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MIND & MATTER

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Gong, it’s round 43 of the brain-size slanging match

TODAY, let’s play science Jeopardy. I’ll give you the right response and then you have to guess the question it is an answer to.

Answer: Freddy, cockroaches and debates about sexual and racial brain-size differences.

Question: Name three things that refuse to die.

We are now into at least round 43 in the brain-size slanging match. While some of the most recent disagreements have been played out in pages of this newspaper, a vigorous (that is, all the curse words have been excised) discussion has been on going in the letters pages of the august science magazine *Nature*.

By way of context, I don’t know how to capture the soberness of London-based *Nature* for those who are unfamiliar with its high science mien. But I did once flummox a *Nature* reporter by saying I had always wanted to meet someone who worked for a journal that published extremely significant but completely incomprehensible findings.

Anyhow, since July 16, when *Nature* editor John Maddox published a lengthy editorial on what he perceived to be elementary statistical errors by controversial University of Western Ontario psychology professor J. Philippe Rushton, *Nature* has been awash in cerebral arguments.

In an editorial headlined, "How to publish the unpalatable," Dr. Maddox hypothesized that "a person claiming to be able to stand generally accepted views on their head has an urgent claim on public attention, but .... he or she must bring to the task evidence which is overwhelmingly compelling."

Prof. Rushton’s analysis of head-size data collected from 6,325 U.S. soldiers suggested that on average orientals had bigger brains than whites and whites had larger brains than blacks. It also indicated that men’s brains were bigger than women’s and officers’ brains larger than enlisted men’s.

Bogus, claimed Dr. Maddox. The data are inherently tainted because prejudice in U.S. society means that statistically different groups of blacks and whites and men and women join the army. Thus Prof. Rushton’s argument is like comparing apples, oranges and peaches. "The more serious complaint is that an argument putting forward a politically incorrect conclusion in a manner likely to be widely and generally misinterpreted has not been required to meet the test that the proof should be especially compelling," concluded Dr. Maddox, explaining why *Nature* would not publish Prof. Rushton’s findings.

Four letter writers responded to what in fact was a kind of publication-through-an-editorial-about-why-we’re-not-publishing. Among them Dr. Rushton maintained that his findings were upheld by others’ work, and besides Dr. Maddox’s thesis was all wet.

UWO zoologist C. Davison Ankney also weighed in with his now notorious re-analysis of male-famale, brain-size variation in corpses autopsied in Cleveland in the 1970s. The original study had concluded that "differences between the sexes is not clear-cut." However, when Dr. Ankney compared men and women of equal height or weight he found that on average the men’s brains weighed 100 grams more than the women’s. His analysis of height and weight was a way to compensate for the self-evident truth that men are on average bigger than women.

In the Sept. 17 issue of *Nature* four more letters re Ankney-Rushton appear.

The most telling one comes from Dolph Schluter, a zoologist at the University of British Columbia, who re-examines the data that Prof. Ankney re-interpreted and then re-interprets the re-interpretation. Prof. Schluter argues that if you have truly accounted for body-size differences, then men and women with the same brain size should be equally tall. But no, when you compare white men and women with equal-size brains the men are on average 10 centimetres taller. "By this criterion woman have much larger brains (for their size) than men," he concludes. "Furthermore, the racial differences disappear when the data are analyzed in the same way."

Seems pretty straightforward, but even as you read this column both Prof. Ankney and Prof. Rushton have posted letters to *Nature* refuting the refutation. Prof. Ankney argues that at "age 25 years, brains of white men were calculated to be 17-per-cent heavier than those of white women, but men were only 8-per-cent taller. Obviously, even Schluter’s statistical smoke and mirrors cannot make women have brains that are proportionally as large as men."

Prof. Rushton in his unpublished letter says that when white women and black women of equal height were compared in the military study, the brains of the white women weighed 94 grams more.

I draw your attention to all this brain-related academic fisticuffs for two reasons. The first is to let you know the debate is ongoing. The second is to underscore a reality that is almost never discussed in the non-science media: Experimental science isn’t facts or truths – it is argument. It is always people marshalling suspect data to support a line of reasoning. It is always other people saying hogwash, my data or my re-interpretation of your data shows just what a dunderhead you are.

The rarest thing in science is real agreement.

The truest thing is that context in everything.

The article EM9218 reprinted above is used in Figure 1.6 of the STAT 220 Course Materials,