

CHEMICAL HERITAGE FOUNDATION

**NATHANIEL HEINTZ**

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview  
Conducted by

Robert Kohler and Naomi Morrisette

at

The Rockefeller University  
New York, New York

on

29 August 1989

(With Subsequent Corrections and Additions)

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(Revised 24 February 1988)

## NATHANIEL HEINTZ

1951 Born in Utica, NY on December 10

### Education

1974 B.A., Biology, Williams College  
1979 Ph.D., Biology, S.U.N.Y. at Albany

### Professional Experience

1982 Washington University Medical School, St. Louis, MO  
Post-Doctorate, Molecular Biology

1982-Present The Rockefeller University, New York, NY  
Assistant Professor

### Honors

1979-1981 Damon Runyon-Walter Winchell Cancer Fund Postdoctoral Fellow  
1981-1982 National Institutes of Health Postdoctoral Fellow  
1985 Pew Scholar in the Biomedical Sciences

## ABSTRACT

**Nathaniel Heintz** grew up on a dairy farm near Clinton, New York. He is the tenth of twelve children whose father was an oral surgeon and whose mother was a housewife and career counselor. One of his older brothers is also a scientist, and the two collaborate a bit. Always interested in science, Heintz says that his high school was less intellectually stimulating than his home environment. Heintz chose Williams College in order to play hockey; he says he worked hard only in his science classes, especially genetics and biochemistry. He did his honors thesis in electron microscopy with George Vankin.

After breaking a contract to play professional hockey in Europe, Heintz entered State University of New York at Albany to study molecular biology, an exciting new field. His experience with his advisor, David Shub, taught him to be self-reliant and gave him a good foundation for a postdoc. Rapidly developing equipment and techniques made him want to move from prokaryote systems to eukaryote.

At Washington University in St. Louis, Heintz combined genetics with gene expression in Robert Roeder's lab, which he found stimulating, exciting, and competitive. He found Roeder intelligent, driven, and accomplished. Wanting to express mammalian histone, Heintz concentrated on cell-cycle regulation to learn about basic growth control in cells. He remains interested not so much in the mechanistic what happens, but rather in the biological why and how.

When he accepted a job at Rockefeller University Heintz acquired a much larger lab space and more people and so could more easily return to neurobiology, which he has always fascinated him. He says that cell populations are not homogeneous; they have internal genetic programs, but they are also influenced by their environment and by interactions with other cells. By working in the cerebellum, Heintz hopes to find how a particular cell in complex tissue knows what genes to express and when. The cerebellum has only five different cell types, each type organized and developed in a particular way. Since the cerebellum, which is dormant until birth, controls movement, experiments are not lethal. His resumption of neurobiology also gives his lab members infinite amounts of material to take to their own labs. Heintz values the personal aspects of science and likes to be colleagues with his former lab members.

Heintz describes the changes in Rockefeller's organization and his own lab composition and management. He says a good scientist needs to have a strong work ethic, critical design capability, imagination in experimentation, and intellectual aggressiveness. He believes experiments are crucial and that few scientists are exceptional experimentalists. He talks about his own funding and funding in general; he expresses dissatisfaction with the National Institutes of Health and peer review systems; and he decries "flash" science, which often leads to premature conclusions and publications that later have to be retracted.

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