

Two twins are the same size: If A moves, he sees B smaller than himself. But B likewise sees A as smaller than *himself*. Which is absurd. Reality becomes observer-dependent, in opposition to the most basic precepts in science. The alpha and omega of the material world—the irreducible character of time and space—were sacrificed in order to preserve an absolute velocity. But velocity itself is nothing but space (distance) divided by time! This was Dada Physics. (It's interesting that the Dada movement, "having as its program the discovery of authentic reality through the abolition of traditional cultural and aesthetic forms," came right after the general relativity theory [1915].)

Beckmann says that most students of physics shrug and accept relativity theory—theirs is not to quarrel with the sainted genius of the twentieth century. Some have private reservations. Among intellectuals in general, the theory has been much admired: so abstruse, so deliciously disrespectful of the eternal verities, so marvelously baffling to the bourgeoisie. It doesn't interfere with the daily routine, makes no practical difference to the Newtonian world. But it does upset its theoretical underpinnings. Wonderful! The Muddled Majority who feel so reassured by their common-sense understanding of the world just don't realize that things aren't what they seem to be at all.

Pondering the theory in the late 1950s at Prague's Institute of Radio Engineering, Beckmann concluded that there had to be a medium for light, and in an offhand comment, a student named Pokorny, a (then) devout Communist, suggested the correct answer, as Beckmann is now convinced: the medium for electromagnetic waves is the local gravitational field—dense near the sun, attenuated in outer space. On Earth, the local field is that of the Earth itself. The point is, the Earth's gravitational field moves along with the earth. So that was why Michelson-Morley could detect no ether wind. It was like sitting in a jet as it goes down the runway, holding a toy propeller in your lap and expecting the wind to turn the blades. Absurd—the air in the cabin is moving forward with the plane.

But wait! The Earth also rotates on its axis, and there is good reason to think that the gravitational field does not go around with the Earth. Imagine this field as a hoop skirt on a woman with a circu-

lar waist. As she walks forward the skirt moves with her. But then, as she walks, she pirouettes, and now her body will slip around inside the skirt.

If this analogy is correct, the Michelson-Morley experiment might have been able to detect a fringe-shift after all—but a much smaller one than they had been looking for. In the latitude of New York the rotational velocity of the Earth is just one-hundredth of its forward movement around the sun. The relevant equation requires that this fraction be squared. So the expected fringe-shift would only be one ten-thousandth of what Michelson-Morley looked for. Even with today's equipment, such a shift would be difficult (although possible) to detect. It could easily be detected on the space shuttle, because the shuttle goes through the gravitational field much faster than the Earth.

Here are a few little-known points, casting doubt on Dada Physics. Michelson himself never accepted relativity theory, and toward the end of his life he developed an "entrained ether" theory similar to Beckmann's. In 1925, with a colleague at the University of Chicago, he did a complex experiment with very long light-paths (Michelson-Gale), and it did show a confirming fringe-shift. The experiment is omitted from almost all physics texts today.

Electromagnetic signals travel from Washington to Los Angeles more quickly than they do coming back. The difference is very small—37 nanoseconds—but consistent and repeatable. This is exactly what Beckmann's theory would predict, but it is something of an embarrassment to Einstein (who did not know about it; only recently have clocks been accurate enough).

Howard Hayden, a professor in the Physics Department at the University of Connecticut (Storrs), has taken up the cudgels for Beckmann, and has been giving talks on the subject to physics departments in New England. The response has been respectful: some puzzlement, no contradictions, only one or two indignant folk walking out in a huff. Hayden makes the following amazing claim: the constancy of the speed of light, irrespective of the observer's movement, has not been demonstrated experimentally. Hayden and Beckmann are offering a

\$2,000 reward (hereby offered to *American Spectator* readers) to anyone who can (pay attention) cite in the literature a valid optical experiment demonstrating that the speed of light east to west on the Earth's surface is the same as it is west to east, to an accuracy of 50 meters per second. Note: the experiment does not have to be done, merely cited. In response to an earlier article I wrote on the subject, this offer was published in *Science* magazine (November 30, 1990), but there were no takers.

Beckmann now says that the aberration of light from binary stars definitely refutes Einstein. "Without any equivocation," Hayden confirmed, "I can say that the stellar-aberration prediction of Einstein is wrong." Hayden's goal is to repeat Michelson-Morley in the space shuttle. He thinks he may have a shot because one of the astronauts is his former student.

Here's another surprise. A heralded confirmation of Einstein was the small discrepancy between the orbit of Mercury and the result predicted by Newton. Einstein's formula explaining Mercury's orbit was published in 1915 and was derived from general relativity, using very complex mathematics. Beckmann then found out that the same formula exactly had been published in 1898 by a man named Paul Gerber, who lived in Stargard, Germany, and was apparently a high school teacher! Gerber had used classical physics, plus the assumption that gravity propagates with the speed of light, not instantaneously, as Newton had assumed.

Beckmann found this information in another self-published book, put out in 1982 by someone in Cornwall, England. When the author heard that Beckmann's Czech/RAF squadron had been stationed in Cornwall, he sent Beckmann a free copy. "The guy's a nut," Beckmann said when he saw it, "like people who say chess is in the Bible." Gerber had beaten Einstein by seventeen years, using classical physics? How come this wasn't in the textbooks? Beckmann immediately bicycled to the U.C. library, pulled the old journal off the shelf. "The Einstein formula jumped out at me," Beckmann said. "I was dumbfounded."

When I spoke to Beckmann more recently at the Boulder hospital he said in a faint voice: "Einstein is dead. But it will take decades to bury him." □