# SOCIAL ENVIRONMENT AS A MODIFYING FACTOR IN THE CORRELATION BETWEEN MATERNAL AGE AND INTELLIGENCE OF OFFSPRING

PEARL MOSHINSKY[1]

THE characteristic decline in fertility of our civilization has presented problems of interest not only to the sociologist, but to all who suspect a close interaction of population numbers and cultural trends. The implications of the potential fall in real numbers depend upon an estimate of the disturbance of social equilibrium caused by a differential decline in fertility in separate groups of the population. In other words, if sections of the population reproduce at different rates, and if a real qualitative difference of any kind is associated with each section, a fundamental disturbance of the social structure may be anticipated. These eugenic fears have been implemented by the discovery of a universal sociological correlation between high fertility and low intelligence. A superficial reading of the data implies an inevitable decline in the general level of ability of a given population among whom these conditions are found to exist (1). Recently, however, more searching analysis has enabled us to view this correlation with greater equanimity. The implications of the fecundity-intelligence correlation have been modified by results obtained through controlling the socio-economic environment of the groups examined, thereby restricting the investigation of the appearance of this association to groups relatively homogeneous for social and occupational status (2, 3.) When this is done, it appears that the correlation may exist only for certain groups, and cannot be traced for others.

In a sample of 10,000 London school children (2) the most significant correlation value for intelligence and family size was found for a group of children whose parents were skilled wage-earners

[1] Instructor, Department of Sociology and Anthropology, Brooklyn College, September 1940-September, 1941. Deceased October 26, 1941.

($r = 0.27 \pm .030$), but it was non-existent for children of business owners, higher executives, and professional people. Children of unskilled workers showed a value significantly lower than that for skilled wage-earners ($r = .14 \pm .050$). These results suggest that the correlation is a function of complex factors only operative within the environment of certain social strata. Conditions causing the more intelligent to restrict their families are by no means universal to our society, and are only to be found in the presence of a set of social conditions whose value may be elucidated through further investigation. Without inquiring yet into the nature of these conditions, we may say that if they could be linked with other differentials of correlation, it would implement the view that the most productive line of inquiry into the causes of differences in human behavior lies in an analysis of factors within the social environment.

This paper is concerned therefore with an attempt to trace another influence whose effect on that form of human behavior known as intelligence may operate differentially within the socio-economic structure of society. The factor chosen here is maternal age and intelligence of child, which has not hitherto received such intensive attention as the fecundity-intelligence correlation ratio. A possible explanation for the restriction of the fecundity-intelligence ratio to a limited area of the social structure may be that this group possesses more encouraging prospects of social promotion if not burdened by large family ties. The struggle for social recognition and social mobility involves a greater expenditure on extra-family items and may therefore lead the more intelligent parent within this group to restrict his family. In this case, we might expect that within a similar group, the more intelligent mother would put off her child-bearing to a comparatively late date. If therefore we were to find the maternal-age—intelligence correlation exists only for a limited group of the population, we might infer that those factors causing intelligent parents to restrict their families may operate to produce later births. On the other hand, if the connection between maternal

age and intelligence were found to exist universally, it might suggest that certain physiological factors associated with the condition of the uterine environment at different periods in the life-cycle may be associated with the development of what we call intelligent behavior. This leads to the line of inquiry followed by such workers as Penrose (4) who has shown a relationship between variation in the uterine environment caused by age of mother, and the appearance of the pathological mental condition known as Mongolism.

The results of work hitherto undertaken in this field are conflicting and inconclusive. Thurstone and Jenkins (5) found negative results in a study of approximately one thousand individuals, when they tried to trace the influence of maternal age on intelligence of children. Steckel (6) on the other hand has shown that children of young parents in Sioux City, Iowa, are less intelligent than those of older parents. An earlier study by Holway (7), who used teachers' estimates of intelligence, gives results that are diametrically opposed to those of Steckel. Only Thurstone and Jenkins have attempted to control the socio-economic background of the sample, by selecting a group of children of skilled mechanics. Here too the results were inconclusive. The numbers however were small, since there were only 165 cases of their selected social sample. The present study has attempted a similar analysis with a much larger group of children, namely 4,000, or approximately four times that studied by Thurstone and Jenkins.

## Nature of the Sample

This investigation was made possible as a result of a wider inquiry of which the writer was co-author (8, 9). In the original study, 10,000 London school children between the ages of 9.0 and 12.6 were given the Otis Group Advanced Intelligence Test, Form A, and Intelligence Quotients and Indices of Brightness were recorded for every individual.[2] All types of schools attended by chil-

[2] The use of I.Q. for a sample of varying ages has certain serious deficiencies. For the Otis Test, the raw score corresponding to the maximum mental age is 130. Thus, children

(Continued on page 50)

| Type of Pupil | Number |
|---|---|
| *Free Pupils* In: | |
| Elementary Schools, Aged 9.0–11.0 | 2,261 |
| Elementary Schools, Aged 11.1–12.6 | 1,457 |
| Central Schools, Aged 11.1–12.6 | 2,026 |
| Secondary Schools, Aged 11.1–12.6 | 1,038 |
| *Total Free Pupils* | 6,782 |
| *Fee-Paying Pupils* In: | |
| Private Schools, Aged 9.0–12.6 | 728 |
| Preparatory Schools, Aged 9.0–12.6 | 988 |
| Secondary Schools, Aged 9.0–12.6 | 1,661 |
| *Total Fee-Paying Pupils* | 3,377 |
| All Pupils | 10,159 |

Table 1. Numbers of London pupils tested in each type of school.

dren in this age group were included, in order to obtain a representative sample of each social category (Table 1). In the original inquiry, each school category was analyzed separately, and the material was also subdivided into groups on the basis of parental occupation. For the present purpose, however, it was found more satisfactory to divide the data into the two broad groups also used in the previous studies, which represent socially distinct sections of the population. These were the category of "free pupils," which includes those children whose parents are unable or unwilling to pay for their education; and "fee-payers," all of whom make some contribution to the cost of their education. This broad division was necessary, since in the final analyses, the numbers proved too small for more elaborate school or occupational distinction.

To understand the social significance of the dichotomy, it is necessary to explain briefly the structure of the English school sys-

who exceed this score will all have the maximum mental age of 18.0 years, and their I.Q.'s consequently will vary inversely with their chronological age. For children selected on the basis of high ability, this technique is defective. In view of this, an alternative device, invented by Otis was adopted—namely, the Index of Brightness. The I.B. is a measure of the increment or decrement of an individual's score from the normal score for his age. Thus, those scoring ten points more than the norm will have an I.B. of 110, and those scoring ten less an I.B. of 90.

tem. Those children whose parents do not pay fees, attend public elementary schools up to the age of eleven, when they are subdivided as a result of a scholarship examination. Those giving the best performance become free pupils in secondary schools, subject to a means qualification. Those of the next rating, still well above average intelligence, are drafted to central schools, and the remainder stay behind in public (senior) elementary schools. At no time is any financial contribution requested or obtained from these children. Fee-paying children within the age group selected, on the other hand, attend schools privately maintained or in receipt of financial grants from the State. The former include both "preparatory" schools—i.e. those preparing for entrance to the more expensive "public" schools,[3] and "private" schools, which are of a somewhat lower social category. In secondary schools fees are required, but substantial financial aid is obtained from the Board of Education, the fees required being thus lower than those for the preparatory or private schools.

The educational system thus succeeds in dividing up the school population into well-defined social groups, which may be illustrated by analyzing the socio-economic status of the parents of each school population. Table 2 shows the percentage distribution of parental occupation for the separate types of schools attended by their children. We have already explained that to secure samples of adequate size, the separate school populations were not analyzed for maternal-age influence. Instead, only the two categories of free pupils and fee-payers were investigated, each school group being suitably weighted to reproduce the proportions of the constituent samples in the whole London school population.[4] In Table 3 a comparison of the social composition of these two groups is made. The mass of the free school population represent parents who are engaged

[3] Fees for "public" schools are higher than those of any other type, and are thus attended by children of the most privileged section of the population.

[4] The weighting device employed to obtain figures for these combined groups is explained in Gray and Moshinsky (8).

| | Elementary | | Central | Secondary Schools | | | Private | Preparatory |
|---|---|---|---|---|---|---|---|---|
| | 9.0–11.0 | 11.1–12.6 | | Free | Fee-Payers | All | | |
| A. *Employing and Directive Classes* | | | | | | | | |
| 1. Larger Business Owners and Higher Executives | — | — | — | — | 13.8 | 8.5 | 29.8 | 27.9 |
| 2. Smaller Business Owners | 1.5 | 2.6 | 3.2 | 2.3 | — | 0.9 | — | — |
| 3. Shopkeepers | 6.2 | 7.2 | 4.2 | 4.4 | 11.0 | 8.5 | 8.9 | 3.8 |
| B. *Professional Occupations* | 0.5 | 0.1 | 0.5 | 2.4 | 14.3 | 9.7 | 13.9 | 29.4 |
| C. *Minor Professional and Other Highly Skilled Occupations* | 3.4 | 3.1 | 6.8 | 8.0 | 15.9 | 12.9 | 18.0 | 18.4 |
| D. *Clerical and Commercial* | 9.8 | 6.2 | 12.8 | 19.7 | 22.0 | 21.1 | 12.9 | 7.6 |
| E. *Manual Workers* | | | | | | | | |
| 1. Skilled Wage-Earners | 35.5 | 35.0 | 43.1 | 38.2 | 10.4 | 21.1 | 5.3 | 0.4 |
| 2. Unskilled Wage-Earners | 26.6 | 30.0 | 18.5 | 14.7 | 2.0 | 6.8 | — | 0.1 |
| 3. Fatherless Wage-Earning Families | 3.4 | 5.4 | 5.2 | 3.7 | 0.9 | 2.0 | 0.4 | — |
| 4. Total Manual Workers | *65.5* | *70.4* | *66.8* | *56.6* | *13.3* | *29.9* | *5.7* | *0.5* |
| F. *Occupations Unknown and Miscellaneous* | 13.3 | 10.4 | 5.8 | 6.7 | 9.8 | 8.6 | 10.8 | 11.7 |
| Total Numbers | 1,486 | 1,011 | 2,030 | 1,037 | 1,665 | 2,702 | 729 | 989 |

Table 2. Socio-economic distribution of each school population (percentages).

in manual occupations. It will be seen that *at least* two-thirds of the total fall within this category, since a certain proportion of those whose occupations were unknown would also no doubt be included. The children of clerical workers and shopkeepers account for a further 15 per cent. The other groups are small. By contrast, only 5 per cent of the children of fee-payers have parents engaged in manual occupations, 45 per cent are the children of higher executives, large business owners, and professional persons; and a further 30 per cent are children of parents in clerical or highly skilled occupations. There is obviously some occupational overlapping, particularly in the "clerical" grade, which we know includes a wide range of positions, but generally the free school population represents the lower half of the social hierarchy and the fee-payers the upper half.

| | Free Pupils (Weighted) Per Cent | Fee-Payers (Weighted) Per Cent | All Pupils (Weighted) Per Cent |
|---|---|---|---|
| A. *Employing and Directive Classes* | | | |
| 1. Larger Business Owners and Higher Executives | — | 24.3 | 2.0 |
| 2. Smaller Business Owners | 1.9 | — | 1.7 |
| 3. Shopkeepers | 6.3 | 7.7 | 6.4 |
| 4. Total | *8.2* | *31.8* | *10.1* |
| B. *Professional Occupations* | 0.4 | 20.3 | 2.1 |
| C. *Minor Professional and Other Highly Skilled Occupations* | 3.7 | 17.5 | 4.9 |
| D. *Clerical and Commercial Employees* | 9.2 | 13.4 | 9.6 |
| E. *Manual Workers* | | | |
| 1. Skilled Wage-Earners | 36.0 | 4.8 | 33.4 |
| 2. Unskilled Wage-Earners | 26.6 | 0.6 | 24.4 |
| 3. Fatherless Wage-Earning Families | 4.1 | 0.4 | 3.8 |
| 4. Total | *66.7* | *5.8* | *61.6* |
| F. *Occupations Unknown and Miscellaneous* | 11.8 | 11.1 | 11.7 |
| Total Numbers | 5,564 | 3,383 | 8,947 |

Table 3. Socio-economic distribution of data—free pupils and fee-paying pupils.

Not all individuals in this table yielded information on maternal age. This was obtained from approximately 40 per cent of the children which materially cut down the size of the sample.

## Collection of Material

The method of sampling the school population and administering intelligence tests has already been explained in previous publications (8, 9). For this inquiry, it was only necessary to collect additional information relevant to maternal age. This proved easier than anticipated, although considerable care was necessary in each case. The children were questioned individually, and were asked to supply the necessary information concerning the age of their mothers. Very few made wild guesses, and those who did were soon de-

| School Population | Total Number | Knowing Maternal Age | |
|---|---|---|---|
| | | Number | Per Cent Age |
| Elementary, Aged 9.0–11.0 | 2,262 | 918 | 40.6 |
| Elementary, Aged 11.1–12.6 | 1,453 | 586 | 40.3 |
| Central | 2,031 | 891 | 43.9 |
| Secondary Free | 1,037 | 450 | 43.4 |
| Secondary Fee-Payers | 1,661 | 622 | 37.4 |
| Private | 729 | 269 | 36.9 |
| Preparatory | 987 | 415 | 42.0 |
| Total | 10,160 | 4,151 | 40.9 |

Table 4. Proportion of children knowing maternal age in each school population.

tected. On the whole, the children fell into two distinct categories—those who definitely knew their mothers' ages without hesitation, and those who could not, or would not, through a sense of propriety give the information. These were never pressed for an answer. The former group were asked how they knew, and the response provided the necessary clue for judging the correctness of the reply.

Table 4 analyzes the proportion of children in each school group originally investigated from whom information on maternal age was obtained, the proportion in all cases being roughly 40 per cent. Since the figure is slightly higher in schools containing children selected for high intelligence (central and secondary free pupils) it appears at first sight that high intelligence may be correlated with maternal age. To test this, a comparison was made of the mean intelligence of children with knowledge of their mothers' ages and the entire original sample (Table 5). The group of free pupils show almost no difference in the ratings of the two sections. The mean I.B. for all pupils in this category is 98.4, compared with 98.9 for those knowing their mothers' ages. For the fee-payers, however, there appears to be a small difference, but in view of the standard deviation, this is not statistically significant. Thus, it is unlikely that any correlation exists between intelligence and knowledge of ma-

| | Index of Brightness | | | | Intelligence Quotient | | | |
|---|---|---|---|---|---|---|---|---|
| | Free Pupils | | Fee-Payers | | Free Pupils | | Fee-Payers | |
| | Mean | S.E. | Mean | S.E. | Mean | S.E. | Mean | S.E. |
| All Pupils | 98.4 | 0.43 | 118.9 | 0.57 | 115.9 | 0.34 | 130.6 | 0.43 |
| Individuals Knowing Maternal Age | 98.9 | 0.69 | 120.6 | 0.74 | 115.1 | 0.82 | 131.6 | 0.89 |

Table 5. Mean intelligence of all pupils and of those knowing maternal age.

ternal age, indicating that the maternal-age data provides a sample representative of the entire group with respect to intelligence distribution.

## Maternal Age Distribution

Table 6 compares the distribution of maternal ages in the two combined groups of fee-payers and free pupils. The chief difference between the two lies in the distribution over the later age groups, showing that the mode of maternal age at birth of child is lower in the socially inferior group. Fee-payers have more mothers in the 28-33 age group than free pupils, and the latter tends to be spread out among the later ages. The greater concentration of mothers of fee-payers in the age groups 22-23 is probably to be explained by the different mean family size of the two groups, that of free pupils being 4.09, compared with 2.49 for the fee-payers. In large families more births would take place at later ages than in small families, and thus

Table 6. Maternal age distribution in school populations.

| Age of Mother at Birth of Offspring | Free Pupils (Weighted Percentage) | Fee-Paying Pupils (Weighted Percentage) |
|---|---|---|
| 21 and Under | 9.3 | 8.0 |
| 22–27 | 37.4 | 38.6 |
| 28–33 | 29.4 | 35.7 |
| 34–39 | 16.5 | 14.0 |
| 40 and Over | 7.4 | 3.7 |
| Total Number | 2,845 | 1,306 |

we would expect a larger representation of later births for the group of free pupils.

## Maternal Age and Intelligence

The distribution of the mean intelligence of children of mothers of different ages for the whole sample is shown in Table 7. These appear to be quite suggestive. Our sample shows a consistent decline in intelligence rating with increasing maternal age. The mean I.B. of children whose mothers were under twenty-one years of age at the time of their birth is almost 103. Each group of increasing maternal age shows a small but consistent decline in I.B. The last category—those with mothers over the age of 40 show the sharpest drop, but the sample is relatively small and the standard deviation large. The size of the standard deviation necessitates a cautious interpretation. Although unmistakable, the trend may not have great statistical significance. The results however may be contrasted with those of Thurstone and Jenkins, given in the last column of the table, which have been recalculated for the same age groups as those used in the present study. The latter data show no consistent tendency of the kind found at present.

The next step involved breaking up the sample into the two so-

Table 7. Maternal age and mean intelligence for total population (weighted[1]).

| Age of Mother at Birth of Offspring | N | I.B. | | I.Q. | | Thurstone and Jenkins (Calculated[2]) | |
|---|---|---|---|---|---|---|---|
| | | Mean | S.E. | Mean | S.E. | N | Mean |
| 21 and Under | 363 | 102.9 | 2.3 | 118.7 | 1.8 | 185 | 73 |
| 22–27 | 1,542 | 101.4 | 1.1 | 116.4 | 0.9 | 399 | 75 |
| 28–33 | 1,370 | 101.3 | 1.3 | 117.0 | 0.9 | 282 | 76 |
| 34–39 | 655 | 99.4 | 1.6 | 115.3 | 1.2 | 135 | 73 |
| 40 and Over | 221 | 95.3 | 2.8 | 113.8 | 2.1 | 44 | 67 |
| Total | 4,151 | | | | | 1,045 | |

[1] The statistical method employed to obtain weighted average is explained in detail in the first paper of this series, "Ability and Opportunity in English Education" (8).
[2] Means calculated from the data presented in Table XXXIV of Thurstone and Jenkins (5).

| Age of Mother at Birth of Offspring | Index of Brightness | | | | | | Intelligence Quotient | | | | I.Q. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Free Pupils | | | Fee-Payers | | | Free Pupils | | Fee-Payers | | Thurstone and Jenkins Category IV[1] | |
| | N | Mean | S.E. | N | Mean | S.E. | Mean | S.E. | Mean | S.E. | N | Mean |
| 21 and Under | 268 | 101.8 | 2.27 | 95 | 115.2 | 2.88 | 118.0 | 1.8 | 126.8 | 2.4 | 24 | 79 |
| 22–27 | 1,047 | 99.6 | 1.13 | 495 | 120.8 | 1.43 | 115.0 | 0.9 | 131.9 | 0.9 | 65 | 77 |
| 28–33 | 894 | 99.5 | 1.30 | 476 | 120.7 | 1.51 | 115.7 | 0.9 | 131.7 | 1.1 | 46 | 74 |
| 34–39 | 464 | 97.2 | 1.60 | 191 | 123.4 | 2.55 | 113.6 | 1.2 | 134.3 | 1.7 | 23 | 76 |
| 40 and Over | 172 | 93.2 | 2.68 | 49 | 118.8 | 5.14 | 112.5 | 2.0 | 128.1 | 3.4 | 7 | 82 |
| Total | 2,845 | | | 1,306 | | | | | | | 165 | |

[1] Means calculated from data in Table XXXVI of Thurstone and Jenkins (5). Category IV represents children of skilled mechanics.

Table 8. Maternal age and mean intelligence in socially different school populations.

cially distinct populations already referred to, namely free pupils and fee-payers. Table 8 gives a similar analysis for these separate groups. The results of the separation are interesting and suggestive. The downward trend found for the whole population still persists in the groups composed largely of children of manual workers (free pupils), but is contrasted with what appears to be a reversal in trend within the socially superior group. If we exclude the last figure on account of the smallness of sample, the differences between the mean I.B. of children of mothers under 21 and those between the ages of 34 and 39 amounts to over eight points in favor of the latter.

Table 9. Family size and mean intelligence rating in socially different school populations[1].

| Number of Children in Family | Number of Pupils | | Index of Brightness | | | | Intelligence Quotient | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Free | Fee-Payers | Free Pupils | | Fee-Payers | | Free Pupils | | Fee-Payers | |
| | | | Mean | S.E. | Mean | S.E. | Mean | S.E. | Mean | S.E. |
| 1 | 707 | 768 | 108.8 | 1.62 | 121.6 | 1.25 | 122.7 | 1.33 | 131.5 | 0.99 |
| 2 | 1,438 | 1,226 | 106.6 | 1.05 | 119.8 | 0.94 | 120.7 | 0.87 | 131.3 | 0.72 |
| 3 | 1,276 | 748 | 100.4 | 0.99 | 117.5 | 1.12 | 115.7 | 0.82 | 130.0 | 0.87 |
| 4 | 933 | 320 | 98.5 | 1.12 | 117.1 | 1.63 | 114.2 | 0.87 | 129.0 | 1.24 |
| 5 and Over | 2,120 | 235 | 91.0 | 0.66 | 117.7 | 2.26 | 109.2 | 0.50 | 130.6 | 1.61 |

[1] From Moshinsky (2).

These opposing tendencies however may be modified by the fertility-intelligence correlation found for the two groups. As Table 9 shows, both sections have an apparent tendency for high intelligence to be associated with small families, but the association is more strongly marked for the group of free pupils. The mean difference is almost nineteen points for free pupils, compared with four for fee-payers. Therefore, since larger families are associated significantly with low intelligence among the free pupils, and since children born to mothers at later ages will more probably belong to large sibships, the drop in mean intelligence found for these children may be a reflection of the fecundity-intelligence correlation.

In order to eliminate this influence, a further analysis was made, restricting the data to first-born children only. Table 10 presents the results found for this smaller sample. It now appears that the association of later births with low intelligence was indeed a reflection of the fecundity-intelligence connection for this population, since now no consistent trend is noticeable. The data for free pupils thus agrees with the results found by Thurstone and Jenkins for their entire sample of first-born children. On the other hand, our group of more privileged children retain an upward tendency for the later maternal age groups, which is perhaps even more marked than in the larger sample.

Table 10. Maternal age and mean intelligence of first-born children.

| Age of Mother at Birth of Offspring | Index of Brightness | | | | | | Intelligence Quotient | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Free Pupils | | | Fee-Payers | | | Free Pupils | | Fee-Payers | |
| | N | Mean | S.E. | N | Mean | S.E. | Mean | S.E. | Mean | S.E. |
| 21 and Under | 215 | 103.1 | 2.53 | 79 | 115.5 | 3.08 | 119.3 | 2.02 | 127.1 | 2.45 |
| 21–27 | 521 | 106.6 | 1.65 | 331 | 120.0 | 1.69 | 118.4 | 1.41 | 131.0 | 1.36 |
| 28–33 | 207 | 108.3 | 3.74 | 209 | 121.4 | 2.25 | 123.8 | 3.16 | 131.7 | 1.73 |
| 34–39 | 27 | 103.8 | 6.09 | 31 | 130.8 | 5.75 | 116.2 | 4.84 | 136.9 | 3.97 |
| 40 and Over | 6 | 104.7 | 5.11 | 2 | 85.2 | 15.59 | 118.3 | 4.56 | 102.4 | 12.84 |
| Total | 976 | | | 652 | | | | | | |

## Conclusions

How are these data to be interpreted? In the first place, it appears that size of family rather than time of production is linked with intelligence of the free school population. For the fee-payers, intelligence appears to be unassociated with size of sibship, but shows some connection with period of birth. Thus, the factor determining whether an intelligent mother will produce children[5] and the time of production is a function of different social forces operative within the framework of the two groups. From the figures in Table 9 it appeared that the most intelligent children of the group largely composed of manual workers are found in small families, but there is no indication in our present analysis that these births occur early or late.

A possible explanation is that intelligent parents in this group realize the social and economic advantage of smaller families, and plan them to this end. But there appears to be no social pressure for these births to occur at any specific time. One may assume that no particular socio-economic disability is attached to producing children at one period of life rather than another. On the other hand, a social disqualification seems to be connected with early child bearing for individuals who compose the upper section of the social hierarchy. It may be that the expense of child bearing and child rearing acts as an impediment to the acquisition of those expensive appurtenances of life that mark social position and solidarity for the wealthier group of the population. Thus, child bearing would be postponed until the necessary articles that provide the accepted social framework of family life had been acquired. This also implies that the social and economic responsibilities of early child bearing

[5] This argument does not involve the concept of atomistic inheritance of intelligence from parent to child. It has already been shown in many competent studies that the type of home background provided by more intelligent adults has a direct effect in stimulating the development of the child—apart from or in addition to any "natural" intelligence the child may possess. We accept therefore the existence of a correlation between the intelligence of parent and child, without discussing in the present context the possible origins of the connection.

would impede social and occupational mobility to a greater extent among the more privileged section of the population. Secondly, differences between initial and maximum earnings are far more significant for those in professional, administrative, and business occupations than for manual workers. Manual workers reach their maximum earnings comparatively early in life, and do not anticipate any marked betterment of their economic level. Those in the higher social categories however expect considerable increments of salary or income for a long period, and this may lead to the postponement of child bearing until the higher income level has been reached.

## References

1. Cattell, R. B.: The Fight for Our National Intelligence. London, P. S. King, 1937.

2. Moshinsky, Pearl: The Correlation between Fertility and Intelligence within Social Classes. *The Sociological Review* [England], April, 1939, xxxi, No. 2, pp. 144-165.

3. Roberts, J. A. F.; Norman, R. M.; and Griffiths, R.: Studies on Child Population. III. Intelligence and Family Size. *Annals of Eugenics,* January, 1938, pp. 178-215.

4. Penrose, Lionel: Mental Defect. New York, Farrar and Rinehart, 1934.

5. Thurstone, L. L. and Jenkins, R. L.: Order of Birth, Parent-Age and Intelligence. Chicago, The University of Chicago Press, 1931.

6. Steckel, Minnie L.: Intelligence and Birth Order in Family. Chicago, The University of Chicago (Ph.D. thesis), 1929.

7. Holway, R. S.: Age of Parents; Its Effect upon Children. Stanford University, 1901 [unpublished]. Quoted by Thurstone and Jenkins.

8. Gray, J. L. and Moshinsky, Pearl: Ability and Opportunity in English Education. *The Sociological Review,* April, 1935, xxvii, No. 2, pp. 113-162.

9. Gray, J. L. and Moshinsky, Pearl: Ability and Educational Opportunity in Relation to Parental Occupation. *The Sociological Review,* July, 1935, xxvii, No. 3, pp. 281-327.