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COVER: A mother clasps her newborn infant. Research suggests that the amount of intimate contact between a mother and her child during the first days of life may have a significant effect on the amount and type of later interactions and on the child's development. See p. 106 (Photo: Leboyer/Alfred A. Knopf).

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LETTERS

Ice ages and the galaxy

In the article "Ice ages and the galaxy's spiral arms" (SN: 7/12/75, p. 23) appears the statement: "The sun, carrying the solar system with it, revolves around the center of the galaxy once in 500 million years." Does this reflect a dramatic change in the accepted estimate as a result of recent observations that I have missed, or is it an error? To the extent of my knowledge, estimates of the time required for one revolution of our galaxy in the vicinity of the sun range from 200 million years to 280 million years and include various intermediate values. This question strikes me as fundamentally important concerning the theory reported.

Craig B. Hatfield
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(We misstated the figures used by the theory's author, W. H. McCrea, in his paper in NATURE. Our article was incorrect in saying the period of revolution of our sun and planetary system around the galaxy is 500 million years and that the solar system crosses a spiral arm every 250 million years. The figure used by McCrea for one revolution of our solar system around the galaxy is 250 million years (the generally accepted value). He estimates that our solar system crosses a spiral arm at intervals of the order of 100 million years. "I do assure you," McCrea writes us from Sussex, "that no one is trying to slow down the galaxy!" He adds, "I ought to state that my theory should be taken to give no more than the order of magnitude of 100 million years (10^8 years) for the interval between ice epochs." Our confusion resulted because we based our article not only on McCrea's own paper (which had correct figures) but also in part on another report on his theory (which had mistaken figures). We should have stuck with the original source.—Ed.)

A theory very much like McCrea's was put forward by Robert Ardrey at least as early as 1961. On page 237 of my edition of *African Genesis* he says: "I herewith present with minimum humility the Ardrey Theory of Galactic Periodicity. It is original, I believe. . . ."

"The theory of galactic periodicity rests on an observation neglected by science: the elapsed time since the Early Permian glaciation, a bit over two hundred million years, is precisely the same as that required for one revolution of our galaxy. . . . There should be an upheaval of weather every two-hundred-million-odd years. We have our own Pleistocene. We have the Permian, one galactic revolution ago. There is the Precambrian spell of mad weather, easily accounted for as three revolutions ago. But where are the scars of Ordovician ice-sheets, four hundred million years ago? There are none. . . ."

. . ."It was a long time ago, anyway."

Raymond M. Redheffer
Los Angeles, Calif.

Revolution in physics

In opposition to the criticisms of others, I wish to commend Dietrick E. Thomsen in writing the articles concerning the failure of causality in contemporary physics ("The Blob that Ate Physics" and "Kafkaphysik," SN: 7/12/75, p. 29). It is my opinion that relativistic astrophysics is the field where a new revolution in physics will evolve through the observational and theoretical explorations of such objects as quasars and black holes. As I see it, Mr. Thomsen is expressing basically the same thought in his articles. His conclusions on the extent of the effects of contemporary physics on the entire field were attacked in a recent letter ("Chaos and Causality," SN: 7/26/75, p. 51). Dietrick Thomsen's conclusion is not to throw away classical physics, but he does imply that a revision of the basic postulates of physics may be in order. This revision may not appreciably change the end results of classical physics, but it may pave the way to a new revolution of physical concepts. As to the extent of the new revolution's effects, follow Mr. Thomsen's analogies to the physics of early this century and look at the effects of the quantum revolution.

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Anglerfish sexual adaptation

I was very pleased to see your entertaining, yet accurate review of my article on sexual parasitism in anglerfishes (SN: 7/26/75, p. 59).

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