

# Cut density gradient spin time with a Sorvall® RC-5 centrifuge and new SS-90 vertical rotor.



The Sorvall® RC-5 refrigerated superspeed centrifuge with a Rate Controller is ideal for density gradient work. The soft start and soft stop characteristics of the Rate Controller prevent mixing of the gradient at speeds between 0 and 1,000 rpm.

With this feature and the new Sorvall® SS-90 vertical rotor, the RC-5 provides high resolution with reduced spin times. The rotor holds the tube at a fixed angle of  $0^\circ$  while the gradient reorients from horizontal to vertical. This means the particle must travel only the width of the tube, not the length. It also improves resolution by increasing the surface area and reducing the depth of the starting zone. In fact, the K factor calculated for the ultracentrifuge swinging bucket rotor of comparable volume is 265, while the K factor for the SS-90 vertical rotor is 210. And since the SS-90 holds 8 tubes instead of 6, you can spin more total volume.

The Sorvall® RC-5 also features solid state speed and temperature control systems, direct reading tachometer and temperature gauge, and an instrument panel with convenient push-button controls. And it accepts RC-2B as well as RC-5 rotors. It is built with the high quality and attention to detail that have been characteristic of Sorvall® centrifuges for years.

For more information on the Sorvall® RC-5 centrifuge, just write Du Pont Instruments, Biomedical Division, Room 23708A, Wilmington, DE 19898

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## LETTERS

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reasoned response should be made by professional educators. At the same time, there was concern among some that a statement opposing Jensen's election would be an infringement of his academic freedom and First Amendment rights. Because of this concern, it was felt that the passage of a resolution in the name of the entire faculty would be an unfair imposition of majority rule. The outcome was the following statement, signed by 34 members of the faculty.

We, the undersigned members of the faculty of the School of Education of Brooklyn College, CUNY, deplore the recent action of the American Association for the Advancement of Science in conferring the honor of fellowship upon Arthur R. Jensen. Although we vigorously support Dr. Jensen's academic freedom to conduct research according to his lights and to publish his findings, we consider it inappropriate to honor him for his work. Despite extensive and competent criticism of both the methodology employed and the static genetic conception of intelligence inherent in his study, his findings relating to racial differences in IQ have had and may well continue to have serious social consequences. Whether or not it is the intent of the Association, the honor bestowed upon Dr. Jensen cannot fail to lend support and credence to those findings.

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## Civil Defense and Nuclear Blackmail

Several points in Jay Orear's letter "Nuclear arsenals" (26 Mar., p. 1284) are puzzling. He considers the hypothetical situation in which the Soviet Union evacuates its cities according to civil defense procedures so that the United States could inflict less than 4 percent (estimated) losses to the Soviet population. If the United States were then presented with a nuclear blackmail threat unless it acceded to Soviet demands, it would have to either give in or risk the loss of almost half its population. We would prefer a situation in which our President cannot be confronted with such a choice, a situation obtainable through modest U.S. civil defense measures (1).

Orear implies that it would be safe to choose the second alternative because the Soviet Union would in no case risk the loss of its industrial installations, much of its fuel, and its transportation

system. He says that, in his opinion, this destruction would inflict long-term, irreparable damage on the Soviet Union. His view is in sharp contrast with that of Lenin: "The primary factor of all humanity is the laboring man. If he survives, we can save everything and restore everything . . . but we shall perish if we are not able to save him." This is what the Soviets seem to believe; it is repeated in their speeches, their papers, and their civil defense handbooks.

As for the destruction of Soviet industrial installations and its transportation and distribution systems, current Soviet civil defense preparations include storing at least a year's reserve of grains in underground bunkers away from target areas and constructing blast shelters for workers in critical industries. These preparations, among others, are being made through annual expenditures that are at least ten times greater than funds being spent on civil defense in the United States. The idea of the Soviet Union being "bombed into the Stone Age" is an error which can have dangerous consequences.

Even if, after a war, the Soviet Union did need outside help, it seems clear that, if the United States were destroyed, the Soviets could force other nations to provide for their own surviving population. The population of the Soviet Union is now only about 7 percent of the world's population, so the help surely *could* be provided.

Finally, the estimate that U.S. missiles could inflict a Soviet population loss of between 2.75 and 4.5 percent was calculated on the assumption that the missiles would be aimed at the evacuated population, not at industrial installations and other equipment. The population loss would be much smaller if the U.S. missiles were aimed at Soviet industry, which is, in fact, being decentralized. Second, would not a world in which the United States has another choice besides the two alternatives stated in the first paragraph—between surrender or the death of almost one of every two people—be better than the one we may be facing without civil defense?

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#### References

1. C. M. Haaland, C. V. Chester, E. P. Wigner, *Survival of the Relocated Population of the United States After a Nuclear Attack* (ORNL-5041, Oak Ridge National Laboratory, Oak Ridge, Tenn., 1976).

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## Slash density gradient spin time with a Sorvall® OTD ultracentrifuge and new vertical rotor.



Sorvall® OTD ultracentrifuges with oil turbine drive and Automatic Rate Controller are ideal for density gradient work. The soft start and soft stop characteristics of the ARC and Reograd mode of deceleration prevent mixing of the gradient at speeds between 0 and 1,000 rpm.

With these features and the new Sorvall® vertical rotor, Sorvall® ultracentrifuges give high resolution with reduced spin times. The rotor holds the tube at a fixed angle of 0° while the gradient reorients from horizontal to vertical. This means the particle must travel only the width of the tube, not the length. It also improves resolution by increasing the surface area and reducing the depth of the starting zone. In fact, the K factor calculated for the highest performance ultraspeed swinging bucket rotor is 45, while the K factor for the Sorvall® TV865 vertical rotor is only 10.

The oil turbine drive eliminates failure-prone gears, belts and brushes. And Sorvall® OTD-50 and OTD-65 ultracentrifuges have self-contained cooling systems — eliminating problems with hard water as well as installation of plumbing, filters, valves and gauges. Both are built with the high quality and attention to detail that have been characteristic of Sorvall® centrifuges for years.

For more information on Sorvall® OTD ultracentrifuges, just write Du Pont Instruments, Biomedical Division, Room 23707A, Wilmington, DE 19898

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