

physical events in it which, if it existed, had the required properties, etc., would produce those experiences, still the transition from that model to what there timelessly *is* seems to me philosophically perilous. And yet Grünbaum makes it without flinching. It seems perfectly obvious to him that he is talking about the physically existing world, not just about a theoretically constructed one. He takes up the arguments for the quantization of physical space and time quite explicitly, and dismisses them by showing that at the ultimate granular level doubts arise about the event-status of certain coincidences of boundaries. The doubts are illustrated by a fairly large diagram (as compared to the hodon) which presupposes the embedding of the granular events in a continuum. The point of my referring to the issue is not to go into the merits of the granular argument or of Grünbaum's refutation of it (which would take a much longer review), but only to make clear that for him it is no mere theoretical exercise but bears on what we must conclude about the physical state of affairs.

Perhaps, though, I have completely misunderstood what Grünbaum means by "physical" (although if he doesn't mean it to have ontological force the polemical part of the book loses much of its interest). What gives rise to these doubts is the puzzling expression "physically possible kinematically," which occurs a number of times in his treatment of the paradoxes of motion and of the various fantasy athletes and machines (the legato and staccato runners, the π -machine, the Thomson lamp, Black's marble-moving machine, etc.) which have been devised to make the paradoxes vivid. (I take this opportunity to recommend to readers with a taste for such whimsy the uproarious but also philosophically thoughtful treatment of the Zeno problem in José Benardete, *Infinity, An Essay in Metaphysics*, Clarendon Press, 1964, a book which deals with most of these cases—and with some even wilder ones—but which does not occur in Grünbaum's bibliography.) The same expression is to be found repeatedly in Grünbaum's article "Are 'Infinity Machines' Paradoxical?" which appeared in *Science* for January 26, 1968 (vol. 159, p. 396). One might be excused for thinking it physically impossible for a runner to run ever-decreasing distances, for a machine to print ever-smaller characters (descending from a position ever closer to the paper, using non-running ink, etc.), when the orders of magnitude involved get down below molecular levels, eventually even below quantum levels. But Grünbaum reassures us that although of course no *actual* runner, machine, etc. (having the dimensions of ordinary runners and machines) could do it, yet the process is "physically possible kinematically"—i.e. under no other constraints than those imposed by the mathematical structure of time and space.

If physical space and time have the properties of the continuum then *of course* there is no difficulty about the *kinematics* of Z-runs, but this throws no light whatever on the question whether physical space and time have the properties of the continuum or not. And again, if the full physical conclusion is not intended there seems to be very little point in dressing up the examples with realistic paraphernalia (the staccato runner's limbs, and so on). It sets a trap for the philosophically unwary to make logical, mathematical or kinematical points with examples couched in dynamical and even material terms. Grünbaum "blithely ignores as logically irrelevant," in his discussion of the π -machine, "the need for ink droplets of width dimensions below those of an electron!" (the exclamation point is his own); but if what is in mind is a logical issue then the whole story about the machine is philosophically irrelevant. This ambiguity of intention seems to me the greatest flaw of the book: it is a superb treatment of the continuum problem obscured by melodramatic examples. In this respect it seems to me that Benardete's approach is more straightforward, since he is prepared at least to draw out the ontological consequences of the melodrama. *Peter Caws, Hunter College of the City University of New York.*

ANNOUNCEMENT

The 1968 Biennial meeting of the Philosophy of Science Association took place on October 11–13, 1968 at the Webster-Hall Hotel in Pittsburgh. The University of Pittsburgh was the host institution. The program of the meetings follows.

Friday, October 11, 1968

MORNING CONCURRENT SESSIONS

9.30 A.M. Symposium: **Philosophical Implications of Computer Science.** Parlor D
Kenneth Sayre, University of Notre Dame.

"Information Processing and Mind-Body Identity"

Keith Gunderson, University of Minnesota.
"Philosophy and Computer Simulation"

David Harrah, University of California, at
Riverside, Commentator

Chairman: Alan Ross Anderson

9.30 A.M. Contributed Papers: **Philosophy of Physics**. Parlors A-B

9.30—Jeffery Bub, University of Minnesota. "Hidden Variables and the Copenhagen Interpretation — A Reconciliation"

10.30—Enos E. Witmer, University of Pennsylvania. "Interpretation of Quantum Mechanics and the Future of Physics"

11.10—Paul Fitzgerald, University of Pennsylvania. "The Relativity of Time and Truth"

Chairman: Aage Peterson

AFTERNOON CONCURRENT SESSIONS

2.30 P.M. Contributed Papers: **Reduction and Operationism**. Parlors A-B

2.30—Fred Wilson, University of Toronto. "In Defence of the Operationist Maxim"

3.20—Clark Glymour, Indiana University. "Reduction in the Physical Sciences"

4.10—Robert L. Causey, University of Texas. "Some Complications Involved in the Unification of Science"

Chairman: Morton L. Schagrin

2.30 P.M. Contributed Papers: **Confirmation**. Parlor D

2.30—Ronald N. Giere, Indiana University. "Bayesian Statistics and Biased Procedures"

3.20—Vincent E. Smith, Sarah Lawrence College. "Logic and a World Without Ravens"

4.10—Mary B. Hesse, University of Cambridge. "The Interanimation of Theories"

Chairman: Wilfrid Sellars

2.30 P.M. Contributed Papers: **Philosophy of Biological and Social Sciences**. Parlor C

2.30—Ian C. Jarvie, York University. "Ethics and the Participant Observer"

3.20—Laird Addis, University of Iowa. "On the Reduction of Sociology to Psychology"

4.10—Michael Ruse, University of Guelph. "Natural Selection"

Chairman: Peter Achinstein

8.30 P.M. **Welcoming Remarks and Business Meeting**. Parlors A-B-C

Welcome: Chancellor, University of Pittsburgh

Business Meeting:

Adolf Grünbaum, *President*

Wesley C. Salmon, *Vice-President*

Gerald J. Massey, *Secretary-Treasurer*

9.00 P.M. **Smoker**. Parlors A-B-C

(No charge for members of the Philosophy of Science Association)

Saturday, October 12, 1968

MORNING CONCURRENT SESSIONS

9.30 A.M. Symposium: **Philosophy of Biology**. Parlor D

Edward Manier, University of Notre Dame.

"Experimental Method in Biology: T. H. Morgan and the Theory of the Gene"

David Hull, University of Wisconsin—Milwaukee. "What Philosophy of Biology is Not"

Hugh Lehman, Iowa State University, Commentator

Chairman: Carl G. Hempel

9.30 A.M. Contributed Papers: **Models and Correspondence Rules**. Parlors A-B

9.30—Henry C. Byerly, University of Arizona. "Model Structures and Model Objects"

10.20—Kenneth Schaffner, University of Chicago. "Correspondence Rules"

11.10—Gen-ichiro Nagasaka, Nanzan University. "Models in Physics"

Chairman: John Tucker

AFTERNOON CONCURRENT SESSIONS

2.30 P.M. Symposium: **The Logic of Quantum Mechanics**. Parlor D

Bas C. van Fraassen, Yale University and Indiana University. "The Labyrinth of Quantum Logics"

Hilary Putnam, Harvard University. "How to Think Quantum-logically"

George Farre, Georgetown University. "Reflections on the Significance of a Quantum Logic"

Chairman: Josef M. Jauch

2.30 P.M. Contributed Papers: **Explanation and Falsifiability**. Parlors A-B

2.30—Nicholas Rescher, University of Pittsburgh. "Lawfulness as Imputation"

3.20—Joseph Hanna, Michigan State University. "Falsifiability, Simplicity, and Free Parameters"

4.10—Joseph Agassi, Boston University. "Positive Evidence in Pure and Applied Science"

Chairman: Roger C. Buck

2.30 P.M. Contributed Papers: **Science and Value**. Parlor C

2.30—Lawrence A. Boland, Simon Fraser University. "Conventionalism and Economic Theory"

3.20—Ian I. Mitroff, University of Pittsburgh. "The Mythology of Methodology: Prelude to a Hip Science"

4.10—Werner Leinfellner, University of Nebraska. "The Operational Structure of Spaces with Special Reference to Value-Spaces"

Chairman: Peter Caws

Sunday, October 13, 1968

10.00 A.M. **Invited Addresses**. Parlor D

10.00—Rom Harré, Oxford University. "Qualities and Powers"

11.15—Henryk Mehlberg, University of Chicago. "Indeterministic Causality"

Chairman: Richard S. Rudner