of a geographically constrained coalfield are quite different from those involved in moving the same weight of grain from an area extending vastly further. The incentive to invest in canals and railway lines and the resulting profits, he argued, were greatly enhanced in a punctiform system of production.

An areal system and the problem of transportation of organic products Tony saw as successfully modelled early in the 19th century by von Thünen through resort to concepts embodied in the pattern of land use that would be encountered on a flat plain surrounding a central city. Several others of his undergraduate peers were similarly influenced at much the same time, including Michael Chisholm and Peter Hall.[14] His thinking here was also heavily influenced by the new approaches in human geography in the late 1950s and early 1960s, notably the work of his colleague Peter Haggett whose lectures were to form the basis of his influential book, *Locational Analysis in Human Geography* (London, 1965). Tony received a particularly warm acknowledgement in the preface of that book for his critical support in helping to bring Haggett's study to fruition.

[13] E.A. Wrigley, 'The Supply of Raw Materials in the Industrial Revolution', *Economic History Review*, 15 (1962), 1–16.

[14] Notably, Johann Heinrich von Thünen, *Von Thünen's "Isolated state": An English Edition of Der isolierte staat*, trans. Carla M. Wartenberg, ed. Peter Hall (Oxford, 1966). Hall also obtained a first in Geography at Cambridge in the same year as Tony.

Following the period during which his PhD thesis was completed and revised for publication, Tony with his Cambridge academic post firmly lodged in Geography, was making a significant mark in that discipline. His preoccupation with the demographic and economic changes associated with the industrial revolution is clearly evident in his contributions. Why though did he come to focus his interests upon the population history of England before and during the industrial revolution? His research on the mid and late 19th-century demography of Prussia and France was enabled by the availability in those settings of both census returns and vital statistics (of birth/baptism, marriage, and death/burial), what Tony termed the 'stocks' and 'flows' needed to create accurate measures of mortality, fertility and nuptiality. The absence of data of that quality in England before the first census in 1801 or the introduction of civil registration in 1837 caused him to note that 'no detailed knowledge of the demographic mechanisms in operation during the early stages of the Industrial Revolution can be obtained. By the time that such knowledge is possible each of the chief English industrial areas already had a considerable experience of modern industrial conditions behind it'. While he would eventually come to a very different view of the potential of English evidence, in 1959 he appeared confident that he could overcome these evidential lacunae using data available during the late 19th-century industrialisation of France and Prussia, and that this information was 'not only of interest in itself but also for comparison with what is known or suspected about conditions in England at an earlier date'.[15]

Tony made no reference in his work published up to and including 1961 to the possibilities of utilising parish registers for demographic history that was being pioneered in France. An important step had been taken by the economic historian Jean Meuvret in a 1946 paper in the new house journal, *Population*, of the recently formed government-funded and Paris-based centre for demographic research, the Institut Nationale d' Etude Démographique (INED).[16] Far more intricate and significant use of parish registers was displayed by Pierre Goubert in 1952.[17] This study made estimates of infant mortality, mortality by age and some rudimentary attempts to derive marriage rates and births per marriage. Louis Henry, holding a relatively senior position at INED and less focused on historical concerns, responded critically to Goubert's paper.[18] Nonetheless, at that point French scholars had clearly shown that parish registers might be highly valuable in exploring past demographic behaviours.

[15] Wrigley, *Industrial Growth and Population Change*, pp. 97–8.
[16] Jean Meuvret, 'Les crises de subsistence et la démographie de la France d'ancien regime', *Population* (French edn), 1 (1946), 643–50.
[17] Pierre Goubert, 'En Beauvaisis: problems démographique du XVIIe siècle', *Annales: Histoire, Sciences Sociales*, 4 (1952), 453–68.
[18] Louis Henry, 'Une richesse démographique en friche: les registres paroissiaux', *Population* (French edn), 8 (1953), 281–90.

How Tony encountered developments in French demographic history is unclear. Goubert's work immediately caught the attention of John Habakkuk who in a seminal paper made a strong case for fertility rises to have driven 18th-century population growth in England.[19] He was quick to see, because of Goubert's example, the potential of parish registers as a demographic source. Inspired by French research he called in Britain for 'a generation of collaborative work on parish registers and other local sources'.[20] But it is also noteworthy that David Glass, in a paper on population movements in England and Wales between 1700 and 1850 that had been prepared for the Statistics Committee of the Royal Commission on Population in 1945 but remained unpublished until 1965, had advocated apparently before the French initiatives the use of parish registers among other sources to 'gain some idea of mortality, marriage habits and marital fertility by following groups of children born in a given year or other period'.[21] In effect he was suggesting an early form of nominative linkage-based historical demography. Glass, although a very accomplished demographer of the contemporary world, also possessed formidable skills as an analyst of England's population past, and was as Tony once described him an 'historian *manqué*' who was well versed in European thinking.[22]

Tony will certainly have known of Habakkuk's prescient essay, as well as the work of Tom Hollingsworth, who between 1957 and 1964 had completed two significant studies of demographic behaviour among the British aristocracy utilising genealogies that he had constructed from published sources.[23] He may also have known of work overseen on 18th-century Worcestershire parish registers by David Eversley and a group of local historians in the University of Birmingham that showed awareness of Henry's initiatives.[24] A substantial study of mortality patterns by Michael Drake, then a Cambridge PhD student working, as had Tony, under the supervision of Postan and Glass, made significant use of burial counts in West Yorkshire parishes in the 17th century.[25] Perhaps it is noteworthy that in 1959 the American historian J.T. Krause, who like Habakkuk favoured a fertility rise underpinning English late 18th-century population growth,

[19] H.J. Habakkuk, 'English Population in the Eighteenth Century', *Economic History Review*, 6 (1953), 117–33.

[20] Habakkuk, 'English population', 123.

[21] D.V. Glass, 'Population and Population Movements in England and Wales, 1700 to 1800', in D.V. Glass & D.E.C. Eversley (eds), *Population in History: Essays in Historical Demography* (London, 1965), p. 245.

[22] Interview of E.A. Wrigley by Negley Harte, 1 November 2005. We are grateful to Dr Harte for providing a copy of this video which was made for the Economic History Society.

[23] T.H. Hollingsworth, 'A Demographic Study of the British Ducal Families', *Population Studies*, 11 (1957–8), 4–26; T.H. Hollingsworth, 'The Demography of the British Peerage', *Population Studies*, supplement 18 (1964).

[24] D.E.C. Eversley, 'A Survey of Population in an Area of Worcestershire from 1660–1850 on the Basis of Parish Records', *Population Studies*, 10 (1956–7), 230–53.

[25] Michael Drake, 'An Elementary Exercise in Parish Register Demography', *Economic History Review*, 14 (1962), 427–45. Drake's thesis, on Norwegian demography, was completed in 1964.

enthusiastically stressed the potential of applying approaches that had been pioneered in France.[26] Krause had battled with and was frustrated by the notoriously problematic Parish Register Abstracts of baptisms, marriages and burials that John Rickman, the first director of the census, had requested parish incumbents to collect and published in the 1841 census. Krause saw that a return to the original parish sources in a manner employed in France might offer access to evidence of a superior quality.

One development which would quite rapidly have very significant consequences for Tony Wrigley's future work occurred in 1959. Peter Laslett, then a lecturer in the Cambridge History Faculty, specialising in the history of political thought, had by chance consulted an edited copy of *The Rector's Book of Clayworth, Nottinghamshire* in which the incumbent, William Sampson, had drawn up two listings describing the households of the parochial inhabitants in 1676 and again in 1688. Laslett sought out another comparable 17th-century source, in this case for the Northamptonshire village of Cogenhoe. The two sources enabled him to reveal some distinctive features of 17th-century society concerning the prevalence of simple nuclear households, a surprisingly high rate of population turnover as well as interesting observations of the age distributions of married persons, and through pioneering linkage with the parish registers, measures of birth, death and marriage rates.[27] The article based on this source was published in 1963, although most likely completed sometime earlier, and co-authored with John Harrison, then a senior librarian in the Cambridge University Library.[28] The article is noteworthy too in mentioning that Harrison was 'engaged in an attempt to reconstitute families from the Clayworth registers over the years 1660 to 1760 according to the methods of M. Louis Henry and the French school of historical demography'.[29] Laslett had taught Tony the history of political thought at Peterhouse in 1950 as he undertook some teaching for that college while being encouraged in his own research by Herbert Butterfield. He had long empathised and fraternised with political and social scientists, and found in Tony Wrigley a highly amenable ally, working with quantitatively inclined and conceptually sophisticated social scientists among the human geographers. (They also shared a nonconformist upbringing, in Laslett's case as a Baptist.) Tony, writing later, indicates that he may independently have acquainted himself with the work of both Goubert and Henry and of course he had already developed close relations with Glass.[30] In fact, Glass

[26] John T. Krause, 'Some Implications of Recent Work in Historical Demography', *Comparative Studies in History and Society*, 1 (1959), 164–88.

[27] John Dunn & E.A. Wrigley, 'Thomas Peter Ruffell Laslett, 1915–2001', *Proceedings of the British Academy*, 130 (2005), 119–20.

[28] Peter Laslett, 'Clayworth and Cogenhoe', in H.E. Bell & R.L. Ollard (eds), *Historical Essays 1600–1750 Presented to David Ogg* (London, 1963), pp. 157–85.

[29] Laslett, 'Clayworth and Cogenhoe', p. 157.

[30] E.A. Wrigley, 'Small-scale but not Parochial: the Work of the Cambridge Group for the History of Population and Social Structure', *Family and Community History*, 1 (1998), 238.

had at this time attempted unsuccessfully to apply Henry's methods to a Devon parish register.[31] However, in 1964 Glass noted that Tony was then engaged in an 'experimental construction' using parish registers, but thought that, because the evidence was problematic, limited results would follow.[32] Laslett in 1963 also noted

> the immense superiority of French over English registers any user of the English register will find it almost impossible to believe that it is usual to find in France the maiden name of the mother, as well as the names of the godparents, in the case of baptisms, the parentage of both bride and bridegroom as well as the names of witnesses in the case of marriages; the age, parentage and the names of witnesses, with once more the maiden name of the widow (where appropriate) in the case of burials. Occupations of all parties are standard additions

However, he added, significantly, 'the one advantage of the English register is that the series together (baptisms, marriages and burials) go back into the sixteenth century. Whereas in France all three are not often present until after the middle of the seventeenth century'.[33]

Tony Wrigley was apparently undaunted by these doubts and with Laslett, who had particularly forceful entrepreneurial energy and a promotional disposition, moved to place a research programme that was already starting to take shape on a more formal pathway. On Saturday 11 July 1964 Tony and Laslett founded the Cambridge Group for the History of Population and Social Structure, with modest financial support from the Calouste Gulbenkian Foundation. On that day they brought together in Cambridge a team of demographers, historians and historical geographers that included Louis Henry, David Glass, Tom Hollingsworth, David Eversley, W.G. Hoskins, K.H. Connell, Alan Armstrong, Munia Postan and Tony's departmental colleague Clifford Smith, to discuss the research programme that the Group would pursue and its prospects in the light of what Laslett then termed 'traditional history' in the universities. Early work made use of a research assistant, Karla Oosterveen, based in Tony Wrigley's home, a Peterhouse property in Belvoir Terrace, before she moved with additional research assistants to quarters, still far from roomy, in 20 Silver Street.

Tony and Laslett were from the outset clear that the initiative they were taking would not promote research into demography over and above other aspects of the historical social structure. This ensured that the Cambridge Group would never chart a research path lacking full engagement with social and economic history, historical geography, historical anthropology and sociology. In that respect the Cambridge research model differed from the programme at INED, and mirrored at least in part an approach closer

[31] Interview of Wrigley by Harte.
[32] D.V. Glass in his preface to Hollingsworth, 'The Demography of the British Peerage', p. ii.
[33] Laslett, 'Clayworth and Cogenhoe', p. 161.

to the work then being published in Paris in the 'Demography and Societies' series appearing under the auspices of the Sixième Section of the École des Hautes Études by scholars such as Jean Meuvret, Fernand Braudel, Pierre Goubert, Emmanuel Le Roy Ladurie, Jacques Dupâquier and Antoinette Chamoux. Goubert's attempt to integrate demographic analysis into the rhythms of economic and social life within a clearly defined regional framework in his mammoth study of *Beauvais et les Beauvaisis*, published in 1960, was acclaimed by Tony in the earliest years of the Cambridge Group's existence as exemplary of the kind of work he was anticipating in England.[34] Most likely Goubert's work also attracted Tony as a consequence of its regional and distinctly Vidalian framework.

That said, Henry provided what was to form the key methodological role model for Tony. An initial task that Tony took upon himself to complete was the preparation of an English equivalent to the manual that Henry and Fleury had produced in 1956.[35] This provided a basis for a programme of parish-based studies in which the technique of family reconstitution could reveal elements of England's past demographic behaviour previously unknown. He was careful not to sell the methodology or the parish register source as a complete solution to key problems confronting the development of English historical demography, since he was convinced that there were likely to be only a handful of suitable English parish registers that would lend themselves to the technique. Moreover, it was tedious and expensive work to pursue, so there was a limit to what could be achieved with the limited labour resources available in Cambridge compared with the substantial state-funded resources being deployed in Paris. He saw the future as one in which family reconstitution in a few parishes would be undertaken to secure key demographic measures in combination with the application of simple counting methods to a much larger number of parishes.[36] This proposed programme of work was beginning to acquire international recognition, and was reflected in the paper focused on problems encountered in the use of English parish registers for family reconstitution that Tony delivered at the Third International Economic History Conference in Munich in 1965.[37]

These were clearly fortuitous times to launch an initiative giving the Cambridge Group considerable momentum as it embarked on its labours. Keith Thomas wrote approvingly in 1966 of 'the increasing number of British historians who were not content

[34] Pierre Goubert, *Beauvais et le Beauvaisis de 1600 à 1730: contribution à l'histoire sociale de la France du XVIIe siècle*, 2 vols (Paris, 1960); E.A. Wrigley, 'Parish Registers and Population History', *Amateur Historian*, 6 (1964 and 1965), 202; E.A. Wrigley, *Population and History* (London, 1969), pp. 64–8.
[35] E.A. Wrigley 'Family Reconstitution', in E.A Wrigley (ed.), *An Introduction to English Historical Demography* (London, 1966), p. 154.
[36] E.A. Wrigley, 'Parish Registers and Population History', 151.
[37] E.A. Wrigley, 'Some Problems of Family Reconstitution Using English Parish Register Material', mimeographed paper for Section VII, Third International Economic History Conference, Munich 1965.

to grub away in the old empirical traditions' and 'had turned to see what help can be derived from the new sciences of society which have sprung up elsewhere – sociology, social anthropology, demography and social psychology'. Thomas also noted 'the introduction of more demanding techniques of verification' associated with quantification.[38] Tony was undertaking a family reconstitution of the Devon parish of Colyton when the Cambridge Group was formed, and Laslett was keen to note some of his more unexpected findings in the first edition of *The World We Have Lost* (London, 1965). In *An Introduction to English Historical Demography: from the Sixteenth to the Nineteenth Century* (London, 1966), edited by Tony, he set out at length the methodology of family reconstitution. Thomas in noting this publication, commented on the real possibility that the techniques of family reconstitution outlined would 'certainly revolutionize the study of English population in the pre-industrial period', although he thought that 'the limits of its potential are still unclear'.[39] Of all the chapters in this volume, that by Tony went on to be the most influential, and in the same year he was able to reveal the successful application of the techniques he had adapted from Henry's earlier methodology to the registers of Colyton in Devon, publishing in the *Economic History Review* an article that was full of surprises, widely read and cited, but ultimately contentious.[40] This paper certainly revealed unambiguously the potential value of family reconstitution using historical English parish registers.

Colyton's registers served as a template to establish the level of detail needed to carry out a successful reconstitution. The series of baptisms, burials and marriages when plotted showed a pattern that was being identified in other parochial aggregative counts in which baptisms exceeded burials through the late 16th century until *c.* 1640 and once again after *c.* 1750. Plots of age-specific marital fertility, completed family sizes, birth interval lengths and diminishing ages at last birth all appeared to suggest some resort to family limitation, although intriguingly a practice to be abandoned after 1750. Consequently, Tony considered a distinct possibility that Colyton's parochial population in the late 17th and early 18th centuries was holding back numbers in such a way as to achieve an optimum rather than maximum size. We also see in this paper some broader reflections on forms of population controls that could be found in primitive groups as well as in insect, bird and mammal species that were achieved through social actions that prevented numbers from pressing too hard on available food supplies. A companion paper focused on mortality arising from the Colyton family reconstitution on how life expectancies might have changed over time.[41] As was to be so often the case, Tony's

[38] Keith Thomas, 'The Tools and the Job', *Times Literary Supplement* (7 April 1966), 275.
[39] Thomas, 'The Tools', 276.
[40] E.A. Wrigley, 'Family Limitation in pre-Industrial England', *Economic History Review*, 19 (1966), 82–109.
[41] E.A. Wrigley, 'Mortality in pre-Industrial England: The Example of Colyton, Devon over Three Centuries', *Daedalus*, 97 (1968), 546–80.

demographic analysis was rarely undertaken for its own sake, but with a desire to reflect on possible associated economic consequences that population changes may have brought about.

Furthermore, in his consideration of fertility and mortality changes Tony pondered the possibility that demographic trends and processes could create significant social and economic changes in their own right. Such an approach emerged in a particularly influential paper that he published in *Past and Present* in 1967, a shorter trailer for which had been broadcast on The Third Programme earlier in the year and had appeared in *The Listener*.[42] Here Tony offered insights into London's great demographic growth over the late 17th and early 18th centuries, reaching 675,000 by 1750 within a national population of slightly more than 5 million. This growth was achieved notwithstanding the fact that London's crude death rate significantly exceeded its crude birth rate throughout much of the period. Tony estimated that London would have required a net immigration of *c.* 8000 persons a year to have sustained its growth. The bulk of the article is concerned with the wider social and economic implications of these noteworthy flows out of towns and villages of England towards London, as well as return moves from the metropolis to the provinces. This was the first of many papers in which Tony grappled with issues concerning urbanisation in England's shift from a pre-industrial to industrialising economy, stressing developments before the industrial revolution, and an early expression of his preference for explanations in terms of feedback mechanisms than simple cause and effect.

Tony, then in his mid-thirties, had with the publication of a small number of articles, none of which appeared in specialist demography journals, along with a key contribution to a methodologically focused essay collection, acquired a significant reputation as a demographic historian and population geographer. A programme of research planned at the Cambridge Group added to a rising interest in his work and its potential. Tony was still employed as a lecturer in the Cambridge Geography department where he would be based for seven more years, contributing significantly to changes that the subject was undergoing. In the Cambridge Geography Department his principal contribution to the teaching lay in Part II where he developed two distinctive regional papers, the first closely linked to his doctoral research, 'The Growth of Industry in the Coalfields of N.W. Europe', and the other 'The Settlement of New South Wales before 1831'. The latter course gave him an opportunity to assess the challenges to a society with very limited labour reserves and initially no, or very small, quantities of animal resources, in meeting the colony's basic food and energy needs.

[42] E.A. Wrigley, 'London and the Great Leap Forward', *The Listener*, 78:1997 (6 July 1967), 7–8 – the title alluded to recent policies in China; E.A. Wrigley, 'A Simple Model of London's Importance in Changing English Society and Economy', *Past and Present*, 37 (1967), 44–70.

Another optional course that Tony taught was in Population Geography. In fact, his ideas developed in that course were being formulated through the contributions he was making under the influence of Chorley and Haggett in furthering the use of analytical models of value to population geography. In 1967 he published an article on demographic models in geography which was particularly heavily focused on using such means to conceptualise the interconnections between demographic processes, living standards and food supplies.[43] One distinctive feature of this paper, extending his earlier thoughts when assessing family limitation in Colyton, was his consideration of the various ways in which mammals and birds constrained the growth of their numbers over the long term.[44] While Tony noted the use that Darwin generously made of Malthus's *Essay* in developing his ideas regarding the role played by population growth as an engine underpinning the survival of the fittest, he was reluctant to accept that in privileging the search for natural selection populations therefore had necessarily to be at or close to the maximum size that their habitat would support. Such a view involved recognising that mortality levels were highly dependent on the density of population but that fertility levels would also vary with population density, falling as numbers rose and vice versa. He was keen to stress that the accommodation of numbers to resources works at a social as well as an individual level, such that the success of the group may be enhanced by their development of social habits which severely restrict fertility, and amounting to the same end result that might be achieved in a more painful and possibly wasteful way by practices inducing extremely high mortality among the newly born. Through use of animal and bird analogies he was particularly keen to stress that the full reproductive potential of any group would be unlikely to be called into play in a normal season.

Tony was keen to model various situations concerning the links between demographic parameters and the society and economy in ways that had been pioneered by Alfred Sauvy, France's leading demographer.[45] Tony wrote a highly laudatory foreword to a translation of Sauvy's magnum opus, which constituted Publication Number 2 of the Cambridge Group for the History of Population and Social Structure.[46] In his paper that had appeared in 1967 on population models Tony, in a manner highly reminiscent of Sauvy's work, used a set of stylised graphical presentations of fertility and mortality rates that changed over time in differing degrees to achieve equilibrium populations of varying sizes, and each with very different implications for living standards. He admits that these models would require significant modifications in societies experiencing technological improvements, although

[43] E.A. Wrigley, 'Demographic Models and Geography', in R.J. Chorley & P. Haggett (eds), *Models in Geography*, (London, 1967), pp. 189–215.
[44] Tony was much taken with the arguments of V.C. Wynne-Edwards, *Animal Dispersion in Relation to Social Behaviour* (London, 1962).
[45] *Théorie générale de la population*, 2 vols (Paris, 1952–4).
[46] Alfred Sauvy, *General Theory of Population*, trans. Christophe Campos (London, 1969).

his focus was principally on pre-industrial populations in which there was no long-run tendency for population size to grow very markedly.

In 1969 once again we see Tony employing such approaches in key passages of a small but innovative volume in which he makes his first major statement regarding the approach he is proposing for historical demography. *Population and History* (London, 1969), appearing in the World University Library series, was published in seven languages including English. The use of colour in the depictions of population models, diagrams and cartographic devices adopted added greatly to the comprehension and impact of the arguments that he was making. Chapters 1 and 2 of the book repeat in somewhat more depth many of the themes that Tony had two years previously developed when writing of population models in geography. It is in chapters 3 and 4 that the book's major and certainly novel contributions occur. They take stock of the principal findings and changing methods that had come to define historical demography over the 1950s and 1960s. However, Tony emphasised the great range of possible interconnections between mortality, fertility, resulting population trends and levels that could be found in pre-industrial societies in contrast to the somewhat monolithic description of that phase when depicted in Demographic Transition theory. Lurking in the argument was a strong sense that pre-industrial demographic regimes might be very different in societies possessing the 'European Marriage Pattern' that had been identified in 1965 by John Hajnal, whose contribution to the new field of historical demography Tony valued highly.[47] Characteristically, Tony does not engage in exclusively demographically focused analysis, but his resort to systems thinking always brought economic, social and demographic variables together in a way that created a role for demography in both driving and responding to economic change. Using material from his first book, he was very dubious of the view, then widely prevalent in the secondary literature, that with economic growth the demand for labour would inevitably grow and stimulate an increase in fertility thereby generating the additional labour needed. Reflections on the impact of this book on him when he first encountered it as an undergraduate geography pupil of Tony in 1970 were made by Robert Woods in 2007, then one of Britain's most distinguished historical demographers and geographers, whose views deserve quotation:

> one of the most attractive aspects of *Population and History* is its disdain for disciplinary boundaries. It does what it is said Harvard professors are supposed to do: work on the frontiers of knowledge in such a way as to cross the conventional boundaries of the specialities. This is not History for Historians or Geography for Geographers, which makes its approach rather refreshing when compared with many

[47] J. Hajnal, 'European Marriage Patterns in Perspective', in D.V. Glass & D.E.C Eversley (eds), *Population in History* (London, 1965), pp. 101–46.

> of today's textbooks. There are borrowings from zoology, economics, anthropology, sociology, statistics, history and geography. Eclecticism is the by-word; even Emile Zola's *Germinal* has a place. Furthermore, there are no false distinctions between quantitative and qualitative evidence with the latter 'privileged' and the former just 'flawed' or ignored.[48]

Professor David Chambers, who had made significant use of parish registers in his highly regarded contributions to the economic history of the East Midlands, in a lengthy review article of *Population and History* concluded that it was 'deceptively small and encyclopaedic in content', and that it would 'probably put English demographic historiography at the head of the field'.[49] Nonetheless Chambers questioned the salience of Tony's argument that emanated from his Colyton case study regarding what he saw as a highly distinctive adjustment between population variables and economic conditions in the late 17th and early 18th centuries. As someone who had stressed the importance of mortality, he was unpersuaded by Tony's argument concerning a time lag in the lurch that the population might then have been expected to make in its efforts to establish homeostatic balance between numbers and the means of life. This argument contained many elements that bore resemblances to the views of Professor Michael Flinn.[50] However, Tony's research would soon show that in England a stabilisation of death frequencies in the short term in the late 17th and early 18th centuries, only partially associated with the disappearance of plague, would coincide with a rise in background mortality.

The Cambridge Group since 1966 had occupied a small set of offices in Silver Street, just a stone's throw away from Tony Wrigley's college rooms in Peterhouse, a proximity which facilitated his work both as researcher and college bursar. Awareness of Tony's demographic findings, and of the programme of research that he had set out with Laslett when the Group was founded, had grown significantly over the 1960s. The pair had made concerted efforts to engage the help of research-oriented amateur volunteers using radio broadcasts and publishing articles in outlets that drew attention to the significance and potential of collaborative work with local historians and schoolteachers. In 1966 more substantial funds began to flow from the newly formed Social Science Research Council. This enabled Tony to recruit as a full-time research associate, Roger Schofield, beginning a collaboration with Tony that was to be essential in moving research on to an entirely new and certainly more quantitatively sophisticated plain. Schofield, educated at

[48] Robert Woods, 'Textbooks that Moved Generations – E.A. Wrigley, *Population and History*', *Progress in Human Geography*, 30 (2006), 407.
[49] J.D. Chambers, 'Some Aspects of E.A. Wrigley's *Population and History*', *Local Population Studies*, 3 (1969), 28.
[50] M.W. Flinn, 'The Stabilisation of Mortality in pre-Industrial Western Europe', *Journal of European Economic History*, 3 (1974), 285–318.

a Quaker school and then Cambridge, quickly became linked with Tony's and Laslett's efforts to develop and maintain strong relations with the growing army of local population historians so important to the Group's data gathering tasks, as well as the Group's move towards the computer-aided analysis of the data they were accumulating.

As early as 1964, Tony had made moves to establish links with the Computer Laboratory of the University of Newcastle, where Nigel Cox stood out nationally in the work he was promoting in the application of computers to the analysis of non-numeric data. Data supplied by the Cambridge Group to the Computer Laboratory of the University of Newcastle was integral to the laboratory's research programme to develop computer-based means of analysing nominally linked records. However, at that time it was necessary physically to take computer tapes from Cambridge to Newcastle to be read and processed there. Trips by Tony and Schofield to Newcastle were therefore quite common in the late 1960s. Schofield began to liaise closely with Ros Davies, who was initially employed in the Newcastle laboratory although working collaboratively with him and Tony before finally becoming part of the full-time staff of the Cambridge Group in 1970 when local computing facilities had improved. Tony, unlike Schofield, never personally equipped himself to be a computer programmer.

Tony spent the academic year 1970–1 at the Institute of Advanced Studies in Princeton. With support from the Mathematical Social Sciences Board, he convened a conference on Nominal Record Linkage in History at the Institute, with the papers appearing in the volume that Tony edited entitled *Identifying People in the* Past (London, 1973). In that volume he co-authored a seminal paper with Schofield in which a variety of criteria were identified in determining the character and probabilities of false and true links when engaging in nominative linkage.[51] Analyses of this kind were to form a long-standing aspect of the work that they and Davies undertook that would be fundamental to the assembly of a collection of robustly engineered family reconstitutions, although the initial raw data would in most cases still be assembled by local volunteers.

Tony never let his demographic pursuits suffocate his wider interest in understanding economic change and its social correlates, and above all the roots and characteristics of the industrial revolution. While at Princeton he wrote a paper in which he attempted to show that modernisation and industrialisation failed to march through time in tandem, and made his case through a comparison of economic and demographic trends in England, Holland and France. His reputation before his Princeton visit, already high, was significantly enhanced by this article, which appeared in one of the earliest issues of the *Journal of Interdisciplinary History*, the editorial board of which he was invited to

[51] E.A. Wrigley & R.S. Schofield, 'Nominal Record Linkage by Computer and the Logic of Family Reconstitution', in E.A. Wrigley (ed.), *Identifying People in the Past* (London, 1973), pp. 64–101.

join during his stay.[52] The status of the article is indicated by the fact that a French translation of it appeared almost immediately in *Annales*.[53] Furthermore, Tony clearly impressed the director of the Institute of Advanced Studies, Carl Kaysen and another senior figure, the anthropologist Clifford Geertz. Kaysen invited Tony to move there permanently in the autumn of 1971.[54] Tony declined this invitation for family reasons, although Kaysen certainly worked hard to persuade him otherwise.

Well before Tony's Princeton sojourn the local volunteers gathering parish register-derived data had emerged as a central element in one major aspect of Tony's approach to the Cambridge Group's research programme. In August 1967 the Cambridge Group ran a summer school at Madingley Hall, bringing together some of the local historians working in the field of parish register analysis and the historical study of populations and social structures in their own local communities. While many were well known to members of the Cambridge Group and communicated freely with them, very few seemed to be in touch with each other. It was decided to launch the magazine and newsletter *Local Population Studies*, which first appeared in 1968 – Schofield was one of the founding editors, but not Tony. That openness to engagement with a constituency of amateur historians was also reflected in the regular person-to-person letter-based communication used. The value of this relationship was recognised at an early date by Louis Henry who, when shown the results of the local studies of population in England assembled at the Cambridge Group, exclaimed 'Ah, c'est le secret weapon anglais. Cela ne peut pas exister en France'.[55] Tony made regular contributions to *Local Population Studies* during the late 1960s and through the 1970s to pass on information to local historians.

In the early 1970s it was still Tony's intention, mirroring the approach Henry was taking in Paris, to complete several parish reconstitutions as the centre piece of the Group's work, which were anticipated to provide an alternative source of data to the Parish Register Abstracts. The accumulation of aggregative counts in the Silver Street premises of the Cambridge Group also proceeded apace, in part because Tony was keen to clarify the overall quality of parish register coverage with a view always to locating more parishes in possession of registers of sufficient quality to perform family reconstitution. That was the policy revealed by Tony in presentations at international

[52] E.A. Wrigley, 'The Process of Modernization and the Industrial Revolution', *Journal of Interdisciplinary History*, 3 (1972), 225–59.

[53] E.A. Wrigley 'Le processus de modernisation et la revolution industrielle en Angleterre', *Annales: Économies, Sociétés, Civilisations*, 27 (1973), 519–40.

[54] Wrigley correspondence, and transcript of an interview by Elliot Share of Karl Kaysen, the former director of the Institute of Advanced Studies in 1998, pp. 95–100.

[55] 'News from the Cambridge Group for the History of Population and Social Structure', *Local Population Studies*, 19 (1977), 9.

conferences, and stated emphatically by Schofield in a paper he gave to the Royal Historical Society in 1971.[56]

However, the labour resources needed to complete a sufficiently large number of parish family reconstitution studies, as well as the fact that most registers were then often in the vestries of parish churches, made this task logistically difficult, physically uncomfortable, time-consuming and expensive. It was not possible to draw a sample from the 10,000 English parishes, such as was being done at INED by Henry. By 1969 aggregative returns from 400 parishes were completed, with information collected under some 20 standard heads.

In the early summer of 1973 Tony was offered the Halford Mackinder Professorship in Geography at Oxford.[57] He pondered the possibility, engaging in some careful negotiations both with Oxford University's central administration and St Peter's College where, if he accepted the invitation, he would have become a fellow. It seems that a central issue was the possibility of Oxford University accommodating the Cambridge Group which then had no formal relationship with the University of Cambridge. The Group's funding insecurity was clearly an issue for the SSRC, and in December 1973 it decided to make the Cambridge Group one of its own Research Units of which there were then three others. Furthermore, the SSRC intended to begin negotiations with the University of Cambridge to secure better premises for the Group. This gave funding security over a longer period to the Group, with Tony becoming a director of the Unit with a full professorial stipend. Tony declined the Oxford offer and by the end of the academic year 1973–74 had formally resigned his lectureship in Geography then held for the past 18 years, and stood down as Senior Bursar of Peterhouse, a post he had occupied for the previous decade. Funds were sufficient to appoint additional research and data-inputters and editors. Richard Smith joined the Group's staff from late 1975 with the intention of extending research on demographic and social structural issues into the Middle Ages and to delve further into the origins of the European Marriage Pattern in England. The Group moved into larger and better resourced premises in 27 Trumpington Street which quickly attracted innumerable academic visitors, many from overseas. Strong links began to be forged with Cambridge's youthful Social and Political Sciences' (SPS) Committee. SPS was chaired by the historical sociologist Philip Abrams, who was a colleague and good friend of Tony's in the Peterhouse fellowship and on the editorial board of *Past and Present*. Tony and Abrams edited the papers delivered at a *Past and Present* Conference on towns and society, in which Tony had reflected on the contrasts

[56] E.A. Wrigley, 'Current Work in British Historical Demography before 1800', International Union for the Scientific Study of Population, London Conference, 1969, W7.1-W7.15; R.S. Schofield, 'Historical Demography: Some Possibilities and Some Limitations', *Transactions of the Royal Historical Society*, 5th ser., 21 (1971), 119–32.

[57] Wrigley correspondence.

between generative and parasitic cities in stimulating or thwarting economic and social change.[58] It was perhaps inevitable that the Cambridge Group with its new 'independent' social science status would contribute to a demography paper introduced in that new Tripos. Tony lectured in that course, as did Laslett, Schofield and Smith.

Tony and Laslett evidently persuaded the University of Cambridge to award Louis Henry an honorary degree in 1976, clearly indicating that the Group's research and historical demography more specifically was being recognised as important both nationally and internationally. The Group was then offering a History Part II option on 'Population and Family History' in the History Faculty which quickly attracted some extremely able undergraduates. Some notable students took that course and went on to be trend-setting postgraduates supervised by the Group. These included in the early years, Chris Wilson, David Souden, Keith Snell (all supervised by Tony), Simon Szreter, Emily Grundy and Jeremy Goldberg, four of whom were elected to research fellowships in Cambridge colleges.

The conducive working environment at the Group and the social and academic *esprit de corps* facilitated conditions encouraging free-ranging conversations that helped to further academic relations. In keeping with Tony's outlook, it was a setting in which senior figures engaged with postgraduates in ways that blurred the status differences, to the benefit of all concerned. Research was undertaken in a manner more like that in a scientific laboratory, providing a clear antidote to the prevailing historical *modus operandi* of individual scholars researching in splendid isolation. The fruits of this culture were eventually to populate the Group's monograph series *Cambridge Studies in Population, Economy and Society in Past Time* for which Tony was a co-editor and ultimately ran to over 40 volumes with Cambridge University Press. These conditions would eventually help to make it possible to establish the journal *Continuity and Change* that was founded, in the first instance, as a Cambridge Group-based journal by Richard Wall and Lloyd Bonfield in 1986.

By the mid–1970s nearly 600 parish aggregative returns had been made available largely through the efforts of the amateur volunteers. Over a decade had elapsed when it was decided that these returns might form the basis of a demographic analysis of England's past which would not depend solely or to any great extent on the use of family reconstitution. It was agreed to select 404 of the aggregative series, for intensive use once they had been assessed for their completeness. It is evident that Tony's personal publications in the late 1970s took on a decidedly methodological turn as he grappled with means of assessing distortions and correcting lacunae in this mammoth data bank. For instance, following an initiative taken by Peter Razzell, a persistent critic of Tony's

[58] E.A. Wrigley, 'Parasite or Stimulus: The Town in a pre-Industrial Economy', in E.A. Wrigley & Philip Abrams (eds), *Towns in Societies* (Cambridge, 1978), pp. 295–309.

and the Group's work, he employed the earliest usable manuscript census in 1851 to check on the shortfall of very late 18th- and early 19th-century baptismal coverage.[59] Another essay followed an observation that the eminent French demographer Bourgeois-Pichat made 25 years earlier about the distribution of deaths over the course of the first year of life.[60]

An array of novel methods and adjustments had to be employed to convert counts of baptisms, marriages and burials from the 404 parishes into actual vital events. This 'refined' data set would underpin the mammoth report embodied in the volume, *The Population History of England 1541–1871* (*TPHE*), that Tony co-authored as senior partner with Schofield. Dedicated 'To the local population historians of England' it appeared in 1981, seven years after the Group's acquisition of full research unit status in the SSRC, and stands as a lasting monument to a huge collective effort directed, to a very considerable extent, by Tony. To reviewers it had been 'long awaited', but was clearly a 'magnum opus' and a 'monumental work'.[61] It is rightly still seen as a landmark publication in English historical writing.

The data corrections and testing required for *TPHE* had been at the top of Tony's agenda after 1974, even when taking a semester as Hinkley visiting professor at Johns Hopkins University in 1975 and a sabbatical year as visiting professor at Erasmus University, Rotterdam in 1979. Some sense of the enormity of the task can be quickly appreciated in the detail of the adjustments made in securing a time series of births, marriages and burials from 1541 to 1871 that took up the first 150 pages of that volume – in effect, a major exercise in historical source criticism, although not always seen in that way by traditional historians. Tony firmly believed that the data adjustment process had to be fully reported in a way reminiscent of scientists who would show what had been done in sufficient detail for others to replicate the work, if thought necessary, and to do justice to the considerable financial support from the SSRC that had underpinned this work over more than a decade.

Tony had clearly chosen well when bringing Schofield into the Group as his co-researcher, but the appointment in 1976 of James Oeppen, another Cambridge geographer, on Smith's recommendation was also crucial. Oeppen developed with Tony the means of generating a set of demographic measurements relating to life expectancy,

[59] E.A. Wrigley, 'Baptism Coverage in early Nineteenth Century England: the Colyton Area', *Population Studies*, 29 (1975), 299–316.

[60] E.A. Wrigley, 'Births and Baptisms: the use of Anglican Baptism Registers as a Source of Information about the Numbers of Births in England before the Beginning of Civil Registration', *Population Studies*, 31 (1977), 281–312.

[61] Joel Mokyr, 'Three Centuries of Population Change', *Economic Development and Cultural Change*, 32 (1983), 183 and 191; M.W. Flinn, 'The Population History of England, 1541–1871', *Economic History Review*, 35 (1982), 457.

fertility and nuptiality from the flows of events themselves that would extend across the whole time series of aggregative counts. Ron Lee of the University of California, Berkeley was also involved in the project, but focused on analysing in statistically rigorous and econometric ways the inter-relationships between the event series themselves, as well as the specific links between births, marriages and deaths and price and real wage series of which he was then an internationally leading exponent.[62] Oeppen then helped to devise a means of back projection, so termed as it proceeded by successively back-dating and revising the known age structure of the 1871 census. It was therefore possible to generate 'censuses' at five-year intervals, and hence by using model life tables to calculate the invaluable measurements of life expectation at birth, the gross reproduction rate and a measure of net migration. Marriage rates could also be calculated and above all a means, thanks to Schofield, to create a diagrammatic method of measuring the relative impact of changes in expectation of life at birth and the gross reproduction rate in determining the intrinsic population growth rate.

Alongside providing good annual estimates of England's population between the introduction of parish registers and the first census of 1801, a central finding of *TPHE* was that movements in fertility, largely driven by shifts in nuptiality, were the principal drivers of demographic change, particularly the great upward surge in population growth rates after 1760. A fall in fertility also slowed down population growth in the late 17th and early 18th centuries, along with significant emigration to Ireland and the New World and London's high levels of mortality. Particularly striking was a diagram produced in chapter 7 plotting similar measures for France and Sweden, but dealing only with the century after 1750, showing three very different interrelationships between fertility and mortality changes and the intrinsic growth rate.[63] Of the three countries, England displayed an unambiguous version of Malthus's preventative check as the determinant of secular population trends across the early modern period. The prominence of that check served to create a 'low pressure' demographic regime which kept living standards from falling sharply, even in periods of major harvest shortfalls. Interpretations of the causes and consequences of demographic change were made in chapters 10 and 11 using a sequence of box and arrow diagrams, highly characteristic of their use in Tony's earlier geographical work. The most contentious aspect of the overall interpretation arose from an attempt to show that the association between a marriage-driven fertility rate and real wages operated in a consistently lagged correlated fashion over time. While this claim of a lagged relationship did not convince a number of critics, the sophisticated account of the changing interrelationships of the key demographic components of England

[62] R.D. Lee, 'Estimating Series of Vital Rates and Age Structures from Baptisms and Burials: a New Technique with Applications to Preindustrial England', *Population Studies*, 28 (1974), 495–512.
[63] E.A. Wrigley & R.S. Schofield, *The Population History of England, 1541–1871: A Reconstruction* (London, 1981), p. 246.

population history over more than three centuries was generally acclaimed as a great triumph, and certainly settled once and for all the debate about the relative roles played by fertility and mortality change in driving demographic growth over the period of the industrial revolution. Tony produced a more accessible version of that finding which appealed to Eric Hobsbawm who encouraged its publication in *Past and Present* in 1983.[64]

While the completion of *TPHE* had dominated his research time in much of the 1970s, Tony certainly did not avoid engagement with a wider variety of historical demographic issues. An essay on 'Fertility strategy for the individual and the group' constituted a continuation of interests that he had previously displayed when using models of animal and bird populations, since it started by identifying a central issue to do with what he termed 'unconscious rationality' with regard to demographic behaviour.[65] One of the few publications in which Tony reflected on developments in family history, an area which Laslett and Wall had largely overseen within the Cambridge Group's portfolio, appeared in 1977 in *Daedalus*.[66] This paper gave him an opportunity to review what research during the previous 15 years had revealed about the West European family. It is one of a number of his publications over the following 40 years in which he gives a particular pride of place to the implications of Hajnal's specification of the European Marriage Pattern. He was keen to emphasise that family forms in western Europe even before the industrial revolution were not at all like many other traditional societies.

In responding to a suggestion by David Levine, Schofield's postgraduate student, that the upward shift in age of marriage and adoption of family limitation in late 17th-century Colyton may have been induced by a major decline in the woollen textile industry in that parish, Tony made an innovative use of its parish registers to chart its pre-industrial occupational structure.[67] Significantly, the article in *Local Population Studies* requested local volunteers to search for male occupational information in parish registers since they were likely to be the best source for the study of male employment structures before 1841.[68] This was the first step in what was, late in life, to be a major focus of Tony's research.

What appeared to be a significant rebuttal of Tony's argument's concerning the practice of family limitation in late 17th-century Colyton was made by Richard Morrow,

[64] E.A. Wrigley, 'The Growth of Population in the Eighteenth Century: A Conundrum Resolved', *Past and Present*, 98 (1983), 121–50.
[65] E.A. Wrigley, 'Fertility Strategy for the Individual and the Group', in C. Tilly (ed.), *Historical Studies of Changing Fertility* (Princeton NJ, 1977), pp. 135–54.
[66] E.A. Wrigley, 'Reflections on the History of the Family', *Daedalus*, 106 (1977), 71–85.
[67] Letter from David Levine published in *Local Population Studies*, 13 (1974), 52.
[68] E.A. Wrigley, 'The Changing Occupational Structure of Colyton over Two Centuries', *Local Population Studies*, 18 (1977), 9–21.

published in the *Economic History Review* in 1978.[69] Tony engaged in a forensic analysis of Morrow's statistically constructed claims.[70] He was also able to show that age-specific mortality-focused analysis of plague fatalities and infections in Colyton, which Schofield had recently made, were unlikely to have had a fertility reducing impact among the relevant sector of the adult population.[71]

In the final stages of completing *TPHE* Tony had been approached while on sabbatical leave at Erasmus University in 1979 by Ralf Dahrendorf, then director of the London School of Economics, to take a chair there and head and create a new demography department. A void had been created in the School with Glass's retirement, and there was also a need to reinvigorate and expand the community of demographers in an institution which had for so long occupied the prime position in the subject in the UK. Tony accepted that offer, and the appointments he made in his new department brought together a particularly talented and broad-minded group of demographers, some of whom, such as Michael Murphy and Tim Dyson, would later be elected Fellows of the British Academy. Tony had himself been elected a Fellow in 1980 aged 49.

The 1980s saw Tony's demographic research divided in part between refinements to the analysis that had to be made to the 404-parish data set and further work on a growing set of parish family reconstitution studies. He also retained a longstanding commitment to comparative analysis, especially when considering demographic patterns simultaneously in both England and France. In 1981 Tony published a particularly long paper which identified certain features of English marital patterns that had not been captured in work based on the 404-parish set or in those family reconstitutions that had been completed by that date.[72] Soon thereafter Tony in three substantial articles extended his probing of French fertility history, which began with his earlier observations concerning the simultaneity of rises in marriage age, proportions unmarried, the illegitimacy ratio and rising prenuptial pregnancy among older brides in late 18th-century France, in marked contrast to the fall in marriage age, a rise in proportions married along with rising illegitimacy and prenuptial pregnancy among younger brides in England. In

[69] Richard B. Morrow, 'Family Limitation in pre-Industrial England: a Reappraisal', *Economic History Review*, 31 (1978), 419–28.
[70] E.A. Wrigley, 'Marital Fertility in Seventeenth-Century Colyton: a Note', *Economic History Review*, 31 (1978), 429–36.
[71] R.S. Schofield, 'Anatomy of an Epidemic: Colyton, November 1645 to November 1646', in *The Plague Reconsidered; A New Look at the Origins and Effects in 16th and 17th Century England* (a *Local Population Studies* supplement; Matlock, 1977), pp. 95–126.
[72] E.A. Wrigley, 'Marriage, Fertility and Population Growth in Eighteenth-Century England', in R.B. Outhwaite (ed.), *Marriage and Society: Studies in the Social History of Marriage* (London, 1981), pp. 137–85.

addition, he offered an intriguingly novel argument questioning the widely assumed precocity of French marital fertility decline after the Revolution.[73]

There was certainly pressure following the publication of *TPHE* on Tony and his colleagues to expedite the publication of their findings derived from family reconstitution studies, which would unearth a host of demographic measurements that aggregative analysis could not provide. So, in 1983, with Schofield, Tony produced an interim account of some key findings from 13 English parishes for which reconstitutions had been completed, of which two lay in Yorkshire, six in the Midlands, three in the south-east, and two in Devon.[74] They constituted a mixture of market towns, industrialising parishes, and those that were predominantly agricultural. A finding of considerable significance for the debate relating to Colyton's supposed precocious resort to family limitation in the 17th century was the observation that marital fertility showed little change over time in any parish, and was throughout the period close to that present when census and civil registration data were available after 1837. Such findings, when taken along with the information on low infant and child mortality, enabled Tony and Schofield to be confident in characterising the English early modern demographic regime as 'low pressure'. Like Colyton, marriage age declines were a noteworthy feature of all 13 parishes in the second half the 18th century.

A particularly insightful paper by Tony published in 1987 saw him reversing the conventional positive relationship between mortality and nuptiality when he reflected on the demographic benefits that flowed from late and economically responsive female marriage.[75] The centrality he gave to nuptiality change, and the significance of England's version of the European Marriage pattern in much that Tony was writing in the early 1980s, most likely accounted for his growing and increasingly serious engagement with the works of Malthus, since particularly in the later editions of Malthus' *Essay* Tony saw many elements that were central to an understanding of the links between population and economic change in England in the two centuries prior to 1800.[76] This focus in his work,

[73] E.A. Wrigley, 'The Fall of Marital Fertility in Nineteenth-Century France: Exemplar or Exception? (Part I)', *European Journal of Population*, 1 (1985), 31–60; E.A. Wrigley, 'The Fall of Marital Fertility in Nineteenth-Century France: Exemplar or Exception? (Part II)', *European Journal of Population*, 1 (1985), 144–77; E.A. Wrigley, 'The Fall of Marital Fertility in Nineteenth-Century France', *Historical Social Research*, 34 (1985), 4–21.

[74] E.A. Wrigley & R.S. Schofield, 'English Population History from Family Reconstitutions: Summary Results 1600–1799', *Population Studies*, 37 (1983), 157–84.

[75] E.A. Wrigley, 'No Death Without Birth: the Implications of English Mortality in the Early Modern Period', in Roy Porter & Andrew Wear (eds), *Problems and Methods in the History of Medicine* (London, 1987), pp. 133–50.

[76] E.A. Wrigley, 'Malthus's Model of a pre-Industrial Economy', in J. Dupâquier, A. Fauve-Chamoux & E. Grebenik (eds), *Malthus Past and Present* (London, 1983), pp. 111–24; E.A. Wrigley, 'Elegance and Experience: Malthus at the Bar of History', in David Coleman & Roger Schofield (eds), *The State of Population Theory: Forward from Malthus* (Oxford, 1986), pp. 46–64.

which more broadly displayed a particular and distinctive willingness to engage with the works of the Classical Economists, almost inevitably led to the eight-volume edition of the complete published works of Malthus, co-edited with David Souden, one of his former doctoral students.[77] Of course, in the efforts he was devoting to Malthus it was very clear that Tony's concerns were becoming just as focused on England's economic as opposed to her demographic performance in the period prior to *c.* 1800. There was a noteworthy reweighting of his research output during those years following the publication of *TPHE.* He produced an especially important essay on the scale, pace and character of England's urban growth and agrarian change in a special issue of the *Journal of Interdisciplinary History* principally devoted to a critical assessment of the *TPHE*.[78] Another long essay on the size and composition of the agrarian labour force in the first half of the 19th century appeared in a *festschrift* for Laslett, plus an ingenious reconsideration of the relationship between corn yields and prices in pre-industrial economies overturning a number of apparent orthodoxies in a collection of essays published in memory of the leading student of harvest crises in pre-industrial England and great friend of the Cambridge Group, Andrew Appleby.[79] Such a set of seminal works appearing in rapid succession would have been more than adequate to substantiate any scholar's status to be a leading economic historian, which we discuss further below.

Tony, with Schofield, did eventually address issues raised by and criticisms made of *TPHE* in a new edition which appeared in 1989 with a substantial introductory note of 37 pages.[80] Some attention was given to possible biases suggested in the raw counts of baptisms, marriage and burials and, with Oeppen's help, refinements were made to the logic of backward projection. The one aspect of the first edition that had generated considerable criticism was the approach both to specifying and interpreting the long run apparently 'lagged' relationship between nuptiality and real wages. One criticism that did give rise to an important revision was that made independently by both Louis Henry and David Weir, who showed that the estimates of age at marriage and the proportions

[77] E.A. Wrigley, 'Introduction', in E.A. Wrigley & David Souden (eds), *The Works of Thomas Robert Malthus*, 8 vols (London, 1986), I, pp. 7–39.

[78] E.A. Wrigley, 'Urban Growth and Agricultural Change: England and the Continent in the Early Modern Period', *Journal of Interdisciplinary History*, 15 (1985), 683–728.

[79] E.A. Wrigley, 'Men on the Land and Men in the Countryside: Employment in Agriculture in early Nineteenth-Century England', in Lloyd Bonfield, Richard Smith & Keith Wrightson (eds), *The World we have Gained: Histories of Population and Social Structure* (Oxford, 1986), pp. 295–336; E.A. Wrigley, 'Some Reflections on Corn Yields and Prices in pre-Industrial Economies', in J. Walter & R.S. Schofield (eds), *Famine, Disease and Society in Early Modern Society* (Cambridge, 1989), pp. 235–78.

[80] E.A. Wrigley & R.S. Schofield, 'The Debate about *The Population History of England*', in E.A. Wrigley & R.S. Schofield, *The Population History of England 1541–1871: a Reconstruction*, 2nd edn (Cambridge, 1989), pp. xiii-xxxiv.

never marrying were not fully compatible with the reported gross reproduction rates.[81] Schofield built upon work by Weir to calculate new estimates that showed that nuptiality changes prior to *c.* 1750 were largely driven by shifts in the proportions ever marrying, and after 1750 they were principally caused by substantial marriage age changes. It was acknowledged that the real wage series used in 1981 were deficient, drawing attention to the need for fuller consideration of household earnings and particularly the contribution made by women. However, Tony and Schofield were unrepentant in their belief that significant nuptiality responses to living standards were still strongly evident in their data, although they were less willing to commit to the presence of a lag in that relationship through time. The fundamental balance they had struck in 1981 of the greater importance of fertility over mortality to English population history in the period was little changed.

In the 1980s Tony was approached by certain Cambridge and Oxford colleges regarding his interest in becoming their master.[82] However, the publication of Tony's Ellen McArthur lectures to some considerable acclaim in 1988 coincided with an application he had made very late in the previous year to All Souls College for a senior research fellowship, then made available in part through a vacancy created by the retirement of his old Peterhouse tutor and supervisor Dennis Mack Smith. At that date Tony had completed nearly a decade at the LSE, and the demographic department he had headed was very well established. He was duly elected to All Souls, starting there in October 1988, aged 57. His application stated that he was expecting to devote around two years working jointly with Schofield to bring together a data set created by the merger of evidence from 26 parish reconstitutions that would form the basis of another monograph, delving deeply into the component parts of English vital events in the three centuries after 1538. Secondly, he wished to do far more work on a range of issues relating to the origins and characteristics of the industrial revolution.[83]

Unfortunately, in the summer of 1988 Schofield suffered the first of what were to be a series of strokes that severely reduced his capacity to work on the parish reconstitutions. This cruel blow to a scholar, then at the height of his analytical power, required Tony to give far more time than he had expected to the parish reconstitutions project, although in one sense he was fortunate that the move to a research fellowship at All Souls made this possible. It was certainly vital in his ability to expedite this work that

[81] Louis Henry & Didier Blanchet, 'La population de l'Angleterre de 1541 à 1871', *Population* (French edn), 38 (1983), 781–826; David R. Weir, 'Rather Never than Late: Celibacy and Age at Marriage in English Cohort Fertility', *Journal of Family History*, 9 (1984), 340–54; R.S. Schofield, 'English Marriage Patterns Revisited', *Journal of Family History*, 10 (1985), 571–93.

[82] Wrigley correspondence.

[83] Tony Wrigley's application for a senior research fellowship at All Souls College in 1987, kindly made available by Sir John Vickers, Warden of All Souls College.

Tony had the continued technical support of Davies and particularly Oeppen, working intensively with them when in the Cambridge Group. He made effective use of his sojourn in All Souls to begin writing the text of what was to be another large book, although the magnitude of the task meant that the work, while greatly advanced, was still incomplete when he left the college in 1994.

In 1994 Tony succeeded Barry Supple to the Cambridge Chair of Economic History, and Smith also returned from Oxford to Cambridge as the new director of the Group, following Schofield's resignation through ill health. The Group had been a Designated Research Centre of the ESRC and formally linked to the History Faculty since 1990. Together Tony and Smith applied for renewal of the award of the Group's status as an ESRC Designated Research Centre for the period 1995–99. One key project that ESRC was adamant should be completed in that second quinquennium was that based on the sample of 26 parish family reconstitutions.

When the 650-page family reconstitution monograph *English Population History from Family Reconstitution, 1580–1837* (Cambridge, 1997) (*EPHFFR*) is considered alongside *TPHE*, it reveals in almost 1,500 pages Tony as the lead author to have carried the lion's share of the responsibility for endowing England with a detailed and internally consistent body of historical demographic information that was available for a far longer period than anywhere else in Europe and indeed globally. *EPHFFR* was a more complex and technically demanding book from a purely demographic perspective than *TPHE*. It did not have the impact of its predecessor among economic and social historians because it was directed largely towards a demographic audience. But it cast fresh and often bright light on a host of demographic features that were previously unknown, and which also had fundamental implications for the character of England's early modern demographic regime. Novel means of analysis enabled a better understanding of the component parts of mortality change, especially the improvement of adult life expectancy, and reasons for fertility rises unconnected with marriage age falls, both trends occurring over the course of the 18th century. Nonetheless, widescale female marriage age falls provided very strong affirmation of the fertility rise after 1760 that had been documented from a totally different data set produced from the use of inverse projection in *TPHE*.

In concluding *EPHFFR* Tony reflected on Deane and Cole's doubt, expressed in 1962, regarding the demographic information they employed in their landmark attempt to frame a coherent account of British economic growth since 1688. He remained of the opinion that although new 'stories' had been constructed about the path of British growth in the industrial revolution period, notably that by Crafts in 1985, very little new data had been marshalled by economic historians for the task, and that much of the revisionist work was based upon reweighting the component parts of national output series that were themselves far from being secure. Tony insisted that such a charge could not be laid upon the data

arising from the prodigious efforts of local historians and professional historical demographers, since these were by 1997 markedly chronologically more extensive, richer, more closely tested and reliable than they had been in 1962 or, in many cases, subsequently.[84]

There are other interesting reflections in the concluding chapter particularly regarding what a study based on 26 parish reconstitutions did not achieve. It is highly significant that Tony sets out his regrets regarding the 'abandonment of what had originally been envisaged as the prime reason for a reconstitution volume'.[85] The merger of the data set to create what was effectively a 'national' entity mirrored an approach that for the most part eschewed any discussion of individual families or their demographic behaviour within a local or regional context. Tony notes that 'it was originally intended to create a series of such textured local studies in order to complement the national picture obtained from the aggregative data with evidence of the extent and nature of local variation'.[86] For example, while there were modest market towns within the 26-parish sample, the difficulty of applying nominative linkage techniques to larger urban centres in which a growing proportion of the population resided remained, with some notable exceptions, a distinctive weak spot. It is perhaps ironic that Tony's enthusiasm earlier in his career for regional analysis, and the disadvantages of adherence to national units as the basis for analysis at least when taken to historic economic matters, could not be taken to much of the demographic geography of early modern England. Tony's earliest contributions to geographical philosophy and his endorsement of the application of Vidalian concepts to the study of the region in pre-industrial society certainly lost its credibility when attempting to understand an English early modern society characterised by high rates of migration, both internationally and externally, a widescale integrating influence emanating from a massive and growing metropolitan centre, and a decidedly spatially integrated polity. These would all be factors in serving to move English research away from the regional approach of historical demographic analysis as conducted by those French historians operating within a model set by the *Annales* school. It should, nonetheless, be recognised that Tony, while revealing his disappointment of this situation in 1997, 'hoped that this frustration will prove only temporary'.[87]

[84] E.A. Wrigley, R.S. Davies, J.E. Oeppen & R.S. Schofield, *English Population History from Family Reconstitution, 1580–1837* (Cambridge, 1997), pp. 546–7.

[85] Wrigley *et al.*, *English Population History*, p. 550.

[86] Wrigley *et al.*, *English Population History*, p. 551.

[87] Wrigley *et al.*, *English Population History*, p. 551. Several important community case studies have been completed by postgraduate students of the Group in which demographic data from family reconstitutions were contextualised within analyses of various aspects of local economy and society: for example, Wrightson and Levine's study of Terling, Newall's of Aldenham, Sharpe's of Colyton, Williams's of Campton, and Shefford and Kitson's of Banbury and Gainsborough. Nevertheless, the absence of a uniform presence of key ancillary sources across the parish sample made it impossible to measure various features of local society and economy in a consistent fashion.

It is noteworthy that the failure to use the parish reconstitutions to cast light on the local interplay between demographic, social and economic factors formed a significant element in two criticisms appearing in *Past and Present* of the Cambridge Group's two principal historical demographic publications. John Hatcher in 2003, while questioning the argument in regarding the diminished role played by mortality relative to fertility change in driving demographic trends, particularly in the 16th and early 17th centuries, also expressed doubts about the representativeness of the sample of 404 and 26 parishes when aggregated to form a 'national' demographic measurement. He argued that 'the more that is learnt of personal, local and regional diversity, the greater the strain that is placed on the ability of these samples to capture an authentic national picture'.[88] In 2012, Emma Griffin using 260 working class autobiographies of individuals born between 1620 and 1830 (the majority of which concerned individuals born after 1750) queried the economic determinism she thought implicit in Wrigley and Schofield's assumptions regarding the principal determinant of marital behaviour and household formation. She criticises the assumption that marriage throughout the period stretching from the late 16th until the mid–19th century depended on the new couple's ability 'to found a financially viable household of their own'.[89] Adopting a position that there was a major cultural change in attitudes to marriage in the late 18th century, she thought 'it may be more illuminating to refocus on the variety of experiences than to emphasise the homogeneity of the process, and to conceptualise falling marriage ages not as a steady nationwide shift, but the result of a far more dramatic fall in marriage age occurring in a handful of rapidly expanding regions'. [90] Tony Wrigley did not respond to the arguments made in these two papers and unfortunately Schofield's deteriorated health also prevented him from doing so.

In fact in the decade following the appearance of *EPHFFR* Tony, while still actively publishing, made fewer contributions directly to historical demographic matters. However, only a year after the appearance of *EPHFFR*, he published a paper in the *Economic History Review* in which he brought together the issues regarding falls in neonatal mortality and implied decline in the still birth rate in the 18th century.[91] Those changes, when set against evidence from the later 19th and early 20th centuries, led him to conclude that there must have been a rise in infant birth weights at this time. Such a rise suggested to him an increasing incidence of healthier mothers and their foetuses.

[88] John Hatcher, 'Understanding the Population History of England 1450–1750', *Past and Present*, 180 (2003), 127.
[89] Emma Griffin, 'A Conundrum Resolved? Rethinking Marriage and Population Growth in Eighteenth-Century England', *Past and Present*, 215 (2012), 127.
[90] Griffin, 'A Conundrum Resolved', 144.
[91] E.A. Wrigley, 'Explaining the Rise in Marital Fertility in England in the "Long" Eighteenth Century', *Economic History Review*, 51 (1998), 435–64.

He is uncharacteristically willing to speculate in this paper since there is no evidence available regarding 18th-century birth weights. Furthermore, there were simultaneous falls in maternal mortality occurring in France and Sweden which would have needed assessment alongside the English data as well, if Tony were to employ his longstanding use of comparative analysis. It had been acknowledged in *EPHFFR* that the decline in maternal mortality was most likely linked to an improvement in adult mortality more generally, yet in this paper Tony opted for an improvement in nutritional status of women of child-bearing age, thereby stressing an endogenous cause of the changes and hence closely aligned with a Malthusian explanation for such mortality declines. This did represent a very different position on determinants of mortality change from that which Tony had previously adopted for most of his career. Others have subsequently questioned this argument. While willing to accept an improvement in nutritional status of mothers which may have reduced their susceptibility to the hazards of childbirth, critics have stressed a reduced exposure to infections as the most likely cause, in particular, a declining incidence of smallpox.[92] Those critical arguments placed a greater emphasis on epidemiological shifts than changes in material living standards as the underlying cause. Such an interpretation was given further support by the finding that maternal mortality in the Peerage, based on research by Smith and Oeppen, using a new version of the data set originally developed by Hollingsworth, showed trajectories through time of the probability of maternal death in childbirth that were very similar to those found in the broad mass of the population, which would cast further doubt on any explanation invoking improvement in the material wellbeing of mothers.[93]

Tony's research turned increasingly to the analysis of male occupations and the characteristics of what he saw as England's advanced organic economy in the early modern period. He did produce an essay on population history that he contributed to a collection written by historians brought together to celebrate the one hundredth anniversary of the founding of the British Academy.[94] He was largely concerned with providing an overview of the achievements of demographic history as exemplified by the findings and methods used in *TPHE* and *EPHFFR*. The essay goes further and emphasises what he saw as the logical status of these findings and, as he had done in the conclusion of *EPHFFR*, he compared the superior quality of the demographic data with that available

[92] Robert Woods, 'The Measurement of Historical Trends in Fetal Mortality in England and Wales', *Population Studies*, 59 (2005), 147–62; Robert Woods, *Death before Birth: Fetal Health and Mortality in Historical Perspective* (Oxford, 2009).

[93] Richard Smith & Jim Oeppen, 'Place and Status as Determinants of Infant Mortality, c. 1550–1837', in Eilidh Garrett, Chris Galley, Nicola Shelton & Robert Woods (eds), *Infant Mortality: A Continuing Social Problem* (London, 2006), pp. 53–78.

[94] E.A. Wrigley, 'Population History', in Peter Burke (ed.), *History and Historians in the Twentieth Century* (a British Academy Centenary Monograph; Oxford, 2003), pp. 217–43.

in the form of price, wage and production series. In fact, he sees in the 'new' data a mutual consistency as exemplified in the interactions of mortality, fertility and nuptiality and the resulting small margins for error surrounding them. One senses in these remarks a growing frustration regarding the lack of equivalent progress in the creation of 'new' price and wage series by economic and especially econometric historians.

However, Tony was not averse to employing the real wage series, then available in 2004, in a paper on British population that he contributed that year to *The Cambridge Economic History of Modern Britain*.[95] He made use of the findings of *TPHE* and *EPHFFR*, but there is one passage in which he returned to reconsider the long-term relationship between the crude first marriage rate and real wages. The apparent lag which had generated considerable scepticism when appearing in the first edition of *TPHE* was confronted and reassessed in a new graphical plot using a tighter measure of national nuptiality along with a real wage series spliced from several sources. The two series he produced showed a very close correlation and little lag, although they were pulled apart somewhat in the period between the Restoration in 1660 and the passing of the Marriage Duty Act in 1695, when Tony argued there was considerable resort to clandestine marriage with the result that the measured marriage rate was most likely too low.

One significant essay formed a long and newly written chapter in a volume he published in 2004 that was principally composed of his previously published papers that had appeared in the late 1980s and 1990s. The chapter's title 'Demographic retrospective' is indicative of Tony's aim to provide from his own perspective, then aged 73, a summation of the reliability and representativeness of findings that had emerged through the two published monographs that he had spearheaded in the previous 25 years.[96] It reiterates some of the principal tests that had been used in judging the accuracy of the findings in those publications, but it also made some new comparisons with data available from other countries in northern Europe which possessed particularly detailed and accurate demographic data beginning in 18th century. In the comparisons Tony focused upon some key similarities in marital fertility and age-specific mortality in the English and Scandinavian data. But he emphasised the nuptiality changes that were highly specific to the English case. In this essay, however, we find Tony for the first and only time in a sustained manner in print systematically dealing with the criticism of his work and that of the Cambridge Group as a whole by Peter Razzell. He assessed a major

[95] E.A. Wrigley, 'British Population during the "Long" Eighteenth Century, 1680–1840', in Roderick Floud & Paul Johnson (eds), *The Cambridge Economic History of Modern Britain, vol. 1: Industrialisation, 1700–1860* (Cambridge, 2004), pp. 57–95.

[96] E.A. Wrigley, *Poverty, Progress, and Population* (Cambridge, 2004), pp. 394–440; Peter Razzell, 'The Growth of Population in Eighteenth-Century England: a Critical Reappraisal', *Journal of Economic History*, 53 (1993), 743–71; Peter Razzell, 'The Conundrum of Eighteenth-Century Population Growth', *Social History of Medicine*, 11 (1998), 469–500.

discrepancy between his findings and Razzell's in questioning the extent to which infant death chances improved over the course of the eighteenth century. However, he acknowledged that while he and Razzell approached the subject of adult mortality via different source materials, they were in surprising agreement about the noteworthy improvement in adult life chances over the 18th century, although Razzell appeared not to have noticed that convergence of findings. In a particularly striking section of the essay Tony employs a fundamental demographic tool, the population balance equation, to argue that various elements in Razzell's argument would imply unrealistically high fertility and accompanying mortality in the late 16th and 17th centuries of a kind that have never been documented for anything but the very shortest period of time. Furthermore, Razzell's estimates would give rise to predictions of population sizes in those centuries far lower than those claimed by the Cambridge Group and a host of other commentators, including pioneers such Gregory King and John Rickman whose collective efforts to estimate population sizes in the 16th and 17th centuries show them all to be remarkably similar. Yet in a characteristically modest, almost self-effacing passage, he concludes this essay by stating that notwithstanding a forceful defence of his principal findings it would 'be idle to expect that all doubts will be quelled by an exercise of the sort represented by this essay, which is not without its *longueurs*.'[97]

Tony was into his mid-seventies when he embarked enthusiastically on a major new project with Leigh Shaw Taylor, Smith's postgraduate student and soon to become a History Faculty teaching officer, to reconstruct the male occupational structure of England from *c.* 1600 using parish registers through to and including the data contained in the 19th-century censuses. In the first instance this involved the gathering of data relating to the occupations attributed to fathers when registering the baptism of their children in parish registers. This was a project premised on a large-scale exploitation of the parish register that Tony had hoped might have taken off after he had demonstrated the potential of this source in 1977 (see above n. 68). However, when approached on the scale Tony and Shaw Taylor planned and supported by substantial funding from ESRC and Leverhulme Trust, it was necessary to secure reasonably solid measures of regional population growth. Parish register-based data yielding occupations might by themselves enable the percentage distribution of occupations to be determined, but not the absolute numbers involved. To the degree that there was a markedly different pattern of population growth between those English counties which were, and remained, primarily agricultural and those counties in which the bulk of the population from an early date were dependent on manufacturing or services employment, little change in local occupational patterns might mark important changes in the national picture.

[97] Wrigley, *Poverty, Progress and Population*, p. 440.

Superficially the availability of the published census volumes after 1801 provided data of the kind needed to chart the changing population geography of 19th century England. However, use of these volumes is difficult, particularly because the composition of individual census units was not constant from census to census. Tony, in an important volume in the British Academy's *Records of Social and Economic History* series,[98] undertook a major exercise in the correction of errors in the published census volumes from 1801 to 1851, and produced a series of tables reporting population data in a way that makes it for the first time possible to report geographically defined demographic change over time consistently and accurately. To those data he added the fruits of his findings relating to county and hundred population totals in the 17th and 18th centuries. In collaboration with Cambridge Group colleague Max Satchell and exploiting the tools of Geographical Information Systems, he was able to generate accurate areal measurements of all the census units, making it possible to create maps of population density and a variety of social and economic variables that can be more effectively extracted from the census returns.[99] This work, published in Tony's 80th year, can clearly be seen to be reconnecting him to his earlier geographical roots and doing so in a way that illuminated brightly the demographic geography of early modern and industrialising England.

Population changes as a theme made occasional intrusions into his work on energy use and occupational change in the transition from England's organic to inorganic economy that was dominating his published output in the final two decades of his life, but it was now rare for him to publish new research results of a purely demographic nature. He did find time to produce what was his fullest treatment of the wider demographic consequences flowing from the European Marriage Pattern as it functioned in what he defined as a 'North Sea Basin' variant, in a paper delivered at a conference to recognise Richard Smith's retirement in 2011.[100] In fact such a study reiterated his preference, also made 30 years previously, to treat that marriage regime as a 'repertoire of adaptable systems' – a characteristic that continues to be forgotten in the work of those, predominantly economists, econometric and economic historians, who currently write about that marriage pattern and continue to treat it as a monolithic phenomenon as they argue about its possible role in enabling Europe's economic divergence from the wider world in the 18th century.

[98] Tony had served on the British Academy's Records of Social and Economic History Committee in the 1980s.

[99] E.A. Wrigley (chapter 5 written jointly with M. Satchell), *The Early English Censuses* (Oxford, 2011).

[100] E.A. Wrigley, 'European Marriage Patterns and their Implications: John Hajnal's Essay and Historical Demography during the Last Half Century', in Chris Briggs, P.M. Kitson & S.J. Thompson (eds), *Population, Welfare and Economic Change in Britain, 1290–1834* (Woodbridge, 2014), pp. 15–41.

His final publication on a demographic subject, appearing in 2020, did engage with a longstanding demographic theme and was undertaken with Smith.[101] It confronted one issue and associated debate of the later 18th and early 19th centuries arising from a position then adopted by Malthus. The focus was on Malthus's severe criticisms found in each of the six editions of his *Essay* of the poor law, especially his belief that when payments were made to recipients under the terms adopted by local magistrates in Speenhamland in 1795, they encouraged early and improvident marriage, thereby generating population growth and intensifying the poverty the welfare provided was intended to eradicate. This paper was a large-scale attempt to test this proposition using information contained in the 1851 census. The results showed that Malthus had been mistaken, and that the principal driver of marriage age and incidence was the local sex ratio and its impact on the marriage market. Perhaps this was the most emphatically critical assessment of Malthus' thinking that Tony made in a career that showed him so favourably disposed to this classical economist's contributions.

This final paper provided a particularly appropriate means of closing the circle on his career of demographic research into the European past that remarkably by the year of his death had endured for almost 70 years. The strong and durable structure that he had helped to build in the form of the Cambridge Group and its fundamental use of funding received from the principal source of social scientific research funding in Britain is perhaps best captured in a comment that Robin Matthews, a former chair of ESRC and Master of Clare College, made in 2005 at the 40th anniversary of that body's foundation. Matthews noted that 'intellectually the Cambridge Group had been one of the most highly regarded of all those with which the SSRC/ESRC had been connected'.[102] The Group with significant inputs from the octogenarian Tony Wrigley has continued to be a major recipient of funding from that source and its success in doing so rests heavily on the research methods and values that Tony had been so central in promoting and sustaining for almost 60 years.

Tony's revolutionary efforts as a demographic historian preoccupied him from the early–1960s to the publication of *EPHFFR* in 1997. However, plainly his demographic history was much concerned with economic considerations, while he had from time to time published important essays that were more squarely pieces of economic history. Indeed, to him his years of toil in demographic history were central to a greater preoccupation: the nature of the industrial revolution considered in terms of the interactions of

[101] E.A. Wrigley & Richard Smith, 'Malthus and the Poor Law', *Historical Journal*, 63 (2020), 33–62.
[102] Economic and Social Research Council, *SSRC/ESRC: The First Forty Years* (Swindon, 2005), pp. 10–11.

population, economic life and the environment. As he put it in 2004, reiterating an aspiration in his application to All Souls College 15 years earlier,

> Since my days as a research student, I have always been ultimately more preoccupied with the wish to achieve a better understanding of the industrial revolution than with any other issue, with gaining a clearer insight into the circumstances in which the world learned how to produce goods and services on a scale which would have astonished and bemused anyone born before the nineteenth century.[103]

While most of Tony's work as an economic historian was concerned with England, as already noted his doctoral research begun in 1953 researching the Austrasian coalfield and chronologically this project was also an outlier in his interests, concentrating upon the 60 years before the First World War, whereas his studies of the economic history of England looked earlier and ranged more widely, from the mid–16th to the mid–19th centuries.

The book of the thesis, published by Cambridge University Press in 1961, with a further impression the following year, was widely and positively reviewed, with the regional focus applauded. It clearly marked out Tony, now 30 years old, as a distinctive young voice in economic history, through marrying economic and demographic history with unusual care while always considering the wider consequences. In particular, the importance of coal to thinking about the unfolding of the industrial revolution was given renewed emphasis, something he quickly came to apply to the English case. With the publication of his first book, England, not continental Europe, now became the focus, although not entirely, of his attention.

It is interesting that, in the same year that Tony published his highly influential article in the *Economic History Review* emphasising coal's role in England's industrial revolution, it was also given considerable prominence on a wider scale by Carlo Cipolla in his slim masterpiece, *An Economic History of World Population* (London, 1962). Perhaps that was mere coincidence as no prior connection between Tony and Cipolla is obvious. Indeed, it seems likely that *The Coal Question* (London, 1865) by William Stanley Jevons, also a Unitarian from Liverpool, was a decisive influence upon Tony, both in terms of subject matter and approach. (Tony had been interested in the lives of prominent 19th-century Unitarians from an early date.)[104] Later Tony emphasised the extent to which Jevons, along with Marx, should be read as an early analyst of a new order whose possibility had been cogently denied by Smith, Malthus and Ricardo. At times, moreover, it is possible to sense some echoes of Jevons in Tony's considerable powers as a logician.

[103] Wrigley, *Poverty, Progress and Population*, p. 1.
[104] Interview of Wrigley by Macfarlane.

Although in the early 1960s England's demographic history came to be Tony's second major research project and preoccupied him for many years, he nonetheless published some important economic history articles during those years. His highly influential article of 1967 on London's role in the century from 1650 (see above n. 42) was an early exploration of Adam Smith's belief that extending the division of labour between town and countryside was the most important source of economic growth available to market societies, a point Tony frequently returned to. The article was also, in vivid contrast to his deep immersion in detailed sources for demographic history, a forceful expression of Tony's willingness to play around with some general if somewhat imprecise numbers to show broad developments and key dynamics, modelling abstractly the links and feedbacks between ten key factors playing upon the interrelated growth of London and the industrial revolution. It was this article, as well as that on raw materials published five years earlier, that began to mark Tony out as a powerful voice in attempts to understand the industrial revolution in England.

Further articles enhanced this particular dimension of Tony's growing reputation, notably two in the *Journal of Interdisciplinary History* for 1972 and 1985. Along with the *Economic History Review* and *Past and Present*, this was one of Tony's preferred journals, including serving on its Editorial Board from its foundation in 1970 until 2002, an association that followed the year spent at Princeton's Institute for Advanced Study in 1970–71, rubbing shoulders with Theodore Rabb, one of the journal's founding editors. In the first of these two articles Tony interrogated the concept of modernisation, challenging casual associations between it and industrialisation, both logically and by noting how the Dutch Republic's economy modernised in the 17th century but then stagnated. In doing so, he argued, mostly implicitly, against the emphasis laid upon rationality, self-interest and consumerism by some of the giants of historical sociology. In the second he returned again to the themes of urbanisation and population growth, once again fruitfully comparing England's experience with that of some European neighbours, drawing on the highly complementary work of Jan de Vries and others to do so.

The invitation to deliver the Ellen McArthur Lectures at Cambridge in 1987 was probably offered to Tony on the basis of his ability to meld demographic and economic history to telling effect. But he seized the opportunity to focus very largely upon his vision as an economic historian of how best to understand the industrial revolution in England. Published as *Continuity, Chance and Change: The Character of the Industrial Revolution in England* (Cambridge, 1988), it offered 'a short programmatic review' in less than 150 pages, not a fully realised depiction and analysis. It established themes he returned to and elaborated upon subsequently, notably in his two further book-length studies of the topic, to the extent that the three comprised a trilogy of sorts, though because each was free-standing there was considerable overlap between them. He was working on a fourth book along similar lines when he died.

Continuity, Chance and Change begins with the apparent paradox that Adam Smith, Robert Malthus and David Ricardo denied the possibility of an industrial revolution even as it was occurring around them. Tony emphasised their belief that productivity was ultimately limited by land as a finite resource and whose over-exploitation would lead to diminishing returns – a theme central to his mentor Postan's analysis of the constraints working upon the medieval economy. In the analysis of the classical economists, growth was possible very largely through extensions of the division of labour, but which could proceed only so far. In Tony's terminology, England's 'organic economy' had successfully developed along such lines since at least *c.* 1600, but the terminus of such 'Smithian' growth was being approached in the 18th century. Crucially here, Tony articulated this less in terms of output and yields, though that had a part in his analysis, than of energy. Organic economies were able to capture only a small amount of solar energy and to store even less. What the great classical economists failed to appreciate was that more fully utilising rich coal reserves could transcend this constraint, allowing economic growth to enter a new and more productive phase. This 'mineral-based energy economy' was a very different form of growth, overlapping with but not caused by the nature of the 'organic economy'. The industrial revolution in England was to be seen as the product of 'two different sets of forces having only an accidental relationship to one another in the early stages of their overlap in time.'[105] This was a fundamental point that Tony frequently returned to: the industrial revolution was the consequence of two forms of growth with 'contrasting characteristics'.[106]

This framework, whose roots reached back to Tony's earliest research, was the one that he worked within as an economic historian for the rest of his life. Indeed, towards the end of *Continuity, Chance and Change* he set out two future lines of research – energy consumption and specialisation of function, with associated issues around occupational structure – that formed the subject matter of his final two books on the industrial revolution in England. That they did so demonstrate Tony's striking ability to realise complex plans that stretched far into the future.

Written to be understood by his children, *Energy and the English Industrial Revolution* was published in 2010.[107] It sought to be 'neither a general history of the industrial revolution, nor a monograph presenting the findings arising from recent research, but rather an attempt to specify a particular interpretation of the key characteristics of the industrial revolution, supported by a series of essays dealing with the relevant aspects of changes

[105] *Continuity, Chance and Change: The Character of the Industrial Revolution in England* (Cambridge 1988), p. 4.
[106] *Continuity*, p. 112.
[107] Also for a general audience, in 2002 Tony had delivered the annual British Academy Lecture on 'The Quest for the Industrial Revolution', published in *Proceedings of the British Academy*, 121 (2003), 147–70.

taking place' (p. 6). The focal point was energy availability and use, with Tony able to draw on the work of Paul Warde, a former postgraduate student of Smith in the Cambridge Group, that provided long-run estimates of energy consumption as well as the older and somewhat more robust (if not straightforwardly reconcilable) figures for coal output produced by John Hatcher and Michael Flinn in their volumes in the National Coal Board's official history of the industry.[108]

Such sources allowed Tony to interrogate more fully than previously key energy dynamics and developments, such as the estimate that coal provided 11 per cent of energy consumption in England and Wales in the 1560s, but 92 per cent by the 1850s. In his way of seeing things, coal provided, in language popularised by Pomeranz, an immense number of domestic 'ghost acres', allowing the constraints emphasised by the great classical economists to be overcome.[109] As ever, such developments were closely integrated into an understanding of key demographic developments, especially and tellingly around geographical distribution. Previously, Tony had mainly considered such matters in relationship to patterns of urbanisation, but the book now contained some of the fruits of work he had been doing at the Group into the changing geographical distribution of England's population between 1700 and 1851 using counties and hundreds.[110] The importance of such considerations had long been apparent to Tony. For example, in 1996 in a positive review of Cormac Ó Gráda's *A New Economic History of Ireland, 1780–1939* (Oxford, 1994), he wrote that 'Industrial growth in Britain was not a national phenomenon: it was limited to a small number of areas in which growth was intense. But there were always great tracts of Britain which resembled Ireland in failing to generate any significant growth of employment in manufacturing industry.'[111]

Whereas 22 years separated Tony's first and second books on the industrial revolution in England, his third and last appeared after an interval of only six years, when he was 85: *The Path to Sustained Growth: England's Transition from an Organic Economy to an Industrial Revolution* (Cambridge, 2016). Following closely in the footsteps of its predecessors there was nonetheless an attempt to widen the scope. In particular, occupational distribution was addressed, showing as would be expected a technical mastery of the censuses of 1841 and 1851 – earlier ones had not recorded occupational information

[108] Paul Warde, *Energy Consumption in England and Wales, 1560–2000* (Naples, 2007); John Hatcher, *The History of the British Coal Industry. Vol.1, Before 1700: Towards the Age of Coal* (Oxford, 1993); Michael W. Flinn, *The History of the British Coal Industry. Vol.2, 1700–1830: The Industrial Revolution* (Oxford, 1984).

[109] E.A. Wrigley, *Energy and the English Industrial Revolution* (Cambridge 2010), p. 38; Kenneth Pomeranz, *The Great Divergence: China, Europe and the Making of the Modern World Economy* (Princeton NJ, 2000).

[110] Wrigley, *The Early English Censuses*.

[111] E.A. Wrigley, 'Review of Cormac Ó Gráda, *A New Economic History of Ireland*', *Irish Economic and Social History*, 23 (1996), 115.

– as well as, more innovatively, using evidence of male occupations from parish registers to open a window into early modern England. This was work he had recently undertaken with colleagues at the Cambridge Group, but which was very much in tune with the earliest forays he had made into such sources 50 years earlier, effecting a neat closing of that circle.

Across his published work, there was a striking consistency of purpose, scope and approach in Tony's exploration of the industrial revolution in England. Some of these persisting features deserve to be set out. It seems right to start with geography and his preoccupation with developments in England. For Tony this was largely to be thought of as an amalgam of richly diverse geological and environmental circumstances, whose parish records allowed him to interrogate distinctive and distinctively important features of its economic history. He was largely unconcerned with England as a nation, a state or an example. There was nothing remotely 'Little England' about his views here. He quoted approvingly Kipling's injunction 'And what should they know of England who only England know?' and frequently compared developments in England with those of other European nations.[112]

Moreover, Tony focused almost exclusively on developments internal to England, with overseas trade, war or empire barely featuring in his analysis. He knew perfectly well that England's economy was not closed, but this vividly illustrates the utility he placed on exercising Occam's razor, focusing upon a limited number of variables and exploring the connections between them in terms of positive and negative feedback as well as homeostasis. He held strongly to the view that this was intellectually much more robust than a concern with linear causation. Indeed, as he put it, 'The relative importance of the many inter-related changes in train in England as it gradually ceased to be an organic economy cannot be established with any certainty.' But he went further, stating that 'The temptation to seek a cause is strong, but it is seldom possible to establish with certainty that it is demonstrable'; whether the chicken or the egg came first was one way he expressed unease here.[113] This set him somewhat at odds from those numerous studies claiming to have found the fount of the industrial revolution as well as enthusiasts for stage-theories of growth, both Marxian and not. Speculatively, W.W. Rostow's influential book *The stages of economic growth: a non-communist manifesto* (Cambridge, 1960), which had begun life as lectures at Cambridge in 1958, was an important (negative) influence in this respect.

If geography and thinking geographically provided one major frame in Tony's approach to the industrial revolution in England, another was chronology. He believed

[112] Wrigley, *Energy*, p. 191.

[113] Wrigley, *Path*, pp. 131, 202. Interview of E.A. Wrigley by Tim Guinanne, May 2011. Currently available at https://sms.cam.ac.uk/media/1246909.

strongly that developments had to be explored over a period extending from the middle of the 16th to the middle of the 19th century, though the dates varied a little from one study to another. His unusually early start date was a radical break with the classic dating of the first industrial revolution to the years 1760–1830. A minor reason behind this was that it helped rhetorically to demonstrate the significance of what happened subsequently, with productivity in England around 1550 clearly lagging its European neighbours and able to support only modest levels of urbanisation. Certainly, there were other historians who had emphasised developments since the late 16th century, particularly after the crises of the 1590s, but the originality of Tony' perspective ultimately rested upon detailed and continuous demographic evidence, used carefully and imaginatively. This led him to ascribe particular importance to developments in agriculture – 'the most important industry of all' – to wider improvements in productivity from the early 17th century, demonstrated so clearly in the growth of London and subsequent urbanisation elsewhere.[114]

As noted earlier, like the founders of the *Annales* school, even in his earliest research Tony found geographical theory useful as a means of defining and exploring historical questions. Such ideas played their part in his studies of the industrial revolution, but were joined by a deep immersion in the work of a handful of major, largely British, economic theorists writing in the century 1770–1870, especially Smith, Malthus and Ricardo. As a purely economic historian, Smith's *Wealth of nations* meant as much to Tony as any other thinker, suggesting to him several lines of enquiry as well as ways of relating factors to one another. It is telling that Tony noted that in many respects von Thünen, whose ideas about the geography of economic location were also very important to him, was 'an intellectual disciple of Adam Smith'.[115] That said, Adam Smith never appeared in the title of any of Tony's writings, whereas Malthus did on seven distinct occasions, including his very last published work, along with the eight-volume edition of Malthus's writings he produced (see above n. 77). Tony clearly came to feel that in important respects he was following in the footsteps of Malthus and that intellectually they were kindred spirits. Obviously, their concerns overlapped considerably, but both also had a mathematical cast to their mind – Malthus studied the subject at Cambridge. Both explored the *longue durée*, what Malthus called long-term 'oscillations', as well more specific issues such as positive and preventative checks. Tony wrote essays that tested Malthus's views of the pre-industrial economy, judging him a shrewd and imaginative thinker, whose conclusions, often highly challenging at the time, were consistent with the findings of the Cambridge Group. He applauded Malthus's developments as a thinker, the first edition of whose *Essay* was characterised as untypical of the great man.

[114] Wrigley, *Energy*, p. 90.
[115] *Continuity*, p. 53.

In no small measure that was because, much as Tony did, of the weight Malthus came to place upon evidence and experience rather than elegance.[116]

It should also be emphasised that as a quantitative economic historian Tony operated at two levels, using numbers fashioned from raw and often detailed evidence and, like the late 17th-century political arithmeticians William Petty and Gregory King, by speculative numerical reasoning, using some general estimates to gain a greater sense of the developments in and dynamics between those variables he was interested in. This dual way of counting distinguished him from the enthusiasm for what later became known as 'econometric history' that developed from the 1950s. He thought that this had led to some useful work, but he was uninterested in becoming a practitioner.[117] Tellingly, he rarely used estimates of GDP in his work even though such estimates had begun to have a profound impact on studies of the industrial revolution following the publication of Deane and Cole's pioneering estimates in 1962.[118] Tony admired this effort, undertaken in Cambridge – Cole was also at Peterhouse, leaving in 1958, the year that Tony became a full fellow – in 2005 declaring it the most important work in the field published since 1945, but was suspicious of such numbers.[119] As he put it, by lumping everything together GDP estimates 'may conceal as much as they reveal', while 'Few aspects of the development of the English economy in the early modern economy can be quantified with any precision.'[120] In one review he noted approvingly how concentrating exclusively on growth rates was seen as 'stultifying' by David Landes and Joel Mokyr, leading American historians of the industrial revolution in Britain.[121]

In fairness, Tony rarely gave over much space in his writings on the industrial revolution to engaging with the relevant secondary literature. By today's standards, though not those when he entered the field, his footnoting was restrained. Yet he read widely into not just English but European (especially Dutch), Asian and Australian economic history, he was an active referee and reviewer, he frequently attended the annual conferences of the Economic History Society, including as President 1996–98, while as Editor of the *Economic History Review* 1986–92 he had to engage in detail with many very different types of submission, undertaking much copyediting himself. Rather, his restrained use of the works of other economic historians in his writings was a further example of choosing to simplify his approach to enhance the clarity of his thinking and

[116] Wrigley, 'Elegance and Experience'.
[117] Interview of Wrigley by Harte.
[118] Phyllis Deane & W. A. Cole, *British Economic Growth, 1688–1959: Trends and Structure* (Cambridge, 1962).
[119] Interview of Wrigley by Harte.
[120] Wrigley, *Continuity*, p. 105; Wrigley, *Energy*, p. 196.
[121] E.A. Wrigley, 'Review of Joel Mokyr, ed., *The British Industrial Revolution*', *Economic History Review*, 47 (1994), 413.

writing. And though Tony's economic history often rested on the stimulus and endeavours of others at the Cambridge Group, always generously acknowledged, it was very much his own in conception and execution.

Taken together, Tony's economic history was highly distinctive and opened up a wholly new way of understanding the industrial revolution in England. At heart this was because of the originality of what he said: attending to the number and distribution of people by time, place and occupation, widening the time frame, preferring feedbacks to causality, being relentlessly logical, operating at the micro and macro levels, keeping anachronism and teleology within bounds, and thinking regionally not nationally. Yet there was more to his impact than this. Less importantly, it owed something to the tone of his writings, with some echoes of David Glass faintly discernible, as well as an unusual core lexicon: fungible, asymptotic and punctiform are hardly words in common use, save for his fellow geographers. Even so, his prose was precise, as was the architecture of his thought. As Jan de Vries nicely put it, his model of the industrial revolution might be likened to a magnificent Crystal Palace: 'It is parsimonious in its design principles; yet its impact is powerful'.[122]

Unsurprisingly, Tony's social scientific approach led some to bemoan the absence of certain variables from his scheme and the constrained historical contexts he provided. He had little to say about invention, innovation, imitation and inequality in its many manifestations, nor about the state, overseas trade or empire. Given that all history is selective it is more surprising that he paid little attention to how and why coal came to exert the profound influence over economic life that it plainly did, never looking far into how its utilisation was widened in practice. This could give the appearance of a form of geographical determinism: that the first industrial revolution happened where it did because of fortuitous resource endowments. Tony, however, as an economic historian, rarely engaged with his critics, preferring in each volume of his trilogy to emphasise the methodological impossibility of weighing all the factors relevant to understanding the industrial revolution. Selection was essential and he appears never to have wavered in his belief that his choices, mostly made in the 1950s through his distinctive inter-meshing of history and geography, were sound. Indeed, they proved good enough to frame research for six more decades.

When Mack Smith, as Tony's tutor in 1953, identified him as an 'allrounder' he may not have supposed that this trait would continue to be such a prominent feature throughout his long career. It was not long after he became a fellow of Peterhouse that he assumed

[122] Jan de Vries, 'Review of E.A. Wrigley, *Energy and the English Industrial Revolution*', *Economic History Review*, 64 (2011), 1386.

the positions of Domestic Bursar, Praelector, Tutor, and eventually Acting Bursar. Six years after his arrival in the fellowship he became Senior Bursar, aged just 33, with oversight of the college's finances. He assumed those responsibilities simultaneously while successfully nurturing the newly founded Cambridge Group for the History of Population and Social Structure. He was an energetic bursar, making great efforts to meet the needs of research students who had perhaps not received the attention they deserved in a university then far more oriented to serving its undergraduate community. In addition, he carried responsibility for managing the lucrative freeholds that Peterhouse retained in The Albany in central London which had come to the college through the Stone benefaction. In particular, he always reflected warmly on the opportunity the bursarship gave him to engage with the tenant farmers who managed the college's considerable agricultural holdings. In fact, he claimed to have learned a great deal about the role of the tenant farmer, such an important category in England's longer-term success as a highly productive agrarian economic institution, the significance of which was so central to his own view of the precocious development of England's advanced organic economy in the 17th and 18th centuries.

It was not long after he took up his chair at the LSE that his administrative skills were again harnessed. He became vice chair there of the Standing Sub-committee of the Appointments Committee which engaged with all appointments to posts across the School as well as all promotions. It was a major claim on his time, but he was regarded as extremely effective and there were some who thought he would be an ideal candidate for director. While at the LSE he was approached regarding his interest in becoming director of the Wellcome Trust, but he was adamant that he would not be appropriate since he believed that the director should have medical or appropriate scientific qualifications to be credible.[123] Before leaving the LSE for All Souls there were approaches made to him to become the head of various Oxbridge colleges, but he remained deeply committed to completing the project that focused on bringing to light the fruits of the long exercise that was based upon the sample of family reconstitutions.[124] But at All Souls College he took on the role of Academic Secretary, a post intended to improve the monitoring of fellows' research as well as management of the annual elections to research fellowships. He was also a valuable addition to the college's Estates and Finance Committee. Before moving to All Souls, he had become President of Manchester College, a Unitarian foundation in Oxford, and oversaw, with the college's Principal, Dr Ralph Waller, its transition to Harris Manchester College as well as the securing of its full collegiate status in Oxford. At the same time his astute skills as a negotiator made it possible for All Souls, in underwriting the costs of some new building for Harris

[123] Wrigley correspondence.
[124] Wrigley correspondence.

Manchester, to acquire much needed study spaces for fellows in that college which was conveniently physically close to All Souls.

At the time he became Academic Secretary of All Souls he was coming to the end of a six-year period as co-editor of the *Economic History Review*, for which he had certainly been especially assiduous, as any contributor to the journal during the period of his tenure would vouch.[125] Several administrative improvements to the way in which the *Review* functioned regarding the use of copyeditors and proofing were completed, which set in train procedures that subsequent editors of that journal most definitely valued. In addition, he was also an active editor along with Schofield and Laslett for the series that Cambridge University Press was publishing for the Cambridge Group, *Cambridge Studies in Population Economy and Society*, which had reached 18 volumes by 1992 and eventually attained a final total of 45. He had become the Treasurer of the British Academy in 1990, serving for five years, requiring increasingly frequent meetings in London as the Academy embarked on a major appeal to bolster its funds.

Throughout his time at All Souls his principal residence remained in Cambridge, although he managed to spend around three days each week in Oxford and greatly enjoyed participating in the rich programmes of seminars continuing discussions over dinner. However, the disturbance to his family life by his regular trips to and from Oxford, notwithstanding the research time he acquired while there, was stressful and when he was offered the Cambridge Chair of Economic History in 1994, he accepted. Almost simultaneously he was elected Master of Corpus Christi College. Such an appointment was unsurprising since it was almost inevitable that a time would come when he would head an Oxbridge college. Tony's capacity for effective administrative work, his ability invariably to be on top of his brief, and the soundness of his decision-making, inevitably drew institutions towards him when they were looking for leadership. At Corpus, widening access and a radical plan for the internationally significant Parker Library were particular concerns of his Mastership. But he was very busy elsewhere too. Soon after returning to Cambridge, he took on the Presidency of the Economic History Society in 1996 for three years, and a far more demanding position as President of the British Academy between 1997 and 2001. On the latter appointment John McManners FBA, a former colleague from All Souls, wrote congratulating him, but warned that 'you have taken on a time-consuming and demanding task in a period of tensions and new beginnings.'[126] And so it proved. Following a recommendation in the Dearing Report of 1997, Tony was a 'powerful advocate' for the establishment of

[125] Tony produced a very detailed analysis of the publication history, editorial and publishing practices of the *Economic History Review*, 'The review during the last 50 years' in 1999, available as an online resource on the website of the Economic History Society, currently https://files.ehs.org.uk/wp-content/uploads/2020/07/29061036/wrigley50yearsEssay.pdf

[126] British Academy, BAA/PRS/8/1/1/1 – McManners to Wrigley, 1 August 1997.

the Arts and Humanities Research Board (now the AHRC).[127] He also successfully completed the Academy's move into its grander surroundings in Carlton House Terrace, which had involved delicate negotiations with both the government and major donors. He took the lead in significantly revising the academic Sections into which the Academy's Fellowship was organised, in the context of criticisms that it was out of touch, evidenced by the establishment in 1999 of elections to the fellowship of what became the Academy of Social Sciences. His nurturing of the Academy's Development Fund ensured that the British Academy could strengthen the independence and security it enjoys today.[128] Amidst this, somehow, he was persuaded to become the chair of the Isaac Newton Trust in Cambridge in 1998 which, although managed on a day-by-day basis by a director, required him to chair regular meetings of trustees in allocating substantial research funds across the university that were received through the generosity of Trinity College. He retired from that role in 2007, his last major administrative responsibility, when reaching the age of 75, although he served on the management committee of the Cambridge Group until his death. It was only in his eighth decade that Tony's prodigious rate of publications slowed, but even then, after such an intense period of academic leadership, he produced a book, a 460-page collection of his essays (two previously unpublished), eleven articles, and began working on a 200-page draft of another book unfortunately incomplete at his death.

Tony Wrigley, for all his academic grandeur, his headship of prominent national institutions, the conferment on him of a knighthood in 1996, and the winning of laureates and medals for his scholarly contributions, along with seven honorary doctorates and membership of the American Philosophical Society and the American Academy of Arts and Sciences, remained throughout his life a totally unassuming figure. He was until an advanced age remarkably physically fit and active. He learned to swim in his 50s, and jogged regularly until his early 70s. He had a very deep and longstanding interest in cricket, attending test matches whenever possible, usually being present at a couple in each series. He was an ardent collector of *Wisden*, and in his younger days a competent practitioner of the extremely difficult art of leg-break bowling. He remained passionate about his native county Lancashire's cricketing heritage and lauded the feats of its leading players, particularly those most prominent during his youth such as Cyril Washbrook and Brian Statham.

Tony may have been competitive on the cricket field or in the squash court, and although he might write a pungently critical book review particularly of authors whose

[127] James Herbert, *Creating the AHRC: an Arts and Humanities Research Council for the United Kingdom in the Twenty-First Century* (Oxford, 2008), p. 18.

[128] Tony was also concerned that the British Academy should become more outward facing, in particular in respect of the 'public understanding' of its disciplines. And he set in train preparations for the Academy's Centenary in 2002.

technical competence was lacking in their arguments or mis-used data, he rarely criticised scholars in his own articles and monographs and was selective in responding to criticisms of his and the Group's work. Likewise, he would never chastise another scholar when lecturing. He was an elegant lecturer but never purposely flamboyant to attract the attention of his audience. His lectures were of a high intellectual level and would capture the interest of those who were attracted by the intricacy of his argument, particularly since most were replete with some exceptionally carefully crafted and certainly memorable turns of phrase. Most of the doctoral students he supervised achieved high distinction in their disciplines, whether historians, geographers or demographers. He was always gentle in the way he made comments and posed questions in seminars. Many young scholars will have benefited from that aspect of his personality when giving their first paper or defending one of the more than 50 doctoral dissertations that he found the time to examine. As so much of his work had been undertaken in the collaborative workshop conditions of the Cambridge Group, and while a single-minded author, he was fundamentally gregarious in his willingness to engage in discussion and tackle practical research problems. Indeed, he retained a delight in attending and participating in free-flowing conversations at morning coffee with humble student and lofty visiting scholar alike in the Cambridge Group, until his domestic responsibilities kept him at home and the Covid pandemic brought an end to such socialising early in 2020. It is perhaps noteworthy that no *festschrift* for him was prepared by former students and colleagues, although the diversity of his interests may have made it difficult to restrict the length of and give the required coherence to such a volume.

It remains a challenge to know how much of Tony's very distinctive personality derived from his roots in Unitarianism. He clearly admired his father's sermons as a minster. His mother would also have provided inspiration as a committed Sunday schoolteacher. Tony himself, while never a minster, was a prolific sermon-giver in his younger adult years. Fortunately, the hand-written texts of nearly 40 of these sermons and some associated lectures have survived in his personal papers.[129] They cast much light on his views and the development of his thinking. He regularly praised his Unitarian forefathers who had won an independence and a great tradition of free enquiry, and he was adamant that Unitarianism regarded reason and faith as complementary not antagonistic, indeed 'co-necessary' as he put it. He regarded it as absurd to claim that Unitarians, as some supposed, could not have a truly religious experience since they refused to associate themselves with a particular body of doctrine.

[129] Tony's sermons, mostly handwritten, remain in the possession of Tamsin Wrigley who has kindly made them available to us.

There were some aspects and themes in his sermons that frequently recurred, many paralleling similar interests and preoccupations in his academic work, none more so than a regular consideration of the sea change in world views occurring as part of or following the industrial revolution. In fact, he thought the changes that occurred as a result of the Reformation were trivial in comparison, since in the 16th century they were occurring within the context of a pre-industrial society that remained largely intact for many generations that followed. His primary concerns emerged from his focus on the fact that Christianity was at root an historical religion and that its central idioms and poetry were specific to a rural pastoral environment in the Near East and its vulnerabilities. He insisted that all such phenomena, if not entirely alien to, were largely removed from the mainstream experience of an increasingly urbanised British population that by the late 20th century was displaying a growing concern with the fruits of affluence, environmental pollution, and the ever-present threat from weapons of mass destruction. He was adamant that divine providence was being called into play to explain fewer and fewer of the physical phenomena of life, as more mundane explanations were found. Above all he recognised that previously there was nothing equivalent to the fundamental challenge to traditional church teaching that arose as a consequence of seeing the world through Darwinian eyes. A new thought world was now capable of managing both physical and biological phenomena to the supposed benefit of mankind. There would be no need to invoke any power or influence outside these phenomena, which can be made sense of only by man or by the instruments which he has devised for that purpose. Tony increasingly voiced doubts about whether it was personally possible for him simultaneously to inhabit these two parallel worlds. Furthermore, because of the historical origins of Christianity he was troubled by the fact that Christianity was a religion of personal salvation, and he was alarmed by the implications of this for those who lived before the birth of Christ or in parts of the globe that had no links to Palestine at any time. His only means of coming to terms with this dilemma was to accept that Christ himself was full of doubts, and that his specific example could destroy any trance-like state of certainty in Tony's personal set of beliefs.

Tony in his sermons frequently found it necessary to ponder issues to do with the theme of individual salvation, the self, selfishness, personal action and responsibility, notwithstanding the fundamental presence of the Calvinist emphasis on the individual and his independence and isolation. Such concerns are manifestly apparent in the Essex Hall Lecture he gave at the General Assembly of the Unitarian Church in 1972.[130] This annual lecture was generally delivered by a leading Unitarian intellectual figure, and

[130] 'Population: Private Choice and Public Policy', *Essex Hall Lecture 1972* (London, 1972), currently freely available at https://civicrm.unitarian.org.uk/resources/document-library/essex-hall-lecture–1972-population-private-choice-and-public-policy

Tony's lecture focused on the theme of private choice and public policy as they related to contemporary population matters. He was largely concerned with the shift that had made an occurrence in late Victorian times from births as a biological accident within marriage into their outcome as the product of a clearer choice of conscious planning. Very aware of the prevalence of what had become a two-child norm by 1972, he pondered the consequences that could flow from the possibility that for many couples children might increasingly be viewed as consumer durables through the pleasure they could provide for their parents.

Issues to do with the furtherance of the self and competitive modes of behaviour that were so central to the ideas of Adam Smith and Robert Malthus also loom large in Tony's sermons, and he frequently had to apologise for an inability to provide reassurance, certainty and authority in such matters. He did nonetheless urge his listeners to probe further for the truth, even though the price of seeking it brought only more uncertainty and most likely disappointment. He could fondly remind his congregations of the words of Robert Louis Stevenson that 'to travel hopefully is a better thing than to arrive and the true success is to labour'.[131] This may well successfully capture Tony's longer-term encounters with religion. However, when interviewed as late as 2007 he stressed that he had for some time not attended his local Unitarian Church, although he remained a trustee.[132] He did however stress that he retained a keen interest in reading about Unitarians of the late 19th century, when many who were part of a northern English urban elite were facing the problem of reconciling Christianity with Darwinism and science.

There were notable sermons in which he addressed the issues of claims upon and obligations of the individual, by referring to the lessons imparted by the parable of the Good Samaritan as an indication of Christ's impatience with institutional claims on the individual, as well as ties of loyalty even when those loyalties might involve one's own family. While noting that most of us would not wish to see claims placed over and above those of the family and the state, Tony pondered whether it was right to take such a position. Nonetheless his commitment to his own family, which significantly involved the fathering of four children each of whom was born before he gave his Essex Hall Lecture in 1972, was never in doubt. This commitment is especially evident in his relationship with his wife Mieke, who he had met for the first time in the late 1950s when they both attended a meeting of liberal church youth groups drawn from Britain, the United States, Germany and the Netherlands on the Wirral peninsula. Tony's first encounter with Mieke

[131] From Robert Louis Stevenson, *Virginibus Puerisque and Other Papers* (London, 1881), p. 190. Tony also made use of this quotation when reflecting on the outcomes of research since as he put 'this might stand as a motto for all research. Success in research might as justly be measured by the range of new problems revealed as by the solutions of the problems known to exist': Wrigley *et al., English Population History*, p. 556.

[132] Interview of Wrigley by Macfarlane.

Spelberg was strikingly recalled in conversations with his children. He had arrived late at the meeting, having driven from Cambridge, and most delegates had left but he found Mieke entirely alone playing piano serenely in one of the huts that were used to house delegates. Their relationship developed thereafter, and they married in 1960. Mieke came from a Dutch music-loving and musically highly talented family. Her mother was a talented pianist, and her father a leading figure as administrator and broadcaster on Dutch radio at Hilversum before and after the Second World War. Mieke's brother, with whom she occasionally played as a duet, was an oboist in Amsterdam's renowned Concertgebouw Orchestra. She was both a pianist of considerable quality in her own right, and a much-liked piano teacher who served the Cambridge community in a major way alongside teaching piano at the Perse Girl's School.

Tony's loyalty to Mieke and what he thought was the correct setting for the upbringing of his children, as well as the necessary geographical proximity to Mieke's family in Holland, led to his refusal to move to Princeton in 1972.[133] His unwillingness to remove Mieke from her piano-playing and teaching base in 13 Sedley Taylor Road was repeated when he took up positions at the LSE and at All Souls College. Such commitment was most apparent when he did not with Mieke take up residence in the Master's Lodgings at Corpus Christi College. Music occupied a very prominent place in his family's life, and it is notable that when at the LSE Tony took an evening course in Cambridge extending over two full years in which he made a violin for his daughter, Tamsin. It was a striking moment in both his funeral service in March 2022 and again in the memorial service the following September when the violin was played. On both occasions his granddaughter Molly, a budding musician, played the harp with great delicacy. Tony had always taken much delight in his children, particularly when they were young when they will have listened to the remarkable array of stories that he told them. Furthermore, he retained hand-written versions of those stories so that they would be retold to his grandchildren, and at his children's urging he even contemplated seeking their publication in his retirement.

In his later years Tony cared for Mieke at home, who suffered from short-term memory loss and dementia. Tony's stoicism and devotion were noble indeed and his ability to provide care for Mieke, while simultaneously finding solace in his academic work, were striking features of the final decade of his life. But eventually she required 24-hour oversight in a nursing home. Tony then lived alone at 13 Sedley Taylor Road until he was hospitalised a few weeks before his death aged 90 on 24 February 2022. Mieke died aged 89 on 17 November 2023.

[133] Wrigley correspondence.

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