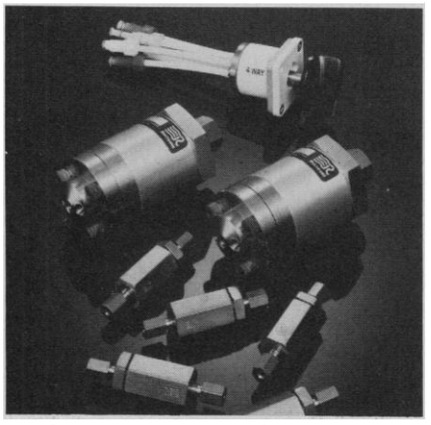

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were presented was the idea that any type of neutral beam gun may be rendered inoperable in a reactor environment because there may be no way to stop thermonuclear neutrons from escaping through the neutral beam ports and disabling the guns.

—WILLIAM D. METZ

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Helping Soviet Scientists

I should like to make some suggestions with regard to the letters and commentary published on the Russian situation (11 Aug., p. 482). I think I am qualified to advise in this area, as I spent 45 years in Russia (five of which were spent waiting for an exit visa to Israel) and was interrogated, arrested, and imprisoned there for my activities as a refusenik scientist. Additionally, the current group of refusenik and imprisoned scientists is comprised largely of my friends. Following are some suggestions which I would make to Western scientists visiting the U.S.S.R.

1) Do not ask Soviet scientists for advice. Some of those who are less careful in what they say (such as the colleagues of Dale P. Cruikshank) may be in trouble in the long run—in this case after the publication of a letter in *Science*. Those who are more guarded—as were the colleagues of Charles DeLisi—are probably not telling the full story.

2) Anyone who does not already possess a fairly profound knowledge of Russian life probably should not try to decide what to do by himself, bearing in mind the maxim that a disease cannot be cured except by a physician. In this instance, the "physicians" are, for instance, those who belong to the Committee of Concerned Scientists (the director is Mark Mellman, 9 East 40 Street, New York 10016). My own ideas on this point are presented in (*1*).

3) It should be borne in mind that dissident scientists are still scientists. They write papers, but they write them in a Russian style and with flawed English; they cannot prepare the papers properly, and their correspondence with scientific journals is cut off. It would be helpful if someone could assist in the preparation of their manuscripts. I have papers right now from, for example, Y. Orlov, V. Brailovsky, and I. Brailovsky. Volunteers from various fields of science (physics, mathematics, cybernetics) are badly needed, since each published paper of a dissident scientist is the result of someone's good will and devotion. Interested persons should contact Mark Mellman at the address above.

4) "Excluded scientists" will be organizing an International Conference on Collective Phenomena in Moscow on 27–29 December. The participation of Western scientists will be extremely important and effective so far as support is concerned, because those in the Soviet Union have been deprived of scientific communication. Information about the conference is available from Minko Balkanski, co-chairman, Université de Paris VI, 4 Place Jussieu, 75230 Paris Cedex 05, France.

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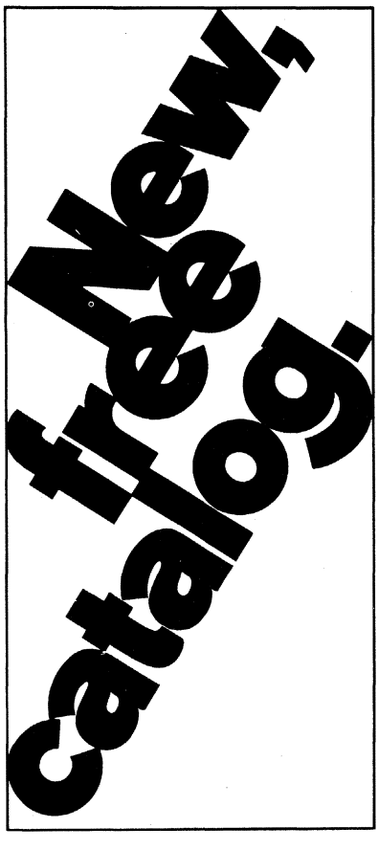
The Brains of Geniuses

It is both easy and appropriate to deride the naively mechanistic notion that science might trace the cause of mental or moral excellence to the gross physical structure of a preserved brain (*1*). Thus, Einstein's genius remains elusive—and his brain remains in a cider box because no one has identified anything unusual about it worth publishing. As historical precedent for a negative result, Nicholas Wade (News and Comment, 25 Aug., p. 696) cites Rudolph Wagner's comparison of a laborer's brain with that of the great mathematician Friedrich Gauss. Wagner found no difference.

Yet Gauss's brain did not rest in a beer keg, and Wagner's results were dismissed by all the great craniometricians who made racism a respectable science in the 19th century. The dissection of brains from "eminent men" became a cottage industry among anatomists and anthropologists: they pledged themselves to each other and practically solicited subscriptions. "To me the thought of an autopsy is certainly less repugnant than I imagine the process of cadaveric decomposition in the grave to be," cajoled one famous enthusiast (*2*). Gauss's brain, at the Columbian value of 1492 grams, was only modestly overaverage, but he was too magnificent a genius to lose for the cause. So Paul Broca, the world's leading craniometrician, mentioned Gauss's advanced age (78) and small stature and jacked the figure up (*3*). The American E. A. Spitzka summa-



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rized data on more than 100 "men of eminence" and praised Gauss for the richness of his convolutions and sutures. In an outrageous example of nonrandom selection, he arranged a sequence of Gauss, a bushwoman, and a gorilla, and wrote: "The brain of a first-class genius like Friedrich Gauss is as far removed from that of the savage Bushman as that of the latter is removed from the brain of the nearest related ape" (*4*). Data can always be twisted and misused if expectations are sufficiently powerful. The conviction that black and female inferiority would be located in brain structure led "men of eminence" to know themselves and proclaim their innately higher worth in the face of ambiguous and contrary evidence. Wade cites Gauss's tale in a modern perspective, but the story between Wagner and Wade needs to be told as well, if only to temper current humor with a reminder that the same information can be nonsense or profundity in different social contexts.

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The brief article on Albert Einstein's brain recalled to me the fact that several of the great Swiss and German neuroanatomists in the period between the two World Wars were passionately interested in the study of brains of people of outstanding talent. One publication even carried the unusual title "How shall we study the brains of the elite?" These studies grew out of the discovery during this period that there were differences in the configuration of the cortex on the two sides of the brain and that, in addition, there were marked individual differences in this pattern of asymmetries. Even with this solid scientific basis, however, no firm conclusions could be drawn because the number of brains of distinguished people was too small. In the present state of study of the asymmetries of the brain, it is possible that differences would be found between the people who were highly verbal on the one hand and highly spatial on the other, but it is very doubtful that one could pick out the brains of geniuses.

There is a story, perhaps apocryphal, concerning the brain of another remarkable figure which was removed for study. One distinguished German anatomist is said to have reported at a medical meeting that the brain of Lenin was exceptional because on microscopic study it was found to have seven layers in the cerebral cortex instead of the usual six. At this point, one of his right-wing colleagues is supposed to have shouted angrily, "Would you consider a baby born with six fingers to be a superior specimen?"

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Alfredics

While William J. Broad's squib (News and Comment, 29 Sept., p. 1195) on my predictions of the 1978 Nobel Prize winners (in *Omni*, October 1978) is accurate in every other respect, he errs by suggesting that my method includes "hocus-pocus." No magic whatsoever was involved. Indeed, the predictions were derived from the 17 quantifidamncations which undergird low energy alfredics, alfred being the first name of the Nobel Prize. Alfredics of any energy level is a social science and, as you well know, there is no magic in a social science. Unfortunately, the entire 17-part formula upon which the predictions were based—plus the original title of the paper, "How to bet the Nobel Prize"—were snipped away by referees to discourage unwholesome elements from setting up in Stockholm. In the event that my prognostications are reasonably correct—I would consider one winner out of ten candidates to be reasonable—I will prepare a second paper outlining the complete system. It is my belief that the only way to democratize the secretive and elite Nobel operation is to make it possible for every fool to make money out of it.

WILLIAM K. STUCKEY
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Eavesdropping on Galactic Civilizations

The possibility (*1*) that our present radio technology could be used to eavesdrop on the internal radio communications of a civilization on a planet of a nearby star has been known for some time; it is accordingly instructive to see just how the earth's television and radar transmissions might be viewed over the