

## CONTENTS

Lecture 1	<i>FILAMENTS AND CATHODES - Part I</i>	E. A. Lederer	1
Lecture 2	<i>FILAMENTS AND CATHODES - Part II</i>	E. A. Lederer	11
Lecture 3	<i>HEATERS AND HEATER-CATHODE INSULATION</i>	G. R. Shaw and L. R. Shardlow	24
Lecture 4	<i>PHOTOELECTRIC AND SECONDARY EMISSION</i>	L. B. Headrick	34
Lecture 5	<i>LUMINESCENT MATERIALS</i>	H. W. Kaufmann	51
Lecture 6	<i>CONTACT POTENTIAL, PUMPS, AND GETTERS</i>	E. A. Lederer	58
Lecture 7	<i>METALLURGICAL PRINCIPLES</i>	S. Umbreit	73
Lecture 8	<i>METALS FOR VACUUM-TUBE CONSTRUCTION</i>	S. Umbreit	82
Lecture 9	<i>GLASS AND ITS PROPERTIES</i>	G. R. Shaw and C. A. Jacoby	91
Lecture 10	<i>CONSTRUCTION TRENDS IN RADIO TUBES</i>	N. R. Smith	103
Lectures 11, 12, 13, and 14	<i>SPACE-CURRENT FLOW IN VACUUM-TUBE STRUCTURES</i>	B. J. Thompson	115
Lecture 15	<i>ELECTRON OPTICS - Part I DETERMINATION OF ELECTRON TRAJECTORIES</i>	V. K. Zworykin and G. A. Morton	124
Lecture 16	<i>ELECTRON OPTICS - Part II ELECTRON-OPTICAL SYSTEMS WITH CYLINDRI- CALLY SYMMETRICAL FIELD-PRODUCING ELEMENTS</i>	V. K. Zworykin and G. A. Morton	136
Lecture 17	<i>ELECTRON OPTICS - Part III ABBERATIONS IN ELECTRON OPTICS</i>	G. A. Morton and E. G. Ramberg	153
Lecture 18	<i>RADIO RECEIVING TUBE COMPONENTS AND THEIR MANUFACTURE</i>	N. R. Smith	168
Lecture 19	<i>ANALYSIS OF RECTIFIER OPERATION</i>	O. H. Schade	174
Lecture 20	<i>THE DESIGN OF AUDIO AMPLIFIER AND POWER OUTPUT TUBES</i>	S. W. Dodge	194

## CONTENTS (cont'd)

Lecture 21	<i>THE DESIGN OF RADIO-FREQUENCY AMPLIFIER TUBES</i>	T. J. Henry	203
Lecture 22	<i>THE DESIGN OF DETECTORS AND CONVERTERS</i>	T. J. Henry	209
Lecture 23	<i>THE DESIGN AND CONSTRUCTION OF TRANSMITTING TUBES</i>	E. E. Spitzer	218
Lecture 24	<i>THE DESIGN AND CONSTRUCTION OF CATHODE-RAY TUBES</i>	W. H. Painter	226
Lecture 25	<i>ELECTRON BEAMS AND THEIR APPLI- CATION IN RADIO TUBES</i>	H. M. Wagner	234
Lecture 26	<i>THE DESIGN AND PERFORMANCE OF RECTIFIERS</i>	A. P. Kauzmann	249