

1987

Branching

Ed Harris

University of Northern Iowa

Follow this and additional works at: <https://scholarworks.uni.edu/istj>



Part of the [Science and Mathematics Education Commons](#)

Let us know how access to this document benefits you

Copyright © Copyright 1987 by the Iowa Academy of Science

Recommended Citation

Harris, Ed (1987) "Branching," *Iowa Science Teachers Journal*: Vol. 24: No. 3, Article 2.

Available at: <https://scholarworks.uni.edu/istj/vol24/iss3/2>

This Article is brought to you for free and open access by the IAS Journals & Newsletters at UNI ScholarWorks. It has been accepted for inclusion in Iowa Science Teachers Journal by an authorized editor of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.

Offensive Materials Statement: Materials located in UNI ScholarWorks come from a broad range of sources and time periods. Some of these materials may contain offensive stereotypes, ideas, visuals, or language.

BRANCHING

Ed Harris

Associate Professor of Teaching: Art
Price Laboratory School
University of Northern Iowa
Cedar Falls, Iowa 50613

For many years I have observed and photographed visual patterns. Sometimes I stumble upon them, and other times I search to find them, record them and perhaps make some sense of the relationships I see in the many variations. In the early '70s I began to put these observations together and to classify the many patterns into branching and layering. These two systems I see as primal information from which the human can better understand an underlying structure in the universe. These universal patterns act as building blocks to many diverse and complex forms and phenomena. The images and ideas continue to excite me as an artist-teacher and science student. My slide collection continues to grow and my notes reflect the ever changing relationships I see.

A few years ago I found examples of ideas that seemed to relate to my earlier thoughts. These related ideas first surfaced in computer graphics publications and more recently in current books and periodicals concerned with new directions in science. A particularly exciting direction is presented in the graphic images of Japan's Yoichiro Kawaguchi which simulate the growth patterns of animal and plant forms; these are found in books by Deken and Prueitt. A simple computer program in the Jan. 1985 issue of *Nibble* generates several levels of growth detail (lower right part of the cover illustration). An early primary source is Benoit B. Mandelbrot's book, *Fractals, Form, Chance and Dimension*.

Beyond the obvious visual beauty of the branching examples, lies much basic information for the science teacher. I list reference materials from which the teacher can build an inquiry and discovery base for classroom studies.

- Bohm, David, and F. David Peat. 1987. *Science, Order and Creativity*. Bantam Books, New York.
- Deken, Joseph. 1983. *Computer Images, State of the Art*, Stewart, Tabori & Chang, New York, 190-183.
- Dewdney, A.K. Computer Recreations, *Scientific American*, 257(5) 140-145.
- Gleick, James. 1987. *Chaos, Making a New Science*. Viking-Penguin, Inc., New York.
- Mandelbrot, Benoit B. 1977. *Fractals, Form, Chance and Dimension*. W.H. Freeman and Co., San Francisco.
- Mandelbrot, Benoit B. 1982. *Fractal Geometry of Nature*. W.H. Freeman and Co., San Francisco.
- Peitgen, Heinz-Otto and Peter H. Richter. 1986. *The Beauty of Fractals*. Springer-Verlag, Berlin.
- Prueitt, Melvin L. 1984. *Art and the Computer* McGraw-Hill, Inc., New York, pp. 121, 195-199.
- Stallings, Gordon. 1985. Dragon. *Nibble*, 6(1) 160.
- Walker, Jearl. 1987. The Amateur Scientist, *Scientific American*. 257(5) 134-138.