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RESEARCH NOTE

SOME SOCIAL AND PHYSICAL CORRELATES OF INTERGENERATIONAL SOCIAL MOBILITY: EVIDENCE FROM THE WEST OF SCOTLAND COLLABORATIVE STUDY

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Abstract Mainstream sociological studies of intergenerational social mobility have emphasised social factors such as education and the material and cultural resources of the family of origin as the main influences on the chances and direction of social mobility. Medical sociology in contrast has been more interested in its physical correlates such as height and health status. Data from the West of Scotland Collaborative study allow an examination of the relationship between social mobility and both social and physical factors. Height, education and material circumstances in the family of origin, indexed as the number of siblings, were each independently associated with the chances of both upward and downward social mobility in this dataset. In each case the net effect of this social mobility was to constrain the social distribution of these variables. Any role which these factors may play in indirect health selection, it is argued, cannot account for social class differences in adult health.

Key words: education, height, number of siblings, social mobility.

Social mobility has been the subject of some of the most distinguished studies of twentieth-century sociology. Studies within this tradition (Sorokin 1927; Glass 1954; Goldthorpe *et al.* 1980; Halsey *et al.* 1980; Erikson and Goldthorpe 1992) have been concerned primarily with the effect of social mobility on the social structure and its implications for social cohesion and political affiliation. The research question has been whether social mobility is a moderating, ameliorative or meritocratic factor, not (cf. health-related social mobility – see below) the idea that it might in some way create or widen social inequalities.

Within this tradition the determinants of social mobility have also been sought primarily at the level of social phenomena: education and the structure of educational systems, particularly at the level of secondary education, and the distribution of material and cultural resources among the families of origin (Marshall *et al.* 1988, Muller *et al.* 1990; Heath *et al.* 1992; Marshall and Swift 1993). The influence on educational attainment, and hence on social mobility, of measured intelligence and motivation has been debated (Saunders

1995; Marshall and Swift 1996) but, with rare exceptions (such as Richardson 1977), health and illness have been ignored.

Medical sociology and social medicine have an equally long but to some extent separate tradition of interest in social mobility (Ogle 1885; Perrott and Collins 1935; Illsley 1955; Meadows 1961; West 1991; Bartley and Plewis 1997). The focus of interest in these disciplines has been the extent to which social class differences in health are due to health-related social mobility (the upward mobility of the healthy and the downward mobility of the sick); in marked contrast to the sociological tradition, where, for example, the upward mobility of Conservative voters and the downward mobility of Labour voters is not considered to be the cause of social class differences in political affiliation. The balance of evidence suggests that health has comparatively little direct effect on the chances and direction of social mobility, not least because most social mobility occurs in younger age groups where disease is rare and because in later life exit from the labour force is a more likely outcome of incapacitating disease than downward mobility into what is usually a more physically demanding occupation (Blane *et al.* 1993). Indirect selection (Wilkinson 1986), however, retains some credibility. It refers to factors such as height and education, which in the short term may influence the chances of social mobility and in the longer term predict health. Such biological and social factors may act as a bridge between the interest of the two traditions in social mobility.

Their bridge-building potential is demonstrated by analyses of birth cohort data. The 1946 and 1958 British birth cohort studies, for example, hold data on health, education, social circumstances and social position at various stages of life and have shown that intergenerational social mobility is influenced independently by a range of physical and social factors (Wadsworth 1986; Power *et al.* 1991; Wadsworth 1991). This paper reports whether a comparable mixture of social and biological factors is associated with social mobility in a generation of men who were born before the British birth cohort study members and who were mostly older than them at the time of screening. Of particular interest will be the effect on social class differences of indirect selection in terms of these social and biological factors.

Methods

The analyses are based upon the members of a cohort of employed persons recruited between 1970 and 1973 from twenty-seven workplaces in the West of Scotland (Hawthorne and Fry 1978, Blane *et al.* 1996; Davey Smith *et al.* 1997; Hart *et al.* 1997). The factories and offices were selected to represent all types and levels of employment. They included engineering, manufacturing and petro-chemical plants; British Rail; a publishing house; civil service departments; legal, architectural and dental offices; and banks. Employees,

the great majority of whom were under the then usual retirement ages of 65 years for men and 60 years for women, were invited to attend for screening. Response rates are available only for the workplaces from which 87 per cent of the sample was recruited; for these sites, 70 per cent of those invited completed a questionnaire and attended a physical examination. It has not been possible to find a record of the response rate in the workplaces which contributed the remaining 13 per cent of the sample, but it is unlikely to have differed sharply from the 70 per cent which applied to the rest of the sample. The achieved sample size was 6,022 men and 1,006 women.

The present analyses are based on the 5,645 men who were aged 35–64 years at the time of examination and who supplied information about both their father's main occupation and their own current occupation. Men up to the age of 35 years were excluded in order to avoid the frequent job changes which characterise the early years of many working lives (Marshall *et al.* 1988). This exclusion decision will have affected aggregate mobility rates because it will have eliminated much early career counter-mobility (Goldthorpe *et al.* 1980). Those aged 65 years and older were also excluded because they constituted such a small proportion of this workplace sample. The analyses are confined to men because of the relatively small number of women in the study and because social mobility among women differs from that among men, particularly in the age groups which are the subject of the present analyses (Noble 1995).

The questionnaire at screening collected information on the subject's present occupation and their father's main occupation ('What was your father's main occupation?'). These occupations were coded at screening to the Registrar General's social classes by means of the 1966 Classification of Occupations (OPCS 1966), which at the time was the current version. The 1966 classification did not subdivide social class III into its non-manual and manual components and the present study used job titles to re-code the relevant subjects into III non-manual or III manual. Intergenerational social mobility, or the lack of it, was indicated by movement between father's social class (origin) and the subject's own social class at screening (destination).

The choice of items to index the physical and social correlates of intergenerational social mobility was necessarily restricted by the items of information collected at screening. Each subject's height had been measured as part of the physical examination. Height was included in the present analyses as a measure of physical status because it is associated with the chances and direction of social mobility (Power *et al.* 1991), it predicts adult mortality risk (Marmot 1986) and it has been suggested as one of the more plausible mechanisms by which indirect selection could occur (Wilkinson 1986).

The questionnaire at screening collected information on the age at which subjects completed their full-time education ('At what age did you finish whole time education?'). Education was included in the present analyses

because, like height, it is associated with the chances and direction of social mobility (Halsey *et al.* 1980), it predicts adult mortality risk (NCHS 1994) and it has been suggested as relevant to indirect selection (Wilkinson 1986). The statutory minimum school-leaving age in Scotland between 1904 and 1947, the period relevant to the adolescence of most subjects, was 14 years of age (Hunter 1972). The distribution of age at leaving full-time education among the subjects was heavily skewed: the majority finished at 14 years and very few subjects attended university. Leaving school at 14 years or younger was used as the main measure of education. The main limitation of this operationalisation derives from the original data collection. The question about leaving whole time education would not have picked up further education obtained through evening classes and day release schemes. Some of those who left school at 14 years or younger subsequently may have obtained professional qualifications in, for example, civil engineering or accountancy.

Apart from father's social class, which is already being used in the measure of social mobility, the questionnaire at screening collected little information on material circumstances during childhood. The only exception was a question about the number of siblings of each subject. Although number of siblings is rarely used in this way, it appears to be a sensitive measure of material circumstances during childhood. Individual food consumption, for example, and weekly expenditure on food per household member show greater variation by the number of children in the household than by the head of household's weekly income (MAFF 1996). Consequently, the number of siblings was used as the measure of material circumstances during childhood. Nothing is known about the relationship between number of siblings and either social mobility or adult mortality risk and previously it has not been mentioned in relation to indirect selection.

Analysis

Social mobility was analysed first by a conventional matrix of movement between father's social class and own social class. The full matrix, using all six of the Registrar General's occupational social classes, revealed very small numbers in some of the cells. Nobody had moved from father's social class I to own social class V and only one subject had moved from father's social class I to own social class IV. At the other extreme only four subjects had moved from father's social class V to own social class I. The lack of long-range mobility in this dataset conflicts with the findings of other studies (Goldthorpe *et al.* 1980; Payne 1987) and probably derives from the decision to restrict the analyses to men aged over 35 years. The problem of very small numbers in some cells was solved by aggregating social classes I and II and social classes IV and V. These aggregations have some theoretical justification. A social class I professional making a career move to a social class II managerial position is

likely to see the move as promotion rather than downward social mobility, and some moves between unskilled and semi-skilled manual occupations can have similarly ambiguous meanings (Bartley and Plewis 1997). The separate identification of social class III non-manual is sometimes questionable in studies of male subjects, because of the class's comparatively small size (Reid 1989) and the possibility that for men routine white-collar work is a transitional status (Blackburn and Prandy 1965; Prandy *et al.* 1982). It is justified in the present analyses, however, because this workplace study contained many male office staff (18 per cent of the study's male subjects were assigned to social class III non-manual) and because most of those for whom IIIN was a transitional status would have moved on by 35 years of age.

These distributions were further investigated by regression analysis. A separate regression model, including terms for age, father's social class and own social class, was constructed for each of the factors (height, leaving school at age 14 or younger, number of siblings) to test the relative strength of their associations. The regression coefficients were compared with a standardised normal deviate test (Armitage 1971). Logistic regression was used to investigate the predictors of social mobility. The chances of upward mobility were investigated by separating social classes I to V and excluding social class I, from which upward mobility is impossible, and modelling the three factors, together with age, individually and simultaneously. The predictors of the chances of downward mobility were investigated by the same method, after the exclusion of social class V.

Results from Matrix and Regression Analysis

Table 1 presents the social mobility flows between father's and own social class. Thirty-eight per cent of the subjects are socially stable, having the same social class as their father (cells on the matrix diagonal), 48 per cent are intergenerationally upwardly mobile (cells below diagonal) and 14 per cent are downwardly mobile (cells above diagonal).

Table 2 presents the distribution within the cells of this social mobility matrix of: (a) mean height, in centimetres; (b) the mean proportion who left full-time education at age 14 years or less; and (c) mean number of siblings. The distribution of all three factors is similar. Each factor has a graded relationship with the subject's own social class at screening (bottom row). Those in own aggregated classes I&II are on average tallest, least likely to have left school at 14 and have the smallest number of siblings. The values for each factor change incrementally across the social hierarchy, so that those in aggregated classes IV&V are on average shortest, most likely to have left school at 14 and have the largest number of siblings.

Each factor's relationship with father's social class (final column) is broadly similar. Those who originated in father's aggregated classes I&II are on

Table 1
Social Mobility Among 5,645 Working Men:
Father's Social Class by Own Social Class

Father's social class	Own social class				Total
	I & II	IIIN	IIIM	IV & V	
I & II	573 (72.8) (31.2)	114 (14.5) (11.2)	52 (6.6) (3.2)	48 (6.1) (4.1)	787 (13.9)
IIIN	320 (55.0) (17.4)	150 (25.8) (14.8)	72 (12.4) (4.4)	40 (6.9) (3.4)	582 (10.3)
IIIM	673 (27.4) (36.6)	474 (19.3) (46.7)	816 (33.2) (50.3)	494 (20.1) (42.2)	2,457 (43.5)
IV & V	271 (14.9) (14.8)	276 (15.2) (27.2)	682 (37.5) (42.0)	590 (32.4) (50.3)	1,819 (32.2)
Total	1,837 (32.5)	1,014 (18.0)	1,622 (28.7)	1,172 (20.8)	5,645

Note: Values are numbers; first percentage (in parentheses) represents outflow; second percentage (in parentheses) represents inflow.

average tallest, least likely to have left school at 14 and have the smallest number of siblings. These values change incrementally across the social hierarchy, so that those who originated in father's aggregated classes IV&V are on average shortest, most likely to have left school at 14 and have the largest number of siblings. The only exception occurs in (c), where the mean number of siblings in father's class III non-manual is marginally smaller than the mean number of siblings in father's aggregated classes I&II.

A further similarity between the distribution of the three factors is the relationship between the intergenerationally stable and the outcome class differences at the time of screening. In each case the differential between aggregated classes I&II and aggregate classes IV&V is greater among the socially stable (matrix diagonal) than among the full final classes (bottom row).

The relationship between the socially mobile and the socially stable is also broadly similar for each of the three factors. For descriptive purposes 'advantage' will be equated with taller mean height, lower mean proportion leaving full-time education at age 14 years or younger and smaller mean number of siblings. The upwardly mobile (below-diagonal cells) tend to be

Table 2
Age Adjusted Factors by Father's and Own Social Class

Father's social class	Own social class				All
	I & II	IIIN	IIIM	IV & V	
(a) Mean height (cm)					
I & II	176.9	174.7	172.3	172.8	176.0
IIIN	175.7	172.8	173.6	172.3	174.4
IIIM	174.7	173.4	171.5	170.3	172.5
IV & V	174.4	172.5	170.6	170.5	171.4
All	175.5	173.2	171.3	170.6	
(b) Proportion leaving full-time education aged 14 or under					
I & II	5.1	15.4	49.4	67.4	13.5
IIIN	10.2	24.8	46.5	61.8	22.3
IIIM	25.7	45.8	72.5	80.7	55.9
IV & V	39.3	54.8	77.5	82.2	69.8
All	18.7	41.8	72.9	80.3	
(c) Mean number of siblings					
I & II	2.0	3.0	4.0	3.9	2.4
IIIN	2.1	2.2	2.9	3.2	2.3
IIIM	2.6	3.1	3.9	4.4	3.5
IV & V	3.1	3.7	4.5	4.7	4.2
All	2.4	3.1	4.1	4.5	

more advantaged than the socially stable they leave behind in their class of origin but less advantaged than the socially stable they join in their class of destination. The downwardly mobile (above-diagonal cells) tend to be less advantaged than the socially stable they leave behind in their class of origin but more advantaged than the socially stable they join in their class of destination. This relationship is found in three-quarters of the cells indicating social mobility in the height matrix, all the cells indicating social mobility in the education matrix and five-sixths of the cells indicating social mobility in the sibling matrix.

The independent associations of father's social class and own social class with height, proportion leaving full-time education at age 14 years or younger and number of siblings are presented in Table 3. Each of these factors is independently associated at conventional levels of statistical significance with father's social class ($p<0.0001$) and own social class ($p<0.0001$). In each case the regression coefficient with own class is larger than the regression coefficient with father's class. In each case the difference between the regression coefficients with own and father's class is significant statistically ($p<0.0001$).

Table 3
Regression Analysis of Selection Factors (Including Age) on Father's Social Class and Own Social Class Included Simultaneously

	Father's social class			Own social class			
	Coefficient	95% confidence interval	Significance	Coefficient	95% confidence interval	Significance	Test for difference
Height (cm)	−0.82	(−1.02 to −0.63)	$p<0.0001$	−1.44	(−1.61 to −1.27)	$p<0.0001$	$p<0.0001$
Left education at 14 or under*	1.91	(1.77 to 2.06)	$p<0.0001$	2.48	(2.33 to 2.64)	$p<0.0001$	$p<0.0001$
Number of siblings	0.39	(0.32 to 0.46)	$p<0.0001$	0.59	(0.53 to 0.66)	$p<0.0001$	$p<0.0001$

*Logistic regression for education : odds ratio reported.

Table 4
Predictors of the Chances of Social Mobility

	Height	Years of education	Siblings
(a) Upward mobility*			
Individual	1.03 (1.02–1.04) $p<0.0001$	1.31 (1.26–1.35) $p<0.0001$	0.92 (0.90–0.94) $p<0.0001$
Simultaneous	1.02 (1.01–1.025) $p=0.0001$	1.28 (1.23–1.32) $p<0.0001$	0.97 (0.95–0.99) $p=0.005$
(b) Downward mobility†			
Individual	0.97 (0.96–0.98) $p<0.0001$	0.77 (0.73–0.81) $p<0.0001$	1.10 (1.07–1.13) $p<0.0001$
Simultaneous	0.98 (0.97–0.99) $p=0.0008$	0.80 (0.76–0.84) $p<0.0001$	1.05 (1.02–1.08) $p=0.001$

* Excludes subjects in father's social class I.
† Excludes subjects in father's social class V.

Finally the relationship between the three factors and the chances and direction of social mobility were examined (Table 4); in these regression models education was expressed as the number of years spent in full-time education. When each factor was examined individually the chances of upward mobility increased with increasing height and increasing years of education and decreased with increasing number of siblings; in each case the relationships were significant at conventional levels of statistical significance. These relationships were attenuated little when each factor was examined after controlling for the other two factors.

The chances of downward mobility decreased with increasing height and increasing years of education and increased with increasing number of siblings. These relationships were all significant statistically and were attenuated little by controlling for the other two factors. Significant interactions between height and education were found in the simultaneous models for both upward and downward mobility.

Discussion

The present paper has examined intergenerational social mobility among a large sample of employed Scottish males who were born between 1905 and 1935. Associations with one physical and two social factors have been

analysed. While the relationships of height and education with social mobility have been found elsewhere, that between number of siblings and mobility has not been described previously.

Not surprisingly, each of these factors is associated strongly with father's social class. Adult height is influenced by parental height and by the material and psychosocial context of childhood and adolescence. Educational attainment is influenced by the material and cultural resources of the family of origin and by the type and quality of schools attended. Number of siblings is influenced by parents' cultural beliefs and by their access to and use of birth control techniques; in addition, it affects per capita household income and hence acts as an indicator of material conditions in the family of origin.

Each of these factors is also associated strongly with the subject's own social class during adulthood and the strength of these associations is significantly stronger than those with social class during childhood. The strengthening of the associations during the transition to adulthood is consistent with the factors acting as selection criteria in the process of intergenerational social mobility. As well as having an accumulative effect on attained adult social class position, the results of mutual adjustment in the regression analyses suggest that each of these factors has an independent effect on the chances of upward and downward social mobility. This function of education is widely recognised and is an important part of the rhetoric of 'equality of opportunity'. Height and number of siblings in contrast cannot be presented as the result of an individual's choices and motivation and their role in social mobility receives little public attention. As the three factors behave so similarly in relation to social mobility, however, it is reasonable to consider them together. Taken together, they suggest not meritocracy and equality of opportunity, but the processes which transmit advantage and disadvantage between the generations.

The net effect of these processes is apparent from the social mobility matrices. Social class differences in each of the three factors are larger among the socially stable than among the mixture of the stable and the socially mobile who constitute the final adult social classes. Despite advantage or disadvantage influencing the chances and direction of social mobility, the net effect of this selective social mobility is to moderate or constrain, rather than to create or exaggerate, the final class differences. This constraining effect results from the relative nature of advantage and disadvantage. The upwardly mobile tend to be more advantaged than the socially stable they leave behind in their class of origin, but they are less advantaged than the socially stable they join in their class of destination. Conversely, the downwardly mobile tend to be less advantaged than the socially stable in their class of origin but more advantaged than the socially stable in their class of destination. The relativity of this process means that selective social mobility constrains the emergence of inequality.

These results and conclusions are based on a sample of employed men in

the west of Scotland. The occupations of the study subjects had already been coded to the Registrar General's classification, but the results are unlikely to have been biased by the failure to use a validated measure of social position (Bartley *et al.* 1996). The sample will have been subject to the 'healthy worker effect' (Fox and Collier 1976). Excluding the unemployed will have raised the absolute values for height and education (Montgomery *et al.* 1996) and probably will have lowered them for the number of siblings, but any resulting bias is likely to be conservative rather than to have produced the results artefactually.

Non-random sampling and the analytic exclusion of those aged less than 35 years have resulted in a group of subjects which contains a smaller proportion of manual employees than the total male population of working age in both Central Clydeside and England and Wales in 1971. Social classes I-IIIN contain 51 per cent of the study sample (Table 1) compared with 42 per cent in Central Clydeside (GRO 1975:Table 5) and 33 per cent in England and Wales (Goldblatt 1990:Table 2.22). The analytic exclusion of those aged less than 35 years probably accounts also for part of the difference between the distribution of intergenerational social mobility in the present dataset and that found in a number of contemporaneous studies. Although the exercise is complicated by the use of different class schema and different definitions of father's class, the present study's finding of 38 per cent stable and 48 per cent upward and 14 per cent downwardly mobile (Table 1) can be compared with rough estimates of 39 per cent stable and 36 per cent upward and 25 per cent downwardly mobile found in the whole of Scotland (Payne 1987:Table 4.1) and 47 per cent stable and 34 per cent upward and 19 per cent downwardly mobile in England and Wales (Goldthorpe *et al.* 1980:Table 4.2). If the comparison is limited to the oldest cohort in the Scottish Mobility study (Payne 1987:Table 7.4), who are most similar to the Collaborative study's members, the difference in the distributions of social mobility becomes less. A second probable reason for the difference is the study's exclusion of rural areas where, compared with urban areas, the rates of upward mobility are lower and the rates of downward mobility are higher (Chapman 1984:Table 2). These comparisons suggest that generalising from the study to the wider population requires caution, but they do not affect the validity of the study's findings in relation to indirect selection and gradient constraint.

The gradient constraining effect of selective mobility has been shown previously in relation to *intra*generational mobility and both long-term illness (Bartley and Plewis 1997) and mortality (Blane *et al.* 1997). The present paper is its first explicit discussion in relation to *inter*generational social mobility. From this point of view it is significant that the three factors which have been considered are largely fixed before the transition to adulthood and would certainly have been fixed by age 35 years, which is the age of the youngest subjects included in the present analyses. The role of educational attainment in social mobility is well recognised. Number of siblings may affect

mobility chances by concentrating or diluting parental resources and hence parents' ability to obtain advantageous social positions for their offspring. Its independence in regression analysis suggests a real effect rather than an indirect relationship in which the number of siblings affects social mobility via its influence on educational attainment. Height could influence mobility through a number of mechanisms: its association with sporting prowess and consequent access to sporting scholarships and prestigious social networks; as a component of physical attractiveness, with its consequent competitive advantage; or as the physical correlate of hierarchical dominance. Once again, its independence in regression analysis suggests a real effect rather than height and educational attainment being twin expressions of some third, background factor such as childhood socioeconomic circumstances or constitutional vigour. Within each social class, each of the three factors may index a dimension of relative advantage or disadvantage and select out which members of that class are most at risk of social mobility. Height and education are also recognised as predictors of adult health; and the effect of number of siblings on per capita household food consumption suggests a similar relationship between number of siblings and later health. Consequently each of these factors is a plausible candidate for what has been termed 'indirect selection' (Wilkinson 1986; West 1991).

The notion of indirect selection refers to selective social mobility by factors which predict later health but which are not themselves measures of poor health. The notion arose when it became clear that the prevalence of ill-health before middle age was insufficient to have a significant direct impact (direct selection or health-related social mobility) on the high levels of social mobility which characterise contemporary societies. Characterising the process as 'indirect' allowed social selection to remain among the potential explanations of social class differences in adult health.

It has been argued elsewhere (Blane *et al.* 1993; Davey Smith *et al.* 1994) that indirect selection in fact describes a process by which advantages or disadvantages accumulate across the lifecourse. Class differences in childhood, including childhood health, precede any selective mobility, whether indirect or otherwise, and wide differentials among the socially stable mean that these differentials do not depend upon social mobility. The results of the present analyses suggest that the net effect of selective social mobility, whether conceptualised as indirect selection or as part of a process of lifecourse accumulation, will be to constrain, rather than to create or widen, social class differences in health.

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References

ARMITAGE, P. 1971. *Statistical Methods in Medical Research*. Oxford: Blackwell.
BARTLEY, M., CARPENTER, L., DUNNELL, K. and FITZPATRICK, R. 1996. 'Measuring Inequalities in Health: An Analysis of Mortality Patterns Using Two Social Classifications'. *Sociology of Health and Illness* 18:455–74.
BARTLEY, M. and PLEWIS, I. 1997. 'Does health-selective mobility account for socioeconomic differences in health? Evidence from England and Wales, 1971 to 1991'. *Journal of Health and Social Behaviour* 38:376–86.
BLACKBURN, R. M. and PRANDY, K. 1965. 'White-Collar Unionisation: A Conceptual Framework'. *British Journal of Sociology* 16:111–22.
BLANE, D., DAVEY SMITH, G. and BARTLEY, M. 1993. 'Social Selection: What Does It Contribute to Social Class Differences in Health?' *Sociology of Health and Illness* 15:1–15.
BLANE, D., HART, C. L., DAVEY SMITH, G., GILLIS, C. R., HOLE, D. J. and HAWTHORNE, V. M. 1996. 'Association of Cardiovascular Disease Risk Factors with Socioeconomic Position During Childhood and During Adulthood'. *British Medical Journal* 313:1434–8.
BLANE, D., HARDING, S. and ROSATO, M. 1997. 'Social Mobility and Mortality in Middle Aged British Men: Evidence from the ONS Longitudinal Study. Presented to Royal Statistical Society, London, 1996 (*Journal of the Royal Statistical Society*, forthcoming).
CHAPMAN, T. 1984. 'Patterns of Occupational Mobility among Men and Women in Scotland 1930–1970'. Doctoral dissertation: CNAA.
DAVEY SMITH, G., BLANE, D. and BARTLEY, M. 1994. 'Explanations for Socio-Economic Differentials in Mortality. *European Journal of Public Health* 4:131–44.
DAVEY SMITH, G., HART, C., BLANE, D., GILLIS, C. and HAWTHORNE, V. 1997. 'Lifetime Socioeconomic Position and Mortality: Prospective Observational Study. *British Medical Journal* 314:547–52.
ERIKSON, R. and GOLDTHORPE, J. H. 1992. *The Constant Flux: A Study of Class Mobility in Industrial Societies*. Oxford: Clarendon.
FOX, A. J. and COLLIER, P. F. 1976. 'Low Mortality Rates in Industrial Cohort Studies Due to Selection for Work and Survival in Industry'. *British Journal of Preventive and Social Medicine* 9:180–5.
GENERAL REGISTER OFFICE 1975. *Census 1971 Scotland: Workplace and Transport Tables (10% sample)*. Edinburgh: HMSO.
GLASS, D. V. ed. 1954. *Social Mobility in Britain*. London: Routledge & Kegan Paul.
GOLDBLATT, P. ed. 1990. *Mortality and Social Organisation: 1971–1981 Longitudinal Study, England and Wales*. LS Series No.6. London: HMSO.
GOLDTHORPE, J. H., LLEWELLYN, C. and PAYNE, C. 1980. *Social Mobility and Class Structure in Modern Britain*. Oxford: Clarendon.
HALSEY, A. H., HEALTH, A. F. and RIDGE, J. M. 1980. *Origins and Destinations: Family, Class and Education in Modern Britain*. Oxford: Clarendon.
HART, C. L., DAVEY SMITH, G. and BLANE, D. 1998. 'Inequalities in Mortality by Social Class Measured at Three Stages of the Lifecourse'. *American Journal of Public Health* 88:471–4.
HAWTHORNE, V. M. and FRY, J. S. 1978. 'Smoking and Health: The Association Between Smoking Behaviour, Total Mortality and Cardiorespiratory Disease in West Central Scotland'. *Journal of Epidemiology and Community Health* 32:260–6.
HEATH, A., MILLS, C. and ROBERTS, J. 1992. 'Towards Meritocracy? Recent Evidence on an Old Problem', in C. Crouch and A. Heath (eds.) *Social Research and Social Reform*. Oxford: Clarendon.

HUNTER, S. L. 1972. *The Scottish Educational System*, 2nd edn. Oxford: Pergamon.
ILLSLEY, R. 1955. 'Social Class Selection and Class Differences in Relation to Stillbirths and Infant Deaths'. *British Medical Journal* 2:1520–6.
MAFF: MINISTRY OF AGRICULTURE, FISHERIES AND FOOD. 1996. *National Food Survey* 1995. London: The Stationery Office.
MARMOT, M. G. 1986. 'Social Inequalities in Mortality: The Social Environment', pp. 21–33, in R. G. Wilkinson (ed.) *Class and Health: Research and Longitudinal Data*. London: Tavistock.
MARSHALL, G. and SWIFT, A. 1993. 'Social Class and Social Justice'. *British Journal of Sociology* 44:187–211.
MARSHALL, G. and SWIFT, A. 1996. 'Merit and Mobility: A Reply to Peter Saunders'. *Sociology* 30:375–86.
MARSHALL, G., ROSE, D., NEWBY, H. and VOGLER, C. 1988. *Social Class in Modern Britain*. London: Unwin Hyman.
MEADOWS, S. H. 1961. 'Social Class Migration and Chronic Bronchitis'. *British Journal of Social Medicine* 15:171–8.
MONTGOMERY, S. M., BARTLEY, M. J., COOK, D. G. and WADSWORTH, M. E. J. 1996. 'Health and Social Precursors of Unemployment in Young Men in Great Britain'. *Journal of Epidemiology and Community Health* 50:415–22.
MULLER, W., LUTTINGER, P., KONIG, W AND KARLE, W. 1990. 'Class and Education in Industrial Nations', in M. Haller (ed.) *Class Structure in Europe*. Armonk, NY: M. E. Sharpe.
NCHS: NATIONAL CENTRE FOR HEALTH STATISTICS. 1994. *Health United States 1993*. Hyattville, Mass.: Public Health Service.
Noble, T. 1995. 'The Nuclear Family and Postmodern Theory'. *Hitotsubashi Journal of Social Studies* 27:127–43.
OPCS: OFFICE OF POPULATION CENSUSES AND SURVEYS (1966). *Classification of Occupations* 1966. London: HMSO.
Ogle, W. 1885. *Supplement to the 45th Annual Report of the Registrar General of Births, Deaths and Marriages in England*. London: Eyre and Spottiswoode.
Payne, G. 1987. *Employment and Opportunity*. London: Macmillan.
PERROTT, G. ST.J. and COLLINS, S. D. 1935. 'Relation of Sickness to Income and Income Change in 10 Surveyed Communities'. Health and Depression Studies No.1: Method of Study and General Results for Each Locality. *Public Health Reports* 50:595–622.
POWER, C., MANOR, O. and FOX, J. 1991. *Health and Class: The Early Years*. London: Chapman and Hall.
PRANDY, K., STEWART, A. and BLACKBURN, R. M. 1982. *White Collar Work*. London: Macmillan.
REID, I. 1989. *Social Class Differences in Britain*, 3rd edn. London: Fontana.
RICHARDSON, C. J. 1977. *Contemporary Social Mobility*. London: Frances Pinter.
SAUNDERS, P. 1995. 'Might Britain be a Meritocracy?' *Sociology* 29:23–41.
SOROKIN, P. 1927. *Social Mobility*. New York: Anchor.
WADSWORTH, M. E. J. 1986. 'Serious Illness in Childhood and Its Association with Later-Life Achievement', pp. 50–74, in R. G. Wilkinson (ed.), *Class and Health: Research and Longitudinal Data*. London: Tavistock.
WADSWORTH, M. E. J. 1991. *The Imprint of Time*. Oxford: Clarendon.
WEST, P. 1991. 'Rethinking the Health Selection Explanation for Health Inequalities'. *Social Science and Medicine* 32:373–84.
WILKINSON, R. G. 1986. 'Socio-Economic Differences in Mortality: Interpreting the Data on Their Size and Trends', pp. 1–20, in R. G. Wilkinson (ed.) *Class and Health: Research and Longitudinal Data*. London: Tavistock.

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