

Differences in brain size

SIR — John Maddox¹ attempts to justify the suppression of Philippe Rushton's work on race and IQ.

His only relevant argument is the claim that the US Army data Rushton uses constitutes a biased sample and thus cannot support a general conclusion. Unfortunately, that is the entire argument, an undocumented assertion of bias and an assumption that the direction of the bias will negate Rushton's conclusion. *A priori*, it is equally likely that the bias is in the opposite direction; that whites choose a risky army career only when they lack the ability to compete for the better civilian jobs, while blacks see the army as one of the least prejudiced careers available and send their best and brightest. The net result is probably an unbiased sample.

The main argument used is that papers that challenge an entrenched orthodoxy should be required to meet more rigorous standards than papers that support the orthodox view. This argument perversely misunderstands the scientific process as applied in the physical sciences. It is not the fact that the orthodox position has been challenged that generates the scepticism; it is the fact that the challenger has not yet accumulated a level of supporting evidence equal to that of the orthodox view. This may take several decades, as with continental drift, when the orthodox view has a large head start in evidence, but it is illegitimate to interpret this as using harsher standards on the challenger.

Then there is the assumption by Maddox that the orthodox view in the IQ debate achieved its dominance on the basis of evidence rather than ideology. This is questionable. Maddox himself notes that the methodological errors in papers reaching the orthodox conclusion are typically ignored. Most of the support for the orthodox view is of the same type as the creationists' arguments against evolution: papers on evolution cannot survive scrutiny at the highest levels of rigour, therefore creationism must be right. Maddox argues in the same fashion, pointing to flaws in Rushton's work relative to the highest standards while ignoring similar flaws in politically correct papers. Until the orthodox view is required to meet rigorous scientific standards, it is dishonest to expect the challenging views to do so.

Finally, the principle that one can justifiably discriminate against research that can be misinterpreted and misused by someone with a political axe to grind would quickly and surely gut the integrity of the scientific process. It is just too easy to generate perverse interpretations. For example, Maddox's character-

ization of the possible bias in the army sample says, appropriately interpreted, that whites join the army because they are patriots, while blacks join because they lack the wit to do anything else. Thus, Maddox's claim of sample bias should be suppressed as racist until he comes up with irrefutable proof. It should be obvious that the appropriate response to ignorance is education, not repression.

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SIR — Has political correctness really penetrated so deeply that, in the great journals of science, the null hypothesis of no racial differences in brain size has become, in effect, equivalent in status to an ellipsoid Earth, continental drift and relativity theory? John Maddox¹ holds that because of a potential for "misunderstanding" it would be "unseemly" to test a racial hypothesis with anything other than "extraordinary" and "overwhelming" evidence. He suggests that my US military data² showing that Asian Americans averaged a larger cranial capacity than Caucasians or Afro-Americans did not meet these criteria and that I had overlooked an "elementary error" of generalization. But he failed to report that my data confirmed several other datasets derived in different ways and published since 1980.

While sampling and methodological difficulties may be identified in each source, results obtained from diverse procedures allow a triangulation on probable truth. Maddox suggested as a possible cause of bias in the US Army data that the whites who enlist do so to make careers but that the blacks who join are those who cannot find other jobs. But the identical racial brain size occurs among officers who make the Army their profession as among enlisted personnel, and among women as among men.

It may also be worth calling attention to the enormous overlap in the racial distributions. Only a 4 per cent difference separated the Asian-American from the Afro-American averages in the US Army. Clearly it is highly problematic to generalize from a racial group average to any particular individual. However, because there is about a .35 correlation between brain size and intelligence test scores³, these systematic and possible causal relationships may be of great scientific interest.

Finally, it is not true to say that I was "suspended" from my university. The premier of the province called for this

action but the university refused to comply. Although my academic freedom was violated in other respects and for a term I was forced to teach by videotape, attempts to marginalize my research findings have not made and cannot make disappear the unpalatable facts of racial group differences in brain size and related variables.

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SIR — John Maddox¹ was correct in saying that J. P. Rushton's most "marked observation" was that women's brains are, on average, 100 cm³ smaller than men's. Maddox failed to mention, however, that Rushton's result was (as Rushton acknowledged in his paper, p. 402) a confirmation of my earlier analyses⁴. I used autopsy data ($N=1,261$ adults) from Cleveland, Ohio, to show that, after correcting for differences in body size, brains of black and white men average about 100 grams heavier than do those of their female counterparts.

This remarkable result, previously either missed or ignored by biologists (because of unpalatability?) cannot be dismissed by claiming a biased sample. How could it be that, in Cleveland, deaths occur only among men with heavier brains and women with lighter brains? Rather, as Rushton's analyses confirm, this is a real phenomenon that the larger brain of men is an evolved trait that relates to those mental abilities at which men excel, that is, spatial and mathematical reasoning abilities. Recently initiated magnetic resonance imaging studies of male and female brains, in conjunction with tests of various mental abilities, are certain to further illuminate this fascinating aspect of human biology and evolution.

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1. *Nature* **358**, 187 (1992).
2. Rushton, J. P. *Intelligence* **16**, 401–413 (1992).
3. Willerman, L., Schultz, R., Rutledge, J. D. & Bigler, E. D. *Intelligence* **15**, 223–228 (1991).
4. Ankney, C. D. *Intelligence* **16**, 329–336 (1992).

SIR — Is bigger necessarily better? If the US Army administers IQ or aptitude tests to its recruits, Rushton's dataset might at least help to resolve that question.

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