

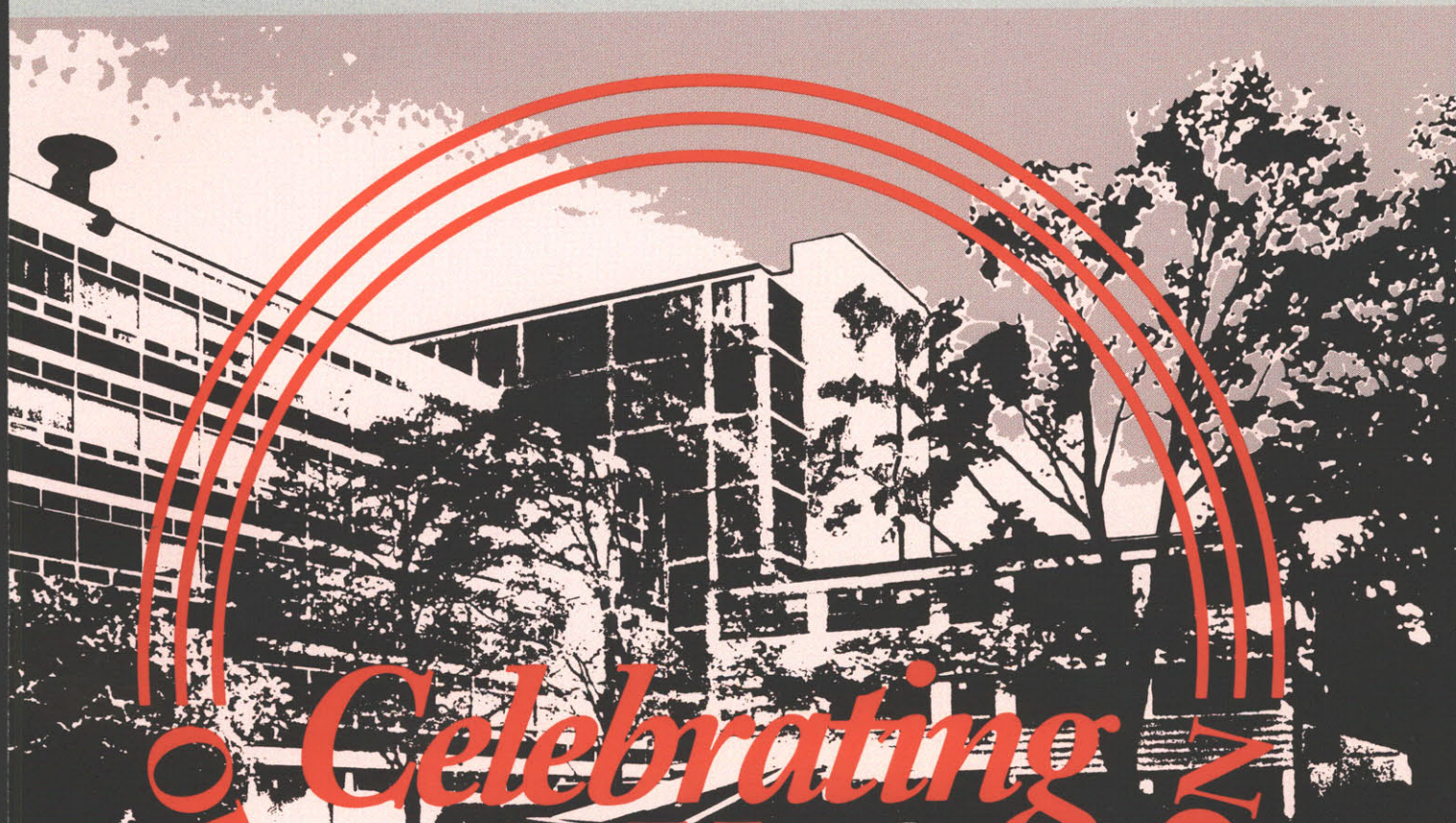
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

The RESEARCH LABORATORY *of* ELECTRONICS

PROGRESS REPORT

NO. 138

JANUARY 1–DECEMBER 31, 1995



Celebrating
50 Years
1946-1996
IMPACT & INNOVATION

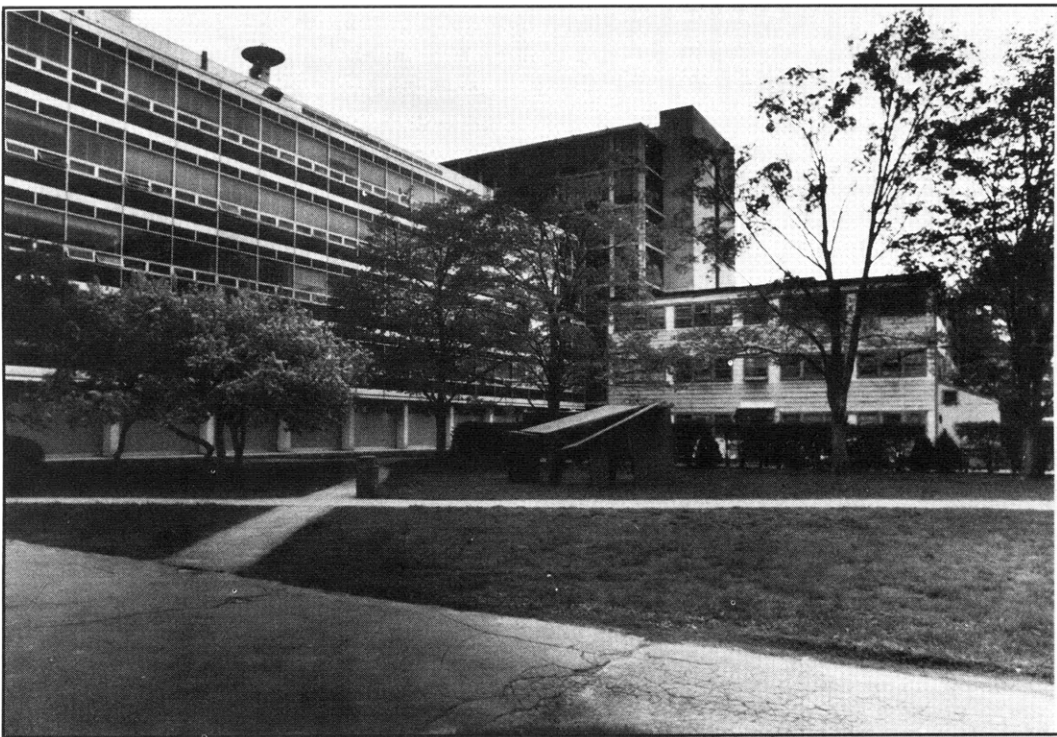
RLE Progress Report

No. 138

January 1 - December 31, 1995

Submitted by

Professor Jonathan Allen
Professor Daniel Kleppner



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Cover and title page:

RLE at 50. Pictured are Building 20, former home of MIT's Radiation Laboratory (1940-1945) and original home of RLE, on the right and the Karl Taylor Compton Laboratories (Building 26), headquarters of RLE until 1973, on the left. RLE rose to new heights with the dedication of the Sherman Fairchild complex in 1973 when Building 36 (to the rear) became the current base of the Laboratory.

The ten-foot parabolic antenna silhouetted against the sky atop Building 26 stands like a sentry as it has since 1963; it was the first antenna installed by RLE's Radio Astronomy Group. Nestled in the foreground is Michael Steiner's approximately ten foot by ten foot corten steel piece, *Niagara*; science and art at the crossroads of history. (Photo and caption by John F. Cook)

Our special thanks to the following staff members of the RLE Communications Group: Mary J. Ziegler for her exceptional organizational skills, editing, formatting, and graphics scanning and processing; John F. Cook for his outstanding photography and design of the cover, title, and divider pages; Michelle M. Scheer for her excellent formatting and technical typing; and Rita C. McKinnon for proofreading. We also want to thank David W. Foss, Manager of the RLE Computer Facility, for his time and invaluable technical assistance, and Mary S. Greene and Snow C. Sudduth for inputting information for the publications chapter.

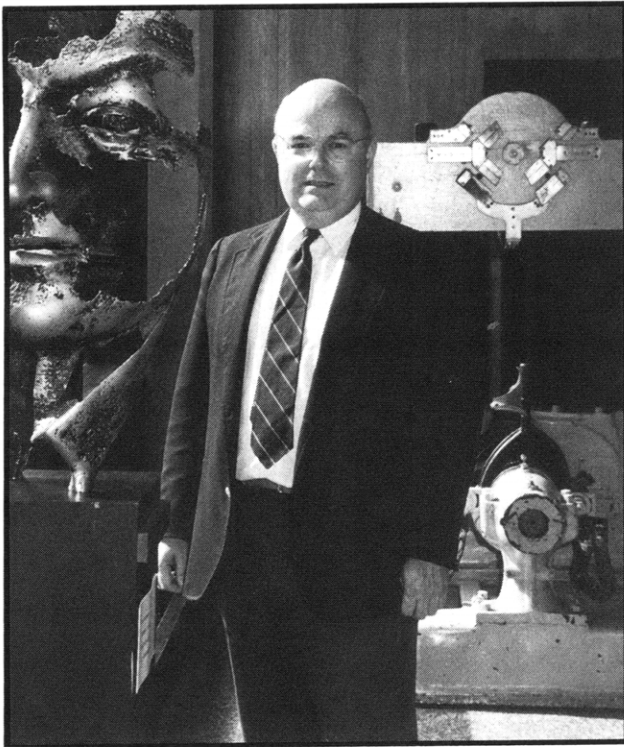
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The Research Laboratory of Electronics

The Research Laboratory of Electronics (RLE) was established in 1946 as the Institute's first interdepartmental laboratory. Originally organized under the joint sponsorship of the Departments of Physics and Electrical Engineering, RLE has broadened its interests to cover a wide range of research.



Professor Jonathan Allen, Director, Research Laboratory of Electronics (Photo by John F. Cook)

RLE's 50th Anniversary

In November 1996, RLE will celebrate 50 years of technological impact and innovation with a technical conference, special exhibit, activities for alumni, and other events. Two special issues of *RLE currents* will describe the achievements of 20 of RLE's entrepreneurial alumni. For more information on this event, look at RLE's 50th anniversary page on the World Wide Web (see next column) or contact RLE Headquarters, telephone: (617) 253-4653; fax (617) 253-1301.

RLE Progress Report

RLE Progress Report Number 138 describes research programs at RLE for the period January 1 through December 31, 1995. Each chapter of the *Progress Report* includes a summary of research efforts for research projects listed. Faculty, research staff, students and others who participated in these projects are identified at the beginning of each project, along with sources of funding.

There are four appendices at the end of the report: Appendix A is a bibliography of RLE publications and papers presented by RLE staff during 1995; Appendix B is a roster of current RLE staff; Appendix C is a list of RLE faculty and staff milestones and honors received during 1995; and Appendix D is an index of RLE sponsors. The Project Staff and Subject Index provides additional access to the information in this report.

RLE on the World Wide Web

RLE has a presence on the World Wide Web (<http://rleweb.mit.edu>). RLE web pages include an introduction to RLE research and services; information about RLE's history, research groups, staff, and publications along with news of RLE events, and a history of the Radiation Laboratory (1940-1945).

RLE Publications

RLE also publishes *RLE currents*, a biannual newsletter which focuses on RLE research interests; a technical report series; *Speech Group Working Papers*; and other information related to the Laboratory. The *RLE Brochure*, published in 1991 for RLE's 45th anniversary, is also available at no charge.

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