

## **CRANDALL PAPERS**

### **RICHARD CRANDALL PAPERS**

- Provenance:** A gift of Tess Day, the papers were transferred over from Crandall's Reed College Office; added to this were the papers of the Rascal Program, a product of Reed College under Crandall's aegis.
- Ownership:** The Richard Crandall Papers are owned by Reed College.
- Access:** Please contact the Special Collections Librarian at Reed College for access to the Papers.
- Size:** The Richard Crandall Papers consist of seven manuscript boxes, 3 linear feet.
- Processed by:** Mark Kuestner
- Date:** April, 2014; January 29, 2015

### **Biography**

Richard Crandall was born in 1947. He came to Reed in the fall of 1967 as a third-year transfer from Caltech, at the suggestion of a boyhood friend who was then a mathematics major at Reed. At Caltech, Richard had attended classes taught by Richard Feynman, who—both stylistically and substantively—exerted a lifelong influence upon much of Richard's work. At Reed, Richard wrote—then lost at Lutz's Tavern, then redrafted—a physics thesis written under the direction of Professor Nicholas Wheeler and also—unbeknownst to anybody—a second thesis in mathematics, which was signed by Professor John Leadley. Additionally, he contributed to—by his own count—the theses of eight of his friends.

Richard took his doctorate from the Massachusetts Institute of Technology, where his advisor (and second lifelong influence) was Victor Weisskopf. Through Weisskopf—who did postdoctoral work with Heisenberg, Schrödinger, and Pauli—Richard could trace his intellectual ancestry directly to the founding fathers of quantum mechanics.

While still a graduate student, Richard—who always harbored a strong entrepreneurial proclivity—created three firms concerned with the design, manufacture and installation of security systems. Those firms were acquired by a major corporation concerned with the ergonomic management of skyscrapers, so for a time he inhabited an office high in Manhattan's RCA building. After returning to Portland he cofounded, with Jean Delord of the physics faculty,

a firm that designed, built and sold modems. And still later he created Perfectly Scientific, Inc., a firm that marketed special-purpose algorithms and provided scientific consulting services. And collaterally: PSI Press, a novel (mainly technical) print-on-demand publishing house.

Richard came to the Reed faculty in 1978 as a visiting experimental physicist—fruit of the same search that brought David Griffiths to the physics faculty as a theorist. When he recommended Richard's appointment, Wheeler recalled Bertrand Russell's remark that "Getting to know Wittgenstein had been the great intellectual adventure of his life," and speculated that many students and faculty at Reed had a similar adventure in prospect. So it proved to be. Richard retired from the physics faculty in 1992 as Howard Vollum Professor of Science. Until his death he served as Vollum Adjunct Professor of Science and also as founding Director of the Reed College Center for Advanced Computation. During the years 1983-1987 he (on leave from the physics faculty) directed the 5-Year Master Plan for Computer Resources, which brought about the "computerization" of the Reed campus.

Richard's classes were always freshly conceived, often radically original (and often taught at strange nocturnal hours). For example: he divided his Junior Lab class into teams, each charged with designing and constructing this or that component of a system to send computer data by optical link from the physics building to Eliot Hall (then the site of the IBM 1600 mainframe). With thesis students he devised novel methods to measure the fundamental constants of physics. A bench-top measurement of the mass of the photon (accuracy of Coulomb's Law) remained the most precise on record for more than twenty years. Richard was unapologetically dismissive of students who approached their work in a perfunctory way, but gave himself heart and soul to students who showed a spark of creativity, on whose behalf he often worked through the night.

Richard E. Crandall died on 20 December 2012 at the age of 64, of acute myeloid leukemia.

### **Scope and Contents**

The Papers consist of draft copies of some of his publications, various miscellaneous papers, photos and flyers, as well as reprints of many of his professional articles. There are also draft versions of books by others he reviewed and the Rascal Program papers with floppies, slides, and other computer storage devices. Rascal was developed at Reed College, member institution of the Apple University Consortium. Rascal ("Real-time Pascal") is a Pascal-like language developed exclusively for the Apple Macintosh. The Rascal Project appeared in the Fall of 1984, when Scott Gillespie, Greg Stein [and Richard Crandall] began work to offer real-time support for all forms of Macintosh I/O, handled at a fundamental level. (from 'Introduction of the Rascal Project' by R.E. Crandall January, 1986.) The Rascal Program Papers consist of primers, manuals as well as computer diskettes that were designed to help computer programmers learn the development system. There are also CD copies of the diskettes. In addition there are color slides of Macintosh screen shots illustrating computer applications of the system as well as Reed campus locations and personnel involved with the project.

## **Box Index**

### **BOX 1**

Beyond Calculation: The Next Fifty Years of Computing (Advance Proof Copy), 1997

Essick, John. "While Loop and Wave Form Charts", c1996

Miscellaneous Papers, Photos and Notes

New Kind of Science, by Stephen Wolfram: Rough and Incomplete Draft, Feb. 14, 2001 (Alpha 1 and 2): Notes, p. 9-884

New Kind of Science, by Stephen Wolfram: Rough and Incomplete Draft, Feb. 14, 2001 (Alpha 3): Notes, p. 885-1180 and Index

### **BOX 2**

Prime Numbers: a computational perspective, by Richard Crandall and Carl Pomerance: Draft, August 15, 1999

Prime Numbers: a computational perspective, by Richard Crandall and Carl Pomerance: Draft, April, 2000

### **BOX 3**

Publications by Richard Crandall (Articles)

### **BOX 4**

A+ Release Master

Back-up Disks and CDs

Correction Master, Version 1 (MacLab)

Correction Master, 1986, copy 1

### **BOX 5**

Correction Master, 1986, version 3; copy 2

Library Correction Master, version 3, copy 2

Development System with disks and CD

Language Manual, 1986, copy 1

## **BOX 6**

Library Manual, version 3

Manual with disks and CD (Documentation and Back ups)

Primer with disks and CD, v.85.01.15.mmc

Prototyper Manual, 1987

## **BOX 7**

Color Paint Slides, Maia Davis Class of 1988, Slides: Energy System; B. & W. Benchtop; HP Instrumentation; On the Lawn; Color Paint Documents; Rascal Benchtop Environment