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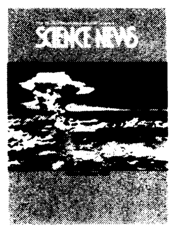
This Week

Research Notes

Articles



Cover: What environment awaits those who survive a nuclear war? Last week scientists presented a revised forecast. And the visions they portrayed — starting with a nuclear winter — were, quite literally, anything but sunny. (Photo courtesy of Ground Zero)

Departments

Letters

OK wee ones

"The Littlest Babies" (SN: 10/15/83, p. 250), are commonplace in my family. I weighed three pounds and a few ounces at birth. Only one of my two sons and none of my five grandchildren weighed as much as six pounds. We seem to carry the genes for small babies. Some of us remain rather short at maturity, but not all. There are no dwarves in the family, and all are bright. Perhaps researchers on retarded fetal growth should eliminate those whose families consistently have small, normal babies.

Name withheld
New York, N.Y.

What to do with extra dimensions

As usual, Dietrick Thomsen's article "Many Dimensions in Gravity Theory" (SN: 7/23/83, p. 60), covering the recent Loyola Conference on Quantum Theory and Gravitation in New Orleans, is a superb job of reporting and sorts out clearly a most difficult area. I have only one small addition that might help that clarity. In response to the question "...what do theorists do with the extra dimensions?" the answer is given "People like Moffat and Marlow say that they are superfluous." While I would certainly say this about the spaces of larger dimension treated in the article, the intriguing fact about complex projective one-space (P_1C) — the natural quantum space for a spin ½ particle — is that it simply has no extra dimensions that need to be thrown away. The bundle space from which P_1C is mathematically constructed, i.e., the total space for a spin ½ particle, containing both the external or base space and the internal electromagnetic and gravitational fibre space, is exactly a 4-dimensional real space, and the metric geometry over this total space satisfies Einstein's gravitational field equations for electromagnetically interacting matter. This is what is so appealing about the simplest of all quantum spaces. The model gives a much tighter relationship between the electromagnetic and gravitational fields than is present in theories based on higher dimensional spaces, and still leaves room for the unified theories of the other known interactions of physics in the next higher dimensional projective spaces, P_2C, P_3C, etc. By projecting geodesics of the total space of P_1C onto the base space, we can make predictions about the behavior of spin ½ particles under the combined influence of gravitation and electromagnetism, and these predictions ought to be (in principle at least) experimentally testable.

A.R. Marlow
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New Orleans, La.

Degrees for Nobel winner

I have just read Julie Ann Miller's account of the work of Barbara McClintock leading to the Nobel Prize (SN: 10/15/83, p. 244). It was a great surprise to me, however that there was no mention whatever of where McClintock received her education.

Hugh Halsey
St. Petersburg, Fla.

Ed.'s note: Barbara McClintock received her undergraduate and graduate degrees in botany at Cornell University in Ithaca, N.Y.