

## E. G. Ravenstein and the “laws of migration”

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E. G. Ravenstein's three articles on migration, the first published one hundred years ago, form the basis for most modern research on migration; if the three articles are collated, his “laws” or perhaps more accurately, hypotheses, total eleven. This article considers, briefly, Ravenstein's career, the sources on which his “laws” were based and some of the difficulties of interpreting the British Census place of birth data. The bulk of the article reviews subsequent work on his eleven hypotheses with reference to nineteenth-century British internal migration. Subsequent work has confirmed that migration was mainly short distance and that there was relatively little increase in the average distance travelled by migrants until after 1850. His step-by-step hypothesis remains untested, but his belief that most migration was from the countryside to the towns is confirmed as is his identification of counter currents. His ideas on sex and age differentials have been borne out. However, his assumptions about the relative importance of natural increase and migration in the growth of cities and the relative importance of “push” and “pull” factors in causing migration merit further research. His original hypotheses have for the most part been confirmed. However, the defects of the published data suggest that nineteenth-century migration will not be properly understood until the enumerators' schedules for the century have been analysed.

### Introduction

It is one hundred years since E. G. Ravenstein's first paper on the laws of migration was published in the *Geographical Magazine*; his later but better known articles appeared in the *Statistical Journal* in 1885 and 1889.<sup>[1]</sup> His work laid the foundation for subsequent research on migration, and indeed one recent authority has written that “while there have been literally thousands of migration studies in the meantime, few additional generalizations have been advanced”.<sup>[2]</sup> Yet geographers paid little attention to his work for three-quarters of a century. However, in 1943 an article by H. C. Darby on nineteenth-century migration within England and Wales renewed interest in Ravenstein's work, which has since become much more familiar to geographers.<sup>[3]</sup> *Ernst Georg Ravenstein* was born in Frankfurt on Main in 1834 but came to England in 1852: he married an Englishwoman and spent the rest of his life in this country, although he died in Germany in 1913. He worked as a cartographer for the War Office from 1854 to 1872, although he was

[1] E. G. Ravenstein, Census of the British Isles, 1871; Birthplaces and migration *Geographical Magazine* 3 (1876) 173–7, 201–6, 229–33; The laws of migration *Journal of the Statistical Society* 48 (1885) 167–227; The laws of migration *Journal of the Statistical Society* 52 (1889) 214–301

[2] E. S. Lee, A theory of migration, pp. 282–97 56 J. A. Jackson (Ed.), *Migration* (London 1969)

[3] H. C. Darby, The movement of population to and from Cambridgeshire between 1851 and 1861 *Geographical Journal* 101 (1943) 118–25

already writing prolifically. After his retirement he was an active member of the Statistical Society, the Royal Geographical Society, the International Geographical Union and the British Association for the Advancement of Science. He wrote on many topics, but his best work was on the history of exploration and on population.<sup>[1]</sup>

This paper has two aims. First, to restate Ravenstein's laws; and second to review the work which has been done on internal migration in nineteenth-century England and Wales since he wrote his work. The latter might seem a limited task. But to review all the work on migration which Ravenstein's seminal papers have stimulated would be daunting, for there have been, as E. S. Lee has noted "literally thousands" of migration studies in many parts of the world since his papers were published.<sup>[2]</sup>

### The "laws" of migration

Ravenstein's "laws" of migration—he also referred to "principles" and "rules"—were listed in his article published in the *Statistical Journal* for 1885; he restated them in a second article in the same journal in 1889. But, he had published an earlier analysis of migration in the *Geographical Magazine* in 1876. It is worthwhile restating his laws on a number of grounds. First, the 1876 article contains a useful generalization on age and migration which is not referred to in the later and better known articles. Second, the 1885 and 1889 laws differ. No reference was made in the 1889 list to the statement that the natives of towns are less migratory than those of rural areas. Third, two additional laws were enunciated in 1889; that towns grow more by immigration than by natural increase, and that the volume of migration increases as transport improves and industry grows. Fourth, two laws in the 1885 list on the process of absorption and dispersion are subsumed into one in 1889, the "step by step" law. Fifth, Ravenstein's list of laws in the 1889 article was preceded by a discussion of the motives for migration. E. S. Lee has suggested, with justification, that this be listed as an additional law.<sup>[3]</sup> Thus the laws may be restated as follows:

- (1) *The majority of migrants go only a short distance*<sup>[4]</sup>
- (2) *Migration proceeds step by step*

Ravenstein wrote in 1885<sup>[5]</sup>

"... the inhabitants of the country immediately surrounding a town of rapid growth flock into it; the gaps thus left in the rural population are filled up by migrants from more remote districts, until the attractive force of one of our rapidly growing cities makes its influence felt, step by step, to the most remote corner of the Kingdom,"

An almost identical statement had appeared in 1876, with the significant omission of the phrase "step by step".

[1] D. Grigg, E. G. Ravenstein *Geographers* 1 (1976)

[2] E. S. Lee, *op. cit.* (1969) 284

[3] E. S. Lee, *op. cit.* (1969) 282–3

[4] Ravenstein, *op. cit.* (1885) 199; (1889) 286

[5] Ravenstein, *op. cit.* (1876) 202; (1885) 199

- (3) *Migrants going long distances generally go by preference to one of the great centres of commerce or industry*<sup>[1]</sup>
- (4) *Each current of migration produces a compensating counter current*<sup>[2]</sup>
- (5) *The natives of towns are less migratory than those of rural areas*<sup>[3]</sup>
- (6) *Females are more migratory than males within the Kingdom of their birth, but males more frequently venture beyond*<sup>[4]</sup>
- (7) *Most migrants are adults; families rarely migrate out of their*<sup>[5]</sup> *county of birth*
- (8) *Large towns grow more by migration than by natural increase*<sup>[6]</sup>
- (9) *Migration increases in volume as industries and commerce develop and transport improves*<sup>[7]</sup>
- (10) *The major direction of migration is from the agricultural areas to the centres of industry and commerce*<sup>[8]</sup>
- (11) *The major causes of migration are economic*<sup>[9]</sup>

### Ravenstein's sources

Ravenstein's laws were based on the place of birth tables published in the British Censuses of 1871 and 1881, together with, in the 1889 paper, similar data from Censuses of North America and Europe. Questions about place of birth were first asked and published in the Census of Great Britain in 1841. It was not until 1851, however, that the place of birth tables showed the county of birth of each resident of England and Wales; at no time did the Census of England and Wales distinguish which county in Ireland or Scotland residents of English and Welsh counties had been born in. Unfortunately, whereas the data on place of enumeration was published for *registration* counties, the county of birth was the *civil* or *ancient* county. As the two counties sometimes had quite different boundaries, these tables have a limited value.<sup>[10]</sup> However, from 1861 to 1901 the place of birth tables used civil counties for both place of birth and place of enumeration.

The limitations of the place of birth tables are well known. They give no indication of when the migrant moved from place of birth to place of enumeration, nor whether he proceeded directly or in stages. There is of course no record of those who had left the British Isles.

Ravenstein classified migrants by the distance they had moved. *Local* migrants moved within the county of their birth, and thus go unrecorded in the Census. *Short-journey* migrants moved only from the county of their birth to an adjacent or border county. *Long-journey* migrants went beyond the border counties. Ravenstein used the data to show that the majority of migrants went only short distances. But the varying size and shape of English counties makes comparisons between counties hazardous.

[1] Ravenstein, *op. cit.* (1885) 199

[2] Ravenstein, *op. cit.* (1876) 230; (1885) 199; (1889) 287

[3] Ravenstein, *op. cit.* (1885) 199

[4] Ravenstein, *op. cit.* (1876) 229; (1885) 199; (1889) 287

[5] Ravenstein, *op. cit.* (1876) 230

[6] Ravenstein, *op. cit.* (1876) 202; (1889) 287

[7] Ravenstein, *op. cit.* (1889) 287

[8] Ravenstein, *op. cit.* (1876) 202

[9] Ravenstein, *op. cit.* (1885) 181, 198; (1889) 286

[10] Darby, *op. cit.* (1943)

We can now turn to consider what subsequent work has been done upon nineteenth century English migration, discussing in turn each of Ravenstein's "laws".

### 1. *The majority of migrants go only a short distance*

Although some writers<sup>[1]</sup> have questioned whether short-distance migration was quite as important as Ravenstein argued, most have agreed that it predominated in nineteenth-century England, and indeed still does today. Mostly this has been achieved by showing that the majority of the non-natives living in a town or county in a given year were born in the border counties; but the relationship between distance and migration can be also shown cartographically, by relating immigrants to a town or county to either the area or the population of the county from whence they came. The predominance of short-distance migration in the nineteenth century has been demonstrated for Cambridgeshire, the West Midlands, London, York, Liverpool, Essex, Barrow, Nottinghamshire, Glasgow, North eastern England, Northampton, South Shields, Oldham and South Wales.<sup>[2]</sup>

All these articles rely upon the printed tables of the Census. However, the Census enumerators' schedules can now be consulted for 1841, 1851, 1861 and 1871 and they give the birth place of every *individual* recorded. So far they have been little used for the study of migration, but M. Anderson has used the 1851 material for Preston.<sup>[3]</sup> Forty-eight per cent of those enumerated had been born there; of those born elsewhere 42% had been born within 10 miles of the town, and only 30% 30 miles or more away, including 14% in Ireland.

Where only the county of birth is known exact migration distances cannot be derived. However, if migrants are assumed to have moved from the mid-point of the county of birth to the mid-point of the county of enumeration average distances can be cited. This was first done to discuss migration to

[1] Darby, *op. cit.* (1943); R. Lawton, Geographical analysis of population movements, pp. 60-4 of G. Kuriyan (Ed.), *The Indian Geographical Society Silver Jubilee Souvenir and N. Subrahmanyam Souvenir volume* (Madras 1952); The population of Liverpool in the mid-nineteenth century *Transactions of the Historical Society of Lancashire and Cheshire* 107 (1955) 89-120

[2] Darby, *op. cit.* (1943); R. Lawton, Genesis of population, pp. 120-31 of W. Smith (Ed.), *A scientific survey of Merseyside* (Liverpool 1953); Lawton, *op. cit.* (1955); Lawton, Population movements in the West Midlands 1841-1861 *Geography* 43 (1958) 164-77; H. A. Shannon, Migration and the growth of London, 1841-1891 *Economic History Review* 5 (1934) 79-86; W. A. Armstrong, *Stability and change in an English county town: a social study of York 1801-1851* (Cambridge 1974); A. B. Hill, Internal migration and its effects upon the death rates with special reference to the County of Essex. Medical Research Council, Special Report Series, No. 95 (London 1925); J. D. Marshall, *Furness and the industrial revolution: an economic history of Furness (1711-1900) and the town of Barrow (1757-1897), with an epilogue* (Barrow in Furness 1958); R. Osborne, Population and settlement, pp. 341-360 of K. C. Edwards (Ed.), *Nottingham and its region* (Nottingham 1966); A. Redford, *Labour migration in England, 1800-1850* (Manchester 1926); J. W. House, North-eastern England: population movements and the landscape since the early nineteenth century *University of Durham, King's College, Newcastle, Department of Geography Research Series* 1; P. N. Jones, Some aspects of immigration into the Glamorgan coalfield between 1881 and 1911 *Transactions of the Honorable Society of Cymmrodorion* (1969) 82-98; B. Thomas, The migration of labour into the Glamorganshire coalfield (1861-1911) *Economica* 10 (1930) 275-94; J. Foster, *Class struggle and the industrial revolution: early industrial capitalism in three English towns* (London 1974) 77

[3] M. Anderson, *Family structure in nineteenth century Lancashire* (Cambridge 1971); Urban migration in nineteenth century Lancashire: some insights into two conflicting hypotheses *Annales de Demographie Historique* 2 (1971) 13-26

London,<sup>[1]</sup> but greatly expanded by Friedlander and Roshier to calculate the average distance moved between all adjacent counties, and from all counties to all non-adjacent counties between 1851 and 1911.<sup>[2]</sup> They found that the average distance moved between adjacent counties only varied between 45 and 53 miles between 1851 and 1911; movement between all counties and all non-adjacent counties varied between 107 and 114 miles from 1851 to 1911, but rose to 123 miles in the period 1931–51.

This is surprising for it has been suggested that the relative importance of long-distance compared to short-distance migration would have risen in the nineteenth century as the railway net extended and urbanization proceeded.<sup>[3]</sup> Even more striking differences might be expected between the average distance travelled in pre-industrial England and the period after 1750.

There are of course no place of birth tables before 1841 but two types of evidence have been used to trace migration in England before the nineteenth century. First are various lists of residents of towns which give the place of birth; they include lists of apprentices and freemen, deposition books and settlement certificates, and are invariably a biased sample—freemen coming from the wealthier sections of the population, whilst settlement certificates concerned the very poor.<sup>[4]</sup> All studies using these data, for various dates from the twelfth to the eighteenth centuries, confirm that short-distance migration was overwhelmingly important in towns in Kent, in Wednesbury, Sheffield, Stratford, Leicester, Sussex, St Helens, Bedfordshire, London and Birmingham.<sup>[5]</sup> Unfortunately these data rarely cover a long period and preclude any attempt to discover if the average distance moved rose in the eighteenth and nineteenth centuries.

A second source of evidence are parish registers, which survive for some parishes from the sixteenth century: in some cases they give the place of residence of bride

- [1] H. Llewellyn-Smith, Influx of population, pp. 59–143 of C. Booth (Ed.), *Life and labour of the people in London* 3 (London 1902)
- [2] D. Friedlander and R. J. Roshier, A study of internal migration in England and Wales, part 1 *Population Studies* 19 (1966) 239–79
- [3] Darby, *op. cit.* (1943) 124–5; Redford, *op. cit.* (1926) 190
- [4] J. Patten, Rural–urban migration in pre-industrial England *University of Oxford, School of Geography, Research Paper* 6 (1973)
- [5] C. W. Chalklin, *Seventeenth century Kent: a social and economic history* (London 1965) 33; A. F. Butcher, The origins of Romney freemen 1433–1523 *Economic History Review* 27 (1974) 16–27; P. Clark, The migrant in Kentish towns 1580–1640, pp. 117–63 of P. Clark and P. Slack (Eds), *Crisis and order in English towns 1500–1700* (London 1972); J. F. Ede, *History of Wednesbury* (Wednesbury 1962) 172; E. J. Buckatzsch, Places of origin of a group of immigrants into Sheffield, 1624–1799 *Economic History Review* 2 303–6; E. M. Carus-Wilson, The first half century of the borough of Stratford upon Avon *Economic History Review* 18 (1965) 46–63; C. T. Smith, The growth of Leicester 1670–1835, pp. 191–2 of R. A. McKinley (Ed.) *V.C.H., Leicester* 4 (London 1958); J. Cornwall, Evidence of population mobility in the seventeenth century *Bulletin of the Institute of Historical Research* 40 (1967) 143–52; T. C. Barker and J. R. Harris, *A Merseyside town in the industrial revolution: St. Helen's 1750–1900* (Liverpool 1954) 145; N. L. Tranter, Population and social structure in a Bedfordshire parish: the Cardington listing of inhabitants 1782 *Population Studies* 21 (1967) 261–82; D. F. McKenzie, Apprenticeship in the Stationer's Company, 1550–1640 *The Library* 13 (1958) 292–8; D. V. Glass, Socioeconomic status and occupations in the City of London at the end of the seventeenth century, pp. 373–85 of A. E. J. Hollander and W. Kellaway (Eds), *Studies in London history* (London 1969); J. C. Russell, Medieval midland and northern migration to London *Speculum* 34 (1959) 641–5; W. H. B. Court, *The rise of the Midland industries 1600–1838* (Oxford 1953) 47–8; R. A. Pelham, The immigrant population of Birmingham 1686–1726 *Transactions and Proceedings of the Birmingham Archaeological Society* 61 (1937) 45–82

and groom. Although they only indicate a special type of mobility they can demonstrate long-term trends in migration distances. Studies of a number of parishes near Otmoor in Oxfordshire have shown that spatial mobility increased from the sixteenth to the nineteenth centuries.<sup>[1]</sup> In the early seventeenth century nearly four-fifths of those married were both resident in the parish where the marriage was celebrated, but by the first half of the twentieth century less than 20%. The decline was particularly sharp in the second half of the nineteenth century. When exogamous marriages are considered—that is where one or both of the partners were resident outside the parish—the mean marriage distance remained little changed at between four and eight miles until 1850, after which a sharp increase was noted. A similar study of five villages in Northamptonshire and Huntingdonshire from 1754 to 1943 shows that the average distance between a man's place of residence and his place of marriage was 2.9 miles from 1754 to 1843, but 12–16 miles from 1844 to 1943.<sup>[2]</sup> Similar work on parishes in Northamptonshire and Dorset would also suggest that it was not until the second half of the nineteenth century that there was a significant increase in marriage distances.<sup>[3]</sup>

Unfortunately, information from marriage registers is not an entirely reliable guide to the general mobility of the population, although it does suggest that the early stages of industrialization did not lead to a dramatic increase in the average distance travelled by migrants. The evidence of the place of birth statistics suggests that for some towns at any rate migrants came from a longer distance after 1851. Thus half the non-natives of the town of Nottingham in 1861 had been born elsewhere in the county; by 1891 this had fallen to only 20%.<sup>[4]</sup> In 1841 only 10% of the immigrants in Bradford had been born outside Yorkshire, by 1851 over 20%.<sup>[5]</sup> The dramatic growth of Middlesbrough led to a fall in the proportion of the population who were Yorkshire born, from 75% in 1861 to only 50% in 1871.<sup>[6]</sup>

Although Ravenstein emphasized the effect of distance upon migration, he was aware that ease of access and nearness to other towns were also important.<sup>[7]</sup> Thus the density of emigrants from Cambridgeshire in 1851 and 1861 declined with distance for the most part: but London, Lancashire and the West Riding exercised a disproportionate attraction.<sup>[8]</sup> Ravenstein cannot then be seen as one of the pioneers of the gravity model; he made no explicit discussion of the influence of distance, the size of the attracting town and the source area of the immigrants. On the other hand, he suggested, in his discussion of the step hypothesis, the idea of

[1] C. F. Küchemann, A. J. Boyce and G. A. Harrison, A demographic and genetic study of a group of Oxfordshire villages *Human Biology* 39 (1967) 251–76; A. J. Boyce, C. F. Küchemann and G. A. Harrison, The reconstruction of historical movement patterns, pp. 303–19 of E. D. Acheson (Ed.), *Record linkage in medicine* (Edinburgh 1968)

[2] A. Constant, The geographical background of intervillage population movements in Northamptonshire and Huntingdonshire, 1754–1943 *Geography* 33 (1948) 78–88

[3] R. F. Peel, Local intermarriage and the stability of rural population in the English Midlands *Geography* 27 (1942) 22–30; P. J. Perry, Nineteenth century working class isolation and mobility in rural Dorset, 1837–1936 *Transactions of the Institute of British Geographers* 46 (1969) 115–41

[4] R. A. Church, *Economic and social change in a Midland Town: Victorian Nottingham, 1815–1900* (London 1966) 234

[5] J. F. C. Harrison, *The Early Victorians 1832–1851* (London 1971) 147

[6] Redford, *op. cit.* (1926) 189

[7] Ravenstein, *op. cit.* (1876) 204; (1885) 206

[8] Darby, *op. cit.* (1943) 124–5

"intervening" opportunities.<sup>[1]</sup> He did not, and indeed could not, given the nature of his data, suggest, as some contemporary German writers did, that migration proceeded *staffelweise*, from farm to village, village to town, town to city and city to metropolis.<sup>[2]</sup>

## 2. Migration proceeds step by step

Ravenstein's assertion that migrants did not proceed directly to their destination but by a series of steps was accepted and indeed publicized by Arthur Redford, who wrote in his review of early nineteenth-century migration: "... immigration into any centre of attraction having a wide sphere of influence was not a simple transfer of people from the circumference of a circle to its centre, but an exceedingly complex wavelike motion".<sup>[3]</sup> Unfortunately it is difficult to substantiate this from the printed tables of the Census, although Ravenstein devoted much of his 1876 paper to this topic.

Llewellyn-Smith, in his study of late-nineteenth century migration to London, tried to test the hypothesis. He argued that if migrants proceeded by steps, settling for long periods at intervening places, then the average age of migrants from a great distance living in London would be greater than of those coming from near the city; his data for 1861 would appear to bear this out.<sup>[4]</sup> But the age of migrants in 1861 was not the age at which they arrive in London.<sup>[5]</sup>

The enumerator's schedules provide one means of testing the step hypothesis, for if families rather than individuals are considered, and the birthplaces of children are noted, the movement of the family group can be traced. Lawton has shown the circuitous manner in which some residents of Liverpool in 1851 must have arrived there.<sup>[6]</sup> A more sustained analysis has been made by D. Bryant, who has used the birth-place of mothers, their children and their place of residence in 1851 to demonstrate such movements in a number of South Devon parishes.<sup>[7]</sup> This method could be applied to large towns, although it must be remembered that much migration was by young, single people, rather than by families.<sup>[8]</sup> At present, it is difficult to confirm the step hypothesis; nor has modern research been able to examine the idea, although it has been shown that 50% of a sample of migrants in Bristol had not come directly.<sup>[9]</sup> The few writers who have reconsidered the concept have been sceptical of its validity.<sup>[10]</sup>

[1] Ravenstein, *op. cit.* (1889) 286; S. A. Stouffer, Intervening opportunities: a theory relating mobility and distance *American Sociological Review* 5 (1940) 845-67

[2] A. Weber, *The growth of cities in the nineteenth century: a study in statistics* (New York 1899) 267

[3] Redford, *op. cit.* (1926) 186

[4] Llewellyn-Smith, *op. cit.* (1902) 69-70

[5] W. A. Armstrong, The interpretation of the Census Enumerator's books for Victorian towns, pp. 73-84 of H. J. Dyos (Ed.), *The study of urban history* (London 1968)

[6] Lawton, *op. cit.* (1955) 101

[7] D. Bryant, Demographic trends in South Devon in the mid-nineteenth century, pp. 125-142 of K. J. Gregory and W. L. D. Ravenhill (Eds), *Exeter essays in geography in honour of Arthur Davies* (Exeter 1971)

[8] Armstrong, *op. cit.* (1968) 84

[9] C. J. Jansen, Migration: a sociological problem, pp. 4-21 of C. J. Jansen (Ed.), *Readings in the sociology of migration* (London 1970)

[10] C. T. Smith, The movement of population in England and Wales in 1851 and 1861 *Geographical Journal* 117 (1951) 200-10; B. A. Holderness, Personal mobility in some rural parishes of Yorkshire, 1777-1822 *Yorkshire Archaeological Journal* 42 (1970) 444-54; M. Anderson, "Urban migration" *op. cit.* (1971); J. Saville, *Rural depopulation in England and Wales, 1851-1951* (London 1957)

3. *Migrants proceeding long distances generally go by preference to one of the great centres of commerce or industry*

Although Ravenstein maintained that the bulk of migrants went only short distances, he recognized that a certain proportion—he estimated 25%—of all migrants went long distances and that they went *directly* to the large industrial or commercial towns.

But there is no reliable means of estimating the proportion of long-distant migrants or showing that they had proceeded directly to a large town or, as has been noted earlier, of ascertaining whether long-journey migrants increased in relative importance throughout the nineteenth century. Ravenstein, however, recognized a “special class” of migrants who moved long distances, and there is some suggestion in recent work that long-distance migrants had more skill or education than short-distance migrants, as recent studies of migration in Birmingham, York and the Peak District<sup>[1]</sup> have shown, whilst there is some evidence that the volume of long-distance migration varied with fluctuations in the trade cycle.<sup>[2]</sup>

4. *Every migratory current has a counter-current*

Even in areas suffering from heavy net out-migration there is always some in-migration. Thus, for example, Huntingdonshire's population fell because of out-migration at every census from 1861 to 1901. Yet in 1901 there were natives of every English and Welsh county living in the county, whilst Anglesey, whose population had been falling since 1851, also had representatives of all other Welsh and English counties.<sup>[3]</sup> Ravenstein was thus remarkably perceptive in calling attention to the existence of these counter-currents. There are unfortunately few studies of the areas of in-migration and out-migration for individual counties in the nineteenth century, other than Ravenstein's own work, but those that have been done suggest that the areas of in-migration and out-migration were very similar.<sup>[4]</sup> Hägerstrand has since elaborated this idea and described the *migration fields* of a number of Swedish parishes.<sup>[5]</sup>

5. *The natives of towns are less migratory than those of rural districts*

Ravenstein stated this as one of his laws only in the 1885 paper, but his statistics are unconvincing; indeed as has been pointed out, the figures may be interpreted to show the converse.<sup>[6]</sup> No subsequent writers on British migration have considered this “law”.

[1] R. Lawton, *An age of Great cities Town Planning Review* 43 (1972) 199–224; W. A. Armstrong, “Stability and change” *op. cit.* (1974); R. Hall, *Occupation and population structure in part of the Derbyshire Peak District in the mid-nineteenth century East Midland Geographer* 6 (1974) 66–78

[2] Thomas, *op. cit.* (1930)

[3] *Census of England and Wales, 1901: Summary tables: Area, houses and population; also population classified by ages, condition as to marriage, occupation, birth places and infirmities*, Session Papers, 1903, 84 (Cd. 1523) 246–7

[4] Darby, *op. cit.* (1943)

[5] T. Hägerstrand, *Migration and area: survey of a sample of Swedish migration fields and hypothetical considerations on their genesis*, pp. 27–158 of D. Hanneberg, T. Hägerstrand and B. Odeving (Eds), *Migration in Sweden: a symposium*, Lund Studies in Geography, Series B 13 (Lund 1957)

[6] P. A. Sorokin, C. C. Zimmerman and C. J. Galpin (Eds), *A systematic sourcebook in rural sociology* 1 (Minneapolis 1932) 218–9



*6. Females are more migratory than males within the kingdom of their birth, but males move more frequently abroad*

Ravenstein noted that in 1871 and 1881 Census tables, more women were found outside the counties of their birth within England and Wales but more men in Scotland and Ireland, and thus argued that females were more migratory than men over short distances, but that more men tended to travel longer distances. This was partly due to the sex ratio in the nineteenth century, and that more men than women migrated overseas.<sup>[1]</sup> But later work has substantiated the hypothesis.<sup>[2]</sup> A majority of emigrants from rural Essex went to London, where more Essex born women than men were to be found. But the female surplus diminished with distance from Essex; in the northern manufacturing towns there were more Essex men than women. The reasons for the greater propensity of women to migrate would seem to be the lack of employment opportunities in rural areas, urban demand for domestic servants and the fact that it was normally women who moved at marriage.

There were, however, exceptions to the generalization that women were more migratory than men; in some of the rising heavy industrial areas in the late nineteenth century more male than female migrants were recorded, as has been shown for Barrow, the Rhondda and Middlesbrough.<sup>[3]</sup> The preponderance of women amongst migrants received special attention in the 1911 Census reports; the comparatively few exceptions amongst the counties and county boroughs were garrison towns, mining areas, ports and a number of manufacturing towns.<sup>[4]</sup>

The predominance of women amongst migrants has greatly diminished since the nineteenth century. Within Scotland, for example, there is now little difference in the migratory propensities of men and women, although there are more male immigrants into the country.<sup>[5]</sup>

*7. Most migrants are adults; families rarely migrate*

In his 1876 paper Ravenstein briefly considered age and migration, and was able to show that whilst over half the English-born living in their native counties were under 20, only 28 % of the men and 25 % of the women who lived in English and Welsh counties other than that in which they were born were under 20 years old. With similar data on Scotland and Ireland he concluded that more than two-thirds of the migrants were over 20 years or more, and that whole families leave the county of their birth only under exceptional circumstances.<sup>[6]</sup> He did not return to this issue in his later papers. Nor was he the first to establish the now widely accepted principle that migrants are predominantly adolescents and young adults, between the ages of 15 and 35. Indeed as the Census at the time simply distinguished between over and below 20 years, this was impossible.

[1] Saville, *op. cit.* (1957) 90; M. L. Tranter, *Population since the Industrial Revolution: the case of England and Wales* (London 1973) 59

[2] Hill, *op. cit.* (1925)

[3] Marshall, *op. cit.* (1958) 353; E. D. Lewis, *The Rhondda Valleys* (London 1959) 239; Ravenstein, *op. cit.* (1885) 215

[4] *Census of England and Wales 1911, vol. 9 Birthplaces*, Sessional Papers, 1913, 77 (Cd. 7017)

[5] T. H. Hollingsworth, *Migration: a study based on Scottish experience between 1939 and 1964 University of Glasgow Social and Economic Studies. Occasional Papers 12* (Glasgow 1970) 64, 122

[6] Ravenstein, *op. cit.* (1876) 230

As early as 1851 the authors of the General Report to the Census had noted the much greater proportion of adults than young children who had migrated,<sup>[1]</sup> but there was no subsequent comment in the reports until 1911, when the Census published, for selected counties and county boroughs, the ages of non-natives. These natives showed the disproportionate numbers in the 25–35 age groups when compared with the population as a whole.<sup>[2]</sup> Earlier, Llewellyn-Smith had shown that migration into London took place mainly at ages between 15 and 30 years,<sup>[3]</sup> and A. L. Bowley demonstrated that the maximum movement of agricultural labourers out of rural areas took place when they were aged between 17 and 25 years.<sup>[4]</sup> But it was A. B. Hill's work on migration from Essex that established the predominance of migration in the younger age groups. He found that in the 1850s the heaviest losses for males were in the age groups 15–20 and 20–25, amongst girls 10–15 and 15–20, and that the same held true for the period 1901–11. There was little change in the age of migration between the two dates.<sup>[5]</sup> Nearly all modern studies have confirmed that migrants are predominantly adolescents and young adults, both in Britain and elsewhere in the world.<sup>[6]</sup>

#### 8. *Towns grow more by migration than by natural increase*

Ravenstein listed this statement as one of his general conclusions in the 1885 paper, and he has made a similar assertion in the 1876 paper. He offered no evidence to support it yet it was generally believed at the time.<sup>[7]</sup> There was some evidence to support this belief. In pre-industrial towns mortality was so high that immigration was necessary to maintain numbers. It was once thought by historians that mortality was equally high in the new industrial towns of the nineteenth century, so that their rapid growth could only have been due to migration.<sup>[8]</sup> Yet natural increase may have been more important in urban growth before 1851 than is sometimes admitted. In spite of the defects of parish registers,<sup>[9]</sup> they show that growth by natural increase alone had begun in some towns in the second half of

[1] *Census of Great Britain, 1851: Population tables 2: Ages, general condition, occupations and birth places*, Sessional Papers, 1852–53, 87 (Cd. 1691) civ

[2] *Census of England and Wales 1911, vol. 9 Birthplaces*, Sessional Papers, 1913, 77 (Cd. 7017) xxiv

[3] Llewellyn-Smith, *op. cit.* (1902) 70

[4] A. L. Bowley, Rural population in England and Wales: a study of the changes of density, occupations and ages *Journal of the Royal Statistical Society* 77 (1914) 597–645

[5] Hill, *op. cit.* (1925)

[6] Hollingsworth, *op. cit.* (1970); Jansen, *op. cit.* (1970); M. P. Newton and J. R. Jeffrey, *Internal migration; some aspects of population movements within England and Wales*, General Register Office Studies in Medical and Population Subjects 5 (London 1951)

[7] *Census of Great Britain, 1841*, Sessional Papers, 1843, 22 (Cd. 496) 13

[8] C. M. Law, The growth of urban population in England and Wales, 1801–1911 *Transactions of the Institute of British Geographers* 41 125–44; E. A. Wrigley, A simple model of London's importance in changing English society and economy 1650–1750 *Past and Present* 37 (1967) 44–70

[9] J. T. Krause, Changes in English fertility and mortality, 1781–1850 *Economic History Review* 11 (1958) 52–70; P. Razzell, The evaluation of baptism as a form of birth registration through cross-matching census and parish register data: a study in methodology *Population Studies* 26 (1972) 46; B. Hammond, Urban death rates in the early nineteenth century *Economic History* 1 (1928) 419–28

the eighteenth century.<sup>[1]</sup> Thus, according to J. D. Chambers, "the mid-eighteenth century may be said to represent the dawning of a new urban age".<sup>[2]</sup> Nonetheless the growth would have been slow, had it not been for the increased volume of migration. Chambers' study of Nottingham between 1700 and 1801 shows that the town gained by natural increase in every quinquennium after 1745, but in each quinquennium the gain by migration exceeded that by natural increase.<sup>[3]</sup> But the rôle of migration must have been more important than a simple comparison of the increase due to natural gain and to immigration might suggest. Immigrants tended to be young and often unmarried; they married in the towns and their children formed part of the natural increase.

In the first half of the nineteenth century, many towns grew by natural increase—in spite of the high death rates—but the contribution of migration was still more important. Thus the township of Liverpool gained by natural increase 1811–21, 1821–31 and 1831–41, but, in the first two of these decades, migration greatly exceeded natural increase.<sup>[4]</sup> In Hull there was a small gain by natural increase after 1750 but most of the increase was due to migration.<sup>[5]</sup> But after 1871 Hull's gain by natural increase consistently exceeded that by migration. Where studies have been made of the relative importance of migration and natural increase in the second half of the nineteenth century, using the Registrar General's figures, they show that natural increase had become far more important than migration in accounting for urban growth.<sup>[6]</sup>

Comparatively little has been written on the relative importance of natural increase and migration in accounting for the growth of British cities in the nineteenth century. Not only did it apparently vary over time, but there were undoubtedly differences between towns; thus in the 1880s migration accounted for 71·7% of Manchester's population increase, only 9·4% of Edinburgh's.<sup>[7]</sup> Further, there were increasingly important differences within cities. The old centres of cities began to lose by migration, whilst the suburbs grew by both natural increase and migration. Here is a major field for research.

- [1] J. D. Chambers, *Population change in a provincial town: Nottingham 1700–1800*, pp. 97–124 of L. S. Pressnell (Ed.), *Studies in the Industrial Revolution* (London 1960); P. Deane and W. A. Cole, *British economic growth 1688–1959* (Cambridge 1962) 109; A. Weber, *op. cit.* (1899); J. E. Williams, *Hull 1700–1835*, pp. 90–173 of K. J. Allison (Ed.), *V.C.H., East Riding 1 The City of Kingston-upon-Hull* (Oxford 1960); F. Beckwith, *The population of Leeds during the Industrial Revolution* *Publications of the Thoresby Society* 41 (1948) 120–73
- [2] J. D. Chambers, *Population, economy and society in Pre-industrial England* (Oxford 1972) 115
- [3] Chambers, "Population change," *op. cit.* (1960)
- [4] Lawton, *op. cit.* (1953)
- [5] J. E. Williams, *op. cit.* (1969) 191
- [6] Shannon, *op. cit.* (1934); H. A. Shannon and E. Grebenik, *The population of Bristol* National Institute of Economic and Social Research, *Occasional Papers* 11 (Cambridge 1943); K. Pickett, *Migration in the Merseyside area*, pp. 108–48 of R. Lawton and C. M. Cunningham (Eds), *Merseyside: social and economic studies* (London 1970); D. V. Glass, *A note on the under-registration of births in Britain in the nineteenth century* *Population Studies* 5 (1951) 70–88; M. S. Teitelbaum, *Birth under-registration in the constituent counties of England and Wales: 1841–1910* *Population Studies* 28 (1974) 329–44.
- [7] E. E. Lampard, *The urbanizing world*, pp. 3–57 of H. J. Dyos and M. Wolff (Eds), *The Victorian City: images and realities* (London 1973)

9. *Migration increases as industries develop and the means of transport improves*

Ravenstein believed that the volume of migration was increasing, a view shared by later writers such as Adna Weber.<sup>[1]</sup> Unfortunately the place of birth tables have considerable limitations in tracing such changes. They exclude movements within a county, which were probably a majority of all moves; and they refer not to intercensal *net* movement, but to lifetime migration. It is however, possible to modify the figures to show net intercensal movement between counties by adjusting the place of birth figures. Various methods have been tried to produce corrected net gains and losses for South Wales, and for England and Wales as a whole.<sup>[2]</sup> Only Friedlander and Roshier's figures provide a basis for calculating long-term trends in the volume of migration. Friedlander has subsequently calculated that rural-urban migration increased six-fold between the 1800s and a peak in the 1840s, and thereafter declined<sup>[3]</sup> (Table 1). However, other calculations—made by A. K.

TABLE 1  
*Rural-urban migration in England and Wales in the nineteenth century (thousands)*

1800	541	1860	2,856
1810	883	1870	2,540
1820	1,094	1880	2,000
1830	2,336	1890	1,257
1840	3,380	1900	1,039
1850	2,217		

Source: Friedlander (1969).

Cairncross using the census data and the registration of births and deaths for the period 1841–1911—suggest that the rural exodus from *rural registration districts* did not reach its peak until the 1880s, declining thereafter.<sup>[4]</sup>

10. *The major direction of migration is from the rural areas to the towns*

All Ravenstein's data suggested that it was the industrial and commercial counties which were gaining most by migration, and the rural counties which were losing or gaining least. He emphasized, however, the predominance of short-distance migration and therefore did not assume, as some later writers did, that there was a movement of population from the agricultural south and east to the industrial Midlands and North. This had been noted in the General Report of the 1861 census; "the tendency of the South Saxon population to emigrate to the North is excessively small . . .".<sup>[5]</sup> It was left to Arthur Redford<sup>[6]</sup> to state more

[1] Weber, *op. cit.* (1899)

[2] Thomas, *op. cit.* (1930); Shannon, *op. cit.* (1934); Friedlander and Roshier, *op. cit.* (1966); D. E. Baines, The use of published census data in migration studies, pp. 311–35 of E. A. Wrigley (Ed.), *Nineteenth century society: essays in the use of quantitative methods for the study of social data* (Cambridge 1972)

[3] D. Friedlander, Demographic responses and population change *Demography* 6 (1969) 359–81

[4] A. K. Cairncross, Internal migration in Victorian England, pp. 65–83 of A. K. Cairncross, *Home and foreign investment 1870–1913; studies in capital accumulation* (Cambridge 1953)

[5] *Census of England and Wales 1861, vol. 3 General report*, Sessional Papers, 1863, 53 (Cd. 3221)

[6] A. Redford, *op. cit.* (1926) 62, 183–7

categorically that the growing industrial towns of the north recruited their migrants mainly from the North and Midlands, whilst those living south of a line from the Wash to the Severn migrated mainly to London, a pattern well demonstrated by subsequent writers.<sup>[1]</sup>

Whilst it would seem to be true that the major flows of migrants were from the rural districts to London and the industrial and commercial towns of the Midlands and the North, by the 1880s another movement was apparent, as was noted by Ravenstein. Commenting on the counter-currents of migration from London to the adjacent counties, he observed that "many have merely removed to what are actually suburbs and can hardly be said to have left the metropolis".<sup>[2]</sup> This was a new direction for British migration and one that has become the major form of movement in modern times.<sup>[3]</sup> As yet, however, comparatively little is known about the nature of early suburban migration. Did the populations of these early suburbs come from the old city centres or did migrants to London settle initially in the suburbs? Were the suburbs healthier and thus possessed of higher rates of increase? A beginning has been made on such work but much remains to be done.<sup>[4]</sup>

In demographic terms the nineteenth century ended with the outbreak of the First World War. In the 1920s and 1930s new directions of flow became important; suburban migration continued in the south east, and inter-urban flows, particularly from the old industrial regions to London and the Midlands became more important than rural-urban movement.<sup>[5]</sup> But little of this was apparent in Ravenstein's lifetime, although by the 1880s some northern industrial towns were already showing a migrational loss.<sup>[6]</sup>

### 11. *The main causes of migration are economic*

Ravenstein had little doubt that the main causes of internal migration were the attraction of more jobs and higher wages in the towns, although he did note the significance of 'overpopulation' in rural areas.<sup>[7]</sup>

Subsequent work would suggest he was right, at least for the second half of the nineteenth century, for fluctuations in the volume of rural-urban migration showed little correlation with prosperity in agriculture, and average wages in industry were above those in agriculture from the middle of the century until the present day.<sup>[8]</sup> After 1851 there was a continuous decline in the numbers employed in agriculture and widespread rural depopulation.<sup>[9]</sup> Before 1841 there is little reliable information

[1] C. T. Smith, *op. cit.* (1951); R. H. Osborne, Migration trends in England and Wales, 1901–1951 *Geografica Polonica* 3 (1964) 137–62

[2] Ravenstein, *op. cit.* (1885) 185

[3] D. Friedlander, England's urban transition 1851–1951 *Urban Studies* 11 (1974) 127–41

[4] H. J. Dyos and D. A. Reeder, Slums and Suburbs, pp. 359–388 in H. J. Dyos and M. Wolff (Eds), *The Victorian City: images and realities* vol. 1 (London: 1973); R. Lawton, The population of Liverpool, *op. cit.* 1955; J. R. Kellie, *The impact of railways on Victorian Cities* (London 1969); Shannon and Grebenik *op. cit.* (1943)

[5] R. H. Osborne, *op. cit.* (1964); Friedlander and Roshier, *op. cit.* (1966)

[6] A. K. Cairncross, *op. cit.* (1953)

[7] Ravenstein *op. cit.* (1885) 181; *op. cit.* (1889) 286

[8] Cairncross, *op. cit.* (1953); J. R. Bellerby *Agriculture and industry: relative income* (London 1956)

[9] J. R. Bellerby, The distribution of man-power in agriculture and industry 1851–1951 *Farm Economist* 9 (1958) 1–11; R. Lawton, Rural depopulation in nineteenth century England, pp. 227–56 of R. W. Steel and R. Lawton (Eds), *Liverpool essays in geography* (London 1967)

on migration, and the relationships between population growth, migration and urbanization are not clearly understood. Although it is likely that economic motives predominated it is possible that the "push" of increasing poverty in the countryside was as important as the "pull" exercised by higher wages in the towns. Rural England experienced a considerable increase in its population between 1750 and 1850, in spite of the considerable migration to the towns that went on in this period.<sup>[1]</sup> Much of this increase was absorbed in agriculture down to 1820 both in the reclamation of new land and more intensive use of labour as new methods were adopted. But by the 1820s population growth was outrunning the demand for labour and there is evidence of considerable underemployment which must have stimulated rural-urban migration.<sup>[2]</sup>

### Conclusions

It is hoped that this article has shown that Ravenstein's contribution to the study of migration was a very considerable one. His hypotheses about the nature of migration have stimulated a remarkable amount of research on migration in many parts of the world.<sup>[3]</sup> His work on migration in nineteenth-century Britain, although greatly elaborated by later writers, has not been superseded. This review of subsequent work reveals how much remains to be done. As H. J. Dyos has observed: "We still know so little, for example, about the ways in which the millions of migrations that comprised the cities were made. Ravenstein's, Redford's and Cairncross's cumulative efforts have been filled out to surprisingly little extent, both for the period before and during that covered by the Census".<sup>[4]</sup>

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[1] P. Deane and W. A. Cole, *British economic growth, 1688-1959* (Cambridge 1962) 103, 108-9

[2] C. P. Timmer, The turnip, the new husbandry and the English agricultural revolution *Quarterly Journal of Economics* 83 (1969) 375-95; E. L. Jones, The English agricultural labour market 1793-1872 *Economic History Review* 17 (1965) 322-38

[3] R. J. Pryor, Internal migration and urbanisation: an introduction and bibliography *Department of Geography, James Cook University of North Queensland, Monograph Series* 2 (1971)

[4] H. J. Dyos, *op. cit.* (1968) 36; I am grateful to Dr David Hilling of Bedford College, London, for information on Ravenstein's connection with that College and Mrs A. P. Barham for help with the bibliography