

Communications Technology and Social Policy

UNDERSTANDING THE NEW "CULTURAL REVOLUTION"

Edited by

GEORGE GERBNER
LARRY P. GROSS
WILLIAM H. MELODY

A WILEY-INTERSCIENCE PUBLICATION

JOHN WILEY & SONS, New York • London • Sydney • Toronto

CONTENTS

PART I WHAT CAN THE NEW TECHNOLOGY DO? THE DIMENSIONS OF CHANGE

INTRODUCTION BY ARTHUR D. HALL, III,	3
Chapter 1 Communication and Computers, JAMES T. MARTIN	7
References,	11
Chapter 2 Trends in Switched Services, ARTHUR D. HALL, III	13
Telephone Services,	14
<i>Pushbutton Dialing (or Touchtone®),</i>	15
<i>Call Transfer,</i>	15
<i>Add-On,</i>	15
<i>Call Waiting,</i>	15
<i>Speed (or Abbreviated) Addressing,</i>	15
<i>Wake Up (or Alarm Clock Service),</i>	15
Switched-Data Services,	16
<i>Rate of Transmission,</i>	16
<i>Speed of Connection (Set-Up Time),</i>	17
<i>Error Rate,</i>	17
<i>Cost and Price,</i>	17
Switched Videotelephone Service,	18
The Relation of Picturephone to CATV,	21
References,	22
Chapter 3 Broadcasting Technologies, JOHN W. WENTWORTH	23
Radio Broadcasting and Audio Recording,	23
<i>Tutorial Comments on "High-Fidelity" Concepts,</i>	24
<i>Standard Broadcasting,</i>	25

	<i>Frequency-Modulation Broadcasting,</i>	26
	<i>Stereophonic Broadcasting,</i>	27
	<i>Audio Recording,</i>	27
	Television Broadcasting and Video Recording,	29
	<i>Color Television,</i>	29
	<i>Video Recording,</i>	30
	Cable Television Systems,	31
	Possible Future Developments,	32
	<i>Quadrasonic Recording and Broadcasting,</i>	32
	<i>Audio Cassettes as a "Broadcasting" Medium,</i>	32
	<i>Video Cassettes or Discs,</i>	33
	<i>Communications Satellites for Broadcasting,</i>	33
	<i>Interactive CATV Systems,</i>	34
	<i>Facsimile Services,</i>	35
	<i>Broadcasting to Local Recorders,</i>	35
Chapter 4	Communicating with the Man on the Move,	37
	JONA COHN	
	Major Technical Developments,	37
	Framework for Discussion,	38
	Categories of Needs,	39
	<i>Safety,</i>	39
	<i>Efficiency,</i>	39
	<i>Convenience,</i>	39
	Example Application,	40
	Future Mobile Communications,	41
	<i>Some Possible New Services,</i>	41
	Spectrum Availability,	45
	References,	48
Chapter 5	Graphics Systems,	49
	GEORGE R. WHITE	
	Information Expansion,	49
	Structure of Information Systems,	52
	Function of Information Systems,	53
	Graphics Systems Essentials,	56

CONTENTS

xvii

	Conclusion, 60	
	References, 60	
Chapter 6	Communications Satellites, W. L. PRITCHARD AND P. L. BARGELLINI	61
	Commercial Communications Satellites, 61	
	<i>The Experimental Era,</i> 62	
	<i>The Commercial Era,</i> 62	
	<i>Future Trends,</i> 65	
	<i>Orbit Utilization,</i> 72	
	<i>Earth Stations,</i> 73	
	Broadcast Satellites, 74	
	<i>Preliminary Remarks,</i> 74	
	<i>Possible Forms of Satellite Broadcasting,</i> 75	
	<i>Forthcoming Experiments,</i> 80	
	Future of Satellite Broadcasting in the United States, 80	
	Conclusions, 81	
	References, 82	
Chapter 7	Social Control Through Communications, DENNIS GABOR	83
	Can Communications Contribute to World Peace? 84	
	Can Communications Help in Countering the Danger of Overpopulation? 85	
	Can Communications Arrest the Dangerous Tendency Towards Over-Urbanization? 86	
	What Can Communications Do Against Crime and Drug Addiction? 88	
	What Can We Do Against the Bottleneck that Is Developing Between the Almost Unlimited Information Capacity of Modern Communication Systems and the Limited Reception and Assimilation Rate of the Individual? 89	
	What Can We Do Against "Information Pollution"? 90	
	What Can We Do to Educate Children, Adolescents, and Adults to Be Fit Citizens for a Materially Stationary Civilization on a High Culture Level? 91	

**PART II INSTITUTIONAL POWERS AND CONTROLS:
THE DIRECTION OF CHANGE**

INTRODUCTION BY WILLIAM H. MELODY, 97

Chapter 8	Telecommunications Interconnection: Wherefrom and Whitherto?	101
	RICHARD GABEL	
	Interconnection Restrictions Affecting Independent Telephone Companies, 1893 to 1920, 102	
	<i>Problems After Interconnection With Independents,</i> 105	
	Interconnection Restrictions Barring Customer Attachments—State Regulatory Activity, 108	
	Interconnection Restrictions—Pre-Carterfone Cases on Federal Level, 108	
	<i>Service Quality,</i> 109	
	<i>The Need for Integration,</i> 110	
	<i>Quality of Maintenance,</i> 110	
	<i>Equipment Obsolescence,</i> 110	
	<i>Company Responsibility,</i> 111	
	<i>Effect on Charges to the Public,</i> 111	
	The Carterfone Decision, 111	
	Implementation of Carterfone, 113	
	<i>The NAS Panel,</i> 113	
	Interconnection—Whitherto? 115	
	<i>The PBX Advisory Committee,</i> 115	
	<i>The Opportunities Ahead,</i> 116	
	References, 117	
Chapter 9	CATV: FCC Rules and the Public Interest,	121
	RALPH LEE SMITH	
	Characteristics of the Cable, 122	
	Conflict of Technologies, 124	
	Cable and the FCC, 125	
	The New Cable Rules, 126	
	The Exclusivity Problem, 127	
	Exclusivity and the New Rules, 128	

CONTENTS

xix

	Cable, The Government, and the Public Interest,	130
	References,	131
/Chapter 10	Institutional Pressures and Response at the FCC: Cable and the Fairness Doctrine as a Case Study, NICHOLAS JOHNSON	133
	References,	144
Chapter 11	An Assessment of the Computer-Telecommunica- tions Complex in Europe, Japan, and North America, DIETER KIMBEL	147
	A Managerial Opportunity,	150
	The Interdependence of Computers and Telecommunications,	151
	<i>The Technical Interdependence,</i>	151
	<i>The Economic Interdependence,</i>	152
	<i>Institutional Interdependence,</i>	154
	The Wired City Concept,	155
	State-of-the-Art and Planned Activities,	157
	A National Program,	159
	References,	162
/Chapter 12	The Role of Advocacy in Public Policy Planning, WILLIAM H. MELODY	165
	Technological Determinism and Institutional Structure,	166
	<i>The Heritage of Business Affected with a Public Interest,</i>	167
	<i>The Technologically Based Rationale,</i>	168
	Implications for the Approach to Regulation,	170
	Public Policy Response to Changing Market Circumstances,	171
	<i>Television Transmission Service,</i>	171
	<i>Satellite Technology,</i>	172
	<i>Data Communications and Teleprocessing,</i>	175
	<i>Cable Television,</i>	176
	Public Policy: Planning and Advocacy,	177
	References,	180

**PART III COMMUNICATION AND EDUCATION FOR THE FULL
EMPLOYMENT OF HUMAN POTENTIAL**

INTRODUCTION BY LARRY P. GROSS, 185

References, 188

**Chapter 13 Modes of Communication and the Acquisition of
Symbolic Competence, LARRY P. GROSS 189**

The Multimodal Nature of Symbolic Thought
and Action, 191

Modes, Codes, and Media, 192

Primary, Derived, and Technical Modes, 193

The Tacitness of Skill and Competence, 194

Varieties of the Symbolic Experience, 197

The Social-Gestural Mode, 197

The Iconic Mode, 198

The Logico-Mathematical Mode, 199

The Musical Mode, 199

The Acquisition of Skills and Competencies, 201

Competence Is Its Own Reward, 201

Learning Through Action, 201

The Verbal Fallacy, 202

The Seductiveness of the Visual, 204

Educational Policies and Technological Imperatives, 206

References, 207

**Chapter 14 Learning Through Experience and Learning
Through Media, JEROME S. BRUNER AND DAVID R. OLSON 209**

Direct Experience, 211

Mediate Experience, 213

On the Acquisition of Knowledge, 214

Reinforcement, 217

Modeling, 217

Verbal Instruction, 218

On the Acquisition of Skills and Abilities, 221

Technological Realizations, 224

References, 226

CONTENTS

xxi

Chapter 15	Formative Research in the Production of Television for Children, EDWARD L. PALMER	229
	The CTW Operational Model, 232	
	<i>Curriculum Planning</i> , 232	
	<i>Behavioral Goals</i> , 233	
	<i>Existing Competence of Target Audience</i> , 234	
	<i>Appeal of Existing Materials</i> , 234	
	<i>Experimental Production</i> , 234	
	<i>Production, Airing, and Progress Testing of the Broadcast Series</i> , 235	
	<i>Summative Evaluation</i> , 236	
	<i>Writer's Manual</i> , 236	
	Formative Research Methods 237	
	<i>Formative Research on Program Appeal</i> , 237	
	<i>Formative Research on Program Comprehensibility</i> , 238	
	<i>Internal Compatibility</i> , 240	
	<i>Activity Eliciting Potential</i> , 241	
	Organizational and Interpersonal Factors, 242	
	The Distinctive Role and Functions of Formative Research, 243	
	References, 245	
Chapter 16	The Magic Lantern: Metaphor for Humanistic Education; BRUCE R. JOYCE	247
	Why Is the School Changing, and Why Should It Change? 247	
	The Focus of Reform, 252	
	<i>Multimedia Support System</i> , 252	
	<i>Functions of Media Forms in Storage and Instructional Systems</i> , 253	
	<i>The Array of Media Possibilities</i> , 254	
	Models of Learning and Teaching, 255	
	<i>The Personalist Model</i> , 256	
	<i>The Synergistic Model</i> , 256	
	<i>The Information-Processing Model</i> , 256	
	<i>The Cybernetic and Behavior Modification Models</i> , 256	
	The Design of Learning Centers, 257	

	<i>Idiosyncratic Centers,</i>	257
	<i>The Human Ecology Centers,</i>	259
	<i>The Skills Center,</i>	260
	<i>Academic Centers,</i>	261
	<i>The Performing Arts Center,</i>	262
	Conclusions,	263
	References,	264
Chapter 17	Teacher Image in Mass Culture; Symbolic Functions of the "Hidden Curriculum,"	265
	GEORGE GERBNER	
	Symbolic Functions,	267
	The "Hidden Curriculum" and Its Effects,	269
	Historical Images,	271
	Teacher and School in United States Media,	273
	<i>Love and the Teacher,</i>	274
	<i>Poverty of the Schools,</i>	275
	<i>The School Sports Story,</i>	275
	<i>Community and Power,</i>	277
	<i>Publish and Perish,</i>	278
	Images Across Cultures,	279
	<i>Teacher Goals and Fates,</i>	280
	<i>The Role of Students,</i>	281
	Knowledge and its Control,	283
	References,	285
PART IV THE NEW FIELD OF URBAN COMMUNICATIONS		
	INTRODUCTION BY BERTRAM M. GROSS,	289
Chapter 18	Urbanization and Communications,	293
	MELVIN M. WEBBER	
Chapter 19	Wiring Megalopolis: Two Scenarios,	305
	MARK L. HINSHAW	
	Two Possible Futures,	307
	<i>Scenario I,</i>	308
	<i>Scenario II,</i>	312

CONTENTS

xxiii

	Conclusions, 316	
	References, 317	
Chapter 20	Minorities and the New Media: Exclusion and Access, OLIVER GRAY	319
	Looking Backward, 320	
	Cable: The New Technological Elitism, 322	
	Toward the Future, 324	
	References, 325	
Chapter 21	The Open Door Policy on Television, THEODORA SKLOVER	327
	Public Access, 328	
	Government Regulation on Public Access, 330	
	Pioneering at Open Channel, 332	
	<i>Examples of the Application of Public Access, 334</i>	
	Conclusions, 336	
	References, 337	
Chapter 22	Moving Information Instead of Mass; Transportation versus Communication, PETER COWAN	339
	The Views We Hold Now, 340	
	The Propensity to Consume Transportation and Communications, 342	
	Transportation versus Communications? 346	
	Conclusions, 351	
	References, 352	
Chapter 23	Urban Ecostructures in a Cybernetic Age: Responses to Communications Stress, RICHARD L. MEIER	353
	Who Are the Hurt? 354	
	Where is the Action? 355	
	Why is Stress Increasing? 357	
	When Will the Limit Be Reached? 359	
	Stress Releases for Cities of the Future, 360	
	References, 362	

**PART V GLOBAL COMMUNICATIONS: CULTURAL
EXPLOSION OR INVASION?**

INTRODUCTION BY HERBERT I. SCHILLER, 365

Chapter 24	Space Communications and the Developing Countries, ARNOLD W. FRUTKIN	369
	INTELSAT, 370	
	<i>Organizational Considerations,</i> 370	
	<i>Communications Considerations,</i> 371	
	<i>Participation and Growth,</i> 371	
	<i>Costs of Participation in INTELSAT,</i> 372	
	<i>Types of Use,</i> 373	
	The India-United States Satellite Broadcasting Experiment, 374	
	<i>Genesis of the Experiment,</i> 375	
	<i>Joint Study,</i> 376	
	<i>The NASA-DAE Experiment,</i> 377	
	<i>Programming,</i> 378	
	<i>Responsibility and Stimulus,</i> 378	
	<i>Costs, Benefits, and Follow-On,</i> 379	
	<i>In Sum,</i> 379	
	References, 380	
Chapter 25	Television as a Horseless Carriage, ELIHU KATZ	381
	The Heritage of Radio, 382	
	<i>Nonstop Broadcasting,</i> 383	
	<i>The Everybody Audience,</i> 384	
	<i>Up-to-the-Minute News,</i> 385	
	Consequences for Broadcasting in New Nations, 385	
	<i>Too Much: The Key Problem of Television in Small Nations,</i> 386	
	<i>The Everybody Audience in New Nations,</i> 388	
	<i>The Problem of Homogenized News,</i> 389	
	Summary and Conclusions, 390	
	References, 391	

CONTENTS

xxv

- Chapter 26 The Nonhomogeneity of the National State and the International Flow of Communication,** 393
 KAARLE NORDENSTRENG AND TAPIO VARIS
- Historical Development of Communication in Society, 394
 The Role of Consciousness, 399
 World in Transition, 402
 References, 412
- Chapter 27 Inequalities in Access to Communication Facilities for Working-Class Organizations,** 413
 STEFAN NEDZYNSKI
- Unions and Society, 413
 The Media Problem, 415
- The Press,* 416
Radio and Television, 416
- Factors that Result in Poor Access to the Media by Unions and Other Subgroups, 417
- Ownership and Control of the Media,* 417
Pressure from Advertisers, 418
Governmental Pressures, 418
- Balancing Forces and Possibilities Open to Worker's Organizations, 420
 References, 423
- Chapter 28 Mass Media and the Socialist Revolution: The Experience of Chile,** 425
 ARMAND MATTELART
- Legacy of a Power Structure: Panorama of Concentration of Ownership of Mass Media and External Dependency, 426
- The Functionality of the Dependent Culture,* 428
- Coexistence, 429
- An Untouched Power,* 429
The Dialectic Response of the Bourgeois and Imperialist Media, 430
- Contradictions Between Class Struggle and Mercantile Competition: The Impasses, 431
- The Genres,* 431
Implicit Contents, 433

- The Democratization of Distribution,* 437
The Participation of the Masses, 439
 References, 440
- ✓ **Chapter 29 Mass Communications and Cultural Revolution: 441**
The Experience of China, DALLAS W. SMYTHE
 The Context of the Cultural Revolution, 442
 The Cultural Revolution, 446
 "Mass Communications" Before and After, 448
Policy on Service or Product, 448
Policy on Organization and Control, 455
Innovation Policy, 457
Policy on Availability, 459
 Conclusions, 460
 References, 464
- ✓ **Chapter 30 Authentic National Development versus the Free 467**
Flow of Information and the New Communications
Technology, HERBERT I. SCHILLER
 The New Awareness, 471
Ferment in the Underdeveloped World, 476
Prospects, 477
 References, 480

PART VI TRACKING THE FUTURE

INTRODUCTION BY GEORGE GERBNER, 483

- Chapter 31 The History of the Future, JAMES W. CAREY 485**
 AND JOHN J. QUIRK
 The Future as Exhortation, 486
 The Future as a Literary Prophecy, 490
 The Future as a Participation Ritual, 497
 References, 503

CONTENTS

xxvii

- Chapter 32 Communication Technologies and the Future of the Broadcasting Professions, MICHAEL GUREVITCH AND PHILIP ELLIOTT 505**
- Broadcasting as a Profession, 506
 Professional Ideologies and Professional Situations, 509
Recruitment and Socialization, 510
 The Technological Innovations, 511
 The Consequences of Technological Change, 512
Contents, 512
Political Control, 513
Finance, 513
Recruitment and Ideology, 514
Change in the Professional Situation, 515
Conclusion, 517
 References, 518
- Chapter 33 Politics and the New Mass Communications, FORREST P. CHISMAN 521**
- References, 530
- Chapter 34 Technology Assessment or Institutional Change? EDWIN B. PARKER 533**
- New Communication Technology, 534
 Inevitability of Technology Development? 539
 Institutional Change, 541
Strategies for Institutional Change, 542
 References, 545
- Chapter 35 Research in Forbidden Territory, JAMES D. HALLORAN 547**
- References, 553
- Chapter 36 Cultural Indicators: The Third Voice, GEORGE GERBNER 555**
- Stock-Taking in a Changing World, 556
 Areas and Terms of Analysis, 558
 Institutional Process Analysis, 559

<i>Decision Making,</i>	559
<i>The Exercise of Power,</i>	561
Message System Analysis,	563
<i>The Systems,</i>	563
<i>The Analysis,</i>	564
<i>Dimensions and Measures,</i>	564
Cultivation Analysis,	567
<i>The Problem of Effects,</i>	568
<i>The Question of Change,</i>	568
<i>Symbolic Functions,</i>	570
<i>The Cultivation Process and Its Analysis,</i>	571
References,	572

INTRODUCTION

GEORGE GERBNER

If the new future of the future is to be different from the old future of the past, it should be subjected to unprecedented scrutiny. By that I mean that the use of the future as a political instrument should be explained, and even its scientific assessment demystified. Then we can move on to the consideration of the merits of social intelligence in shaping the future. That is the task of this section.

In their chapter on "The History of the Future," James W. Carey and John J. Quirk trace the work of some scientific "oracles to the people and servants of the ruling class." The future that never comes but always is "just around the corner" or "at the end of the tunnel" serves to make the present more acceptable. Since rapid change in the "quality of life" is apparent to all, it is not difficult to claim that a change in the structure of society will come about by the same processes of extension and intensification that pervade the present. Thus the claims made for the future effects of electricity in 1852 are compared to the claims for the future effects of electronics made in 1972. Information technologists may gain a monopoly of knowledge in the profound sense of being able to define what it means to be reasonable.

Michael Gurevitch and Philip Elliott pursue the question of monopoly in their chapter on "Communication Technologies and the Future of the Broadcasting Professions." They foresee changes in the self-image of the profession (if it can be called that), and in its control over the most massive channels of communication. Ironically, they write, the public's "right to know" has been transformed into the professionals' right to define what it is that the public has a right to know. With the proliferation and diversification of channels, the status and control of the media "professional" may decline, giving way to even more overt business control exercised through technological and market "mechanisms." The disestablishment of the "New Priesthood" of media professionals may mark the end of a period of the elite standards and professional quality controls, to giving full sway to "populist commercialism" managed by technicians.

How these or other foreseeable developments will influence the political system is Forrest P. Chisman's topic in "Politics and the New Mass Commu-

nication." Chisman finds most current predictions questionable, if not misleading. The proliferation of channels and consequent fragmentation of audiences raises many theoretical and practical problems. The rosy myth of the future of telecommunications may lead us to ignore present warning signals and to delay needed reforms.

Even the exclusive preoccupation with technology assessment may have that effect, argues Edwin B. Parker in his chapter on "Assessment or Change in Communication Technology." "If we structure the problem as one of assessment of the technology itself, or as one of developing social indicators to better measure effects after they have happened, then the battle will have been lost before we start," Parker writes. The alternative he recommends is immediate institutional intervention and social planning, assuring maximum public utilization of the fruits of communication technology. Waiting for consensus, or even for a crisis that might precipitate consensus, is waiting too long. If the problems reside in the basic institutional structure of society, as Parker believes, crisis and consensus can be managed to support instead of change that structure. Publicity and mobilization of human energies must take advantage of the flexibilities that now exist to initiate the changes. Assessment of consequences can be more effective once institutional change is underway.

Just how such assessment might be conducted, whenever it occurs, is the topic of the last two chapters. James D. Halloran refers to the investigation of media performance as "Research in Forbidden Territory" because the organs of public consciousness have been resistant to the idea of public consciousness of their own operations. Surveying the British scene, Halloran concludes that between the clamor of governments and the self-serving proclamations of the media, a third voice is needed to track the consequences of new developments in communications.

What that third voice might be is the subject of the final chapter on "Cultural Indicators: The Third Voice," by George Gerbner. Three areas of analysis designate study of how policies are made, what message systems are produced, and what contributions they make to public conceptions of life and society. Tracking the present as it flows past might point the way to a future that is neither a mirage nor a trap.