

Unnatural Selection.

Dr Lee's comments in the last QMM about medical student selection requires a reply. As one of the authors of the research paper (1) on which the Sunday Times article was based, perhaps I am the best qualified to do so.

I will consider two problems only - the social class distribution of medical students, and the number of medical students who are themselves the children of doctors. My interest in such matters is because I believe strongly in one of Dr Lee's "solid virtues of the middle class", that is, fair play, or to put it another way, not altering the rules of the game so that one's own side always wins.

SOCIAL CLASS

The Registrar-General classifies individuals into five groups, of which the distribution in the general population is about:-

- Group I - Professional occupations
4%
- Group II- Intermediate occupations
21%
- Group III- Skilled occupations
47%
- Group IV- Semi-skilled occupations
19%
- Group V - Unskilled occupations
9%

Amongst medical students about 50% have fathers in social class I¹. Doctors thus represent a very different group of people to those persons they will later have to treat. There are some good

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reasons why such a disproportion should exist. Social class correlates with intelligence and the intelligence of children correlates with that of parents. Nevertheless because of the phenomenon of regression to the mean, the children of high intelligence parents are, on average, less intelligent than their parents, whilst the children of low intelligence parents have a higher intelligence than their parents. Hence in any society which rewards merit and ability there are biological reasons for a moderate degree of social mobility (both upwards and downwards) contingent upon ability. Evidence suggests however that selection is not in terms of intelligence. It has long been a paradox that medical students have, amongst students overall, the highest average A-level scores, but relatively low intelligence scores. Certainly A-levels correlate little, if at all, with later success in medical school (a consideration which applies to all subjects, not just medicine²). The possession of three high-grade A-levels is probably not so much a function of intelligence but more of one's ability (and of one's family's ability) to afford to stay on at school until 18, and if necessary, to re-take A-levels in order to gain the necessary grades. It is not surprising to find that a higher than expected proportion of medical students have had a non-state education¹. But this alone is not evidence of discrimination: it may be that medical schools are selecting fairly from those applicants who present themselves, but that some children with ability are being dissuaded

at school from applying for medicine. There is evidence that the former is not true, and it is probable that the latter is true. Johnson³, in 1971, made a study of students accepted for medical school and those rejected: he found the following proportions:

ACCEPTED

<u>State Schools</u>	45.7%
<u>Direct Grant Schools</u>	26.9%
<u>Public Schools</u>	27.5%

REJECTED

<u>State Schools</u>	78.3%
<u>Direct Grant Schools</u>	14.2%
<u>Public Schools</u>	6.3%

To add to this evidence of discrimination we found, in our own survey of students entering Birmingham in the years 1970-73 that students who had been to non-state schools had significantly lower A-level grades than those going to state schools.¹

MEDICAL PARENTS

One in five medical students are themselves the children of doctors⁴. Needless to say one in five of the population as a whole are not doctors. Whilst career preferences might be modified by parental occupation and account for a part of this excess of medical families we might reasonably expect that amongst applicants to medical school children of doctors and non-doctors would be treated alike. Again, Johnson's study of medical rejects³, found evidence to the contrary:-

% With medical fathers

ACCEPTED	21.0%
REJECTED	6.3%

To compound this evidence we found evidence in our own survey¹, that whilst overall 46% of students came from the Midlands, 75% of the children of GP's (but not of non-GP medical parents) came from the Midlands. This highly significant difference implies that there is an element of 'local influence' at work in the selection process.

PERFORMANCE AT MEDICAL SCHOOL

None of the factors described above would matter if it were later shown that those groups given preference were later to perform better at medical school. Again the evidence is against this. The Todd report⁴ found the following statistics:-

Per cent students passing all exams at first sitting

SOCIAL CLASS

I	56.4	
II	67.4	
III	63.8	$p < 0.05$
IV + V	74.1	

SCHOOL TYPE

State	79.5
Direct Grant	76.7
Public	66.5

Per cent students having to repeat a part of a course

MEDICAL FATHERS

23.1%	$p < 0.05$
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NON-MEDICAL FATHERS

18.5%	$p < 0.05$
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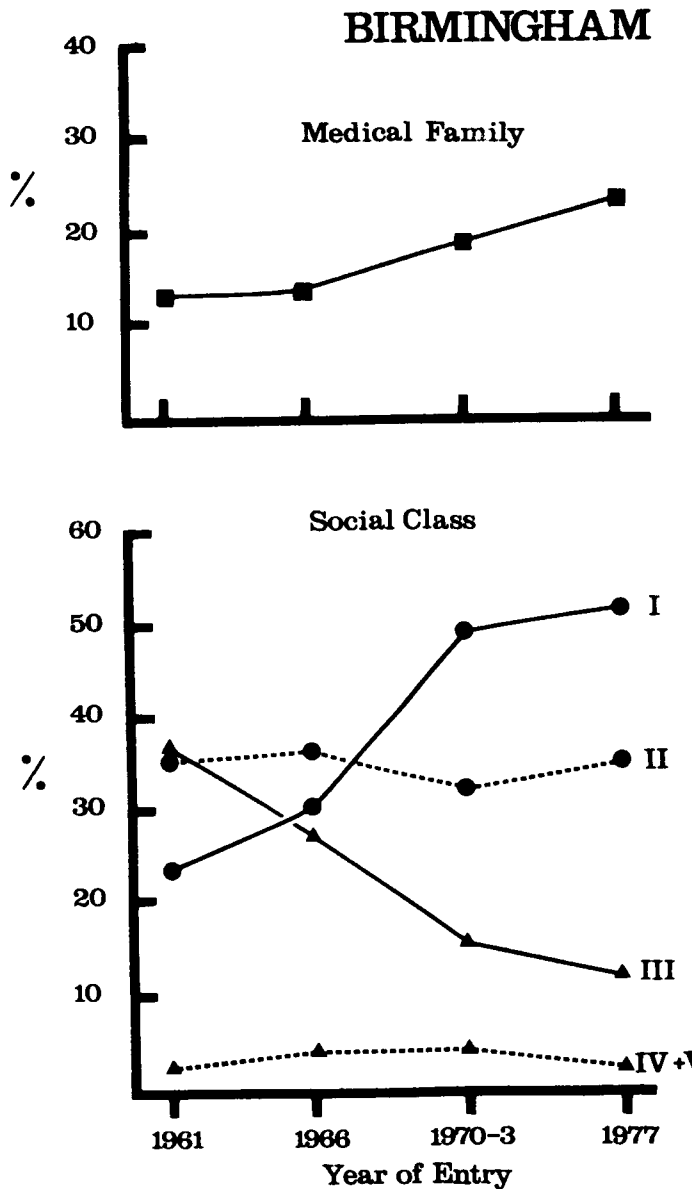
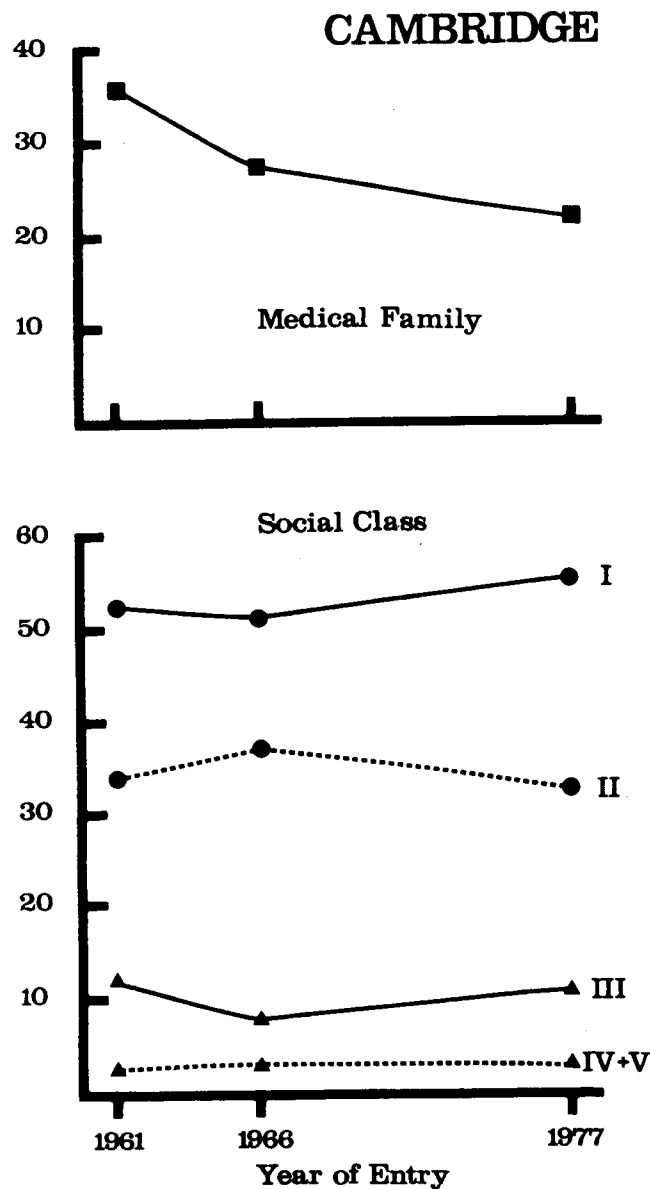
We thus have a strange mode of selection - selection of the least fit⁵, a situation which Darwin would have assured us was disastrous.

SECULAR CHANGES
A TALE OF TWO MEDICAL SCHOOLS

It might be that whilst medical schools are historically very socially selective there is evidence of a slow change for the better. That Birmingham medical school has always been socially selective is confirmed by one of its more eminent sons, the novelist Francis Brett Young, who in his semi-fictional description of the school in the 1890's, tells us that "Of these one hundred and fifty students . . . nearly all (were) middle class folk, and a large number, between thirty and forty, sons of medical men.."6. We have recently compared two medical schools, Birmingham and Cambridge, carrying out questionnaire surveys of the 1977 intake in both.

Let us consider Cambridge first. It has always been socially exclusive, and still is to a large extent. The graph below shows that it has probably not changed its class distribution since 1961, although there is evidence that the proportion of children of doctors is decreasing, from 34% in 1961, to 21% now7. The least that can be said of Cambridge is that it is getting no worse.

Birmingham is a different proposition. The figure below shows that the Birmingham social class distribution is probably changing very rapidly and is becoming more socially exclusive8. Currently there is an increase in the proportion of students who are children of doctors. The result is that Cambridge and Birmingham are now indistinguishable in terms of their disproportional selection of certain social groups.



Given the defects of the present system it is difficult to know how to replace it with a better one. A more socially egalitarian selection would at the very least ensure fewer people failing medical school exams. The problem is that we have no measures at all of who becomes a good or a bad doctor (although we are certain that the latter group exists). Until we have such information no selection at all might be better than maladaptive selection. A radical view-point, put forward by Sheldrake⁹, and actually adopted in part in Dutch medical schools¹⁰, to no obvious detriment, follows, in his own words:-

".. my suggestion (is) that, in the simplest terms possible, when other minimal criteria have been satisfied, students should be selected randomly. That this should be done randomly is,

I want to argue, because there is no evidence that selection methods in any way improve on a random system. Indeed I would suggest that the immense effort put into the selection of medical students on the basis of a certain limited range of factors, has little or no predictive value. As such, such selection serves only to reduce variability and hence the value of the population accepted by the medical school."

If Tutors for Admission disagree with such conclusions the onus is surely upon them to regularly produce adequate statistics on accepted and rejected candidates, so that a true perspective of selection may be obtained. Clandestine selection with no feedback, scrutiny or accountability will only increase public suspicion.

FOOTNOTES

1. Cruickshank, J.K., & McManus, I.C. New Society (1976) 35, 112.
2. Bagg, D.G. Nature (1970) 225, 1105.
3. Johnson, M.L. Br. J. Med. Ed. (1971) 5, 260.
4. 'Report of the Royal Commission on Medical Education', Cmnd 3569, HMSO, 1968.
5. Newth, D.R., Br. J. Med. Ed. (1969) 2, 105.
6. Young, F.B., Dr Bradley Remembers, London, 1938, p.115.
7. Data for 1961 and 1966 are from the Todd report⁴; for 1977 from our own unpublished survey of 70% of medical students. The Todd report data refers to 'Oxbridge', my own to Cambridge alone.
8. Data for 1961 and 1966 are from the Todd report⁴; for 1970-73 from our own survey¹, and for 1977 from an unpublished survey of 68.7% of medical students. The Todd report data refers only to 'Provincial' medical schools, my own to Birmingham specifically.
9. Sheldrake, P. Br. J. Med. Ed. (1975) 9, 91.
10. Lancet (1976) 1, 797.