**Occupational Mortality**

The Registrar General's reports on occupational mortality are laborious and time-consuming undertakings and usually appear several years after the census of populations on which they are based has been taken. The last report from the 1931 census was published in 1938. The calculation of death rates in relation to the 1951 census is being made for a five-year period (1949 to 1953) instead of the usual three years, and the report cannot be expected before 1958.

Using the death rates in 1950 the Registrar General for England and Wales (1954) has calculated comparative mortality rates in the main social classes and in a few large occupational groups. While these figures will not be as reliable as those in the full reports, they go some way to fill the gap in occupational mortality data during the past 20 years. Those with experience of certain occupations or diseases have been invited to contribute commentaries on the data contained in this latest report. The first two contributions follow.

**Cancer of the Respiratory Tract**

**RICHARD DOLL**

In the 20 years that have elapsed between the last two censuses the mortality from lung cancer has increased sixfold and it is, therefore, of particular interest to see whether there has been any change in the social distribution of the disease to accord with the distribution of any of the factors which may be responsible for the increase. In the period 1930–32 the mortality from lung cancer varied little from one social class to another and there was no indication of a gradient in either direction with descent in the social scale. It appears now that among men aged 20–64 the disease may be less common in the wealthiest classes (standardized mortality ratio for Class I, 80, for Class V, 116). This tendency, however, is not evident for older men or for women of either age group.

None of the occupational groups specified by the Registrar General in the present limited statistics shows a grossly high mortality—the highest being men in the Armed Forces aged 20–64 with a standardized mortality ratio of 150, but, as previously, consistently low mortalities at all ages are recorded for farmers, agricultural workers, and mineworkers, and for the wives of men in all three groups. When these special groups are removed the upward gradient in mortality with descent in the social scale for men aged 20–64 years becomes much more definite:

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**Transport Workers**

**L. G. NORMAN**

The 1951 Supplement differs in a number of respects from those previously published. There are marginal differences due to revisions in the Classification of

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### Table: S.M.R. in Social Class

<table>
<thead>
<tr>
<th>Men aged 20–64 years</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>80</td>
<td>79</td>
<td>108</td>
<td>89</td>
<td>116</td>
</tr>
<tr>
<td>Men aged 20–64 years, less farmers, agricultural workers, and mineworkers</td>
<td>80</td>
<td>85</td>
<td>109</td>
<td>107</td>
<td>116</td>
</tr>
</tbody>
</table>

Were a similar gradient found among older men and among married women it might be possible to attribute this finding to an effect of atmospheric pollution, since it is not unreasonable to believe that more of the men in the poorer social classes tend to live in the more polluted areas. The facts are, however, otherwise, and indeed the highest standardized mortality ratio among married women is found in social class I.

### Table: S.M.R. (or Proportionate Mortality Ratio) for Persons over 65 in Social Class

<table>
<thead>
<tr>
<th>Men aged 65 years and above</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>108</td>
<td>102</td>
<td>109</td>
<td>106</td>
<td>118</td>
</tr>
<tr>
<td>Married women aged 20–64 years</td>
<td>120</td>
<td>99</td>
<td>106</td>
<td>116</td>
<td>91</td>
</tr>
<tr>
<td>Married women aged 65 years and above</td>
<td>176</td>
<td>110</td>
<td>101</td>
<td>111</td>
<td>103</td>
</tr>
</tbody>
</table>

*Less farmers, agricultural workers, and mineworkers.
*Less wives of farmers, agricultural workers, and mineworkers.
†Ratios in italics based on fewer than 50 deaths.

Differences in cigarette consumption could account for the high mortality among the wealthier women who may well have begun smoking a decade or more earlier than the average, but whether they can account for the increasing mortality with descent in the social scale among men under 65 years and for the low mortality among farmers, agricultural workers, mineworkers, and their wives is unknown. Such a factor would, one suspects, accord well with the high mortality from lung cancer which occurred in the Armed Forces.

The consistent findings of a low mortality for mineworkers (S.M.R. for mineworkers aged 20–64 years in Class III, 92; in Class IV, 55. Proportionate ratio aged 65 years + in Class III, 61; in Class IV, 60) once again confirms the lack of association between lung cancer and exposure to dust per se. Cancer of the larynx has, in the past, provided a good example of a type of cancer which was closely dependent on social conditions. The increasing gradient with descent in the social scale revealed in 1921–23 is, however, now no longer apparent. This may, perhaps, reflect social changes in the consumption of alcohol. The present report does not give figures for workers in the alcoholic trades and it is not certain that the previously observed association with alcohol persists.

Occupations and in the International Classification of Causes of Death, but these are of only minor importance. For the first time, however, transport workers are separated as a special social sub-group, IIIb. This sub-group of social class III includes a very mixed selection of transport workers such as locomotive engine drivers and motormen, guards, signalmen, shunters; haulage contractors and managers, inspectors and foremen; drivers of trams, trolleybuses, buses and goods vehicles; ship engineering officers and electricians, petty officers, seamen and radio officers, pursers and domestic staff; aircrew, aerodrome technical staff, airport traffic staff and other air transport workers. Excluded are railway officials, locomotive firemen and running shed workers, ticket collectors, porters and other railway workers; bus and tramway managers and superintendents, coach hire proprietors and managers, drivers of horse-drawn vehicles, lorry drivers’ mates and van guards, bus and tram conductors, horse foremen and grooms, garage managers and other road transport workers; driving managers and agents, harbour, dock, and canal officials, wharfingers and stevedores, navigating officers, firemen and trimmers, bargemen, dock labourers, and other water transport workers; messengers, telephone operators, postmen. The majority of those excluded are in social class IV; it is rather surprising that bus drivers are in social class III while driving instructors and conductors are in social class IV, but, as is clearly described in the Supplement, the classification is not based on economic considerations but on “general standing within the community”. Surely a somewhat arbitrary and even dangerous classification to adopt! It is clear that the question, “What is a transport worker?” needs close examination before any deductions are made from the statistics provided.

Table 1B of the Supplement shows that there were 726,000 occupied and retired men classified in the very varied occupations comprising social sub-class IIIB (transport workers) of the 1951 Supplement; they had 616,100 wives. The mortality of such a large group is likely to follow closely the national mortality and an examination of the figures reveals that this is so. As a social picture of a mixed body of road, rail, water, and air transport workers, the Supplement gives the mortality of occupied and retired men in these occupations by 36 different causes, in age-groups 20–64 and proportionate rates for those aged 65 and over; similar figures for their wives; neonatal and infant mortality when the father is in these occupations, and the stillbirth rate. The standardized mortality ratio (S.M.R.) of male transport workers at all ages is 104; of their wives 102; the infant mortality is 105% of all classes, and stillbirths 98% of all classes. For the reason given above all these figures approximate fairly closely to the national average. Mortality statistics for large occupational groups may conceal a high mortality in a small part of the group, the smaller the part the greater the mortality which may be concealed. While this limitation should be borne in mind, there is no reason to suppose that a high mortality exists in any subdivision of the occupational group of transport workers.

As regards the 36 individual causes of death, as is not unexpected, road vehicle accidents have an S.M.R. of 127, an excess which does not occur with the wives. There are no other particularly high or low ratios, except—surprisingly—for malignant neoplasms of kidney, bladder, and other urinary organs, with an S.M.R. of 172 (standard error 19.3) for men aged 20–64; this excess is repeated for men aged 65 and over, with a death rate per 10,000 of 116 as against 85 for social class III as a whole. This excess is not apparently repeated for the wives in both age groups, but the number of deaths is small. It would be interesting to know whether this excess occurred at any one site or in any particular occupational group. Perhaps the warning given in the introduction to the Supplement applies here, however, and because sample figures of the census are used and because the figures of deaths are based on only one year’s returns, the scope of possible distortions in the results may be larger than in previous more comprehensive studies.

A comparison with the Occupational Mortality Supplement based on the 1931 census is unfortunately not possible, as the transport workers are subdivided into different and more detailed occupational groups in the earlier report. It is to be hoped that comparable tables will be included when the final Supplement based on the 1951 census is published.

There is a great deal of valuable material for study in the Supplement based on the 1% samples of the 1951 census, and the Registrar General and his staff are to be congratulated on their initiative in producing this preliminary publication of occupational mortality statistics.
Occupational Mortality: Transport Workers.

L. G. Norman

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