

Kentucky, for an acoustically modulated Mössbauer spectrometer; and Wisconsin State University for activities to increase physics enrollment.

AAPT Announces Winners of Apparatus Competition

Two MIT instructors have shared the \$600 first prize in the biennial apparatus competition of the American Association of Physics Teachers and the American Institute of Physics. Second- and third-prize awards went to teams from Pennsylvania State and Rutgers; \$100 special merit awards also were made.

Noel A. Clark and Joseph H. Lunacek won with their measurement of Brownian-motion fluctuations by scattering light from particles suspended in water. The spectrum of the photomultiplier detector's output gave information on the fluctuation and diffusion constant.

Apparatus showing the principles of electron and ion optics and vacuum physics won Bruce R.F. Kendall, H.M. Luther and Donald David the \$400 second prize.

Herman Y. Carr, R.T. Weidner and G.H. Muller demonstrated elastic or inelastic collisions of two objects from opposite directions for the third prize, \$200.

Receiving special merit awards were T.G. Owe Berg of T.G. Owe Berg, Inc; Richard E. Extermann of Copper Union; John M. Goodman of Harvey Mudd College; and Harold M. Waage of Princeton.

Humanists Dissect Morals, Models, Graphics of Science

A group of articulate "outsiders" probed the morality of physics, the philosophy of model-building and the cinematic techniques of explaining scientific concepts at a special American Association of Physics Teachers symposium. Ronald Geballe, incoming AAPT president, moderated talks by three nonscientists: novelist Kurt Vonnegut, architect Arthur Drexler and film-maker Charles Eames.

Vonnegut contended that regard for human life should lead scientists to withhold potentially dangerous information and refuse to work on weapons. But Drexler drew the most reaction from the audience with his assertion



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that physicists disdain the use of models; his listeners eagerly offered explanations and examples to refute the assertion.

Drexler's "Concept of the Model" differentiated between theoretical (or mathematical), analogical and scale models. In some fields, such as architecture, the model can become its creator's principal source of satisfaction.

In science a model functions as translator of known facts into visible form. This concrete model clarifies relationships and is useful in discussions and teaching. It can have an intrinsic esthetic value.

Attention then switched to three films by designer and film-maker Charles Eames. His "Powers of Ten" visually illustrated the effect of change in magnitude. The film opens with a shot of a man sleeping at a picnic. The distance between observer and object increases by 24 powers of ten until the entire galaxy appears. The process then is reversed until one of the sleeping man's DNA molecules becomes visible, followed by a carbon atom and finally a nucleus.

An introduction to science, the second film presented allegorically the evolution of science from one "house" to the multiple disciplines of the present. Once in the present, scientists are shown in the laboratory and in the office, attempting to decipher the infinite machinery of the universe. The last film consisted of a large number of shots of spinning tops.

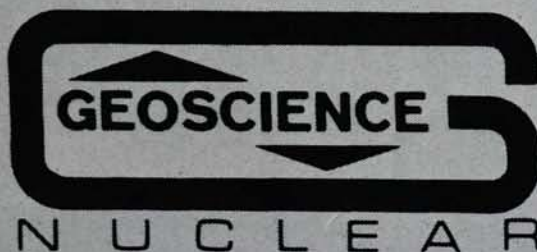
IN BRIEF

Drexel Institute of Technology has received a \$612 000 Project-Themis grant to develop new satellite and ground-based weather techniques. The decline in federal support of research is documented in the National Science Foundation's 17th annual report on *Federal Funds for Research, Development and Other Scientific Activities*. Copies are available from the Government Printing Office.

Up to 50 grants of \$5000 each for research in crime prevention and control are available from the new National Institute of Law Enforcement and Criminal Justice. Information may be obtained from Ralph G. H. Siu at the Department of Justice.

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