

A biological survey of a Cambridge suburb: Assortative marriage for IQ and personality traits

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Summary. An account is given of a study, carried out in a Cambridge suburb, which measured the similarity in IQ and some personality traits between spouses. In both sexes mean IQ scores tended to diminish from social class I to V. Lower IQ scores were associated with higher levels of extraversion, neuroticism and inconsistency. Assortative marriage was found for IQ components, Total IQ, extraversion-introversion and inconsistency scores. Both geographical and social stratification were shown to affect the degree of assortative marriage.

1. Introduction

Positive assortative marriage occurs when phenotypically similar individuals marry each other in greater numbers than would be expected by chance. If such a marriage is fertile, assortative mating for a quantitative character with a heritable basis can lead to changes in the distribution of genes in a population. Levels of assortative marriage have been documented for numerous anthropometric and psychometric variables (Spuhler, 1968; Vandenburg, 1972) but there have been few attempts to investigate assortative marriage in different geographical or social groupings (Harrison, Gibson and Hiorns, 1976). The present results were obtained in a survey, carried out in a Cambridge suburb, which examined levels of assortative marriage for IQ components and personality traits in relation to both the geographical and social backgrounds of the spouses.

2. Materials and methods

The survey focused on a mainly council-owned estate situated to the north-east of Cambridge, some 1½-2 miles from the city centre. The estate occupies a relatively discrete spatial area, bounded by major roads to the north and east and agricultural land to the south and west. The area has local shops, post offices, schools, public houses, a community centre, and a children's clinic and there is a strong sense of "belonging" to the area among the estate's residents.

A pilot study gauged the householder's response to the survey and provided a census of the numbers of married and single people living on the estate. Information on the number and composition of families was of particular relevance to the study. One of the aims of the survey was to investigate intra- and inter-generational social

mobility in relation to IQ components, and this required data on father-and-son pairs. Other aims of the study needed data on sib pairs. Thus although an ideal data set comprised a family unit with husband and wife, two or more children and a surviving grandfather, less complete family units could contribute to particular research aims. Households which contained only single (unmarried, divorced, widowed) individuals were omitted from the survey, as were children under five years of age.

Personally addressed letters to each household (names obtained from the electoral roll) outlining the intended survey and a visit were used in an attempt to gain co-operation. Of the 942 households contacted between December 1972 and July 1974, 193 agreed to participate in the survey.

Each family group answered a questionnaire concerned with a simple genealogy, educational backgrounds, occupations throughout adult working life (including husbands' and wives' parents' occupations), birth places and geographical migration. Individually, family members undertook a mental aptitude test, a personality inventory, answered questions on hand preferences, hand clasping and armfolding and the degree of earlobe attachment was ascertained. Family members were also asked to provide a small blood sample.

The mental aptitude test used was Wechsler's Adult or Children's Intelligence Scale (Wechsler, 1949, 1958), usually referred to as WAIS or WISC respectively. The scales comprise eleven subscales or tests, six primarily measure Verbal IQ (VIQ) and five, performance or visuo-spatial IQ (PIQ). Because of the excessive time involved in completing full Wechsler tests, only four verbal subtests (comprehension, similarities, vocabulary and digital span) and three performance subtests (digit symbol, block design and object assembly) were used. The arithmetic subtest was not used because at the time of the survey the population was grappling with the difficulties of changing to a metric system for quantities. Other workers have also used this shortened Wechsler adult scale in field situations (Harrison *et al.*, 1974). The *a priori* grouping into verbal and performance subscales has been substantiated by factor analysis (Cropley, 1964).

The subject's achievement on each subscale (raw score) was converted to a standardized score, ranging from 0 to 19. In the adult (over 17 years of age) test, standardized subscale scores were summed then age corrected to give their respective verbal and performance IQ scores. Age-corrected total IQ scores (TIQ) were obtained from summed Verbal and Performance standardized scores.

A variation in the scoring scheme occurred in the children's test. The subject's achievement on each subtest was initially age-corrected to give standardized scores before summation for verbal and performance IQ. These subtest scores are independent equated scores.

Answers to the questions on Eysenck's Personality Inventory (EPI; Eysenck, 1956, 1970) can be used to obtain estimates of extraversion/introversion and neuroticism of the subject. The inventory includes what was originally described as a lie scale, but which is now considered a measure of reliability involving consistency as well as truthfulness of response.

3. Results

The Cambridge sample

The sample consisted of the 193 family groups described in Table 1. Households with two offspring and the surviving (interviewed) paternal grandfather comprise the largest group (35.2%). Families were placed into one of five socio-economic

classes using the Registrar General's (1966) Classification of Occupations. The husband's occupational status at the time of the survey was used for this classification. Social classes I, II and IINM are non-manual (NM) and IIIM, IV and V manual (M) occupations.

The distribution of families by social class is also shown in Table 1. There was significant heterogeneity ($\chi^2_{(4)} = 10.77$ $P < 0.05$) between non-manual and manual groups by family type, due to the higher proportion of families with children in the manual group.

Family type	Social class						Total non-manual	Total manual	Number of fathers interviewed
	I	II	IINM	IIIM	IV	V			
Husband, wife	13	9	6	15	7	—	28	22	22
Husband, wife, 1 offspring	—	2	6	18	6	1	8	25	17
Husband, wife, 2 offspring	4	13	5	30	15	1	22	46	26
Husband, wife, 3 offspring	5	4	3	21	3	—	12	24	13
Husband, wife, 4 offspring	1	—	1	4	—	—	2	4	1
Total	23	28	21	88	31	2	72	121	79

Table 1. Distribution of families by social class and family type.

The social class distributions of the Cambridge sample showed a bias in favour of males in non-manual occupations when compared to Glass's British data (1954). However there were no marked distribution differences between this study and the Registrar General's 1971 census data for the Cambridge area.

Spouses were also classified into locally (L) and non-locally (N) born groups. Two measures of "local" have been used in the study:

- (1) born within the city boundary
- (2) born within the county boundary

Use of either categorization yields very similar results (Table 2); for the total sample local and non-local numbers are approximately equal. However, the distri-

	Local × Local		Non-local × Local		Local × Non-local		Non-local × Non-local	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
I	3	4	4	3	—	—	16	16
II	6	7	3	3	5	5	14	13
IINM	9	10	2	2	5	4	5	5
Total NM	18	21	9	8	10	9	35	34
%	25.0	20.2	12.5	11.1	13.9	12.5	48.6	47.2
IIIM	24	29	18	16	22	22	24	21
IV	12	14	9	9	5	6	5	2
V	2	2	—	—	—	—	—	—
Total M	38	45	27	25	27	28	29	23
%	31.4	37.2	22.3	20.7	22.3	23.1	24.0	19.0

Table 2. Classification of marriage partners by geographic type and social class.

Social class	n	VIQ		PIQ		TIQ		Paired <i>t</i> tests		
		\bar{x}	s^2	\bar{x}	s^2	\bar{x}	s^2	VIQ	PIQ	TIQ
I	Husbands	127.22	147.27	125.65	143.06	127.48	127.58	4.74*****	4.99*****	5.10*****
	Wives	116.39	130.25	116.26	163.47	117.44	104.62			
II	Husbands	117.93	91.25	118.61	147.14	119.11	79.28	3.67****	4.27*****	3.52****
	Wives	118.18	117.78	116.61	173.36	118.54	139.52			
IIINM	Husbands	116.33	55.73	116.76	70.49	117.38	41.35	3.27****	3.52****	3.78****
	Wives	111.05	127.05	111.29	155.81	111.52	89.46			
IIIM	Husbands	109.60	81.71	108.31	72.19	109.58	46.29	6.34*****	5.75*****	5.93*****
	Wives	108.67	110.74	108.75	153.29	109.51	104.34			
IV & V	Husbands	103.91	108.15	106.70	122.66	105.33	88.67	4.15*****	4.33*****	4.55*****
	Wives	105.76	99.13	103.15	72.57	104.85	71.32			
Social group										
Total non-manual	Husbands	120.43	118.39	120.32	134.25	121.28	99.98	6.57*****	7.19*****	6.95*****
	Wives	115.53	152.70	114.94	166.08	116.14	105.70			
Total manual	Husbands	108.05	94.56	107.87	85.57	108.42	60.81	7.30*****	7.17*****	7.40*****
	Wives	107.88	101.01	107.22	136.76	108.24	99.02			
Overall	Husbands	112.67	138.92	112.51	139.57	113.22	113.84	9.69*****	10.07*****	9.39*****
	Wives	110.73	138.39	110.10	160.92	111.19	120.87			

Probability levels in this and subsequent tables: ns = not significant

* = $P < 0.05$

** = $P < 0.02$

*** = $P < 0.01$

**** = $P < 0.001$

Table 3. IQs of husbands and wives by social class and social group.

Mating type	n	Husbands						Wives					
		VIQ		PIQ		TIQ		VIQ		PIQ		TIQ	
		\bar{x}	s^2	\bar{x}	s^2	\bar{x}	s^2	\bar{x}	s^2	\bar{x}	s^2	\bar{x}	s^2
<i>Non-manual</i>													
L x L	18	113.50	73.32	119.72	67.98	117.11	37.28	111.78	131.01	118.67	145.41	115.50	112.26
N x L	9	123.78	135.44	122.89	307.61	124.89	160.86	115.00	66.25	110.89	110.11	114.11	63.86
L x N	10	113.80	56.62	114.00	108.44	114.20	77.73	113.10	211.88	106.70	146.68	110.60	173.15
N x N	35	125.03	100.62	121.77	129.42	124.54	87.81	118.29	164.62	116.43	174.55	118.57	116.72
<i>Manual</i>													
L x L	38	106.95	86.38	109.03	90.51	108.26	58.41	108.16	139.81	106.42	123.44	107.84	102.03
N x L	27	106.22	121.95	106.18	100.93	106.74	95.12	107.67	107.46	107.22	198.33	108.07	125.46
L x N	27	108.70	85.99	106.59	79.71	108.67	49.69	109.85	91.52	107.44	128.49	109.26	83.12
N x N	29	110.59	86.11	109.10	184.67	110.52	41.54	105.86	90.98	108.07	117.85	107.96	94.53

Table 4. Distribution of husbands and wives IQs by geographic type.

bution of local and non-local individuals significantly differs between social groups, non-locals comprising over 59% of the non-manual group but only 46% of the manual group. ($\chi^2_{(1)}=8.72$, $P<0.005$ based on classification 1, $\chi^2_{(1)}=11.89$, $P<0.001$ using classification 2).

Assortative marriage and IQ components

The mean IQs of the total sample of husbands and wives in each social group for both IQ components and total IQ scores are given in Table 3. There was a tendency in both sexes for IQ scores to diminish from social class I to IV and V, a result in keeping with previous findings (Burt, 1959; Waller, 1971). For the total sample, the mean IQ scores of males were higher on all three traits than females, although the differences were not significant using the simple t test for comparisons. However, paired t test comparisons of spouses IQ scores (Table 3) revealed that husbands scored significantly higher than their wives on all three traits in each social class and group and in the total sample. Previous researchers have found significant sex differences when using the WAIS (Wechsler, 1958; Hutt, 1972; Harrison *et al.*, 1976).

The IQ scores of husbands and wives were also classified on both geographic and social criteria (Table 4). In the manual group there were no significant differences in IQ scores between husbands or wives classified into locally and non-locally born (using the city boundary to define locally born). However, in the non-manual group, the verbal IQ and total IQ scores of non-local husbands were significantly higher than the mean score of the locally born (verbal IQ $t_{(70)}=5.14$, $P<0.001$; total IQ $t_{(70)}=4.25$, $P<0.001$). Similar differences also occurred between non-local born wives, wives of non-local \times non-local marriages having higher performance IQs than those of local \times non-local ($t_{(43)}=2.04$, $P<0.05$).

The similarity between spouses for a quantitative character is usually measured by correlation coefficient (see for instance Spuhler, 1968). However canonical correlation analysis of the data revealed some dependence between husbands' and wives' verbal and performance IQs (first latent root 0.51, $P<0.01$). Consequently, partial correlation coefficients of the form $r_{12.34}$ have also been calculated.

Similarity	HVIQ-WVIQ	HPIQ-WPIQ	HVIQ-WPIQ	HPIQ-WVIQ	HTIQ-WTIQ
Correlation coefficients	+0.340****	+0.285****	+0.312****	+0.251****	+0.403****
Partial correlation coefficients	+0.195****	+0.133 ns	+0.124 ns	+0.88 ns	

Table 5. Assortative marriage for IQ.

The relevant correlation coefficients and partial correlation coefficients are shown in Table 5. All the correlation coefficients between husbands' and wives' IQ scores were highly significant, and the correlation coefficient between spouses for total IQ was in general agreement with the other reported values (Vandenburg, 1972). However, the partial values were numerically lower and only the verbal IQ value remained significant.

These data relate to all the husband and wife pairs. However, assortative marriage levels could differ between social classes, and between the geographic marriage types. In Table 6 the correlation coefficients (upper) and partial correlation coefficients (lower) obtained in the different socio-economic groups are shown. Although the

Social class	<i>n</i>	HVIQ-WVIQ	HPIQ-WPIQ	HVIQ-WPIQ	HPIQ-WVIQ	HTIQ-WTIQ
I	23	+0.092 ns -0.069 ns	-0.033 ns -0.205 ns	+0.202 ns +0.260 ns	+0.161 ns +0.189 ns	+0.191 ns
II	28	+0.293 ns +0.220 ns	+0.442** +0.398*	+0.304 ns +0.097 ns	+0.080 ns -0.169 ns	+0.398 *
IIINM	21	+0.211 ns +0.138 ns	+0.192 ns +0.125 ns	+0.204 ns +0.148 ns	+0.256 ns +0.199 ns	+0.298 ns
IIIM	88	+0.199 ns +0.158 ns	+0.079 ns +0.077 ns	+0.147 ns +0.070 ns	+0.007 ns -0.003 ns	+0.179 ns
IV & V	33	+0.230 ns +0.243 ns	+0.118 ns +0.100 ns	-0.024 ns -0.173 ns	+0.169 ns +0.040 ns	+0.214 ns
Social group						
Total non-manual	72	+0.207 ns +0.102 ns	+0.241* +0.197 ns	+0.252* +0.126 ns	+0.171 ns +0.046 ns	+0.308***
Total manual	121	+0.231** +0.185*	+0.100 ns +0.071 ns	+0.156 ns +0.059 ns	+0.066 ns -0.002 ns	+0.226**

Table 6. Correlation coefficients and partial correlation coefficients for husband and wife pairs by social class and social group.

social groups did not differ significantly in either correlation or partial correlation coefficient, in the manual group the major similarities in the level of score was between spouses' verbal IQ components, whereas in the non-manual group most similarity was observed between performance IQ components and between husband's verbal IQ and wife's performance IQ.

The division of the sample into social classes and social groups was based on the present occupation of the husband. Consequently, likenesses between spouses for IQ components and total IQ scores based on these groupings do not reflect wives' occupational status. Within each social group, marriages were therefore further classified as either socially homogeneous (marriages of individuals of like social group) or socially heterogeneous (marriages between individuals of unlike social group) and the IQ correlation and partial correlation coefficients based on these marital types calculated (Table 7). These data show that in the non-manual group only the socially

	Socially homogeneous marriages		Socially heterogeneous marriages	
	<i>r</i>	<i>r</i> _{12.34}	<i>r</i>	<i>r</i> _{12.34}
<i>Non-manual group</i>				
HVIQ-WVIQ	+0.121 ns	+0.114 ns	+0.541*	-0.078 ns
HPIQ-WPIQ	+0.116 ns	+0.062 ns	+0.529*	-0.048 ns
HVIQ-WPIQ	+0.138 ns	+0.098 ns	+0.763***	+0.629*
HPIQ-WVIQ	+0.019 ns	-0.045 ns	+0.646**	+0.496*
HTIQ-WTIQ	+0.152 ns	—	+0.744***	—
<i>Manual group</i>				
HVIQ-WVIQ	+0.128 ns	+0.130 ns	+0.245 ns	+0.220 ns
HPIQ-WPIQ	+0.111 ns	+0.013 ns	+0.129 ns	+0.112 ns
HVIQ-WPIQ	+0.123 ns	+0.061 ns	+0.127 ns	+0.046 ns
HPIQ-WVIQ	+0.168 ns	+0.115 ns	+0.052 ns	-0.015 ns
HTIQ-WTIQ	+0.200 ns	—	+0.222 ns	—

Socially homogeneous: non-manual, *n* = 56, manual, *n* = 49

Socially heterogeneous: non-manual, *n* = 16, manual *n* = 72.

Table 7. Socially homogeneous and heterogeneous marriages by social group for IQ.

Geographic type	Local × Local			Non-local × Local			Local × Non-local			Non-local × Non-local		
	VIQ	PIQ	TIQ	VIQ	PIQ	TIQ	VIQ	PIQ	TIQ	VIQ	PIQ	TIQ
Non-manual	+0.376	+0.239	+0.390	+0.338	-0.086	+0.159	+0.258	+0.338	+0.365	+0.178	+0.294	+0.232
Probability	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Manual	+0.185	+0.141	+0.235	+0.512	+0.025	+0.365	+0.462	+0.212	+0.259	-0.220	+0.092	-0.179
Probability	ns	ns	ns	***	ns	ns	**	ns	ns	ns	ns	ns
n	Non-manual 18			9			10			35		
	Manual 38			27			27			29		

Table 8. Correlation coefficients between spouses by geographic type and social group.

heterogeneous marriages showed significant similarities between the IQ of the spouses, and in some cases these values were markedly higher than those obtained for the socially homogeneous marriages (socially homogeneous vs. socially heterogeneous) total IQ correlation coefficients $t_{(70)}=2.58$, $P<0.02$; husband's verbal on wife's performance IQ correlation coefficient $t_{(70)}=2.75$, $P<0.01$; Husband's performance on wife's verbal $t_{(73)}=2.44$, $P<0.02$). In contrast, none of the correlations were significant in the manual group, nor were there any differences between marriage types.

Comparisons between social groups showed that some of the correlations were significantly higher in non-manual than in manual socially heterogeneous marriages (total IQ $t_{(86)}=2.43$, $P<0.02$; husband's verbal on wife's performance IQ $t_{(86)}=2.86$, $P<0.01$; and husband's performance on wife's verbal IQ $t_{(86)}=2.39$, $P<0.02$).

Further subdivision of this sample of married couples by geographic type revealed significant associations between spouses' verbal IQs in non-local \times local and local \times non-local manual groups (Table 8). There were no consistent relationships between geographic type and socially homogeneous and heterogeneous marriages.

Assortative marriage and personality

The Eysenck Personality Inventory provides scores on scales of extraversion-introversion (E), neuroticism (N), and inconsistency (I). Higher scores are indicative of greater extraversion, neuroticism and lack of consistency in response.

The mean values for each sex are shown in Table 9. Wives scored significantly higher on the neuroticism scale than husbands ($t_{(384)}=5.65$, $P<0.001$) but the other personality scores did not differ significantly between the sexes. Personality scores differed markedly between social classes (Table 9) and there was a trend in both sexes for inconsistency scores to be higher with decreasing social status from I to V. Males

Social class	n		Extraversion		Neuroticism		Inconsistency	
			\bar{x}	s^2	\bar{x}	s^2	\bar{x}	s^2
I	23	H	11.26	10.66	7.48	25.99	2.74	2.66
		W	11.61	19.34	11.04	32.59	2.48	2.62
II	28	H	9.93	21.55	10.04	25.32	2.96	2.33
		W	9.75	12.64	13.82	15.93	3.25	2.19
IIINM	21	H	11.33	27.73	7.76	12.18	3.00	1.95
		W	10.86	23.73	11.67	30.23	3.30	2.45
Non-manual	72	H	10.76	19.76	8.56	22.79	2.90	2.27
		W	10.67	18.11	12.31	26.22	3.11	2.55
IIIM	88	H	12.55	16.32	10.25	18.14	3.28	3.08
		W	11.53	16.16	11.92	27.78	3.04	2.99
IV + V	33	H	11.61	16.68	8.30	17.15	3.88	3.55
		W	10.03	11.91	11.73	16.95	3.82	3.90
Manual	121	H	12.29	16.46	9.72	18.49	3.45	3.25
		W	11.12	15.34	11.87	24.67	3.26	3.32
Overall	193	H	11.72	18.14	9.29	20.30	3.30	2.94
		W	10.95	16.34	12.03	25.16	3.20	3.03

Table 9. Husbands' and wives' extraversion, neuroticism and inconsistency scores by social class and social group.

Mating type	<i>n</i>	Husbands						Wives					
		E		N		I		E		N		I	
		\bar{x}	s^2	\bar{x}	s^2	\bar{x}	s^2	\bar{x}	s^2	\bar{x}	s^2	\bar{x}	s^2
<i>Non-manual</i>													
Local × Local	18	12.33	20.00	8.72	18.33	3.67	2.00	10.17	14.73	12.83	29.91	3.28	2.10
Non-local × Local	9	11.11	6.11	8.22	27.44	2.78	1.19	13.67	12.75	10.11	33.11	3.78	2.19
Local × Non-local	10	9.10	23.43	8.80	20.40	2.60	2.71	11.30	13.34	12.90	14.32	3.20	1.51
Non-local × Non-local	35	10.34	21.29	8.49	26.49	2.63	2.33	9.97	20.79	12.43	26.66	2.83	3.15
<i>Manual</i>													
Local × Local	38	11.63	14.73	9.50	20.20	3.90	4.58	10.76	19.00	13.55	22.15	3.24	3.48
Non-local × Local	27	13.00	20.15	9.93	15.15	3.19	2.93	11.33	15.15	10.63	17.55	3.37	3.55
Local × Non-local	27	12.59	18.02	9.11	16.87	3.33	3.08	11.96	16.27	11.93	25.15	2.90	3.26
Non-local × Non-local	29	12.21	14.46	10.38	22.03	3.21	1.88	10.62	10.32	11.14	30.19	3.52	3.17

Table 10. Distribution of husbands' and wives' personality variables by geographic type.

of the manual group were significantly more extravert and inconsistent than their non-manual counterparts ($t_{(191)}=2.39$, $P<0.02$, $t_{(191)}=2.27$, $P<0.05$ respectively, Table 9). No significant personality differences were found in local and non-local born manual and non-manual males (Table 10), but non-manual wives' extraversion scores differed between local and non-local ($N \times L$ v. $N \times N$, $t_{(42)}=2.21$, $P<0.05$) as well as between locally born marital types ($L \times L$ v. $N \times L$, $t_{(25)}=2.20$, $P<0.05$).

Similarity	Extraversion	Neuroticism	Inconsistency
Husband and wife Correlation coefficients	+0.233****	+0.072 ns	+0.235****

Table 11. Assortative marriage for personality.

Highly significant positive likenesses between spouses' extraversion-introversion and inconsistency scores (Table 11) were found for the total sample of husbands and wives. There were no significant differences in the assortative marriage levels between social classes or social groups (Table 12), but heterogeneity was observed when spouses were grouped by geographic types (Table 13); in the manual group the local \times local type neuroticism correlation was negative and significant. It differed from the other manual group values as well as from the correlations in the non-manual group.

Social class	<i>n</i>	Extraversion	Neuroticism	Inconsistency
I	23	+0.242 ns	+0.268 ns	+0.376 ns
II	28	+0.176 ns	+0.166 ns	+0.004 ns
IIINM	21	+0.347 ns	+0.031 ns	+0.343 ns
IIIM	88	+0.125 ns	-0.061 ns	+0.272***
IV+V	33	+0.353*	+0.122 ns	+0.061 ns
Social group				
Non-manual	72	+0.273*	+0.224 ns	+0.238*
Manual	121	+0.194*	-0.017 ns	+0.229**

Table 12. Assortative marriage for personality by social class and social group.

Interrelationships of personality and IQ

In this sample there was overall a negative correlation between IQ and personality scores (Table 14), for lower IQ scores were associated with higher extraversion, neuroticism and inconsistency scores. Correlations based on social groups were also calculated. There were no significant differences between groups, although non-manual husbands showed a significant positive relationship between verbal ability and neuroticism.

4. Discussion

The aspect of the Cambridge study described here centred on examining the similarity in IQ components, total IQ, and personality traits between spouses and in discerning the extent to which social and geographic stratification affected the degree of assortative marriage. The genetic effects of assortative mating for a quantitative

Geographic type	Local × Local			Non-local × Local			Local × Non-local			Non-local × Non-local		
	E	N	I	E	N	I	E	N	I	E	N	I
Non-manual	+0.541	+0.345	+0.192	+0.444	+0.584	+0.428	+0.589	-0.164	-0.066	+0.124	+0.129	+0.280
Probability	*	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Manual	+0.224	-0.639	+0.338	-0.020	+0.614	+0.527	+0.217	+0.368	-0.061	-0.101	-0.120	+0.352
Probability	ns	****	*	ns	****	***	ns	ns	ns	ns	ns	ns
n	18	38		9	27		10	27		35	29	

Table 13. Assortative marriage for personality by geographic type and social group.

	Extraversion		Neuroticism		Inconsistency				
	Non-manual	manual	Non-manual	manual	Non-manual	manual			
<i>VIQ</i>									
Husbands	+0.044 ns	+0.039 ns	+0.263 *	+0.027 ns	-0.219 ns	-0.109 ns			
Wives	+0.203 ns	-0.051 ns	-0.118 ns	-0.185 *	-0.134 ns	+0.076 ns			
<i>PIQ</i>									
Husbands	-0.263 *	-0.089 ns	-0.115 ns	-0.085 ns	-0.088 ns	+0.179 *			
Wives	-0.052 ns	+0.065 ns	-0.032 ns	-0.121 ns	-0.141 ns	-0.076 ns			
<i>TIQ</i>									
Husbands	-0.099 ns	-0.020 ns	-0.105 ns	-0.187 *	-0.229 ns	-0.023 ns			
Wives	+0.029 ns	+0.028 ns	+0.092 ns	-0.121 **	+0.049 ns	+0.004 ns			
<hr/>									
	VIQ & E	VIQ & N	VIQ & I	PIQ & E	PIQ & N	PIQ & I	TIQ & E	TIQ & N	TIQ & I
Total husbands	-0.050 ns	+0.041 ns	-0.204 ***	-0.230 ***	-0.147 *	-0.014 ns	-0.146 *	-0.192 ***	-0.171 **
Total wives	-0.128 ns	-0.135 ns	-0.016 ns	-0.002 ns	-0.069 ns	-0.106 ns	-0.098 ns	-0.141 *	-0.079 ns

Table 14. Interrelationships of personality and IQ.

character with a significant heritable basis have been briefly mentioned. In theory, if mating is positively assortative, reduction in heterozygosity with a concomitant increase in homozygosity will occur, although the outcome is somewhat complicated as different genotypes may give rise to the same phenotypes. The theory tends to ignore epistatic interactions and assumes that the genetic and environmental factors are independent. These assumptions are likely to be unrealistic (Crow and Kimura, 1970) so that predictions of the phenotypic effects of assortative mating, especially in human populations, based on these models are little more than guesses.

Positive assortative mating between spouses for IQ has been reported by some authors, including Burks (1928), Freeman *et al.* (1928), Carter (1932), Penrose (1933), Smith (1941) and Halperin (1946). The present study provides consonant results, although partial correlations indicate that, for the total sample, spouses are more alike for verbal than for performance IQ.

Such a result might be expected to accrue during marriage, although there were no significant associations between the difference in husband and wife IQ scores and duration of marriage. The Cambridge data also measured the extent to which spouses' IQ correlations were affected by propinquity and by social endogamy. Marriages were classified as either socially homogeneous (the social groups of spouses were identical) or socially heterogeneous (spouses' social groups differed). No significant differences between these categories occurred in the manual group, whereas in the non-manual group some of the correlation coefficients were significantly higher in the socially heterogeneous group. Although the sample sizes were small, these results indicate that positive assortative mating values need not be due to social class endogamy (Harrison *et al.*, 1974). In the present survey, it was not possible to provide conclusive evidence as to the occurrence of social class assortative marriage heterogeneity, although performance IQ partial correlation coefficients differed significantly between social classes I and II. Contrary to the results of Harrison *et al.* (1974), in this study the Verbal IQ correlations in which one spouse was locally born (i.e. local \times non-local and non-local \times local) were significantly higher than in the non-local \times non-local marriages.

Like IQ, the personality variables, extraversion, introversion and neuroticism of Eysenck's Personality Inventory are thought to have heritable bases to their variation (Eysenck, 1956; Freedman, 1967; Gottesman, 1966; Vandenburg, 1967; Scarr, 1969; Jinks and Fulker, 1970). For the total sample, significant positive associations for extraversion and inconsistency scores were found, while the lack of significant correlation for neuroticism overall was explained by significant negative assortative mating for neuroticism in manual local \times local marriages and positive assortative mating in non-local \times local marriages.

In the non-manual group, the mean extraversion and neuroticism scores were lower and mean IQ values higher, and thus a negative correlation between personality factors and IQ would be expected. Total IQ scores were negatively correlated with neuroticism for both sexes. However, it is possible that, in non-manual males, neuroticism score is positively correlated with verbal IQ and negatively correlated with performance IQ although further studies with larger sample sizes would be required to confirm these findings. The personality of the subject might also affect his or her attitude to the IQ test. Foulds and Caine (1958) found that extraverted neurotics worked faster than introverted neurotics, although the two groups did not differ on the number of items correctly answered. Jensen's (1966) results were similar, but Gray and McClean (1973) found no such effect using the AH5 intelligence test.

However, their results have been criticized by Gibson (1973), who felt that the AH5 was inappropriate in testing such a hypothesis.

None of the assortative marriage values for personality and IQ discussed in this study provide information as to whether similarities occur through assortment before mate selection or as a result of marital influence or both (Eckland, 1970). Nevertheless, the data show that the degree of resemblance between spouses can vary with the social and geographic origins of the partners and that data obtained without these factors being taken into account will obscure this significant heterogeneity. Furthermore, in the absence of completed family size data, the relationships between assortative marriage and fertility has not been analysed.

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Zusammenfassung. Es wird über eine in einem Vorort von Cambridge durchgeführte Untersuchung berichtet, bei der die Partnerähnlichkeit bezüglich des IQ und einiger Persönlichkeitsmerkmale gemessen wurde. Bei beiden Geschlechtern tendierte der IQ zu einer Abnahme von der sozialen Klasse I bis V. Die niedrigeren IQ-Werte waren verknüpft mit höheren Niveaus von Extraversion, Neurotizismus und Inkonsistenz. Partnersiebung wurde gefunden für die Bestandteile des IQ, den gesamten IQ, Extraversion-Introversion und Inkonsistenz. Es konnte gezeigt werden, daß sowohl geographische als auch soziale Schichtung das Ausmaß der Partnersiebung beeinflusste.

Résumé. Il est rendu compte d'une étude menée dans un faubourg de Cambridge qui a mesuré la similitude des époux en Q.I. et en certains traits de la personnalité. Dans les deux sexes, la moyenne des cotes du Q.I. tend à diminuer de la classe sociale I à la V. Des cotes plus basses de Q.I. étaient associées à des niveaux plus élevés d'extraversion, de neurotisme et d'inconsistance. Un assortiment matrimonial a été trouvé pour les composantes du Q.I., le Q.I. total, la cote d'extraversion-introversion et la cote d'inconsistance. Il a été montré que la stratification géographique comme la stratification sociale influaient sur l'intensité de l'assortiment matrimonial.