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tional bibliography : final report.

FINAL REPORT

Title:

②
A Study of Competition and Monopoly In
Telecommunications Carriers and Services
- Economic, Regulatory, Technological
and Judicial References - A Selected
International Bibliography *of final report*

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For:

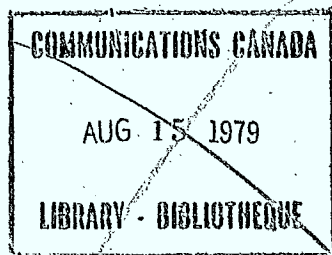
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ABSTRACT

A Study of Competition and Monopoly In
Telecommunications Carriers and Services
- Economic, Regulatory, Technological
and Judicial References - a Selected
International Bibliography

This research project consists of two parts: (1) the compilation of an annotated bibliography on considerations of competition and monopoly in telecommunications services and carriers in Canada and the United States and in International telecommunications; and (2) a summary and review article analyzing the major issues and developments relating to competition and monopoly in telecommunications as they are presented in the most pertinent items in the bibliography.

The bibliography consists of economic, regulatory, technological, and judicial references, and includes books, articles, documents, reports, transcripts, regulatory agency decisions, court decisions, evidence and hearings of investigatory commissions and legislative committees, and other relevant material in telecommunications. It is divided into three sections, namely I Canada; II U.S.; III International.

The summary and review article examines the major developments and issues concerning competition and monopoly in telecommunications carriers and services by drawing on the information contained in the items in the bibliography.

Reference is made to these items by a bibliography number code, author or title, and date of publication. The article therefore highlights and examines developments and issues and identifies the most relevant items in the bibliography, together with the essence of their contents.

The issue of competition vs monopoly in telecommunications has been focussed primarily on the areas of terminal interconnection and transmission. The trends in recent years in Canada and the U.S. has been toward increased competition, supported by the CRTC in Canada, the FCC in the U.S., and the Courts in both countries. The established industry or the Bell System has vigorously opposed this trend. Volumes of literature in the form of books, journal and magazine articles, submissions to and reports of regulatory agencies, legislative committee hearings and evidence, conference papers, etc. have been generated on this subject.

The volumes of material presented against competition has generally been matched, or exceeded, by volumes of material brought forward by pro-competition forces. For each of the industry's arguments that competition would produce adverse effects on services, rates, and general economic harm, a counter-argument can be found, together with arguments that a considerable amount of economic good would be generated from increased competition, such as improved services, more rapid innovation, greater efficiency, etc.

There appears to be no consensus concerning the issue

of monopoly vs competition in telecommunications carriers and services. Positions range from pure monopoly, to the regulated monopoly, to various degrees of competition and regulated competition. Strong theoretical arguments can be made in favor of either monopoly or competition in telecommunications services. However, no conclusive empirical evidence can be found determining which market structure is most likely to produce the most efficient, low-cost-high-quality services, which is most likely to provide the most responsive services to market demand, and which is likely to offer the greatest incentive for innovation and technological development. In certain areas of the industry the arguments and evidence tend to weigh in favor of competition. Examples include areas where economies of scale are clearly not evident (such as the area of terminal equipment manufacturing) and where competition would appear to stimulate technological development and provide new or extended facilities and services in response to changing public needs (terminal equipment, data transmission and processing).

The case against competition on grounds that it has or will, in the future, have a substantial adverse impact on telecommunication services in general, and on certain classes of users in particular, has yet to be made convincingly. It would appear that the trend towards increased reliance on market processes in the production and delivery of various telecommunications services will most likely continue.

A STUDY OF COMPETITION AND MONOPOLY
IN TELECOMMUNICATIONS CARRIERS AND SERVICES
- ECONOMIC, REGULATORY, TECHNOLOGICAL,
AND JUDICIAL REFERENCES -
A SELECTED INTERNATIONAL BIBLIOGRAPHY

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PART I

INTRODUCTION AND METHODOLOGY

The purpose of this study is to assist in making determinations of how the public interest is served with respect to questions of competition and monopoly in the telecommunications industry, with particular reference to telecommunications carriers and services.

The research project involves two major parts:

1. The compilation of an annotated bibliography on considerations of competition and monopoly in telecommunications carriers and services. The bibliography consists of economic, regulatory, technological and judicial references, including books, articles, documents, reports, transcripts, regulatory agency decisions, court decisions, evidence and hearings of investigatory commissions and legislative committees, proceedings of international conferences, and other relevant material in telecommunications. It constitutes references on telecommunications in Canada and the U.S. and on International telecommunications.
2. A summary and review article analyzing the major issues and developments relating to competition and monopoly in telecommunications, drawing on information contained in the more significant items of the bibliography and making reference to these items by a number code, author or title, and date of publication.

The format of the bibliography is presented in Illustration 1. The bibliography is divided into three sections; namely, Section I - Canada; Section II - United States; and Section III - International. The references in each section

are grouped into four categories; (1) Economic; (2) Regulatory; (3) Technological, and (4) Judicial. Where appropriate, the references in each of these categories are further grouped into the following: (1) books; (2) articles; journals; (3) government documents, and (4) papers; reports; dissertations; pamphlets. In addition and as illustrated, the references in each section and each category are coded. The references for Section I - Canada are coded 000-399, with Economic items numbered 000-099, Regulatory items numbered 100-199, etc.

The four categories of references; namely, economic, regulatory, technological, and judicial are described as follows:

Economic References

- references covering various aspects relating to monopoly and competition such as market structure, pricing policies, barriers to entry, integration, concentration, etc.

Regulatory References

- various aspects relating to monopoly and competition such as regulations concerning rates, services, entry, interconnections, etc.

Technological References

- references concerning effect of technology on market structure and services and effect of market structure on technological development.

Judicial References

- decisions of regulatory agencies, such as the CRTC and the FCC, and the Courts concerning issues of monopoly and competition.

ILLUSTRATION 1BIBLIOGRAPHY FORMAT

Section I - Canada (000-399)

000 Economic References

Books

Articles; Journals

Government Documents

Papers; Reports; Dissertations; Pamphlets

100 Regulatory References

200 Technological References

300 Judicial References

Section II - United States (400-1099)

400, 500 Economic References

600, 700,

800 Regulatory References

800, 900 Technological References

1000 Judicial References

Section III - International (1100-1399)

1100 Economic References

1200 Regulatory References

1300 Technological References

The search for bibliographical material involved a variety of methods and numerous sources. It included: an examination of academic journal indexes and University library holdings; requests for material through inter-library loans; visits to Washington and Ottawa to establish personal contacts and obtain government documents such as Proceedings of Congressional Hearings, FCC and CRTC reports, etc.; an examination of government departmental library holdings; contacts with the industry; and the use of the University of Windsor Library's computerized data search and retrieval facilities. With respect to the latter, a number of data bases were searched including the Congressional Information Service Index, the National Technical Information Service, the Engineering Index, the Management Contents Index, the Social Science Index, PAIS International, and the Smithsonian Science Information Exchange.

The bibliography contains a total of 628 items with a brief statement or summary on each. In general, the more significant items contain a more detailed and informative summary than the less pertinent items. In addition, reference is made to the more significant items in the review article. The article highlights the main developments and issues in competition and monopoly relating to telecommunication carriers and services, and furthermore serves to identify the most relevant items in the bibliography, together with the essence of their contents.

PART II

SUMMARY AND REVIEW OF DEVELOPMENTS
AND ISSUES RELATING TO COMPETITION
AND MONOPOLY IN TELECOMMUNICATIONS
CARRIERS AND SERVICES (with refer-
ence to the most significant items
in the bibliography).

CHAPTER I
INTRODUCTION

The objective of this review is to highlight issues and developments regarding competition and monopoly in telecommunications services in Canada and the United States and in International telecommunications services as they are covered in the items contained in the bibliography (Part III). In the process of reviewing these issues and developments, reference is made to those items in the bibliography which are the source of the information and arguments on each of these issues and developments. The reference is shown by bibliography item number, author or title, and year of publication (i.e. 441, Irwin, 1971). The references contained in this review serve to identify the more significant items in the bibliography, which the reader may subsequently examine if he/she wishes to study an issue or argument in greater detail.

The subject of competition and monopoly in telecommunications services includes economic, regulatory, judicial and technological issues and developments and each of these is covered in this review.

Chapters II, III, and IV are devoted to competition and monopoly in the U.S. where the issue has been extensively and intensively examined and on which a mass of literature

exists. This literature includes books and monographs, articles in academic journals, business serials, trade journals and magazines, reports prepared by individuals and companies, and a great variety of government documents and publications. Among the most comprehensive of the government documents in covering the numerous facets of competition and monopoly in the telecommunications industry during the past decade are the Hearings of various Congressional subcommittees in which a great variety of evidence and presentations from both anti-competition and pro-competition proponents are to be found. The Subcommittee Hearings which are particularly noteworthy include: the Subcommittee on Anti-Trust and Monopoly, of the Senate Committee of the Judiciary, which considered the Industrial Reorganization Act [499, Congress, 1973; 500, Congress, 1974; 501, Congress, 1974] and the Competition Improvements Act [754, Congress, 1976]; the Subcommittee on Communications of the Senate Committee on Commerce, Science, and Transportation, which considered domestic telecommunications common carrier policies [762, Congress, 1977; 763, Congress, 1977]; the Subcommittee on Communications of the House Committee on Interstate and Foreign Commerce, which examined domestic common carrier regulation [761, Congress, 1975] and competition in the telecommunications industry [960, Congress, 1976]. In many instances, articles and items which have appeared in journals and magazines, and reports by government agencies and by the industry, have been recorded into the Hearings, as well as

testimony by numerous individuals involved in telecommunications, and by analysts of the industry, such as Irwin, Melody, Rostow, Kahn, Trebing, Baumol, etc.

A wealth of information is also contained in the various inquiry Dockets of the Federal Communications Commission (FCC) in its examination of, and decisions on, various aspects of the telecommunications industry. Of particular significance is Docket 20003, 1976 which examines economic implications relating to interconnection, separations, and rate structures.

Chapter V is devoted to competition and monopoly in telecommunications in Canada. Sources of information relating to Canada are relatively scarce compared to the U.S. Relatively few academic journal articles and monographs exist on the subject. The main sources of information consist of government documents, contract studies for government agencies, and the various submissions, reports, and representations presented before the Canadian Radio-Television and Telecommunications Commission (CRTC). Many of the arguments, both anti-competition and pro-competition concerning the issue in Canada and found in these sources are basically identical or similar to the arguments that have been made in the U.S.

Developments and issues relating to competition and monopoly in International telecommunications services are the subject of Chapter VI. The main sources of information include U.S. Congressional Hearings, decisions of the FCC, a number of reports by international agencies, and the pro-

ceedings of various international conferences.

CHAPTER II
HISTORICAL OUTLINE OF MONOPOLY AND COMPETITION
IN THE TELECOMMUNICATIONS INDUSTRY

1. Early Developments

The Bell patents of the late 19th Century provided the Bell System with a legal monopoly in the telephone industry. Bell operated unhindered by competition and provided services primarily to the business-industrial community. A period of competition (1893-1920) followed the termination of the Bell patents. New entrants began to extend services to the residential community and it is contended that it was the vigorous competition in pursuit of new markets that produced substantial rate reductions [408, Danielian, 1939].

Bell's reaction to this early competition included expansion of its own facilities, refusal to connect with independent companies, refusal to sell telephone equipment to non-Bell companies, and propaganda against competition. It also instituted a policy buying up the independents [760, Congress, OTP Report 1976; 436, Gabel, 1969; 762, Congress, Wiley, 1977].

Throughout the period of the patent monopoly and the early years of competition, the Bell System opposed government intervention and regulation of the telephone business. The efforts of the Interstate Commerce Commission (ICC), however

which had regulatory authority over telegraph, railroads, etc., to stabilize markets and price structures, eventually began to appeal to AT&T as possibly effecting stability in the telephone industry. Following 1907, the Bell System instituted an objective of a single monopolistic telephone system under government regulation, substituting regulation for the vigors of competition and in 1910 the Manne-Elkins Act conferred regulatory authority over interstate telephone companies on the ICC [436, Gabel, 1969; 605, Garfield and Lovejoy, 1964; 762, Congress, Wiley, 1977].

In 1934 the Communications Act replaced the ICC with the Federal Communications Commission (FCC) and conferred greater regulatory authority upon it than had been vested in the ICC. The FCC was empowered to regulate the rates and services of interstate and international common carriers, including carrier acquisition of interstate facilities, carrier discontinuation of services, and all charges, practices, and regulations.

Following the Communications Act of 1934, Bell continued to solidify its position in the telecommunications industry. It established various departments and subsidiaries such as the Long Lines Department, Western Electric, and Bell Telephone Laboratories. Extension of services continued and the 1949 Rural Electrification Act assured the extension of service to even the most remote areas of rural America.

World War II had a significant impact on the telecommunications industry with the impetus the War gave to

technological innovations to meet new telecommunication needs. The innovations fostered a renewed period of competition primarily along the lines of terminal interconnect manufacturing and transmission. The following pages trace some of the history of the development of competition in these areas, centering the involvement around the FCC.

2. Terminal Interconnection

New developments in terminal equipment and its manufacture in the 1940's gave rise to the terminal interconnect issue. Telephone recorders used by the U.S. military began to gain civilian popularity but AT&T refused to permit their connection to the telephone system. An investigation by the FCC resulted in a declaration that tariffs barring interconnection were unjust and discriminatory, but the FCC did agree with the Bell requirement of a telephone company provided interface device.

In 1949 the FCC upheld Bell's interconnect restriction as applied to the Hush-a-Phone, a small plastic device attached to a telephone headset to reduce background noise, and in 1954 it turned down a petition from manufacturers of electronic telephone answering devices to attach their devices on the grounds that there was no interstate demand for the product. In 1956, however, the Hush-a-Phone decision was overruled by the U.S. Court of Appeals which concluded that Bell's interconnection restrictions were an unwarranted interference with telephone subscribers rights to use the telephone

in ways which were privately beneficial without being publicly detrimental [1031, Hush-a-Phone Corp. vs. U.S., 238 F 2d, 1956]. The FCC subsequently implemented the Court's findings.

The Hush-a-Phone decision was used as a precedent when the interconnect issue again appeared. In the Carterfone Decision of 1968 [1035, 13 FCC 2d, 1968], the FCC ruled against AT&T's tariffs which prohibited the interconnection of a private land mobile radio unit to the telephone network through the means of an acoustic coupler. The FCC contended that interconnection did not adversely affect the telephone company's operations or the telephone system's utility for others. The tariffs were particularly discriminatory when AT&T's own interconnect equipment was approved for use. The significance of the Carterfone decision was that it paved the way for the attachment of customer-owned terminal devices to the telephone companies lines and allowed customers to choose the kinds of terminal equipment they needed.

Some State regulatory commissions tried to bar telephone companies operating within the State from complying with Carterfone and related decisions. The FCC ruled in the Tele-
rent case that State law could not frustrate Federal inter-connection policies.

Bell's response was to submit tariffs which allowed terminal interconnection if a subscriber paid for a carrier-provided protective interface device to be inserted between subscriber equipment and the exchange network to protect the technical integrity of the network. In 1972 the FCC ruled to

provide a certification program as an alternative to carrier-supplied connecting arrangements [1042, FCC Docket 19528] establishing FCC equipment registration standards and certification of customer-owned equipment. In 1976 the FCC extended the registration program to other types of customer-supplied equipment, when used in conjunction with appropriate FCC registered protective circuitry [1042, 58 FCC 2d, 1976].

The pro-terminal interconnect decisions of the FCC opened up the terminal equipment market for new entrants and saw a proliferation of new companies in the telephone equipment manufacturing industry. New and innovative products have been introduced by terminal equipment companies while the established telephone companies have been stimulated to produce their own innovations and improved devices.

3. Transmission

Microwave radio as a communications carrier was developed during the Second World War and was extended to civilian use. Petitions were made to the FCC to permit the development of private microwave systems in competition with common carrier supplied services. In the Above 890 Decision [1046, 27 FCC, 1959] of 1959 the FCC made some frequencies available for use by privately operated communications services on the grounds that there were uses that could not be met by the established common carriers and that the economic impact on the common carriers would be insignificant. This was the beginning of private line competition to the established

carriers.

AT&T responded to this competition with Telpak, a bulk rate tariff which offered substantial discounts to large users of private lines. The discounts ranged from 51-85% below the rate for private line circuits. After a lengthy study, the FCC in 1964 determined that the Telpak rates were discriminatory against the small user of private lines, but held that the rates would be justified for the larger users so long as AT&T could prove they were compensatory [760, Congress, OTP Report, 1976; 708, Raynor, 1974]. The FCC wanted proof that AT&T was not subsidizing its competitive offerings with monopoly service revenues by predatory pricing or pricing the competitive service below cost. The result was further study of the issues which has carried on to the present and has implications for rate regulation under either monopoly or competitive industry structures [1076, FCC Docket 18128].

The initial private line competition introduced by the Above 890 decision was followed by the Microwave Communications Inc. Decision (MCI) in 1969 [1047, 18 FCC 2d, 1969]. In this decision the FCC finally approved, after a six year controversy, the first application to build and operate specialized common carrier microwave facilities, servicing interplant and inter-office communications between St. Louis and Chicago. The FCC reasoned that the provision of private line microwave services by carriers other than AT&T would allow more efficient use of the spectrum, would bring small businessmen new services and

fulfill public needs, while not posing a threat to the established common carriers.

In 1971 the FCC handed down its landmark Specialized Common Carrier Decision [1050, 29 FCC 2d, 1971] which authorized the entry of special service carriers to the market. It was believed that there was an unmet need for specialized services in the interstate business and data transmission market and the increased competition would provide a wider range of specialized services. At the same time, this would not significantly affect telephone industry revenues or the rates of basic telephone services. It was also argued that competition in the specialized communications field would enlarge the equipment market for manufacturers and stimulate innovation and the introduction of new techniques, by both new entrants and AT&T itself. Competition would also afford some standard for comparing the performance of one carrier with another [763, Congress, AHC, 1977].

The Bell System vigorously opposed the SCC decision and in 1973 filed its Hi-Lo tariff in response to competition from specialized inter-city carriers. Bell contended that the new carriers were "cream skimming" by entering the most lucrative routes, concentrating on services between large cities with high-capacity, low-cost facilities. Bell filed a three-tiered rate structure which would reduce the rates up to 40% for some customers [708, Raynor, 1974]. The FCC rejected the tariff on the grounds that Bell had not shown the tariff to be compensatory.

Competition in domestic satellites came next. The Domestic Satellite Decision (or DOMSAT) of 1972 [1064, 35 FCC 2d, 1972] extended the multiple entry policy regarding communication common carriage to the licensing of domestic specialized common carriers seeking to utilize satellite systems. It was argued that such entry would result in efficient, low-cost services and encourage technical innovations.

The most recent, and perhaps farthest reaching development in specialized common carrier services is the Execunet Decision [1056, 60 FCC 2d, 1975] and its subsequent reversal by the Courts [1024, Schnee & Gorkiewicz, 1978]. In 1974, MCI, a company representing an affiliation of specialized common carriers offering private line service, filed a tariff for Execunet, a class of metered-use service which permitted a subscriber to access any telephone in a distant city served by MCI via MCI's network. AT&T complained to the FCC that MCI was offering interstate long distance message toll service (MTS) under the guise of Execunet and this competed with AT&T's interstate monopoly. The FCC agreed with AT&T and forbade MCI to offer Execunet. The U.S. Circuit Court of Appeals, however, reversed the FCC decision in 1977, allowing Execunet to continue. Both AT&T and the FCC have argued that the Court decision permitted competition in an area not intended by the FCC in its SCC decision of 1971 and that it could have far-reaching implications, perhaps altering significantly the structure of the communications common carrier industry [1024, Schnee & Gorkiewicz, 1978].

Library

4. Other Areas of Competition:
Data Processing; Switching; Resale; Sharing

Convergence of computers and telecommunications has brought a number of innovations such as the value-added network services or VANS and with them some new areas for competition and complex problems for regulatory agencies [752, Berman, 1974; 934, Norwood, 1970]. VANS involve companies which lease transmission lines from other carriers and add additional equipment of their own to offer specialized communications services [498, Criner, 1975; 653, Criner, 1977; 437, Gamble, 1978]. Examples are the Electronic Funds Transfer System (EFTS) which replace paper transactions, and the "packet switchers" [760, Congress, Telenet, 1976] which divide information into packages and send them over computer selected routes of both AT&T and SCC's and reassemble the information upon receipt.

A 1956 Conzent Decree barred AT&T from engaging in any business other than providing common carrier communication services. In its Computer Inquiry of 1971 [1061, 28 FCC 2d 267, 1971] the FCC ruled that a communications common carrier could not offer data processing services or equipment unless a separate subsidiary was established for this purpose. The decision was based on the determination that data processing was an unregulated, competitive market, and mixing regulated services could lead to cross-subsidization and predatory practices [760, Congress, OTP Report, 1976].

In March, 1976, the FCC rejected AT&T's proposed

The FCC contended that restrictions on the subscribers resale and sharing were unjust and unreasonable, and believed that unlimited resale and sharing of private line facilities would serve the public interest. Under the FCC ruling, entities which resold communications services would be considered common carriers and be regulated under the Communications Act just like any other carrier.

Competition was similarly fostered in the area of international telecommunications. In 1976, after years in which no new entrants had appeared in international telecommunications industry, the FCC authorized two domestic value-added carriers, Telenet Communications and Graphnet Systems, to provide new international data services. At the same time, the FCC granted the existing carriers the authority to provide overseas dataphone services.

CHAPTER III
DESCRIPTION AND ANALYSIS OF THE
TELECOMMUNICATIONS INDUSTRY ARGUMENTS AGAINST COMPETITION
AND PRO-COMPETITION RESPONSE IN THE U.S.

The established telecommunications industry in the U.S., notably AT&T and its affiliates, has vigorously opposed the introduction of increased competition in the industry over the past decade. The Bell System filed interventions in every case considered by the FCC in which increased competition was contemplated. It reacted negatively to each pro-competition decision by the FCC and attempted various possible means to circumvent their implementation with tariffs, regulations, and legalistic and administrative delays.

The opposition of AT&T and its affiliates against competition in the telecommunications industry can be categorized into three general areas. Competition, it is argued, would have adverse effects on:

- 1) the technical and operational integrity of the network
- 2) costs, rates, and basic telephone services
- 3) the independent telephone companies.

The procedure followed in this Chapter will be to outline the essential points of these arguments and the counter-arguments, and attempt to arrive at a conclusion with respect

to the arguments.

1. Effects on the Technical and Operational Integrity of the Network

The argument has been made that harm to the network will come from the interconnection of customer-owned terminal equipment. AT&T has contended that the terminal equipment produced by its competitors was inferior to its own and that interconnection would impair the technical and operational integrity of the communications network and endanger Bell personnel. This argument was presented extensively in the FCC considerations of the Hush-a-Phone and Carterfone cases and the period thereafter.

AT&T argued that the network must be integrated technically and that parts installed today must work with parts installed ten years ago which must work with parts installed ten years in the future. It feared that the telephone companies would have no assurance that customer-provided equipment would be properly installed or maintained and would threaten the technical integrity of the system [762, Congress, Debutts, 1977].

The pro-competition stand has been that there is little evidence from experience that the integrity of the Bell system would be harmed from terminal interconnection. Historically, railroads, pipelines, and electric utilities furnished their own service and terminal equipment, all of which were interconnected to the Bell System without a protective connecting arrangement. It was further argued that in many cases the

equipment was identical to that provided by the carriers themselves, particularly in markets without manufacturing affiliates, and even in the case of integrated carriers, who purchase equipment from interconnect suppliers and lease them to customers [760, Congress, OTP Report, 1976].

The proponents of competition contended that even if there did exist a possibility that customer-provided equipment might interfere with the network, there were ways to prevent such interferences with programs of equipment certification and the provision of cheap interface devices. The landmark Carterfone decision that did permit terminal interconnection also provided a system of standards and certification [1035, 14 FCC 2d, 1968].

Numerous instances were cited in which interconnect resulted in no evidence of network damage. In 1972 the New York Public Service Commission permitted interconnection of certified equipment by an interfacing protective device for the Rochester Telephone Co. After two years, 94% of Rochester's customers had opted for it as opposed to Bell's more expensive equipment. A study showed fewer reports of trouble on these lines than on other company lines [760, Congress, Kahn, 1976].

This is undoubtedly one of the weaker arguments put forward in the fight against competition. In Docket 19528 [1042, 58 FCC 2d 1976] the FCC heard the arguments from all sides and concluded that there was no evidence that interconnection does technical harm, damage to the network, or that

it results in deterioration of quality of service. Furthermore, the program of terminal equipment registration assured certain standards for terminal equipment and would guarantee that no harm would result from interconnection.

2. Effects on Costs, Rates, Innovations and Services

The issue that increased competition in the telecommunications industry will produce general economic harm is a complex one, embracing many facets of the industry. The issue concerns competition in both terminal interconnection and transmission. Basically it is contended that increased competition will erode the advantages and benefits resulting from the natural monopoly nature of the industry, will produce a loss of revenues for the telephone companies, a reduction in contributions, and a restructuring of rates, and the end result will be increased rates, particularly for basic household telephone services.

a) Natural Monopoly

A great amount of literature exists on the issue of natural monopoly and the economics of natural monopoly. A section on natural monopoly can be found in most basic text books in Economics and in books on Public Utility Economics [611, Kahn, 1970; 402, Bain, 1956; 415, Stigler, 1968]. The Proceedings of the Subcommittee on Anti-Trust and Monopoly regarding the communications industry includes a 15 page annotated bibliography of definitions of natural monopoly from 18 publications [500, Congress, 1974].

A long-held view is that public utilities or any

regulated industry is a natural monopoly and this dates back to the writings of John Stuart Mill in the mid 1800's [605, Garfield and Lovejoy, 1964]. Competition in public utilities was uneconomical [693, Nelson, 1966]. More recently it has been argued that the telecommunications field is unlike the traditional public utility, which generally provides one product. Telecommunications are endlessly varied [760, Congress, Baker, 1976]. Further countering the natural monopoly thesis it has been contended that indeed few regulated industries appear at the extreme end of the monopoly scale (natural or pure monopoly). It has been argued that every monopoly is a product of public policy and that no present monopoly can be traced back through history in a pure form [693, Nelson, 1966]. In the case of common carrier, they are licensed (and regulated) under State and Federal regulatory bodies. They are assigned territories in which to render telephone services to the public—a grant tendered on the premise that competition is inefficient, wasteful, and unworkable. In return, carriers are obligated to serve all users at nondiscriminatory rates, submitting costs and revenue requirements for public scrutiny. Regulation is required to ensure that monopolies do not abuse their power and that they operate in the public interest in return for their monopoly status [615, Phillips, 1969; 622 Smead, 1969; 620 Shepherd & Gies, 1966; 624 Stigler & Cohen, 1971; 706 Posner, 1974].

Technology also contributes to a position of monopoly. Monopoly can be created by technology and can be destroyed

by technology [701, Phillips, 1972]. When cables were the only means of sending toll messages it was economically wasteful to have a large number of companies laying cables across the nation. Consequently, AT&T Long Lines could be seen as a natural monopoly. But technology has brought a host of new means of common services and equipment. The established carriers and their affiliates no longer possess the sole expertise in the components that make up the telecommunications network and services [412, Irwin, 1971]. Today the message that previously could only be sent through cables can be sent by microwave transmission, or be bounced off a satellite. Technical innovation has destroyed the prior natural monopoly of AT&T Long Lines. It has also fostered competition in numerous other areas as new products enter the market as substitutes for existing products which previously commanded a monopoly position by virtue of non-substitutability [918, Nelson, 1975; 908, Charyk, 1971; 902, Business Week, 1976; 905, Business Week, 1978].

In their attack on competition and justification for monopoly, the anti-competition forces referred to the industry structures of telecommunications in Britain and other European countries as evidence that competition is not considered desirable. In many of these countries the telecommunications industry is a government monopoly, owned and operated by a single entity. The British system is owned and operated by the Post Office, which requires that all customer apparatus forming part of its public services should be supplied,

installed, and maintained by the Post Office [760, Congress, Barnes, 1976].

AT&T has used the traditional argument that the telephone industry was a natural monopoly, with the consequent efficiencies and low costs that economies of scale bring. Economies of scale exist when long-run increases in volume product declining unit costs [402, Bain, 1956; 415, Stigler, 1968]. Bell asserted that as a result of economies of scale, all of its intercity services were collectively a natural monopoly.

AT&T submitted various studies to demonstrate that economies of scale exist in long-haul distribution facilities and that the loss of any appreciable volume of interstate traffic would raise the unit cost of services carried by these facilities, and ultimately the rates of all users of Bell services [506, FCC, Docket 20003, 1976]. Bell also attempted to illustrate that if Bell provided all the private line services during the period 1971-1991, it could supply an estimated 14% increase in total circuit miles of demand with only an 8% increase in costs. If, on the other hand, all private line services were operated by other suppliers, Bell claimed that the total costs would increase by 16%.

The question of economies of scale in the telephone industry has been examined in both the U.S. [506, FCC, Docket 20003] and in Canada (during the CNCP Telecommunications Interconnect application proceedings [032, CNCP, Wilson et al]). The FCC was unable to analyse fully the Bell studies purporting

the existence of economies of scale because basic data underlying the studies was not made available. Numerous parts of the study and the techniques used and arguments presented, however, were open to question. The FCC claimed that the relationship between economies of scale and market size had not been adequately developed and the short-run reductions in cost which accompany increased utilization which Bell was advancing in its argument were unrelated to long-run returns to scale. The FCC concluded that no documented evidence existed of economies of scale such that losses in private line traffic would increase the costs of intercity channels used for non-competitive services. Indeed if economies of scale did exist, Bell would be the lowest-cost carrier and entering common carriers building their own facilities would be unable to compete successfully [506, FCC Docket 20003, 1976].

Numerous other presentations and studies have been submitted to cast doubt on the existence of true economic economies of scale in the telecommunications industry [499, Congress, McGowan, 1973; 761, Congress, Winslow, 1975].

It was also contended that there was no evidence that the manufacture of electrical equipment is characterized by such economies of scale that one firm could produce more efficiently than a number of firms. And even if such advantages did exist, one large firm would emerge as the winner from the competitive struggle and there would be no reason to impose restrictions on entry. This has not happened. Instead, it was argued that competition in terminal equipment had served

to control user cost of equipment [450, Kuehn, 1975].

But while new firms entered the terminal equipment market, they operated at a disadvantage in competition with AT&T's huge subsidiary, Western Electric. The vertically integrated Bell System assured Western Electric of the entire Bell System market [440, Irwin, 1969]. The FCC has considered this issue and recently ordered AT&T to open its market for terminal equipment to bids from outside producers [742, Forbes, 1977; 412, Irwin, 1971].

The telephone industry has argued that it has provided the finest and cheapest telephone service but in a monopoly there is no standard by which to compare it. In a regulated monopoly industry it is difficult to determine if costs are being kept as low as possible, if benefits of innovations are promptly made to consumers, if technology is being developed as rapidly as possible, if consumers needs are being satisfied. While regulation may prohibit undesirable practices, it cannot compel innovation and efficiency [760, Congress, Baker, 1976; 603, Capron, 1971]. Competition may, however, achieve this and numerous arguments have been presented that competition has not been utilized as fully as possible as a form of regulation [633, Adams, 1958; 740, Welch, 1975; 657, Demsetz, 1968; 670, Johnson, 1968; 717, Shepherd, 1973].

b) Innovation

The primary argument presented in favor of competition in the terminal interconnect and transmission industries centered around the potential benefits to customers and the public.

Competition would stimulate the development and improvement of new technologies, offer a wider choice, and reduce costs [790, Baer, 1977]. The information and material gathered, for example, by the Subcommittee on Anti-Trust and Monopoly [500, 501, Congress, 1974] gives numerous examples where the existence of competitive alternatives afforded potential customers the option of buying terminal equipment precisely tailored to their needs.

AT&T has claimed that Bell has been the major innovator in telecommunications [499, Congress, Bell Tel. Lab., 1973; 762, Congress, Little, 1977]. Yet some studies [414, Schnee & Gorkiewicz, 1976] have shown that important developments in satellite transmission, lasers, and optic fibres have come from other sources.

Competition was also required to force Bell to increase the rate at which it was developing technology and putting new innovations into use—a stimulus which regulation had not supplied [1079, FCC Docket 19129; 760, Congress, Baker, 1976]. There is ample evidence that competition had this effect. Indeed, the chairman of AT&T, John DeButts acknowledged this when he testified that competition produced by Carterfone caused AT&T to introduce three new switchboards each developed in just one year's time versus a previous average development time of six years [762, Congress, DeButts, 1977].

Other examples have been cited of how innovation in the established industry was spurred by the stimulus of competition. These include more rapid innovations in the development of

PBX's, key systems, data modems, automatic call distributors, hospital interphones, speaker phones, etc. [1079, FCC, Docket 19129; 1023, Schnee & Gorkiewicz, 1978]. In the private line services, the innovative all-digital network for data transmission introduced by the SCC DATRAN caused Bell to respond with its own Digital Data Service. The Transaction Network Service offered by Bell in some States was very similar to the packet switching services that were already offered on an interstate basis by the value-added carrier Telenet [762, Congress, 1977].

While particular instances can be identified where a significant innovation originated in a competitor and appeared to stimulate responses by AT&T, comprehensive reviews of the literature on the relationship between market structure and innovation [916, Kamien & Schwartz, 1975; 762, Congress, Little, 1977] could reach no conclusion concerning the relationship between firm size and market structure and the amount and kind of innovation done. Empirical studies on this question face tremendous problems in data availability and interpretation. Of the evidence available, however, little support has been found for the hypothesis that research and development (R & D) activity increases with monopoly power [476, Shrieves, 1978]. Relation R & D activity, measured by either output or input intensity, appears to increase with firm size up to a point and then level off. Rivalry appears to be a major element for R & D activity although there seems to be agreement among economists that small firms in highly competitive industries are not likely to engage in much innovative

activity. A new empirically inspired hypothesis has emerged to the effect that a market structure intermediate between monopoly and perfect competition would promote the highest rate of innovation activity and some theoretical support for this has been advanced [916, Kamien & Schwartz, 1975]. But the question of just how much size and market concentration is ideal for innovation is unsettled [419, Adams]. The answer probably varies depending on the industry concerned and the particular time in its development, together with the state of scientific knowledge upon which it bases its research activities [762, Congress, Little, 1977; 482, Swan, 1970].

The argument that competition would result in wasteful duplication [749, Wohlstetter, 1973] has been questioned on the grounds that it is based on dubious assumptions, the primary one being that the market is static. The pro-competition argument is that the market is not static but is increasing rapidly and is showing a large diversity of demand. New entrants have been capturing a share of new markets rather than existing ones, and have been creating new markets, and the growth of entrants has not been as great as the growth of the market [760, Congress, OTP Report, 1976; 506 FCC, Docket 20003, 1976]. Duplication would occur only if the rate of capacity expansion by established carriers and entrants together exceeded the rate of market growth. The telephone companies dominate the industry by a wide margin with SCC's having only about 2.1% of the total private line market [760, Congress, Kahn, 1976]. Combining the private line and terminal

equipment markets—the two areas open to competition—the telephone industry received \$4.1 billion or 95.5% of the revenue as compared with \$194 million or 4.5% for the competitors [506, FCC, Docket 20003, 1976].

Failing to convince the FCC of the necessity of monopoly in the telecommunications industry, AT&T attempted to restore its monopoly position in all aspects of the industry through Congress. The result was the industry sponsored Consumer Communications Reform Bill of 1976 or Bell Bill [433, Eger, 1977; 760 Congress, Debutts, 1976].

The Bill, in essence, would have placed new barriers in the way of competition in private lines and terminal equipment; given jurisdiction over terminal equipment to the fifty State public utility commissions thereby hampering any competitive marketing on a nationwide basis; used incremental cost pricing which would have allowed the subsidization of AT&T's competitive services and products by its monopoly services; placed the proof on competing private line carriers to show that their proposed services would not be similar to, or duplicate, existing or potential services of the established industry; and would have exempted established common carriers from anti-trust laws thereby enabling them to acquire the facilities of other carriers [760, Congress, 1976]. The Bell Bill aroused considerable opposition from various sectors [744, Wiley, 1977; 773, FCC Report, 1976], and eventually slowly receding into the background [711, Scala, 1977] to be replaced by the Communications Bill of 1978. This Bill would repeal

the Communications Act of 1934 and departed from the Bell Bill almost completely [713, Schnee & Gorkiewicz, 1978]. The main features of the 1978 Bill include the proposal to replace the FCC by a new more limited agency, to be called the Communications Regulatory Commission (CRC), and the establishment of new rate-making procedures. It stresses competition as much as possible as opposed to monopoly and regulation. It provides for vertical disintegration of the industry, stipulating that, after a period of three years, telephone companies cannot provide monopoly services and also own an equipment manufacturing subsidiary. This would require the divestiture of Western Electric from AT&T. In essence, the Communications Bill represents an approval of the trend of FCC policy on competition since Carterfone.

AT&T and its affiliates have massed opposition to attempt to remove the manufacturing subsidiary divestiture proposal, arguing that it would attract foreign competition from Europe and Japan and result in a major restructuring of the U.S. telecommunications industry [465, Pearce, 1978; 466, Pearce, 1978].

c) Contributions

The greatest controversy among the anti- and pro-competition forces concerning the question of general economic harm has centered around the contributions issue. The telephone companies contended that competition would reduce contributions

and consequently residential telephone rates would rise. The FCC and pro-competition proponents dispute this and have even contended that there is evidence to show that residential telephone service, rather than being subsidized by contributions from other services, actually subsidize other services, including those subject to competition (private line services and terminal interconnection). The Bell System has contended that its long-distance services and specialized services, such as private line services and terminal equipment leasing, have been historically priced to generate revenues which exceed direct costs and this excess has been used as "contributions" to help keep down rates of basic telephone services (cross-subsidization). Competition would lead to contribution losses as the over-priced, specialized services are lost to competition, and the price of subsidized services would consequently rise [506, FCC Docket 20003, 1976]. A variation of this argument is that all services contribute a certain amount of revenue greater than their directly attributable costs, in order to cover joint and common costs. Any reduction in revenue from one service must be made up by increased revenues from others. Long distance services and certain specialized services have traditionally been priced above their direct costs to produce a higher contribution to the common costs of the business than does basic exchange service [762, Congress, Debutts, 1977].

The telephone companies argued that specialized common

carriers would engage in "cream skimming." That is, they would concentrate on the high-density, high-profit, private line business used by large commercial companies and government. They conceded that this private line business was vulnerable to competition because the rates they charged were not based precisely on costs but on value of service. These rates were higher than cost accounting methods would dictate to yield revenues for cross-subsidization purposes [506, FCC, Docket 20003, 1976].

A number of industry and industry-sponsored studies have been presented, particularly in FCC inquiry Docket 20003, to demonstrate that basic exchange rates for households would increase dramatically as a result of the loss of contributions that competition would produce.

In its Embedded Direct Cost (EDC) studies, AT&T attempted to demonstrate that local rates would increase by 70% if competition eliminated all revenue contributions above embedded direct costs (the fixed and variable costs which can be readily assignable to a particular service, calculated on the basis of historical book value) for interstate and intrastate services [506, FCC, Docket 20003, 1976; 761, Congress, Baumol, 1975]. According to the AT&T evidence, the embedded direct costs of local telephone, intrastate, and interstate services represent 57% of total costs of operation. The remaining 43% are joint and common costs not allocable to any particular service. Each service is considered to make a contribution to cover these costs, the contribution being

equal to the difference between revenues and embedded costs and any reduction in revenue is considered a loss in contributions, which would have to be made up by increased rates.

The U.S. Independent Telephone Association (USITA) also submitted a study by a consulting firm System Applications Inc. (SAI) which presented a number of scenarios projecting future impact. Its "most likely" scenario suggested that by 1985 competition would have caused a 60% raise in rates for basic home telephone service and a 56% raise for business service [760, Congress, Barnes, 1976]. Numerous interventions were made by Congressional representatives and Commissioners of Public Service Commissions from the small, low-populated States such as Wyoming and Mississippi [760, Congress, 1976]. They expressed concern that loss of revenues to the Bell System from competition would result in a restructuring of basic exchange rates to the disadvantage of customers in those States. Traditionally Bell has averaged costs in setting rates, that is, it took the average of all costs (high costs to rural areas, low costs in other areas), and established a uniform rate on the basis of this average. Fear was expressed that this would likely be changed if the FCC continued its policy of selective competition, the fear being fed by statements from the telephone companies [760, Congress, Debutts, 1976]. For example, it was argued that in the State of Mississippi, the cost to construct the plant to serve the rural customers was \$3345 per customer. Monthly costs to the telephone company associated with this plant was \$84, but the

monthly rate paid per rural customer was \$7.59. The rural customer was subsidized from the profitable operations of Bell and if competition were to reduce these profits from other areas, the subsidy would fall, and rates for rural customers would increase [760, Congress, Johnson, 1976].

In response to the FCC's contention that specialized common carriers would have little effect on the Bell System because they were expected to provide new and innovative private line services (PLS), and that specialized services of the telephone companies provided a relatively small amount of revenues, the telephone companies charged that the competition centered on the voice grade, business communications market—a market that was well-served by the telephone industry, and that the FCC was ignoring the concept of cross-elasticity of demand. Cross elasticity refers to the fact that two services are substitutes for one another and therefore the demand for one is a function of not only its price but also the price of the substitute service. If a customer finds that the cost of private line service offered by a SCC is less than the cost of message toll service (MTS), the rates of which are a function of usage, he will opt for the former. The economic decision to use PLS or MTS or a combination of both depends solely on usage. PLS is consequently regarded by users as a direct substitute for MTS, and a shift to PLS offered by SCC's means a reduction in toll usage and a reduction in contributions from that service. And because of cross-elasticity the scope of the market opened up by

competition is of much greater magnitude than is conveyed by the statistics describing the existing private line market [760, Congress, Henson, 1976]. Bell System analysis of its experience along the first SCC route, that of MCI between Chicago and St. Louis, showed that of the circuits gained by MCI, about 65% came from existing telephone industry private lines that were replaced by MCI services; about 20% came from the shift of existing MTS to the lower-priced MCI private line; and about 15% came from customers who subscribed to additional private lines and also shifted traffic from MTS because of prices. Bell's revenue loss as a result of reduced MTS usage by those groups who previously had Bell private line service and those who previously did not have private line service but subscribed to MCI was estimated at 25% for the first nine months [762, Congress, NARUC, 1977].

The controversy over the contributions issue stems from the method used for allocating costs for the purpose of calculating contributions. The telephone companies employed the embedded direct cost (EDC) method in their studies, which showed residential rates increasing by as much as 70% because of loss of contributions. In the EDC approach, a service subsidy or contribution is defined as the difference between revenues and historically-valued direct costs associated with a particular service. The pro-competition forces have argued that this approach is wrong and produces economically meaningless results [514, Stone, T & E., Inc., 1977]. In the opinion of the FCC in Docket 20003, the EDC study by AT&T was so flawed

in its assumptions, data, and computational methods that it did not show that revenue from competing services even covered their own costs, let alone make a contribution toward covering the cost of basic telephone services [506, FCC, Docket 20003, 1976]. An intensive analysis by Technology and Economics, Inc. (T & E, Inc.) an FCC contractor, of the AT&T study and of numerous cost of services studies submitted to the FCC by State Regulatory Commissions, produced results which concurred with the FCC opinion in Docket 20003 [514, Stone, T & E, Inc., 1977]. From these studies it was shown that basic telephone services were contributing more than their proportionate share of revenue toward covering joint costs (expenses associated with the provision of two or more services which can be economically produced only in fixed proportions to each other) and common costs (costs of equipment used to provide two or more services when the provision of one of those services uses capacity which could otherwise be used to provide one or more of the other services). As a result it was concluded that basic telephone services may be helping to support competitive services [514, Stone, T & E, Inc., 1977], and if this were true, then the rates of basic telephone services could be lowered if the telephone industry were to lose business in the competitive market. The FCC and T & E, Inc. findings, in turn, were disputed by the industry and in studies prepared for the industry [512, SRI, 1977].

The different results stem from the fact that AT&T used the EDC method for calculating subsidies, while the FCC

and its allies used the fully distributed cost (FDC) method. According to the FDC approach, contributions are defined as the difference between the revenues and fully distributed costs, which include all direct costs, assignable joint costs, and a specified fraction of common costs (compared to only direct costs under the EDC approach). The FCC argued that, in failing to make any assignment of joint and common costs to particular service categories, AT&T's contribution concept failed to provide any meaningful assessment as to whether the revenues from each category was covering its properly attributable cost [506, FCC, Docket 20003, 1976]. The FDC approach, on the other hand, allocates all plant investment and operating costs in proportion to the relative use the respective services make of facilities.

The controversy over the pricing principles involved in the EDC and FDC approaches goes back to early difficulties that the FCC had with rate structures. For many years the FCC, in its regulatory function, merely kept its eye on AT&T's overall rate of return. When Bell persuaded the FCC to allow it to increase its revenues to attain a higher rate of return, the decision on which rates to increase was left to Bell. With the advent of competition, however, the situation became more complex as it then became relevant not only how much Bell should be allowed to earn, but how it was to structure its rates to achieve whatever level of earnings the FCC had approved. The Commission needed to develop a means of evaluating rate adjustments of particular services

to determine if they were fair in relation to the carriers total structure of rates if the FCC was to discharge its responsibility for policing the fairness of the new competition in telecommunications which it was authorizing.

In 1964, stemming from a charge by Western Union that Bell was imposing unreasonable low rates on some of its services, the FCC ordered AT&T to determine its investments, revenues, costs, and profits for each of its individual categories. The result was the Seven Way Cost Study (the study broke Bell's operations into seven categories of service) to determine the interrelationships between all of Bell's services. Previously, cost studies had involved one or more services but never all of them. In these individual studies, Bell had submitted fully allocated cost studies and therefore the FCC directed that Bell make its Seven Way Cost Study on that basis. It has been contended that the results of the study caused AT&T to object to the use of the fully associated costs concept as the study proved Western Union's charges to be true. Bell was clearly realizing substandard earnings on its competitive services (as low as a .3% rate of return) while earning well above its authorized rate of return on MTS and WATS (approximately 10% rate of return), its major monopoly services [761, Congress, Cox, 1975].

Other FCC inquiries into Bell's rates and operations followed. After trying varying theories to justify its rates, Bell settled on long run incremental cost (LRIC) [435, Froggatt, 1971]. But while AT&T argued in Docket 20003 that LRIC was

the most appropriate methodology to establish the existence and determine the magnitude of contributions and service subsidies, most of its cost of service studies filed before State regulatory agencies were based on the EDC approach [506, FCC, Docket 20003, 1976; 514, Stone, T & E, Inc., 1977].

Long-run-incremental-cost (LRIC) includes all costs that can be causally allocated to the service in the long run and that can be expected to disappear if the service was eliminated. It excludes unallocable costs which would not change if the service was eliminated. Long-run-incremental-revenue (LRIR), likewise is the revenue that in the long-run would disappear with the elimination of the service. Contributions, using this approach, is the difference between LRIR and LRIC [512, SRI, 1977; 470, Rostow, 1977].

In economic theory, marginal cost pricing is proposed as the most efficient pricing policy in that it maximizes consumers' surplus or net social welfare. Price is regarded as the benefit that society receives from the purchase of one additional unit of output, while marginal cost is a measure of the cost to society in terms of resources utilized in producing an additional unit. Problems are incurred, however, when attempts are made to apply this concept [514, Stone, T & E, Inc., 1977; 472, Selwyn, 1977, 455, Meyer, 1966]. The leap from theory to the practical implementation of LRIC is still off in the future.

The FCC adopted fully distributed cost pricing as the most appropriate method for costing services and measure of

cross-subsidization, arguing that long run marginal cost pricing, while sound in economic theory, could not be adopted to the pragmatic world of telecommunications. The fully-distributed-cost approach to pricing, however, is also not without its shortcomings. There are problems involved in allocating joint and common costs to various services and danger of distorting allocations under this method.

A widely referred-to study on contributions, and which the FCC included as evidence in Docket 20003, was the New York Public Service Commission (NYPSC) Terminal Equipment Cost Study of 1975, and updated in 1976, of the New York Telephone Co. The findings showed revenue deficiencies (defined as $(\text{costs-revenues})/\text{revenues}$) of 61% on an embedded cost basis and 104% on a current cost basis [506, FCC Docket 20003, 1976; 514, Stone, T&E, Inc., 1977; 760 Congress, Kahn, 1976]. In other words, the revenues from the telephone company's terminal equipment offerings fell dramatically short of the embedded costs (and current costs) of its terminal equipment and was consequently making negative contributions.

As a result of these findings, the NYPSC authorized a 25% increase in terminal equipment rates.

In general, the essence of the controversy over contributions is the lack of precise information and data. It is difficult to determine the economic cost of providing a particular service to a particular user. Much of the industry's plant, equipment, and personnel is used in common to provide many different kinds of services to many different classes of

users. In the past the rate structure of the varied telephone services has only been vaguely related to the cost structure, being the product primarily of vague rate making principles, demand considerations, and historical development.

d) Unfair Competition

Another of the Bell System's arguments against competition was that the FCC had not fostered true competition, when competitors were left free to serve where it would profit them most, whereas the telephone common carriers were legally required to serve every customer in their territory, regardless of the cost to them [960, Congress, DeButts, 1976]. In addition, AT&T charged that the FCC tended to protect new competitors by hamstringing the established carriers in their attempts to make competitive responses [761, Congress, Crosland, 1975; 470, Rostow, 1977]. Warnings were issued that competition would force the telephone industry to stop thinking in terms of the total market and concentrate on the profit centers in both equipment and service [963, Congress, Larkin, 1977].

A case can be made for a framework which would allow a new entrant to pursue its goals and at the same time allow the established companies to respond. But established companies such as AT&T must be prohibited from using their position to prevent successful competitive entry by underpricing their services or engaging in other discriminatory practices [708, Raynor, 1974; 794, Johnson, 1976; 432, Eger, 1977].

Indeed, in response to AT&T's charges that the FCC was fostering unfair competition, the proponents of competition cited numerous practices by AT&T which they considered as unfair [761, Congress, Cox, 1975] and which were later cited in the U.S. Department of Justice anti-trust suit against AT&T initiated in 1974. In its anti-trust suit the government charged AT&T with such abuses as making interface devices needlessly complex, increasing the cost and the risk of malfunction; not making enough such devices, thereby delaying attachment of competitive equipment; improper installation by Bell personnel; refusing to allow non-Bell couplers to be used; and denying technical information about protective devices to competitors [1023, Schnee & Gorkiewicz, 1978]. Bell was also accused of abuses on pricing and tariff policies, such as selective price cuts, predatory (below cost) pricing, two-tier pricing, etc. Examples were cited where AT&T lowered its prices on products in competitive areas while increasing prices in other areas. In 1971 Pacific Telephone increased its rates by 19% except for competitive equipment and Illinois Bell and Ohio Bell similarly increased prices by 20% except for the prices of competitive equipment [1023 Schnee & Gorkiewicz, 1978]. In its charge that many of AT&T's competitive prices were below cost, the government made reference to such studies as the NYPSC study on revenues and contributions. It was also charged that unfair competitive practices by AT&T contributed to the bankruptcy of DATRAN [760, Congress, 1976; 417, Business Week, 1976].

As part of its anti-trust case against Bell, the government's objective is to reduce the degree of vertical integration by attempting to separate Western Electric and Bell Laboratories from the Bell System. This would open up competition in terminal equipment as Bell relies solely on Western Electric for its supply and separation would force Western Electric to compete with other suppliers [1023, Schnee and Gorkiewicz, 1978].

3. Effects on the Independent Telephone Companies

The independent telephone industry in the U.S. consists of approximately 1600 separate companies, serving 18% of the nation's telephones involving approximately 51% of the country's geographical area. In terms of operating revenues, they provide 15% of basic exchange service and 16% of interstate long distance service.

There are two segments to this industry:

1. The holding operations of companies such as General Telephone & Electronics, United Telephone, Central Telephone, and Midcontinent Telephone which serve the bulk of the independent stations and are affiliated with manufacturing and allied service firms.

2. Small family-owned firms, co-operatives, and mutuals, serving single exchange or low subscriber density areas with multiple, small, local offices. They own no manufacturing affiliates and are dependent on their operations in these local communities.

It is contended that this independent industry is vital to the telecommunications network but will be adversely affected by the competition that will come from terminal interconnect suppliers and from specialized common carriers [760, Congress, OTP Report, 1976].

a) Effects from Interconnect Suppliers

Competition in the interconnect industry could threaten the revenues of independents in various ways: (i) independents with equipment manufacturing affiliates may lose sales in the affiliate as competitors enter the terminal equipment market; (ii) there may be a reduction in revenues from rental payments for equipment by customers who may begin to purchase rather than lease equipment; and (iii) there may be a reduction in tolls on co-operatively produced services resulting from jurisdictional separations [760, Congress, OTP Report, 1976; 505, Dittberner, 1973; 421, Baer & Mitchell, 1975]. The first affects only the large independents with affiliates, the latter two affect all independents.

With regard to the possible loss by manufacturing affiliates of equipment sales, the pro-competition argument is that there is no sound reason why manufacturing affiliates should be protected. If their products are in demand and are priced competitively, they should not lose sales. If rival products are more appealing to users, the market share of the manufacturers will and should be diminished as the market forces dictate [760, Congress, OTP Report, 1976].

Loss of revenue from lease of terminal equipment resulting

from customer purchases from new suppliers would also, it was argued, be determined by customer evaluation of rival offerings. In this regard, independents have a locational advantage in serving local customers with equipment. They are able to provide prompt service, whereas outside suppliers would have to bring in maintenance personnel from long distances at a cost of time and money. Examples were cited where some such early outside firms providing interconnect equipment experienced this operational problem and went out of business [760, Congress, OTP Report, 1976]. It was therefore concluded that loss of revenue from a reduction of rental payments from leasing equipment was not likely to be great.

It was conceded that there was a possibility of some loss of revenue from the current separations agreement and toll settlements (described in the following pages). The amount of the loss, however, would depend on the amount of the terminal equipment market lost to interconnect suppliers but if such losses are small as indicated earlier, this effect will be minimal [760, Congress, OTP Report, 1976].

Attempts were made to show that allegations of harm to the independents arising out of interconnect competition was not confirmed by historical data. In the six year period (1962-67) prior to the Carterphone decision (1968), investment by independents in station equipment increased by 71%. During the six year period (1968-74) after Carterphone, independents' investment in station equipment increased 79%. During the period 1967-76, the interconnect industry managed

to obtain only four-tenths of 1% of the market. The growth of the market has far outstripped the growth of new entrants. In the period 1969-74 the revenues of the Bell System increased by \$1 billion from the sale of PBX's and Key Systems services, while sales of interconnect suppliers rose by less than \$100 million. In other words, growth by these suppliers was less than 10% of the growth of the market [760, Congress, OTP Report, 1976].

b) Effects from Specialized Common Carriers

The telephone operating companies, both Bell and independents, and AT&T Long Lines are interconnected into a single nationwide telephone network for the provision of interstate services. Since the telephone network is used in common for both interstate and intrastate, and multiple carriers participate in the interstate services, some process of allocating costs and revenues between these services and between the Bell System and the independent companies is required. These procedures are called "jurisdictional separations" and "settlements" procedures [513, Stone, T&E, Inc., 1976; 410, Gable, 1967]. Tolls from interstate message toll services (MTS) and wide area toll services (WATS) are placed into an interstate revenue pool which is then allocated, by formula, to interstate and intrastate categories (jurisdictional separations) and to the independents (settlements).* These are often

*("Separations" is the process of apportioning direct, joint, and common costs among different services. For the

referred to as "indirect contributions." The revenues are distributed to each associated company in accordance with (1) interstate expenses (originating, handling, and terminating costs) and (2) the amount of net plant investment allocated to interstate by jurisdictional cost separations. For example, a portion of the terminal equipment costs of a local operating company is allocated to the interstate market and revenue equal to that portion flow to the local by way of toll settlement from the interstate pool. Under current jurisdictional separations procedures about 20% of terminal equipment costs are allocated to the interstate market [513, Stone, T&E, Inc., 1976].

The method of dividing interstate revenue is very important to the question of whether other common carrier (OCS) and interconnect competition will affect the operations of independents and local exchange rates.

Up to 60% of revenue received by local telephone companies come from the interstate toll revenue pool and therefore any reduction in this pool will affect local company revenue through the reduction of indirect contributions [506, FCC Docket 20003, 1976; 512, SRI, 1977].

The telephone companies and the independents feared that competition would reduce the level of the interstate toll pool through the diversion of MTS and WATS traffic to private

allocation of costs between interstate and intrastate services the procedures which have been developed are termed jurisdictional separations principles [513, Stone, T&E, Inc., 1976].

line services. If interstate traffic was shifted from the switched telephone service to private line services offered by SCC's, the separations effect would be a reduction in the local plant investment and expenses allocated to interstate services. If message toll traffic was diverted, measured toll usage would go down, and, since the message may appear as a local exchange call, measured local usage would go up. The compounded result would be a reduction of the revenue transferred through the separations procedure [761, Congress, OTP, 1975]. Another reduction could come through a downward repricing of MTS and WATS in an attempt to prevent the diversion of traffic.

AT&T claimed that revenue losses from private line competition would result in an increase in MTS and WATS rates, while the U.S. Independent Telephone Association (USITA) took the opposite position—that AT&T would be forced to reduce MTS and WATS rates in order to prevent diversion of traffic [506, FCC, Docket 20003, 1976]. A USITA study attempted to show that SCC's would capture 10% of the MTS and WATS market by 1985 [506, FCC, Docket 20003, 1976]. In the case of many small independents, where over 75% of total revenues came from long distance sources, even a small reduction percentage loss of long distance revenues could have a substantial impact on overall operations [763, Congress, Nehring, 1977].

The FCC, after a lengthy study of the issue in Docket 20003, concluded that there would be little if any diversion or repricing of future MTS and WATS due to competition and

no reduction in interstate revenue from these very large and growing services. The FCC reasoned that the SCC do not duplicate MTS or WATS and it was FCC policy not to permit them to do so. The FCC showed how it had consistently rejected SCC proposals to try to enter the MTS and WATS market. Another reason advanced by the FCC as to why MTS and WATS traffic would not be lost to SCC's was that SCC's did not have the financial potential to serve any significant portion of this market, given the large initial investment required [506, FCC, Docket 20003, 1976]. Besides any diversion of MTS and WATS traffic was equally likely under monopolistic or competitive conditions so long as the telephone industry itself offered private line services, the revenue of which did not go into the interstate revenue pool available for settlements. And private line services offered by the telephone industry have historically been priced below cost, making them attractive alternatives to MTS and WATS users desiring to shift.

It was contended that the very nature of independents protected them from direct competition from SCC's. They are small, serving small areas so that their toll business is not enough to warrant the installation of SCC's or satellite or microwave systems [760, Congress, OTP Report, 1976].

Up to this point the argument against competition on the grounds that it will harm the independents as a result of a reduction in MTS and WATS traffic and therefore the interstate revenue pool appears weak. The FCC concluded, that on the basis of the evidence submitted in the Docket 20003 inquiry,

private line competition from SCC's was not likely to have any significant effect on the overall level of the interstate revenue pool available for separations and settlements. A basic factor behind this conclusion was that SCC's would not be authorized by the FCC to enter the MTS or WATS market to directly compete with Bell Long Lines and the independents.

A major turn of events, however, came with the reversal of the FCC Execunet Decision by the U.S. Court of Appeals in 1977. When MCI, an SCC offering private line service, applied to the FCC to offer Execunet, which permitted a subscriber to access any telephone in an area served by MCI via the MCI network, the FCC agreed with AT&T that Execunet was really an interstate message toll service (MTS) which competed with AT&T's interstate monopoly. The FCC consequently rejected Execunet. The Circuit Court of Appeals reversed the FCC decision and allowed Execunet to continue.

The decision may have far-reaching implications. AT&T has argued that other specialized carriers, including domestic satellite carriers, will insist that they be allowed to offer the same services as MCI. The result would be a major impact on the Bell Systems revenues, with losses estimated at hundreds of millions of dollars, a revision of the rate structures, a major reduction in contributions, and a reduction in indirect contribution to the independents through jurisdictional separations and settlements [1023 Schnee & Gorkiewicz, 1978]. The FCC also argued that the decision could alter significantly the structure of the communications common carrier

industry through increased competition from the specialized and domestic satellite carriers and the new resale carriers.

The Appeals Court did not consider or base its decision on whether Execunet was a private line service or not, or whether Execunet was desirable or undesirable from the point of view of the public interest. The case was decided on narrow technical grounds [1023 Schnee & Gorkiewicz, 1978]. The Court reviewed the FCC decisions and argued that the FCC had not taken the steps required by the Communications Act of 1934 to restrict the services of MCI; it had not defined the limits of what MCI could or could not do. The Court recognized that the FCC had the authority to restrict the type of service which MCI or any other carrier could offer, but it had to follow certain lawful procedures to exercise this authority, and it had not [1023, Schnee & Gorkiewicz, 1978].

Furthermore, in its decision the Court argued that AT&T had never been granted a legal monopoly over MTS and WATS and did not have any legal basis for its supposed monopoly in the MTS and WATS fields [1023 Schnee & Gorkiewicz, 1978].

The FCC and AT&T petitioned the Supreme Court to review the decision.

CHAPTER IV

JUDICIAL DECISIONS AND POLICY DEVELOPMENT

For the past twenty-five years, the FCC has been engaged in defining a policy which would permit competition in the telephone industry. The growth of technology and the emergence of companies in the specialized common carrier and terminal interconnection areas have resulted in a plethora of new services and equipment which have consistently challenged the established offerings of AT&T.

In the midst of this, the FCC has found itself in the precarious position of trying to foster healthy competition without jeopardizing Bell's ability to provide the average consumer with adequate telephone services at just and reasonable rates. Consequently any tariff proposed to the FCC has to be weighed according to the guidelines set forth in the Communications Act of 1934 and the requirement of regulating the industry in the public interest has to be met.

In many ways, therefore, the Commission is walking a tightrope. First, all of AT&T's tariffs, meant to reduce its competition, use the argument that competition, although it has been limited to the specialized common carrier and terminal interconnection areas, will eventually force Bell to raise the rates of its monopoly service. The Commission therefore must determine whether the services proposed by the

new entries meet the public interest test by not threatening the reasonable cost and maximum efficiency of the monopoly services.

Secondly, the Communications Act gives the FCC primary jurisdiction over all interstate telecommunications matters. Although this permits the Commission to have the initial opportunity to set policy, it does not preclude unhappy applicants from appealing decisions in the federal court. On the whole, the Courts have tried to limit their decisions to determining whether FCC orders have exceeded the perimeters of the Act and have affirmed, reversed, or remanded accordingly. In many cases, however, the Courts, while engaging in statutory interpretation, have been instrumental in making policy decisions. Sometimes these decisions are not reflective of the policy the FCC is trying to establish. Therefore, in the United States, there is an intimate relationship between the regulatory body and the courts in which the latter frequently defines, further interprets, and reverses the rules set forth by the former. Furthermore, although most appellate decisions have sought review by the Supreme Court, certiorari has been consistently denied. It is impossible to speculate why the Supreme Court has chosen not to consider any of these issues because reasons for denying certiorari are not publicly recorded. The appellate court decisions, therefore, remain as the law of the land until the highest court chooses to enter the controversy.

The FCC arrives at policy decisions from basically two

avenues of investigation. The first is the initiation of studies on particular issues. The FCC invites submissions from those parties whose interests are at stake. After prolonged review the FCC will issue orders and reports which not only establish rules but also provide the rationale used in arriving at the decisions. Besides initiating proceedings, the FCC must review each application which comes before it and judge its individual merit according to the public interest-reasonable rates test. Here the decisions of the Commission are meant to be narrow rather than far-reaching, that is, whatever order is promulgated by the FCC arises out of the specific facts presented in the application and is limited to that application. Because the United States is a common law jurisdiction, these individual decisions form the policy rationale and precedents for future decisions. As a result, the language of both the FCC and the Courts are looked at very carefully by subsequent applicants who seek an interpretation favorable to their submissions.

The result has been the evolution of telecommunications policy which may at times seem to be inconsistent. Liberal FCC and Court decisions stand side by side with those which appear conservative. On the whole, however, the process of regulation and judicial review has resulted in a removal of restrictive tariffs. Competition has been encouraged through the licensing of new entries and the limiting of the power and reach of AT&T.

The section of the bibliography dealing with judicial

activities in the United States has been arranged in chronological rather than alphabetical order. This will enable the reader to acquaint himself with how the process of regulation and litigation has crystallized policy. Titles of FCC and court decisions appear under the following general headings:

- 1) terminal interconnections; 2) specialized common carriers;
- 3) computer and communication services; 4) satellite communications; 5) value added networks; 6) miscellaneous inquiries;
- 7) anti-trust actions against AT&T.

The FCC's first foray into the competition versus monopoly controversy in the telephone industry came with its Hush-a-Phone decision of 1955 [1030, 20 FCC, 1955]. The Hush-a-phone device was a cup-like apparatus which attached to the telephone receiver without the need for any wire interconnection. Consistent with its past activities to consolidate AT&T's monopolistic hold on the industry, the Commission ruled the Hush-a-phone illegal and supported AT&T's action which prohibited its subscribers from using this device. The court of appeals reviewed the FCC's assertion that the device caused impairment to the system and held that this conclusion could not be supported by fact. In asserting the right of the consumer to attach terminal devices not harmful to the system, the court altered the direction of FCC policy [1031, 238 F 2d, 1956].

Carterphone further clarified the FCC's policy on terminal interconnections. Unlike Hush-a²phone, Carterphone did involve wire interconnection to the Bell system so the

possibility of impairment existed. AT&T, however, was not permitted to prohibit subscribers from interconnecting terminal devices without FCC review of their possible economic and technical harm. The FCC ruled that Carterphone provided a service which was not available from AT&T, and when used with a protective interface device, Carterphone did not impair the technical integrity of the Bell system [1036, 14 FCC 2d, 1968]. Carterphone reiterated the FCC's stance that the public interest is served not only by a low-cost monopoly service but also by diversity in the industry. The public had a right to use innovative terminal devices and its choices could not be arbitrarily limited by AT&T.

Once the FCC entered the terminal interconnection controversy, it was necessary for it to establish primary jurisdiction in this area. In the United States, intra-state services are regulated by state commissions while inter-state services are regulated by the FCC. The issue of whether terminal interconnections were under state or federal control had to be decided. The FCC maintained that because a terminal device attached to the entire system, the economic and technical repercussions of interconnection affected interstate commerce. Because the Constitution designated interstate commerce as a federal matter the FCC had jurisdiction. The states, on the other hand, maintained that the states had supremacy because of their jurisdiction over intra-state rates. The North Carolina Utilities Commission published a notice in which it announced that it intended to prohibit interconnection

of customer provided terminal attachments. In response the FCC issued a declaratory order establishing its own jurisdiction [1039, 45 FCC 2d, 1974].

On appeal, the court affirmed the FCC ruling and concluded that the Commission could set policy for the interconnects [1041, 537 72d, 1976]. When the FCC did establish a registration program for terminal equipment and overruled its previous decision regarding the need for protective interface devices [1042, Docket 19528, 1977] the court affirmed the Commission's actions and reiterated the FCC's supremacy in the regulation of terminal interconnections [1043 552 F 2d, 1977].

The specialized common carrier field is a second area in which the FCC has sought to foster competition. When the Commission made its Above 890 decision in 1959 and opened a portion of the microwave band to private point-to-point systems, it could hardly have envisioned how the complexion of the telephone industry would be altered [1046, 27 FCC, 1959].

Microwave Communications Inc. was the first company to apply for a license to establish point-to-point service between Chicago and St. Louis [1047, 18 FCC 2d, 1964]. The FCC, again using the public interest-reasonable rates test, argued that diversity served the public interest and that competition in the private line segment of the market would not jeopardize the low rates of the monopoly service. Furthermore, the FCC ordered AT&T to provide loop service to this new carrier. The decision is an important one because not only were AT&T private

line services subjected to competition but also the precedent was set for AT&T to provide specialized common carriers with interconnection to the Bell system.

AT&T, perhaps justifiably on a policy level, has consistently used the argument of cream skimming and has suggested that further intrusion by the specialized common carriers will eventually result in a rise in the rates of MTS and WATS services. Bell's attempts to lessen the permeation of specialized common carriers into the private line market have been through the submission of highly competitive tariffs. The Telpak tariffs were AT&T's initial attempt to restrict the SCC's. After long deliberation the FCC decided and the courts affirmed that part of the tariffs were discriminatory because they created hardships for certain users at the expense of others [1048, 23 FCC 2d, 1970]. The Court however found fault with the FCC conclusion that the problem could be solved by ordering AT&T to extend its sharing rates to all private line customers. The court remanded the case to the FCC on the basis that a more detailed and precise remedy would better satisfy the statutory requirement for just and reasonable regulation [1049, 499 F 2d, 1971]. The FCC is still trying to establish a rate scheme which is just to the SCC's, AT&T, and the public.

The Specialized Common Carrier Decision enacted by the FCC in 1971 was the Commission's attempt to formulate policy in this area [1050, 29 FCC 2d, 1971]. Following MCI's successful application in 1969, the FCC received a deluge of requests

for approval of specialized common carrier services. Rather than deciding each on an independent basis, the FCC established the regulatory framework for the new carriers' admission into the private line area. The threshold decision was that the public interest was to be served by the new carriers. Furthermore the rates of the SCC's and the established carriers would be competitive so as to eliminate the need for any kind of protective umbrella being raised over the new entries. The FCC, therefore, envisioned as little regulation as necessary and sought to encourage open competition in the private line market. The Specialized Carrier Decision did not expressly limit competition to private line services or restrict the types of exchanges to which AT&T had to provide interconnection.

In subsequent litigation, these two conditions were resolved. It was assumed by AT&T that the Decision only required interconnection for local loops. In 1974, however, MCI sought and received an injunction from the district court requiring AT&T to furnish interconnection for both the FX and CCSA exchanges offered by MCI [1052, 369 F Supp. 1974]. AT&T objected strenuously to this interpretation of the Specialized Carrier Decision. A later court decision, making reference to this trial court ruling, suggested that the Decision did not expressly prohibit this type of interconnection [1054, 503 Fd, 1974]. Thus, in failing to specify the types of interconnection which would be permitted to the private line carriers, the FCC relinquished this prerogative to the courts. Arguably, the courts expanded the perimeters initially set by the FCC

for the type of services the SCC's could offer.

In its Execunet decision, the FCC tried unsuccessfully to limit the range of offerings of the SCC's. In a declaratory order, the FCC found that Execunet duplicated the services offered by MTS [1055, 60 FCC 2d, 1975]. Because Execunet was not strictly a private line service, the FCC ruled the tariff unlawful. On appeal the court found that the public interest-reasonable rates test had not even been applied by the FCC and further held that the Specialized Carrier Decision did not insulate MTS from competition [1057, 561 F 2d 1977].

Upon review, the FCC ruled that, even though Execunet may be lawful under the Specialized Carrier Decision, this did not mean that AT&T had to provide interconnection for this service [1058, 42 R R 2d, 1978]. The Commission maintained that Bell only had to interconnect with private line services. Because Execunet has many similarities to MTS, it did not fall into this category. MCI again appealed to a sympathetic court which interpreted the Specialized Carrier Decision and Bell Tariff Offerings to mean that AT&T was obligated to provide interconnection [1059, 42 R R 2d, 1978]. Consequently, despite FCC's attempt to limit competition to private line services, the courts chose to initiate a policy whereby competition was introduced into the monopoly services.

The appellate court in Execunet II indicated that it was within the jurisdiction of the FCC to review present policy and if the Commission could prove that services like Execunet are not in the public interest, such services might be dis-

continued [1059, 42 R R 2 1978]. The Supreme Court denied certiorari in November 1978. Thus far the FCC chose not to engage in a new rule-making proceeding.

Instead AT&T filed new tariffs with the Commission which would increase the rates Bell now charges the SCC's for interconnection. Until the tariffs have been reviewed, the FCC ordered AT&T and the SCC's to establish a revenue-sharing agreement which would give to Bell a proportion of the profits earned by the specialized common carriers.

Another area of concern to the FCC has been the blurring of the distinction between data processing and transmission of information. In response to this, the Commission instituted its Computer Inquiry. Their answer was not to regulate data processing, a function not within the purview of the Communications Act, but to separate the two industries to avoid the further consolidation of the economic power of the traditional common carriers. The Commission ruled that a common carrier was barred from offering data processing services to subscribers except through a separate corporate entity. As a means of limiting the business dealings between the carriers and these new affiliates, the FCC decided that the carriers could neither obtain data processing facilities from their affiliates nor could the affiliate use any words or symbols in their titles which would identify them with the carriers [1061, 28 FCC 2d, 1971].

While the court supported the separation of communication services and data processing through the creation of separate

corporate entities, it refused to place the stringent restrictions on the industry which the Commission desired. It was held that the FCC, in trying to bar the carriers from purchasing services from its affiliates and in forbidding any promotional identification between the two, overstepped the jurisdictional limits set in the Communications Act as imposed undue restraint upon the industry [1062, 274 F 2d, 1973].

When the impact of satellite communication began to be realized, the FCC responded with an intensive inquiry. While it wanted to foster domestic use of satellites, it did not wish to give AT&T unlimited access to the facilities for fear that Bell could use satellite transmission to eliminate all of its competition in the specialized carrier field.

First the Commission established its authority in this area by ruling that it had jurisdiction to regulate all domestic use of satellites. While specialized common carriers were permitted access to the systems, Bell was barred from using satellites for its private line services. Only MTS and WATS could take advantage of the new technology. The decision was based on the fear that, if AT&T could use satellite transmission for all its offerings, it could easily control the circuit costs of private line services and thus gain control of the competitive market [1064, 35 FCC 2d, 1972].

Some seven years after the Domsat decision, the FCC licensed Satellite Business Systems [1066, 39 R R 2d 1291]. The company was formed out of a partnership of wholly owned subsidiaries of Comsat, IBM and Aetna Life and Casualty.

The Commission granted its permission to establish private line facilities as long as SBS and IBM complied with the separation rule established in the computer inquiry. The entry of IBM into the communications field was regarded by some as a means of further consolidating its corporate power and monopolistic hold on data processing. The FCC, however, found in IBM a fitting competitor for AT&T and decided that the benefits to the public interest arising out of this interface between SBS and AT&T far outweighed the dangers of IBM's domination of the computer-communications industry.

One more area exists in which the FCC has sought to encourage competition. Value added networks provided another means of adding specialized services to the private line market and diversifying the offerings of the traditional common carriers. Three companies, Packet Communications Inc., Graphnet Systems Inc., and Telenet Communications Corp. applied individually to the FCC for the right to lease channels from the existing carriers and combine them with computers and software in order to permit more accurate data transmission. After having leased the channels, the VANS could either resell the services to new customers or share the services [1067 43 FCC, 1973; 1068 44 FCC, 1974; 1069 46 FCC 1974].

After granting the three licenses, the FCC initiated an inquiry into the topic in order to set general policy. The Commission ruled that both the resale and sharing of channels was in the public interest and any restriction on these services would be unjust and unreasonable. These

networks were classified by the FCC as common carriers in order to bring them within the jurisdiction of the Communications Act. While resale entities had to indicate that they fulfilled a public need, sharing arrangements would not be subject to regulation [1070, 607 FCC 2d, 1976]. The Court of Appeals affirmed the Commission's decision and further declared that unless AT&T could present proof that economic harm resulted from the new services, the FCC was not compelled to accept Bell's claims of financial hardship [1072, 42 R R 2d, 1978].

There is one more means for implementing competition which is currently the concern of the Justice Department and the FCC. Both have addressed the issue of whether competition would be better served if the vertically integrated telephone industry were broken. This would be achieved by forcing AT&T to divest itself of Western Electric by requiring the dissolution of Western into more than one entity, and by splitting several of the operating telephone companies. The Justice Department filed suit against AT&T some four years ago and has had to litigate a number of procedural issues before the case could be tried on substantive grounds. Recently it was decided that the courts had the right to try the case on anti-trust rather than regulatory grounds [1079, 44 R2 2d, 1978]. The fact that the telephone industry is a regulated one would not bar it from an anti-trust action. Whether or not the Justice Department can successfully prove that this vertically integrated utility which is subject to regulation contravenes

the anti-trust acts and limits or eliminates competition is debatable. The second question the courts will have to consider is whether the breaking up of AT&T meets the public interest requirement of the Communications Act.

In the meantime, the FCC also considered the question of breaking up AT&T. Its decision fell short of ordering the Bell System to divest itself of Western Electric. Rather the Commission found that the interaction of Bell and Western Electric had resulted in many positive contributions to the public. As an alternative, the FCC recommended that Bell evolve a system which would separate its equipment procurement from its manufacturing functions [1079 64 FCC 2d, 1977]. How AT&T plans to implement this order has yet to be finalized but it does exist as an attempt to assert the FCC's primary jurisdiction over the structure of the telephone industry.

Today in the United States competition in the terminal interconnection and specialized common carrier fields has become a reality. A careful reading of judicial and regulatory decisions suggests that monopoly services may no longer receive the protection which they have had in the past. The possibility exists that a telecommunications system is on the horizon which is composed of smaller independent operating and manufacturing companies functioning in a competitive and relatively free market setting. The result this will have on the efficiency and cost of the present system has yet to be established.

CHAPTER V

COMPETITION AND MONOPOLY IN TELECOMMUNICATIONS IN CANADA

1. Industry Structure

The Canadian telecommunications industry structure includes the member telephone companies of the Trans Canada Telephone System (TCTS), TCTS itself, Telesat Canada, CNCP Telecommunications, and a number of small, independent companies. TCTS is not a company or corporate entity. It is a consortium of the principle telephone companies in each province plus Telesat Canada who, by means of a master agreement, have interconnected their facilities to provide a nationwide telephone network. TCTS itself owns no property; rather its facilities are owned and operated by its member companies. Each member company has a virtual monopoly in telephone services in its respective geographical area, and the members jointly supply long distance telephone services in Canada. TCTS functions under a system of committees, with representatives from all of the member companies, and members are obligated to observe the agreed terms so long as they remain members. One of the main functions of TCTS is the division of revenues generated by interprovincial telephone calls [03, English, 1973]. In addition to the TCTS master agreement, members may enter into other arrangements for the interchange of traffic between them (i.e. agreement

between Bell and Manitoba Tel.) or enter agreements with independent telephone companies.

Telesat, a communications satellite system, was created in 1969. It leases channels to the CBC and to the carriers. In 1977 Telesat became a member of TCTS thereby integrating terrestrial and space communications systems in Canada. Under the agreement, TCTS committed itself to a large percentage of the available capacity. Telesat would own the earth station equipment, and could lease channels only to approved telecommunications carriers [Oll, Hutchison, 1978].

TCTS is dominated by Bell Canada which accounts for approximately 60% of Canadian telephones. The other members of TCTS are: British Columbia Telephone Co., Alberta Government Telephones, Manitoba Telephone System, Saskatchewan Telecommunications, Maritime Telegraph and Telephone Co., New Brunswick Telephone Co., The Island Telephone Co., Newfoundland Telephone Co., and Telesat Canada. Bell Canada operates primarily in Ontario and Quebec and has control of most intraprovincial and exchange service in this area. In addition, it is represented in the Maritime provinces through the Maritime Telegraph and Telephone Co. and the New Brunswick Telephone Co., both 41% owned by Bell. The BC Telephone Co. is owned by General Telephone and Electronics Corporation, whereas the three prairie province telephone companies are publicly operated corporations.

CNCP Telecommunications is also a consortium, consisting of CP Telecommunications and CN Telecommunications. It has a

monopoly in the provision of public message telegraph service, and is competitive with TCTS in the provision of certain other services such as data communications. It also supplies most of the customers in Newfoundland and the Yukon with telephone services. It is regulated by the federal government.

Other telephone companies, which are not members of TCTS, include Edmonton Telephones, providing 2.5% of Canadian telephones, and Quebec Telephone, serving 1.7% of Canadian customers.

Each member company of TCTS is subject to control by either the federal government (if operating under a federal charter - Bell Canada and BC Tel) or the provincial government. Until recently, federally incorporated telecommunications companies (Bell Canada, BC Tel, and CNCP Telecommunications) were regulated by the Canadian Transport Commission under the authority of the Railways Act. This authority, however, was largely transferred to the Canadian Radio Television Telecommunications Commission (CRTC) under the provisions of the CRTC Act [107, Hartle, 1978]. The members of TCTS regulated by the federal government are Bell Canada, BC Tel, and Telesat Canada.

The CRTC and its provincial regulatory counterparts are responsible for approving rates and other aspects of telecommunications of the companies under their respective jurisdictions. When TCTS members agree on uniform rates and practices for services offered collectively or on a cross-Canada basis, these rates and conditions become effective by

being approved as part of each members tariff. Recently, however, when Bell Canada and BC Tel applied for an increase in their TCTS rates, the CRTC initiated an inquiry into TCTS rates and practices. To facilitate the inquiry, it was deemed desirable to obtain the co-operation of provincial regulatory agencies responsible for regulating the other members of TCTS. This led to a CRTC proposal, which was subsequently accepted, for the establishment of an inter-regulatory committee, consisting of representatives from these agencies. The CRTC deems it desirable to have some continuing inter-agency liaison (without prejudicing the decision-making role of the agencies concerned) to take into account the concerns of the provincial agencies, and hopes to use the inter-regulatory committee as the continuing forum.

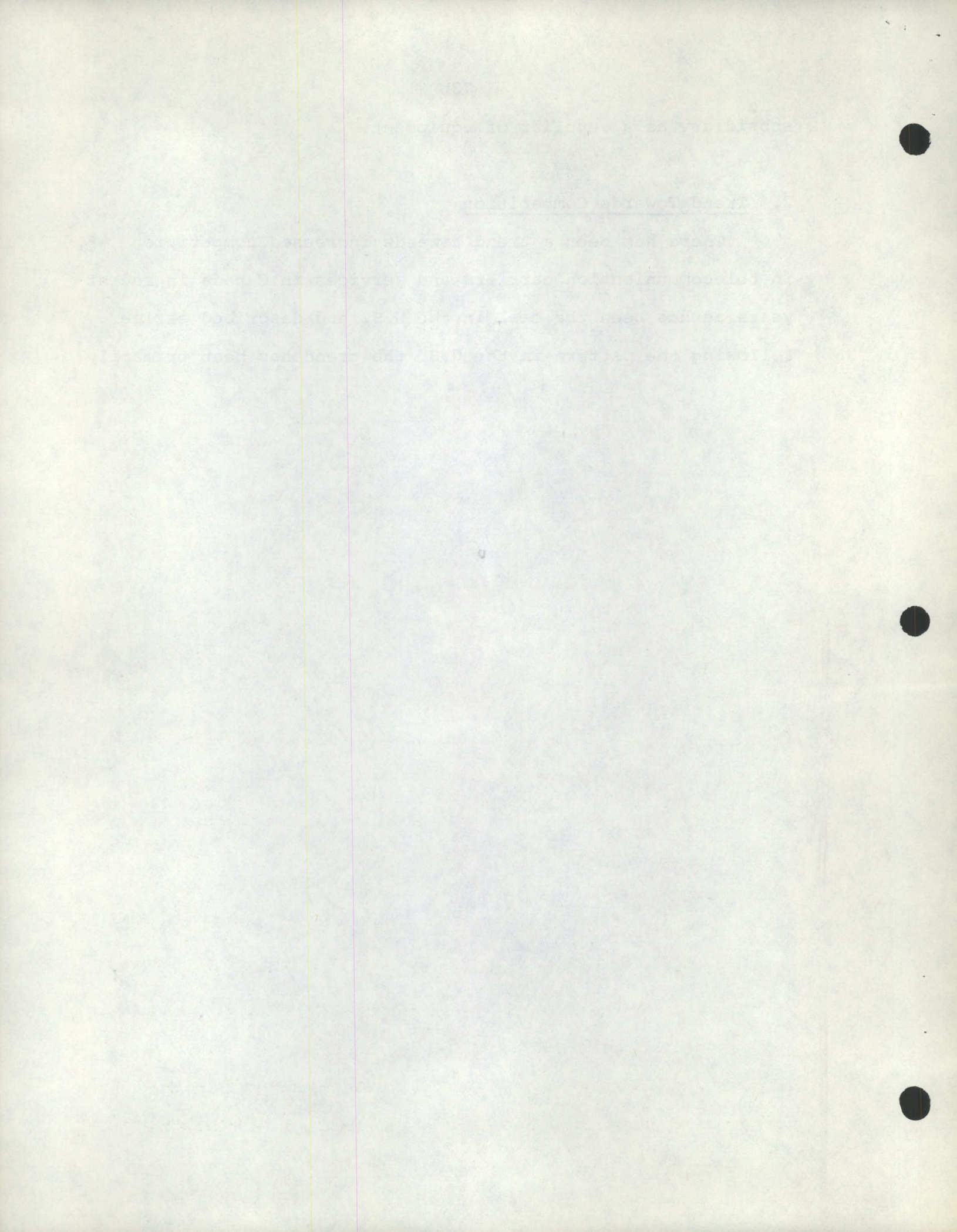
There are therefore distinct features of the Canadian industry structure in contrast to that of the U.S. In the U.S., a dominant firm—AT&T—supplies virtually all interstate long-distance service whereas in Canada it is jointly supplied by members of TCTS. In addition, there is the existence of CNCP telecommunications in Canada, operating a second national communications network and viewed as a rival by TCTS.

Another feature of the Canadian structure is the vertical integration of Bell Canada and Northern Telecommunications, a wholly-owned subsidiary of Bell Canada. This is similar to the relationship found in the U.S. between AT&T and Western Electric in the U.S., and similar practices are found in both where the parent company relies on its

subsidiary as a supplier of equipment.

2. Trend Towards Competition

There has been a trend towards increased competition in telecommunication carriers and services in Canada in recent years as has been the case in the U.S. and described earlier. Following the pattern in the U.S. the trend has been primarily



The CNCP application has been vigorously opposed by Bell Canada. The arguments put forward by Bell Canada are very similar to those put forward by the Bell System in the U.S. in opposition to transmission interconnection. Bell has contended that revenues from interprovincial tolls and other long-distance facilities subsidize basic telephone services (local calls) and rural, low-populated areas. Increased competition from CNCP would result in a reduction in these revenues and a corresponding increase in local telephone rates [020, Bell, 1978].

It was also contended that CNCP would engage in "cream-skimming," that is, it would enter the most profitable areas for its services, leaving TCTS with the less lucrative services and the primarily rural services. Bell has also contended that the telephone industry is a natural monopoly, with large economies of scale producing efficient, low-cost services [020, Bell, 1978]. To introduce competition would destroy all the advantages and benefits accruing from the natural monopoly.

These, in essence, are the same arguments used by the established industry in the U.S. in its fight against the competition fostered by the FCC. The Bell Canada submission, studies sponsored by Bell, and intervenors on behalf of Bell, before the CRTC in the CNCP interconnect case contain few, if any, arguments, information, or data in support of the industry's anti-competition position that is not found in the industry's stand before the FCC in the U.S. [020, 021

Bell, 1978; 033, CNCP, 1977].

Similarly, the arguments presented by the CNCP and in submissions to the CRTC on behalf of CNCP are basically carbon copies of the arguments of the pro-competition forces in the U.S. CNCP has argued that interconnection would not result in any loss of revenue to Bell and that local telephone rates would not have to be raised. In fact, argued CNCP, as in the case of AT&T in the U.S., Bell's monopoly public telephone revenues exceeded the cost of providing those services and Bell was using revenues from monopoly public telephone services to subsidize competitive business services (in competition with CNCP) which it provided at a loss [024, CNCP, 1977].

The issue of whether in fact revenues from long-distance telecommunications subsidize local telephone rates remains largely unresolved in Canada, as is the case in the U.S., due to lack of comprehensive data on costs and revenues.

CNCP and the proponents of competition have argued that competition is in the public interest and would result in greater consumer choice of services, improved services, more innovative facilities and systems, increased efficiency and reasonable prices, and greater response to consumer demands (023, 024, CNCP, 1977].

The question of the telephone industry being a natural monopoly was also widely debated. The debate closely followed the lines of that in the U.S. where it was generally concluded that the natural monopoly argument was a weak one. As in the

U.S., no conclusive evidence could be found that significant economies of scale existed in the industry, which would support the natural monopoly thesis [032, Wilson et al., 1977].

Another issue pursued in Canada, which parallels one in the U.S., is the question of vertical integration of telephone companies and equipment manufacturing companies. In the U.S. vertical integration exists with AT&T and its subsidiary. In Canada there exists a similar situation with Bell Canada and Northern Telecommunications. This issue was examined intensively by the Director of Investigation and Research of Consumer and Corporate Affairs [017, Bureau, 1976]. The study examined such issues as the purchasing practices of Bell Canada for telecommunications equipment, Bell's policies regarding attachment of customer-owned equipment to its telephone network, the preferential position of Northern because of its captive market and possible discriminatory marketing practices by Northern, and alleged that the public interest was not being served by a vertically integrated structure. The Director's report was subsequently transmitted to the Restrictive Trade Practices Commission for further investigation.

Some of the provincial telephone companies such as Manitoba Telephone System, have employed competitive bidding practices in their purchases of telecommunications equipment and purchase only about 40% of their requirements from Northern. There is some dissatisfaction, however, in the procedure that permits Bell to be the sole arbiter of what equipment could be used on its network.

Two cases have arisen which have challenged Bell Canada's monopoly in the terminal interconnection area. The first, in Ontario, regards a service offered by Challenge Communications for a mobile telephone service. Bell Canada sought to prohibit interconnection to the Bell System through the establishment of discriminatory tariffs. The CRTC ruled the tariffs unlawful and gave Challenge the right to install automobile phones with access to the Bell network [312, CRTC 77-16, 1977]. The Federal Court of Appeal dismissed a Bell appeal and the Supreme Court of Canada denied Bell leave to appeal further.

The second case arose in Quebec and concerned whether or not Harding Communication was prohibited by Bell Canada from offering a service to the Bank of Montreal called Divert-a-call. After Harding had persuaded the Bank to purchase its attachments, Bell Canada refused to interconnect the equipment to its system. As an alternative, Bell offered to provide the Bank of Montreal with a similar service. The Quebec Superior Court issued an injunction which was affirmed on appeal, preventing Bell Canada from interfering with Harding's business [316, C.A. 55, 1977]. This decision may also serve to establish the precedent that customer owned equipment may be interconnected with the Bell system. According to the courts, restrictive tariffs prohibiting such attachments would contravene the public interest.

On a federal level, therefore, two important decisions exist which may serve as an impetus to competition in the

terminal interconnection area. These provisions which allow for the attachment of customer owned equipment bear a striking resemblance to the policy developed in the Carterphone decision in the United States. It is yet too early to determine the direction that competition will take in Canada and the effect this will have on Bell Canada's monopoly services and its tariffs. In addition, the question of whether the provinces will relax their interconnection provisions through legislation or whether the lawfulness of the restrictions will be litigated in the courts has yet to be answered.

CHAPTER VI

INTERNATIONAL TELECOMMUNICATIONS SERVICES

The international telecommunications industry consists of several major components:

1. The American Telephone & Telegraph Co. (AT&T) which provides, in co-operation with U.S. independent telephone companies and AT&T's foreign correspondents, all international voice telephone services to and from the U.S. as an extension of the domestic long distance telephone service monopoly.

2. The International Record Carriers (IRC's) which include ITT, RCA, TRT, WUI, French Cable, and U.S.-Liberia. These carriers provide non-voice or record services such as telegraph, telex, etc. to overseas points through five "gateway" cities in the U.S. They interconnect with domestic carriers such as Western Union.

3. Foreign telephone and telegraph entities who participate with the U.S. carriers in planning and establishing joint ownership international transmission facilities, in the setting of rates, and the sharing of revenues. In general, each foreign country has vested the responsibility for handling all domestic and international responsibilities in a single government-chartered entity—a Postal, Telephone and Telegraph (PTT) organization.

4. The Communications Satellite Corporation (Comsat),

which was created and given sole U.S. responsibility for participation in the ownership of the global communications satellite system, and the only authorized U.S. participant in the International Telecommunications Satellite Consortium (INTELSAT). Comsat owns a proportionate share of the total INTELSAT system and 50% of the U.S. earth stations used to access that system. The remaining earth station ownership is held by AT&T and the IRC's. Comsat leases satellite circuits to other U.S. carriers to provide international voice and record service to the U.S. public. Comsat is therefore a carrier's carrier and may not provide international communications services directly to the public. Approximately one-half of all transoceanic circuits used to handle U.S. telecommunications are leased from Comsat.

A major development during the late 1950's and early 1960's was satellite technology which opened the door to the creation of a satellite communications system. The debate in the U.S. was whether such a system should be operated by a government-owned authority or by private enterprise. A compromise was finally adopted in which a government chartered private corporation, Comsat, was to be established. The common carriers were permitted to buy up 50% of the initial stock offering, with the remainder offered to the public. To ensure that Comsat served the interest of the public, Congress defined the corporation as a common carrier, subject to regulation by the FCC under the Communications Act of 1934. The FCC was to ensure that Comsat served all authorized

carriers under reasonable charges and was to ensure effective competition in the procurement of equipment and services for the satellite system [1208, Congress, Wiley, 1977; 1207, Cole et al., 1977].

5. INTELSAT, which is a partly governmental, partly commercial, entity whose function is to plan, establish and operate satellites to be used for international telecommunications services. Its membership consists of foreign PTT's plus Comsat. All members contribute to its investment and operating costs in proportion to their relative use of the total satellite system, and derive a proportionate return on their investments. INTELSAT in turn charges a uniform, globally averaged rate for the lease of satellite capacity, which may tend to overprice Satellite service on high density routes and underprice service on low density routes [612, Kildow, 1973].

1. AT&T and the IRC's

The FCC has contended that it has fostered and encouraged competition in the international area and has authorized new entrants, although there were no new entrants in recent years until 1976. In that year, two domestic value-added carriers, Graphnet Systems and Telenet Communications were granted authority to provide new international data services. The FCC granted this authority on the grounds that existing IRC services did not adequately meet the needs of users with intermittent data communications requirements. In many instances the IRC existing data-type services emphasized high volume

transmission needs rather the short and periodic transmission requirements typical of the new data communications activities occurring domestically [1208, Congress, Wiley, 1977]. This limitation was considered serious in light of the increasing need for domestic users to access computers overseas to retrieve or input information.

The FCC also determined that there was a need for overseas dataphone service and in 1976 authorized both AT&T and the IRC's to offer dataphone-type services, and to negotiate an interconnect agreement to be approved by the FCC [1208, Congress, Wiley, 1977]. The IRC's were pleased with the FCC decision to grant them authority for international dataphone services, but argued against AT&T being granted the same authority [1208, Congress, Knapp, 1977], without taking into account the special advantages that AT&T possessed and the special constraints under which the IRC's operated. The result was unfair competition as AT&T had the advantage of no gateway restrictions and the ability to use its monopoly position in the domestic field to subsidize any overseas private line services from non-separated domestic private line revenues [1208, Congress, Knapp, 1977]. The IRC's also objected to AT&T policy of refusing to allow IRC's full carrier interconnection with AT&T's domestic dataphone facilities, and argued that without such interconnection the IRC's might have to abandon their competition with AT&T in dataphone-type services.

While the number of new entrants into the international

telecommunications field have been few, the existing companies such as the IRC's, have argued that there is keen competition in the area among themselves, particularly in rates and quality of service [1208, Congress, Knapp, 1977]. The lack of new entrants has been largely attributed to the sizeable cost of facilities required.

2. Cable/Satellite Controversy

The advent of satellite communications stirred a considerable amount of controversy on the question of whether cable or satellite or some mix of the two could best serve international telecommunications requirements [1117, Lipinski, 1967; 1124, Verguese and Doret, 1971] and this controversy has continued to this day. At present the FCC requires the U.S. international carriers to use a specific mix of satellite and cable facilities. The cable carriers have charged that the FCC adheres to this policy regardless of operating requirements, the needs of customers or the desires of the foreign administrations which jointly invest in the facilities and participate with the U.S. carriers in the provision of service [1208 Congress, Murphy, 1977].

While the carriers had purchased half of the stock in Comsat when it was established, they have since divested themselves of their shares. They are still required to lease channels from Comsat, however, since Comsat has sole ownership of the U.S. satellite system. The carriers own the cable facilities and the satellite ground stations. Given their

ownership of the cable facilities it is argued that there is an incentive for them to use and expand the cable facilities. The carriers have contended that the FCC has forced them to lease unneeded satellite circuits from Comsat and enforce idleness of useful cable facilities [1210, Congress, Gallagher, 1977]. The FCC was accused of forcing the carriers to lease satellite circuits when they had no need for them and preferred to use and expand their cable facilities. The carriers also argued that cables were less costly [1210, Congress, Charyk, 1977]. It has been alleged, however, that carriers tended to prefer and overinvest in cable facilities in an attempt to inflate their rate base [1208, Congress, Hough, 1977; 1210, Congress, Gallagher, 1977], which is generally referred to as the Averch-Johnson effect [637, Averch & Johnson, 1962; 641, Baumol, 1970; 669, Johnson, 1973; 690, Morton, 1971; 699, Petersen, 1975]. Some have suggested that economic incentives should be given to maximize the use of satellite circuits, such as permitting international carriers to capitalize their rental payments to Comsat, and to include them in their rate bases.

The FCC has denied the carriers' charges and has recently introduced a proposal to integrate cable/satellite facilities into one super carrier's carrier which would end the cable vs. satellite controversy and also place the U.S. in a stronger position in relation to its European counterparts.

In the U.S. activities affecting telecommunication and

foreign policy are conducted by the Office of Telecommunications Policy (OTP) of the White House, the Departments of State and Commerce, and the FCC. It was argued that this fragmented approach had numerous limitations in setting policy and negotiating with the governmental telecommunications entities found in Europe, who have been vested with the authority and responsibility to plan and negotiate international telecommunications arrangements which best satisfy a wide range of national interests [1210, Congress, Wiley, 1977]. They can enter into binding negotiations on long-range plans, operating arrangements, etc. In the U.S., however, the FCC is precluded from direct participation in either the planning or negotiating of facilities with foreign administrations, including facility planning for satellites which rests with Comsat. Even though the FCC regulates Comsat, it has no direct role in the planning process in Intelsat. The FCC argued that these fragmented roles hindered efforts of the FCC to regulate international telecommunications in the best interests of the consumer. Consequently, the FCC proposed in 1977 that the responsibility for the overall planning and negotiating with foreign administrations international transmission facilities (both cable and satellite) be vested in the FCC. This would establish a unified, U.S. position regarding international facility planning and use, and would improve U.S. effectiveness in dealing with other countries.

The FCC also proposed, that in conjunction with granting this authority to the FCC, that the divided ownership of cable

and satellite be terminated, and that a super cable/satellite carrier's carrier be created through the merger of international satellite and cable operations. The result would be a more efficient international telecommunications network, ending the cable vs satellite controversy, and would strengthen the U.S. position in international negotiations. The FCC argued that such a merger would not interfere with competition since satellite communication services do not compete with cable services in the consumers market. Comsat serves only as a "carrier's carrier" in providing satellite transmission service to U.S. carriers such as AT&T and the IRC's who do serve the consumer market (AT&T & IRC's are Comsat's only customers). Therefore satellites and cables "compete" only before the FCC where Comsat and its carrier customers frequently dispute over the question of whether the carriers should invest in additional cable circuits or lease satellite circuits from Comsat [1210, Congress, Wiley, 1977]. Thus while there is no sound argument for separating international satellite and cable operations, a good case can be made to merge the two into one entity whose function would be to serve as the U.S. industry participant in the planning, ownership, and operation of jointly owned international transmission facilities of all types [1118, Peck, 1970].

The FCC proposal for a cable/satellite merger has been opposed by the carriers. It was argued that the creation of a super carrier with a monopoly over all international transmission facilities would be at odds with the national trends

fostering competition [1208, Congress, Gallagher, 1977; 1210, Congress, Murphy, 1977]. While it was conceded that the super carrier might be in a position to do overall planning, it would likely come under increasing pressure from Intelsat members to accommodate its cable proposals to the universal satellite proposals of Intelsat [1210, Congress, Murphy, 1977]. AT&T argued that the carriers should have the initial and primary responsibility for facility planning, with the FCC's role limited to a review of plans to ensure that they are reasonably likely to benefit the consumer [1208, Congress, Hough, 1977]. A number of other alternative industry structure arrangements have also been proposed and considered [1206, Cole et al., 1977].

CHAPTER VII

CONCLUSION

The issue of competition vs monopoly in telecommunications carriers and services is extremely complex. The trends in recent years in Canada and the United States has been toward increased, selective competition. The trend has been fostered and supported by the CRTC in Canada and the FCC in the United States and has generally been upheld by the Courts. The established industry in both countries has vigorously opposed this trend. Volumes of literature and documentation in the form of books, journal and magazine articles, submissions to and reports of regulatory agencies, legislative committee hearings and evidence, conference papers, etc. have been generated on this subject.

The volumes of material presented against competition has generally been matched, or exceeded, by volumes of material brought forward by pro-competition forces. For each of the industry's agreements that competition was undesirable and would have an adverse impact, including adverse effects on services and rates, and result in general economic harm, a counter-argument can be found, together with arguments that a considerable amount of economic good would be generated from increased competition, including improved services, more rapid innovation, greater efficiency, etc.

There appears to be no concensus concerning the issue of monopoly vs competition in telecommunications carriers and services. Arguments have been presented favoring a variety of market structures ranging from pure monopoly, to the regulated monopoly, to various degrees of competition and regulated competition. Strong theoretical arguments, based on varying assumptions, can be in favor of either monopoly or competition in telecommunications services. However, no conclusive empirical evidence can be found determining which market structure is most likely to produce the most efficient, low-cost-high-quality services, which is most likely to provide the most responsive services to market demand, and which is likely to offer the greatest incentive for innovation and technological development.

In certain areas of the telecommunications industry the arguments and evidence tend to weigh in favor of competition. These are areas where it has not been shown that competition would result in harm to the basic nationwide communications network, and at the same time there exist strong a priori arguments that both users and the telephone industry as a whole could benefit from the introduction of competition, and empirical evidence indicates that they have benefitted from the competition permitted. Examples include areas where economies of scale are doubtfull or questionable (terminal equipment manufacturing), where it appears desirable to stimulate innovation and technological development, and where it appears there is a need for facilities and services

(terminal equipment, data transmission and processing) to meet public demands and changing public needs, which do not appear to be adequately met by the existing structure.

In general, the case against competition on grounds that it has or will, in the future, have a substantial adverse impact on telecommunication services in general, and on certain classes of users in particular, has yet to be made convincingly. Indications are that the trend towards increased, selective competition in the production and delivery of telecommunications services will most likely continue.

PART III

ANNOTATED BIBLIOGRAPHY

COMPETITION AND MONOPOLY IN
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Northern Telecom, a Canadian telecommunications company which is largely owned by Bell Canada, has begun making inroads into the U.S. market. Northern uses its position with Bell Canada to strengthen its research and sales arms. Many have claimed that it also uses Bell Canada's monopoly position to gain entry into the U.S. market through the use of price cutting.

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The detailed presentation of Bell Canada's opposition to the CNCP proposal to interconnect with the Bell System. Most of the arguments made by AT&T in the U.S. opposing interconnection are presented in this submission. Bell Canada attempts to refute the arguments made by the applicant and attempts to show that interconnection will not lead to effective competition. Rather interconnection and competition are incompatible. Argues that basic telephone rates will increase as traffic is diverted to CNCP and revenues and contributions fall; that the argument that competition will lead to increased innovation is not conclusive; that Bell Canada is a natural monopoly providing the public with the efficiencies and benefits characteristic of a natural monopoly; that CNCP would only offer services in the profitable intercity market (cream skimming); that the U.S. experience with interconnection has not been shown to have produced net benefits to telecommunications users; that the present structure has provided Canada with one of the best telecommunications services in the world and interconnection would cause a major restructuring of the industry which would not be in the public interest.

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The Memoranda of Evidence contains statements prepared by Dr. E. V. Rostow, Dr. D. A. Chisholm, A. M. McMahan, and A. J. de Grandpré. Dr. E. V. Rostow: Reviews developments to increased competition in the tele-

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- 108 Janisch, H. N. "The Role of the Independent Regulatory Agency in Canada," Paper presented to the Administrative Law Subsection, Canadian Association of Law Teachers, Fredericton, N.B., May 30, 1977 (also found in the University of New Brunswick Law Journal).

Examines the functions and duties of independent regulatory agencies and commissions in Canada.

- 109 Keddy, Barbara. "Has Legal Right to Prohibit Competing Phone Devices, Bell Canada Tells Top Court," The Globe and Mail, Toronto, October 26, 1978.

Examines some of the issues in the case between Bell Canada and Harding Communications Ltd. Harding argues that it is kept out of the terminal equipment market because Bell has the authority to bar all equipment it has not approved and also claims the right to refuse to issue standards to which such equipment can conform.

- 110 Kerr, R. W. "Telephone Rate Regulation In New Brunswick and the Test Year Concept," University of New Brunswick Law Journal, June 1976, pp. 115-119.

Questions whether the New Brunswick Board of Commissioners of Public Utilities understand normal rate regulation procedure.

- 111 Kerr, R. W. "Telephone Rate Regulation in New Brunswick and the Rate Regulation Process," University of New Brunswick Law Journal, November 1977, pp. 69-73.

Concludes that the New Brunswick Board of Commissioners of Public Utilities does not understand normal rate regulation procedure.

- 112 Madden, J.C. "Formulation Computer/Communications Policy," Telecommunications Policy, June, 1977, pp. 188-195.

Describes approaches to policy development using experience with the Canadian Computer/Communications Task Force.

- 113 Reschenthaler, G. G. "Regulatory Failure and Competition," Canadian Public Administration, Vol. 19, No. 3, 1976.

Examines the roles of direct regulation and competition as policy instruments in the planning and regulation of industry in Canada. Includes an overview of traditional

Canadian attitudes toward regulation and competition, the dimensions of regulatory failure which have led to disenchantment with direct regulation by economists, and presents some case studies—including telecommunications—to illustrate techniques for measuring the economic costs of regulatory features. States that the "public would benefit from permitting freer entry into the provision of microwave services and the requiring of Bell to interconnect with all applicants who meet quality standards."

- 114 Trebilcock, M. J. "Winners and Losers in the Modern Regulatory System: Must the Consumers Always Lose," Osgoode Hall Law Journal, Vol. 13, 1975.

Contends that regulation involves costs to the consumer and society.

GOVERNMENT DOCUMENTS

- 115 Canadian Business Equipment Manufacturers' Association. Submission of Canadian Business Equipment Manufacturers' Association to the Manitoba Standing Committee on Public Utilities and Natural Resources on attachment of terminal devices to the public switched network, 15 p. Canadian Business Equipment Manufacturers' Association, Rexdale, Ontario, 1977.
- 116 Communications Canada. Working Paper on Possible Interconnection of Non-Carrier Owned Terminal Equipment and Terminal Systems to the Public Switched Networks, November 1, 1972.
- Examination of a range of options of interconnection policies for Canada.
- 117 Communications Canada. A Report On Public Message Services in Canada. Telecommunications Economics Branch, Industry Structure and Services Directorate, Feb. 23, 1977, 71 p. and appendices.
- An overview of the status of PMS in Canada and a review of the activities undertaken by DOC with regard to this service. Also outlines the results of a survey carried out by the Department in co-operation with the CNCP.
- 118 Department of Communications. Proposals For A Communications Policy for Canada; A Position Paper to the Government of Canada (The Green Paper). Ottawa: Information Canada, 1973, 35 p.
- Government sets out its commitment to the shaping of national communications policy objectives. Contains suggestions for new federal legislation to try to solve some of the communications problems faced.
- 119 Department of Communications. Participation By Telecommunications Carriers In Public Data-Processing. Ottawa, 1970, 48 p. and Appendices.
- Examines the conditions under which the telecommunications carriers should be permitted to offer remote public data processing services. The report provides information concerning the various possible policy options for telecommunications carrier participation in public data-processing, and background material on the overall subject of computer utilities.
- 120 Department of Communications. A Review of the Public Message Telegraph Service in Canada. Ottawa, 1970, 29 p.

Reviews various aspects of the domestic telegraph service, how it relates to other public telecommunications, and what changes in government policies and regulations may be appropriate.

- 121 Department of Communications. Communications: Some Federal Proposals. Ottawa, 1975.

Sets out in broad outline the intentions of the Federal Government following the issue of the Green Paper and subsequent response by the Provinces, as a basis for further consultation with the provinces and a revision of the federal communications legislation.

- 122 Department of Communications. Computer/Communications Policy: A Position Statement by the Government of Canada. Ottawa: Information Canada, 1973, 15 p.

A brief statement of the government's position on computer/communications development and the direction that government policy may take.

- 123 Fine, David J. Consumer Interest Representation in the Federal Telecommunications Regulatory Process, Interim Report, August 10, 1971, 30 p. A study of the issue of "Consumer Advocacy" prepared for the Regulatory Planning Unit, Socio-Economic Planning Branch of the Department of Communications, Ottawa.

- 124 Janisch, H. N. and Huber, Paul B. A Critique of Provincial Regulation of Telecommunications in the Atlantic Provinces, 1974. Study for Communications Canada, 142 p. plus appendices.

Presents a legal and administrative analysis of regulation in the Atlantic Provinces, and the economic effects of the regulatory process.

- 125 Ontario Economic Council. Government Regulation. Toronto, 1978.

Contains a number of studies on government regulation in Canada including a chapter on the regulation of communications by D. G. Hartle.

- 126 Report of the Canadian Computer/Communications Task Force, Background papers, Information Canada, 1974.

A series of 16 background papers on issues relating to computers and communications, including: Canadian Policy Options in Computer/Communications (Study #5), Canadian Data Systems Survey (Study #7); Computer/Communications Network Study (Study #12); Technological

Review of Computer/Communications (Study #14); and Computers and Communications in the Canadian Business Community (Study #15).

127. Telecommission, Study 8(a) Problems Relating to the Regulation of Private Line Services, Department of Communications, 1971, 87 p. + appendices.

Includes a report by CNCP Telecommunications; a report by TCTS; and a report by the Telecommission project team.

128. Telecommission, Study 8(b)(i) Study of Interconnection of Private Telecommunications Systems With the Systems of the Telecommunication Common Carriers, Department of Communications, 1970.

Examines existing structure and current interconnection situation, including technical, economic, and operational issues; future interconnection trends, and the role of government.

129. Telecommission Study 8(b)(ii), Interconnection Between TCTS and CNCP Telecommunications, Department of Communications, 1971, 123 p. + appendices.

Examines carrier-to-carrier interconnection, including the TWX and Telex systems, to determine whether government policy is required. Includes technical and economic considerations, and a review of developments in the U.S.

130. Telecommission Study 8(b)(iii), Problems Relating to the Interconnection of Terminal Devices With Common Carrier Provided Telecommunications, Department of Communications, 1971, 23 p.

Examines the problems relating to the interconnection of user-owned or supplied terminal devices with services provided by the carriers from the point of view of the user, the manufacturer, and the carrier.

PAPERS; REPORTS; DISSERTATIONS; PAMPHLETS

- 131 CNCP Telecommunications. Draft Rules Respecting Telecommunications Tariffs and the Procedure of the Canadian Radio-Television Commission in Regard to Telecommunications Proceedings. Response by CNCP Telecommunications, Sept. 15, 1978, 10 p.

Comments by CNCP Telecommunications concerning CRTC procedures and practices in telecommunications regulation, calling for changes in some of the rules to improve the competitive environment in Canada.

- 132 Communications—Getting the Act Together. Communications Research Centre, Ottawa, July, 1977.

This document provides a discussion of the policy implications of a proposed bill introduced in the Canadian House of Commons in Spring 1977 relating to the regulation of telecommunications in Canada. This act, which can be viewed as an attempt to make telecommunications more responsive to changing technology and to provincial concerns, seeks to reemphasize federal jurisdiction over such areas as licensing, programming content, restriction of the freedom of expression, and the setting of rates and tariffs.

- 133 Doern, B. "The Regulatory Process in Canada," Paper presented at Carleton-McGill Conference on Regulation, March 3-5, 1977.

Outline of regulatory procedures of government in Canada.

- 134 Farrell, J. H. "Telecommunications Regulation in Canada." Proceedings, National Telecommunications Conference, New Orleans, Dec. 1-3, 1975.

This paper provides a brief summary of the major telecommunications carriers in Canada and an outline of present and proposed regulatory structures.

- 135 Murray, Barbara B. "Shift Analysis of Revenues in the Regulated Firm," Prepared for the Public Utility Conference held at the University of Detroit, October 6-7, 1972, 34 p.

Attempts to factor out the components of the change in revenues over time. Revenue is used as an aggregate variable for developing a norm for describing the comparative revenue performance among operating units of the Bell system. The argument is that more emphasis should be placed upon revenue growth and the components of revenue growth in the regulation of public utilities.

- 136 Sohin, I. and Debanné, J.G. Models of Efficient Regulatory Control for the Telecommunications Industry, paper presented at the 1971 Annual Conference of the Canadian Operational Research Society, May, 1971, 20 p.

A computerized short term planning and control model and a long term policy model are developed for the regulation of a typical telecommunication utility.

- 137 Zalotan, A. "Regulatory Experience of the CRTC," paper presented to the Canadian Industrial Communications Assembly, Toronto, September 16, 1977.

Brief history of the experience of the CRTC in regulation.

200 TECHNOLOGICAL REFERENCESARTICLES; JOURNALS

- 201 Feldman, Nathaniel and Charles Kelly, "The Communication Satellite - A Perspective for the 1970's," Astronautics and Aeronautics, September, 1971, pp. 22-29.

Forecasts the potential telecommunication trends in the 1970's. Looks at point-to-point communications, switching, foreign CATV, small-terminal service, Canadian communications technology satellite program.

- 202 Keddy, Barbara. "Bell Seeks To Take Over Cable TV Service Using Fibre Optics Technology," Toronto, The Globe and Mail, Dec. 13, 1978.

Bell plans to eventually replace the existing cable system and provide its own network, using fibre optics. Fibre optics can combine both telephone and television signal delivery on a single fibre, eliminating the need for two cable systems.

- 203 McMahon, A. M. "Today's Computer is Tomorrow's Communicator," Canadian Business, July, 1977.

Describes briefly digital switching, satellites, packet-switching, and digital transmission, and contends that these are four cornerstones of technology that will play very significant roles in future communications systems.

- 204 Reid, I. "Posed on the Leading Edge," Executive, Vol. 20, No. 3, March, 1978, pp. 46-50.

Canada Wire and Cable Co., Ltd. plays a leading role in developing technology for non-metallic cable transmission is on the leading edge of the optical glass fibre market expected to surpass \$1 billion in the next decade. Plans include marketing in the U.S., and success with the new technology could change lifestyles worldwide.

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205 Department of Communications. Instant World, A Report on Telecommunications in Canada, Department of Communications, Canada, 1971.

Discusses "electronic snooping," computers for banking, data banks and privacy, cable, domestic distribution and direct broadcast satellites. Analyses present Canadian telecommunications services - who provides what services, regulation of services, communications interface between Canada and the rest of the world through the COTC.

PAPERS; REPORTS; DISSERTATIONS; PAMPHLETS

- 206 Babe, R. F. Diffusion of Technology. Paper prepared for CRTC, January, 1977, 53 p.
- Includes survey of technological developments in telephone industry, innovation and regulatory issues, innovation and competitive response, innovation and efficiency.
- 207 Canadian Telecommunications Carriers Assoc. Data Telecom Services and Networks in Canada. Ottawa, 1977.
- 208 Canadian Telecommunications Carriers Assoc. The Vital Link: Telecomm Servicing Canadians, Ottawa, 1974, 39 p.
- 209 Chapman, H. J. Canadian Interests and Activities in Space Communications and Navigation. Paper presented at the American Astronautical Society's 19th Annual Meeting, Dallas, Texas, June 19-21, 1973, 16 p.
- Discusses Canadian space programs in communications, navigation and atmospheric science, considering telephony, data transmission, TV broadcasting and remote sensing.
- 210 McNaughton, J. D. Role of Industry in a Canadian Space Program. Paper presented at the Canadian Aeronautics and Space Institute and American Institute of Aeronautics and Astronautics, Meeting on Space - 1972 Assessment, Ottawa, Canada, July 10-11, 1972, 8 p.
- Studies aerospace industry, government/industry relations, international cooperation, space programs, technology utilization.

300 JUDICIAL REFERENCESFederal Statutes

- 301 CRTC Act 1976 23-24 SC, c.49 In force 4.76 SI 76-46.

This act gives the CRTC jurisdiction over telecommunication matters arising under the Railway Act which were previously regulated by the Canadian Transport Commission. The CTC however retains jurisdiction over those matters which are governed by the Canadian Transportation Act.

- 302 Bell Canada Act Amendment 16-17 SC 1967-68, c.48 1968.

In regard to interconnection, the Act stipulates that any equipment not provided by the company could be attached to or interconnected with the Bell system if it met the reasonable requirements prescribed by the company. The CRTC could decide whether Bell's requirements were in fact reasonable. If they were, the CRTC could rule that interconnection could be permitted. The CRTC in arriving at a decision would have to do so with regard to the public interest and the effect terminal interconnection would likely have on the cost and value of the service to the subscriber.

- 303 The Railway Act RSC 1970 CR-2 c.320, 321.

The act gave the Canadian Transport Commission (now replaced by the CRTC) jurisdiction in determining interconnection rights among authorized carriers when the question of interconnection was in dispute. In addition the act sets the standard according to which of the telephone companies were required to set just, reasonable and non-discriminatory rates.

- 304 Telesat Canada Act RSC 1970, CT4 as amended by R.S. (1st Supp.) CC 10,16

The Act incorporated Telesat Canada whose objectives were to establish satellite telecommunication systems providing on a commercial basis, telecommunication services between locations in Canada. Under the act most customers are required to deal separately with the carriers in order to obtain microwave backhauling and local loops.

Provincial Statutes

- 305 Alberta Government Telephones Act RSA 1970 c.12 as amended 1971, c.2.

The act forbids the attachment of any terminal device which would impair the integrity of the telephone system. The definition of an attached device is any telecommunication attachment which is placed on, over, under or adjacent to the authorized equipment.

- 306 Electric Power and Telephone Act Stat. PEI 1929 c.3 as amended (Prince Edward Island).

Prince Edward Island Public Utilities Commission is empowered by the act to review and remedy rates, tolls and practices which are unreasonably insufficient or unjustly discriminatory. The Commission can require the telephone company to interconnect or share use of its facilities with other public utilities furnishing telephone or hydro services, but no other power with regard to interconnection of foreign attachments is given to the Commission.

- 307 The Manitoba Telephone Act RSM 1970, CT-40 as amended in 1971, c.82, 855.

This act creates the Manitoba Telephone Commission which is empowered to control, maintain and operate the Manitoba Telephone System. The General Manager of the system is chosen by the Governor in Council thus giving the government complete powers of regulation over all aspects of the system. The members of the board of directors of the Commission are appointed by order of the Lieutenant Governor in Council.

The act prohibits the attachment of any telephone equipment to the system which the Commission feels could impair the operating efficiency of the lines or equipment.

- 308 Public Utilities Act RSNB 1952 c.186, as amended; Telephone Companies Act RSNB 1952 c.226 as amended (New Brunswick)

The New Brunswick Board of Commissioners is given the authority to review and revise all rates or tolls charged by New Brunswick Telephone as a public utility. Under the Telephone Companies Act, NB Tel can be required to interconnect with other telephone companies by the provincial cabinet but this does not apply to non-carriers. The Commission is not empowered by the act to compel NB Tel to interconnect or to rule on

foreign attachments save through the revision of suggested tariffs for public services where such tariffs are discriminatory.

- 309 Public Utilities Act RSNS 1967 c.268 as amended in 1970 c.65 (Nova Scotia).

The act gives the Nova Scotia Board of Commissioners the power to review any rate or charge made by the Maritime Telephone and Telegraph Company for any services performed or facilities provided by it as a public utility under the act. Interconnection of MT&T facilities with those of rural telephone companies may be ordered by the Board, but otherwise the MT&T Act appears to give an unlimited right to the Company to refuse to permit foreign attachments or interconnection.

- 310 The Saskatchewan Government Telephone Act, RSS 1965 c.42 as amended in 1966, c.7, 1968, c.62, 1969, c.52, 1971, c.46.

This act gives the Saskatchewan Government Telephone Corporation jurisdiction over the construction, maintenance and operation of the telecommunication system in the province and in Canada and to provide connection and interconnection with and between other telecommunication systems. Save through an appeal to cabinet Sask Tel cannot be required to interconnect with other carriers or non carriers or to permit the use of foreign attachments. However, other telephone systems in Saskatchewan can be required by the Minister of Telephones to interconnect with Sask Tel.

Regulatory and Judicial Decisions

- 311 Bell Tariff Amendment Telecom Order CRTC 77-189, July 25, 1977.

Bell submitted a tariff to the CRTC stipulating that automatic Mobile Telephone Service equipment installed in the customer's automobile was to be owned and maintained by Bell Canada. The sale or maintenance of such equipment by any other person would be prohibited. This tariff was approved by the CRTC without hearings.

- 312 Challenge Communications Ltd. v. Bell Canada Telecomm. Decision CRTC 77-16, Dec. 28, 1977.

Challenge Communications applied to the CRTC for relief with respect to the Bell tariffs prohibiting the use of its service known as Mobile Telephone Service. In

response, the CRTC ruled Bell's restrictive tariffs unlawful on the grounds that the refusal of Bell Canada to permit customer-owned and maintained equipment with respect to automatic mobile telephone service is discriminatory and contrary to section 321 of the Railway Act.

- 313 Challenge Communications Ltd. v. Bell Canada Federal Court of Appeal, April 24, 1978.

The Federal Court of Appeal unanimously dismissed an appeal by Bell Canada of the CRTC decision, 77-16. The court ruled that the CRTC had jurisdiction over matters of ownership and maintenance of telephone service and with matters relating to the connection of customer owned and maintained equipment to Bell's network as component parts of the Bell tariffs which are required to be approved by the Commission. If the CRTC found discrimination in the Bell tariffs it was empowered to disallow them which includes the power to require Bell to interconnect with customer owned equipment.

- 314 TCTS-Telesat Interconnection Agreement Telecom. Decision CRTC 70-10 (August 24, 1977).

The CRTC was asked to consider an application by Telesat Canada, Bell Canada and British Columbia Telephone Co. that the CRTC approve a connecting agreement between Telesat Canada and the members of the Trans Canada Telephone System. The Commission decided that the agreement whereby Telesat would become a member of TCTS was not in the public interest.

- 315 TCTS - Telesat Interconnection Agreement Order in Council P.C. 1977-3152 (November 3, 1977).

The Federal Cabinet with an order-in-council overturned the CRTC's disapproval of the agreement between Telesat and TCTS and permitted the connecting agreement. The order stated that the agreement between Telesat Canada and TCTS was in the public interest. In an accompanying statement, the Minister of Communications stated that the Government considered the long-standing policy of Telesat to lease only complete channels on its satellites should be revised.

- 316 Harding Communication v. Bell Canada Quebec Court of Appeal, [1977] C.A. 55 (Quebec).

Bell Canada prevented the Bank of Montreal from purchasing the attachment of an instrument from Harding Communication called Divert-a-Call which handled

references regarding the Bank's charge account system. Bell alleged that the attachment of this equipment would contravene section 5 of the Company's Act. The Quebec Superior Court granted an injunction restraining Bell Canada from interfering with Harding's business. The Court of Appeal affirmed the jurisdiction of the Superior Court over this matter and upheld Harding's application for an injunction to prevent Bell Canada from interfering with its business in selling terminal equipment and attaching the same to the public switch network where no tariff has been filed by Bell regarding the particular equipment.

317 Bell Canada v. Harding Communications Ltd. Supreme Court of Canada, Nov. 21, 1978.

Bell Canada appealed to the Supreme Court alleging that the Quebec Superior Court lacked jurisdiction over the issue presented in the Harding divert-a-call case. The Court held that the Quebec Superior Court had the jurisdiction to decide when s.5(4) of the Bell Canada Act imposed a legal obligation upon Bell to make it refrain from interfering with Harding's service offering.

SECTION II

UNITED STATES

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400, 500 ECONOMIC REFERENCESBOOKS

- 401 Adams, W. (ed.). The Structure of American Industry, 5th ed. New York: MacMillan, 1977.

Each chapter covers a particular industry, showing the historical development of the market structure of the industry. Chapter 9 deals with the telephone industry in the U.S.

- 402 Bain, Joe S. Barriers to New Competition. Cambridge: Harvard University Press, 1956.

A classic book on the various barriers to competition such as economies to scale, product differentiation, cost advantages, etc. Also includes a section on empirical evidence of market performance of various industries.

- 403 Blair, J. Economic Concentration: Structure Behavior and Public Policy. New York: Harcourt Brace and Jovanovich, 1972, 742 p.

Examines the causes of concentration and the effect on competition, price, profits and resource use. Analyses alternative public policies for dealing with concentration--the competitive approach, price regulation, nationalization and voluntary evasion.

- 404 Borchardt, Kurt. Structure and Performance of the US Communications Industry. Harvard Press, Boston, 1970, 180 p.

Concerns evaluating and managing the structural problems of the communications industry that result from the interaction of public regulation and rapidly changing technology. Suggests modifications in regulatory procedures to ensure efficient industry in environment of new technologies and growing demands for increasingly diverse services.

- 405 Brooks, J. The First Hundred Years. New York: Harper & Row, 1976.

Description of the telephone industry in its first century of operation.

- 406 Caves, M. Telephones -- Public or Private. A comparative study of the British and American systems, Institute of Economic Affairs, London, 1966, 71 p.

- 407 Caves, Richard. American Industry: Structure Conduct and Performance, 3rd ed. Englewood Cliffs: Prentice-Hall, 1972, 117 p.

Summarizes market structure of American industry and economic performance. Reviews government policies toward business in the U.S. and illustrates how they should be evaluated and what changes might be considered.

- 408 Danielian, N. R. AT&T The Story of Industrial Conquest. New York: Vanguard Press, 1939, 460 p.

Describes the early development of AT&T. Probably the most complete factual information on the early operation of AT&T.

- 409 Emerine, R. J. et al. A Planning Study for an Investigation of Corporate Structures in the Telecommunications Common Carrier Industry. Abt Associates, Inc., Cambridge, Mass., 1974, 259 p.

Study is result of FCC's interest in the implications of vertical integration and holding company structure of common carrier firms. Contains chapters on industry description, price analysis, rate of return analysis, economic theory, effects of monopoly, effects of regulation, effects of vertical integration, effects of corporate structure on innovation: evidence & analysis, policy recommendations, and recommendations for future work.

- 410 Gable, R. Development of Separations Principles in the Telephone Industry. Lansing: Michigan State University Press, 1967, 166 p.

Presents an analytical chronology of methods followed by the telephone industry in the allocation of its property investment, revenues, expenses and reserves to the various communications services.

- 411 Griesinger, Frank. How To Cut Costs and Improve Service of Your Telephone, TWX and Other Telecommunications. New York: McGraw-Hill, 1974, 310 p.

An examination of costing procedures and methods to improve efficiency.

- 412 Irwin, M. R. The Telecommunications Industry: Integration vs. Competition. New York: Praeger, 1971, 233 p.

The telecommunications industry in the U.S. is a vertically integrated industry -- telephone carriers

obtain their equipment from manufacturing affiliates. Irwin attempts to determine the relationship between vertical integration, competition and regulation and the effect of this relationship on prices and services.

- 413 Mathison, S. and Walter, P. Computers and Communications: Issues in Public Policy. Englewood Cliffs, N.J.: Prentice-Hall, 1970.

An examination of innovations in the computer and communications industries and their implications for public policy.

- 414 Schnee, V. and Gorkiewicz, W. J. The Future of AT&T. Probe Research Inc., Millburn, N.J., 1976, 454 p. (\$750.00).

Comprehensive, critical examination of AT&T. Information released by AT&T is "incomplete and poorly presented and sometimes misleading." Also AT&T's claims of technological dominance are questionable. The book employs numerous specific examples to support its allegations and conclusions.

- 415 Stigler, G. J. The Organization of Industry. Homewood, Ill.: R. D. Irwin, 1968, 328 p.

Defines competition and monopoly. Analyses the determinants of concentration, economies of scale, barriers to entry and anti-trust policy.

- 416 Vernon, John. Market Structure and Industrial Performance: A Review of Statistical Findings. Boston: Allyn & Bacon, 1972, 140 p.

Describes and evaluates the assumptions about industrial economics in which public policy toward business appears to be based. Concentrates on statistical tests of the more important structure-performance hypothesis.

ARTICLES; JOURNALS

- 417 "A Shocking Failure in Communications." Business Week, No. 2448, Sept. 6, 1976, p. 22.
- Data Transmission Co. has collapsed with losses totaling almost \$100 million and could pull down its parent company, Wyly Corp. Datran has charged AT&T with predatory pricing tactics in a court suit. Deciding on the shutdown, Datran was not able to raise money for a network from Chicago to the east coast, necessary to become profitable.
- 418 "A Whole New Way to Figure AT&T's Rates." Business Week, No. 2470, Feb. 14, 1977, p. 66-91.
- New pricing and accounting systems will reflect actual cost of service.
- 419 Adams, William J. "Firm Size & Research Activity: France & the U.S." QJE, Vol. LXXXIV, No. 3, pp. 386-409.
- The Franco-American comparisons indicate that absolute and relative firm size are not important determinants of corporate research activity.
- 420 Artle, R. and Averous, C. "The Telephone System As a Public Good: Static & Dynamic Aspects," Bell Journal of Economics and Management Science, Spring, 1973, pp. 89-117.
- Develops a dynamic analysis of the demand for telephone service, showing, under a set of very weak or limiting assumptions, the existence of a self-sustaining growth process in demand, arising from the distribution of income and the public-good property coherent in the telephone system.
- 421 Baer, W. S. and Mitchell, B. M. "Impact of Competition on an Independent Telephone Company," Public Utilities Fortnightly, October 23, 1975.
- Examines Carterfone and MCI decisions by the FCC on the Continental Telephone System.
- 422 Baron, David P. "Limit Pricing, Potential Entry, and Barriers to Entry," AER, September, 1973, pp. 666-674.
- A major advance in the theory of imperfect competition has been the recognition that established firms must take into account possible actions by potential as well as by existing competitors. This paper, using a probabilistic model, examines the effects of potential

entry and barriers to entry on the price and profitability of established firms.

- 423 "Big Money in Hardware Orders." Business Week, No. 2475, March 21, 1977, pp. 44I-44Q.

Contracts for satellite communications equipment to be awarded in the next six months will determine the industry leaders.

- 424 Caves, R. E. and Porter, M. E. "From Entry Barriers to Mobility Barriers: Conjectural Decisions & Contrived Deterrence to New Competition," QJE, May, 1977, pp. 241-261.

A theoretical discussion formulating the entry process as an investment decision under uncertainty. Also extends the theory of entry barriers to inter-group shifts as well as new firms.

- 425 "Competitors Team Up To Stop AT&T." Business Week, No. 2435, June 7, 1976, pp. 31-34.

Major AT&T competitors have banded together to launch a counterattack against the monopoly over domestic communications with a \$500,000 kitty and an ad hoc committee for competitive telecommunications. AT&T has lined up sponsors who would turn FCC regulated terminal and station equipment back to state regulation.

- 426 Cowan, Donald D. and Waverman, Leonard. "The Interdependence of Communications and Data Processing: Issues in Economies of Integration and Public Policy." Bell Journal of Economics and Management Science, Autumn, 1971, pp. 657-677.

In the past few years computers and communications have become closely related. In many computer systems presently in operation it is quite difficult to separate the communications and data processing functions, while many communications systems use computers to either switch circuits or messages. This paper uses available information to examine whether there are economies to be achieved if the common carriers are allowed to offer data processing services, since many of the communications and computing functions might be integrated. This relates to the decision of the Federal Communications Commission to allow some of the carriers to operate arms-length data processing subsidiaries. The paper then focuses on the future when distributed computer networks will likely be a reality and poses certain policy questions which should be examined in anticipation of these developments. This discussion is preceded by a short description of communication and computing services, methods, and terminology.

- 427 Crew, M. A. and Kleindorfer. "Reliability and Public Utility Pricing," AER, March, 1978, pp. 31-40.

Examines the "reliability constraint" (that peak demand should exactly equal capacity) of deterministic models of public utility pricing.

- 428 Crosland, E. B. "AT&T Position Statement," Telecommunications, August 1976, 2 p.

The senior vice-president of AT&T states AT&T's position on the competition policies of the FCC and on the Consumer Communications Reform Act.

- 429 Demaree, Alan L. "The Age of Anxiety at AT&T," Fortune, May 1970, pp. 156+.

Discusses some of the corporate organization and problems of AT&T: the "balancing act" between service and profits, the blend of independence and conformity in the operating companies, forecasting and personnel problems, equipment competition and others.

- 430 Dunn, D. A. "Policy Issues by the Interdependence of Computer and Communications Services," Law & Contemporary Problems, Spring, 1969, pp. 369-388.

The Federal Communications Commission (FCC) issued a note of inquiry dated November 9, 1966, and a supplemental notice dated March 2, 1967, to obtain the opinions of the data-processing industry, the communications industry, and various governmental and other user organizations concerning FCC Docket No. 16979, Regulatory and Policy Problems Presented by the Interdependence of Computer and Communication Services and Facilities. The FCC received over 3000 pages of responses to this inquiry from over sixty organizations. It obtained the assistance of Stanford Research Institute (SRI) in digesting and analyzing these responses, and the SRI report, which was delivered to the FCC in February 1969, has recently been published. This paper attempts to abstract some of the most important ideas from the report and to present them in a readable form, with perhaps somewhat less precision and detail than is provided in the full report.

- 431 Edwards, M. "Value-Added Upgrade in the Face of ACS Threat," Communications News, Dec. 1978, 5 p.

Examines the operations of two value-added carriers -- Telenet and Tymnet. Explains the technicalities of interconnection and the types of services added by these companies.

- 432 Eger, John M. "AT&T Must Accept Competition, Not Monopoly if it is to Survive," Communications News, 1977.

Argues that the fight over competition isn't about telephone service but about the future of computers and communications. AT&T should be encouraged to enter the new computer and communications marketplace but not as a disruptive force, but as an unregulated competitor. Result would be innovation and improved services.

- 433 Eger, John M. "The Bell Bill: The Effort of the Bell System to Stifle Competition," Computers and People, October 1977, pp. 13-22.

AT&T must accept competition if it is to grow and survive.

- 434 Faulhaber, Gerald R. "Cross-Subsidization: Pricing in Public Enterprises," AER, December, 1975, pp. 966-977.

Defines and analyses the issues of cross-subsidization in enterprises with economies of joint production.

- 435 Froggatt, A. M. "Incremental Costing In Practice," in Essays on Public Utility Pricing and Regulation by Harry M. Trebing (ed.). Lansing, Michigan: State University Press, 1971, pp. 151-166.

Discusses the evolution of Bell's incremental costing process and argues that it is a more appropriate basis for rate making purposes than a fully allocated embedded cost approach.

- 436 Gabel, R. "The Early Competitive Era in Telephone Communication, 1893-1920," Law & Contemporary Problems, Vol. 34, Spring, 1969, pp. 340-359.

Traces early development of the telephone industry in terms of competition and monopoly.

- 437 Gamble, R. B. "Van Services in the U.S.," Telecommunications, July, 1978.

Examination of value-added services in telecommunications in the U.S.

- 438 Gibson, P. "Ma Bell Faces Life." Forbes, Vol. 120, No. 9, Nov. 1, 1977, pp. 47-52.

AT&T remains strong and secure under the guidance of Chairman Debutts as the firm faces anti-monopoly rulings and increased competition.

- 439 Hyde, Rosel H. "The Role of Competition and Monopoly in the Communications Industries," Anti-Trust Bulletin, Vol. 13, 1968, pp. 899-909.

Even though communications common carriers are usually thought of as natural monopoly, they are subject to at least a degree of competition.

- 440 Irwin, Manley R. "Vertical Integration and the Communications Industry: Separation of Western Electric and AT&T?" Anti-Trust Law and Economics Review, Fall, 1969.

Argues in favor of vertical disintegration.

- 441 Irwin, Manley R. "The Backside of Telecommunication Services," Public Utilities Fortnightly, June 24, 1971, pp. 35-40.

The communications industry is going through a period of extensive revision and realignment as a result of recent FCC decisions promoting competition.

- 442 Irwin, Manley R. "Computers and Communications, The Economics of Interdependence," Law and Contemporary Problems, Spring, 1969, pp. 360-368.

Examines the growing interface between computers and communications and outlines the diversification of both computer and communication firms into markets that are directly competitive.

- 443 Irwin, Manley R. "The Computer Utility: A Public Policy Overview," Selected Structure and Allocation Problems in the Regulated Industries, Institute of Public Utilities, Graduate School of Business, Michigan State University, 1969.

- 444 Irwin, Manley R. and McKee, R. E. "Vertical 'Integration' and the Communications Equipment Industry: Alternatives for Public Policy," Cornell Law Review, LII, No. 3.

Examines various policy options concerning the telecommunications equipment industry, including permitting competition by divesting telephone utilities of manufacturing affiliates.

- 445 "ITT Looks to the U.S. Again." Business Week, No. 2451, Sept. 27, 1976, p. 104.

Economic uncertainties seem more acute in Europe and International Telephone and Telegraph is considering U.S. investment despite antitrust problems in the past.

- 446 "ITT System Principal Divisions and Subsidiaries," Electrical Communication, Vol. 47, No. 4, 1972, pp. 308-311.

Gives a country-by-country listing of ITT divisions and subsidiaries in manufacturing, sales and service, and gives an alphabetical listing of its worldwide business and consumer services, international communications operations, and interests (50% and minority).

- 447 "ITT: The View From Inside," Business Week, November 3, 1973, pp. 42-63.

Reports in detail on the corporate structure of ITT - how it is run, and some of the problems it has encountered, as well as presenting a look at the executive chairman, Harold Geneen. Also reports on nine of the ITT-managed companies: Sheraton Corp., Standard Telephones and Cables Ltd., Hartford Fire Insurance Co., Cannon Electric Co., PGS Corp., Levitt and Sons, Groko, Standard Elektrik Lorenz AG, and H. M. Harper Co.

- 448 Jacobs, S. L. "AT&T Declares a Consumer Crisis," Wall Street Journal, Sept. 16, 1976.

AT&T and its allies say telephone rates will have to be increased because of competition fostered by the FCC.

- 449 Johnson, Leland W. "Technological Advance and Market Structure In Domestic Telecommunications," AER, May, 1970, pp. 204-208.

Examines the effect of competition by new entrants on the established common carrier. Such aspects as the terms under which established carriers should be permitted to compete with new entrants, the effects of "cream-skimming" by new entrants, and problems of inter connection among competing carriers are explored.

- 450 Kuehn, R. A. "Competition May Control Telephone Costs," Management Review, Vol. 64, No. 9, Sept. 1975, pp. 19-26.

The availability of many suppliers in the telecommunications industry has controlled user costs through competition, but has greatly complicated the selection

among them. Comparative cost projections for purchase and leasing are tabulated as an example of efficient cost-accounting among alternatives.

- 451 Lerner, Eugene M. "Impact of Competition on Rate of Return," Public Utilities Fortnightly, December 5, 1974, pp. 28-33.

"During an inflationary period cost of utilities increases dramatically while their ability to raise funds and undertake capital expenditures becomes impaired." This article considers the question: "Can a utility be competitive in the factor market, regulated in the product market, and still maintain its financial integrity?"

- 452 Lowry, Donald J. "Marketing Stepchild of the Telephone Industry," Public Utilities Fortnightly, March 30, 1978, pp. 16-21.

This article finds marketing to be a residual activity in the telephone industry. It is acknowledged as something to be attended to after products have been introduced to the system.

- 453 "Ma Bell Opens a New Line to Outside Suppliers." Business Week, No. 2357, Nov. 6, 1974, pp. 76G-J.

A new purchasing division at Bell resulting from Federal Communications Commission encouragement means would-be suppliers will have chance against Western Electric Equipment.

- 454 McGee, John S. and Bossett, Lowell R. "Vertical Integration Revisited," The Journal of Law & Economics.

Sketch the evolution of modern theories about vertical integration and attempts to improve the theoretical analysis.

- 455 Meyer, C. W. "Marginal Cost Pricing of Local Telephone Service," Land Economics, Vol. XLII, 1966, pp. 378-383.

Examines principle of MC pricing and its feasibility in policies.

- 456 Moulton, H. P. "Monopoly and Competition Issues Facing the Communications Industries," Anti-Trust Bulletin, Vol. 13, 1968, pp. 889-897.

Predicts that the common carrier concept will be applied to the means of mass communications transmission with free and nondiscriminatory access to all.

- 457 Mitchell, B. M. "Optimal Pricing of Local Telephone Service," AER, September 1978, pp. 517-537.

Examines some of the questions of economic efficiency and equity that arise when changes are considered in methods of pricing local telephone services. Develops a model of the demand for local telephone service, distinguishing between the demand for telephone connections and telephone calls, assesses the benefits and costs of "user sensitive pricing" for local exchange calling and compares flat rate and measured service tariffs in terms of the number of subscribers and the volume of local calls at different levels of consumer income.

- 458 Myers, S. C. "The Application of Finance Theory to Public Utility Rate Cases," Bell Journal of Economics and Management Science, Spring, 1972, pp. 58-97.

Formulates the implications of finance theory for rate of return regulation. A variety of problems in finance and the law and economics of regulation are reviewed. Also, a regulatory procedure based on finance theory is proposed for practical use.

Finance theory suggests that the "comparable earnings" standard for rate of return regulation ought to be based on utilities' costs of capital. The cost of capital is difficult to measure, since it is defined in terms of investors' expectations. But plausible estimates can be obtained for utilities. The following principle is proposed for use of these estimates: Regulation should assure that the average expected rate of return on desired new utility investment is equal to the cost of capital. This is a definition of "fair return" based on the theory of competitive equilibrium. The principle is consistent with the comparable earnings standard.

The problem of determining the appropriate rate base is also discussed. Regulation based on the book value rate base will not generally lead to efficient price, output, or investment decisions. A "competitive market value" rate base would be better from the standpoint of efficiency, since it would lead to long-run marginal cost pricing. However, long-run marginal cost pricing is not generally consistent with the principle that utilities ought to be able to expect to earn their cost of capital on new investment.

- 459 Myers, Del. "Advanced Communications Services: The Most Important System Solution Yet Advanced," Telephony, Sept. 18, 1978, 3 p.

AT&T's proposed nationwide, switched data network would give data what voice already has -- cost-effective, universal communications. Examines struggle between AT&T and IBM, and examines some of the basics of AT&T's proposal. AT&T will use the Execunet Decision of the U.S. Court of Appeals to enter this market. The Court had ruled that a carrier is entitled to offer a new service over existing facilities even if the service was not specifically authorized so long as it was not specifically forbidden.

- 460 Needham, D. "Entry Barriers and Non-Price Aspects of Firms' Behavior," The Journal of Industrial Economics, September, 1976, pp. 29-43.

Examines the current state of entry barrier theory and provides an analytical framework for the extension of the theory to incorporate advertising entry barriers.

- 461 "New Stars In The Communications Firmament," Communications News, Feb. 1977, pp. 37-55.

Examines the operations and services provided by specialized common carriers (SCC's) and domestic satellite carriers. These include the operations of MCI, SPC, USTS, Western-Telecom., CPI Microwave, Midwestern Relay Co., Telenet, Tymnet, Graphnet, and Southern Satellite Systems. Services include value-added and resale services, and various data transmission services

- 462 Newton, H. "1977 The Year Competition Became Real for the Telcos." Telephone Engineer and Management, Jan. 15, 1978.

Examines the entry of competitors in the telecommunications industry.

- 463 "On the Head of a Pin," Forbes, Vol. 118, No. 6, September 15, 1976, pp. 56-58.

If terminal market competition between AT&T and IBM is permitted by FCC, a great deal of public interest would be generated.

- 464 Panzar, John C. and Sibley, David S. "Public Utility Pricing Under Risk: The Case of Self-Rationing," AER, December 1978, pp. 888-895.

Combines optimal pricing decisions with a rudimentary form of load management, similar to some which have been in use for many years in Europe. Each consumer subscribes to a particular level of capacity. He pays a capacity charge for the amount he subscribes to and a usage charge for each unit actually consumed.

- 465 Pearce, A. "Divest Manufacturing," Telecommunications, October, 1978.

Argues that the manufacturing subsidiary divestiture proposal contained in the Communications Bill of 1978 would have a major adverse impact on the telecommunications industry.

- 466 Pearce, A. "Communication Act Hearings," Telecommunications, Nov. 1978.

Brief review of the Congressional hearings on the Rewrite of the Communications Act. Contends that the Bill is too controversial to stand much of a chance of passage in Congress.

- 467 Rohlfs, J. "A Theory of Interdependent Demand for a Communications Service," Bell Journal of Economics and Management Science, Spring 1974, pp. 16-37.

The utility that a subscriber derives from a communications service increases as others join the system. This is a classic case of external economics in consumption and has fundamental importance for the economic analysis of the communications industry. This article analyzes the economic theory of this kind of interdependent demand.

- 468 Rose, Joseph R. "Telephone Rates and Cost Behavior," Land Economics, Vol. XXVI, pp. 249-257.

Rates should be predicated on cost insofar as cost can be determined.

- 469 Rosen, G. R. "Communications Dogfight," Dun's Review, Vol. 109, No. 6, June 1977, pp. 48-53.

A battle is developing between AT&T and the independent phone companies on one side, the the manufacturers of terminals and other equipment on the other side. The manufacturers want to become involved in transmission, particularly of data, while AT&T claims that if competition is allowed to develop, the consumer will not receive good telephone service at moderate prices. Some congressmen want to reform the Communications Act completely. This has radio and television broadcasters worried, for they benefit under the Act.

- 470 Rostow, Eugene V. "The Great Telephone Debate," Telephony, Part I, June 6, 1977, 7 p., Part II, June 20, 1977, 6 p.

Competition in the telephone industry is not in the public interest. The new competition will reduce revenues of the established carriers and result in an increase of rates for household subscribers.

Examines alternative pricing policies and problems involved and favors incremental cost pricing as proposed by AT&T.

- 471 Schuyten, P. J. "Xerox Is Entering Telecommunications," The New York Times, November 17, 1978.

Xerox filed a petition with the FCC asking that a lightly used portion of the upper radio spectrum be allocated for use in a high-speed, satellite-based communications network that the company plans to build and operate nationwide. Xerox will be in competition with both IBM and AT&T in providing specialized business communications systems.

- 472 Selwyn, Lee L. "Pricing Telephone Terminal Equipment Under Competition," Public Utilities Fortnightly, December 8, 1977, pp. 13-22.

Examines the basis for identification of the presence of cross-subsidies between competitive and monopoly services and seeks an approach to the pricing of competitive services which will most closely resemble the financial arrangements available from non-regulated suppliers.

- 473 Shepherd, W. G. "Entry as a Substitute for Regulation," American Economic Association, Vol. 63, No. 2, May, 1973, pp. 98-105.

Entry and competition have been touted as ready alternatives to regulation, but entry poses more difficult and fundamental questions for regulation than are commonly recognized.

- 474 Shepherd, W. G. "Marginal-Cost Pricing in American Utilities," Southern Economic Journal, July 1966, pp. 58-70.

Utility companies in the U.S. regard MC pricing as impractical and undesirable. Makes a case for MC pricing.

- 475 Shepherd, W. G. "The Competitive Margin In Communications," The Journal of Reprints for Anti-Trust Law and Economics, Winter-Spring, 1973-74, pp. 567-603. Reprint from Technological Change in Regulated Industries, Brookings Institute, 1971, Ch. 4.

The FCC has shielded the carriers structurally without effectively controlling or even clarifying their behavior. A more effective approach would have been more competitive possibilities, thereby reducing the need for behavioral constraints.

- 476 Shrieves, R. F. "Market Structure and Innovation: A New Perspective," The Journal of Industrial Economics, June, 1978, Vol. XXVI, pp. 329-347.

The relationship between concentration of industry and innovative activity depends upon the types of products sold and the kinds of markets served by the industry. High concentration levels may have an adverse effect on innovative effort in some industries.

- 477 Sickler, B. J. "A Theory of Telephone Rates," The Journal of Land and Public Utility Economics, Vol. IV, pp. 175-188.

All rate problems may be reduced to the question of how to charge each service for the added costs which it occasions and still distribute overhead costs on the basis of relative value of service.

- 478 "SP Communications' Gus Grant and Rex Hollis Talk About DATRAN," Communications News, July 1977.

Discusses the bankruptcy of DATRAN, a data specialized common carrier and its purchase by Southern Pacific Communications, another specialized common carrier.

- 479 Squirt, Lyn. "Some Aspects of Optimal Pricing for Telecommunications," Bell Journal of Economics and Management Science, Autumn, 1973, pp. 515-525.

The published work on telecommunications has been primarily concerned with marginal cost pricing and the peak-load problem: externalities generated by the telephone have been ignored. This article stresses two externalities -- the one created when someone makes a call and the other created when a new subscriber joins the system. The two externalities represent benefits. Optimal prices are determined allowing for these externalities.

- 480 Strassburg, B. "The Great Telephone Debate Drags On," Telephony, Aug. 15, 1977, 5 p.

Disputes the telephone industry's arguments about the folly of competition. Outlines the trend toward competition and the industry's response. Argues that the real issue is not whether monopoly or competition will serve the public interest, as the evidence favoring competition is overwhelming. The real issue is how should the Bell System relate to a competitive market.

- 481 Strassburg, B. "Competition and Monopoly in the Computer and Data Transmission Industries," Anti-Trust Bulletin, Vol. 13, 1968, pp. 991-997.

Argues that it is the function of FCC to remove the economic and other inhibitions that may prevent the partnership of computers and communications.

- 482 Swan, Peter. "Market Structure and Technological Progress. The Influence of Monopoly on Product Innovations." QJE, November 1970, pp. 627-637.

The interest of the monopolist is not to delay the introduction of new substitute products, but rather to introduce them along with the previous products in smaller amounts and at higher prices and profits than would a competitive industry.

- 483 "Telephone Monopoly: Good or Bad?", U.S. News, November 22, 1976, pp. 43-44.

Interview with John D. deButts, Chairman, AT&T, and Richard E. Wiley, Chairman, FCC.

- 484 "The New Telephone Industry," Business Week, Feb. 13, 1978, pp. 68-71.

Competition and technology mean even faster growth over the next 20 years in the telephone and telephone equipment industries.

- 485 "The Management Style of John de Butts," Harvard Business Review, January-February 1974, pp. 34+.

Interviews the chairman of the board of AT&T to determine his management style -- how he runs a business organization as large as AT&T.

- 486 "TRT: An Irritating Challenge to the Giants." Business Week, No. 2479, April 18, 1977, pp. 56K-56NM.

TRT Telecommunications Corp. is forcing the top four in international communication (AT&T, ITT, RCA, and Western Union International) to be more competitive. TRT is using competitive marketing to increase its share of the market and is urging the FCC to open up rates to competition.

- 487 Turvey, Ralph. "Marginal Cost," Economic Journal, June, 1969, pp. 282-298.

Surveys developments in the concept of marginal cost with particular reference to marginal-cost pricing. Includes section on how provision for obsolescence and calculation of depreciation should be treated in MC pricing.

- 488 "Unions Scramble for Power in Communications." Business Week, No. 2532, May 1, 1978, pp. 83-86.

The Communications Workers of America, the Union to which the Bell System employees belong, is attempting to convince Congress to pass legislation which would protect Bell's monopoly position in the telecommunications industry, automation, and the fast growing interconnect industry have caused a lessening of power both for Bell and for the CWA.

- 489 Utall, B. "IBM Reaches for a Golden Future In the Heavens," Fortune, June 1977.

Outlines IBM's admission to the satellite communications field and what it means. Examines the plans of Satellite Business Systems (SBS) which involves two satellites, with a potential of up to seven satellites and 3500 earth stations. Competing common carriers fear that SBS, with the computer market leverage of IBM behind it, will dominate the high speed data communication business. The result could be a vertically integrated industry which will lock the competitors out and not permit them to hook up to it.

To prevent such a marketing relationship the FCC ordered IBM and SBS not to sell or promote each others products, and ordered SBS not to do anything that would prevent outsiders from interconnecting.

The Bell system is prepared to compete fully with SBS, although SBS had an advantage in that the FCC ordered AT&T not to use satellites for private-line services until 1979.

- 490 Von Rabenau, B. and Stohl, K. "Dynamic Aspects of Public Goods: A Further Analysis of the Telephone System," Bell Journal of Economics and Management Science, Autumn, 1979, pp. 651-669.

Extend the dynamic model of the telephone system developed by Artle and Overous.

- 491 "Will Competition Adversely Impact Telephone Company Revenue Requirements," Business Communications Review, Sept.-Oct., 1977.

Edited version of the Stanford Research Institute Report on the findings in FCC Docket 20003. (See #512 Stanford Research Institute).

- 492 Williamson, Oliver E. "Peak-Load Pricing and Optimal Capacity Under Indivisibility Constraints," AER, September, 1966, pp. 810-827.

A theoretical examination of peak-load pricing. Derives criteria for optimal pricing of peak and off-peak loads.

- 493 "Why Ma Bell Might Better be Called Grandma Bell." Business Week, No. 2470, Feb. 14, 1977, p. 91.

A brokerage house study of AT&T indicates that its future is risky. The accounting system is outdated, and there is an amazing lack of data and information for a well-run company.

GOVERNMENT DOCUMENTS

- 494 Battle, C. Tucker; Finucane, James S.; Lucas, Gary L.; MacDonald, Bruce W. A Pricing Model for Interstate Telephone Services. System Planning Corp., Arlington, Va. Office of Telecommunications, Boulder, Colo. Policy Research Div., June 30, 1976, 113 p.

Problems of pricing and issues related to industry structure in the telecommunications industry are analyzed by maximizing the sum of consumers' surplus and producers' surplus, subject to certain constraints. Appropriate forms of the demand and cost functions are defined and the integral expression for consumers' surplus is developed. Linear demand and cost functions are defined and closed-form solutions are found to be one of the standard problems. It appears that the SUMT algorithm is a useful computational aid for solving problems which are not solvable in closed-form. It appears that data filed in support of, and in opposition to, various interstate tariff revisions will be useful, primary sources of data. Finally, an example problem associated with the proposed rates for the American Telephone and Telegraph Company's (AT&T) Digital Data Service (DDS) is formulated and solved in order to explore further practicalities of the approach. It is concluded that the consumers' surplus approach can be profitably applied to interstate telecommunications policy issues. While certain theoretical, structural and data availability problems remain, it appears that the approach is ready to be used to perform an in-depth analysis of a carefully selected policy issue.

- 495 Berman, Paul J., Gettinger, Anthony G. The Medium and the Telephone: The Politics of Information Resources. Harvard Univ., Cambridge, Mass. Program on Information Technologies and Public Policy, June 1976, 174 p.

The report traces the politics, economics and technology of telecommunications pricing and costing policy using newspaper and television news as a concrete example for probing policy impacts. It outlines a public policy agenda for addressing issues like those raised by the bills for the Consumer Communications Reform Act of 1976. Divided federal-state jurisdiction, renewed competition, rate-setting mechanisms and technological change are among the factors considered. Players are identified as are their stakes and the issues and policy questions they face.

- 496 Braeutigam, Ronald R. An Investigation of Cross Subsidy, Industry Structure, and Pricing, with Applications to Data Under Voice. Staff Research Paper, Office of

Telecommunications Policy, Washington, D.C. July 1973, 105 p.

The paper deals with the following closely related issues in the context of the telecommunications industry: pricing, industry structure, and service cross-subsidy. Where a multi-product firm, some of whose products are monopolistic, participants in competitive markets, the presence of cross-subsidized pricing may have a significant impact on the structure of the industry and its performance in terms of how efficiently resources are allocated, how progressive it is, how income is distributed, etc. The paper draws on the case of Data Under Voice technology to elucidate various definitions and tests of cross-subsidy: incremental Cost Test, Burden Test, Marginal Cost Test, Stand Alone Test, and Consumer Surplus Maximization. Finally, the paper evaluates various industry structures in terms of the maximum level of consumer surplus achievable under each, indicating prices which are economically efficient in each case.

- 497 Conference on Communications Policy Research, 17-18 November 1972, Washington, D.C. papers and proceedings. Office of Telecommunications Policy, Washington, D.C., November 18, 1972, 333 p.

Contents: some preliminary thoughts on subsidization; on subsidization -- some observations and tentative conclusions; Publicly owned versus privately owned utilities -- a public choice; Spectrum allocation and regulatory incentives; Studies in the economics of mass communication; Decentralization of public television; Democracy in the newsroom and the FCC; the economics of cable television consensus; Cable television as a common carrier; The role of analysis in the formation of cable policy.

- 498 Criner, James C. History of Resale in Common Carrier Telecommunications. Office of Telecommunications, Washington, D.C. Policy Support Div., December 1975, 45 p.

The Federal Communications Commission has begun an investigation into shared use and resale in the communications industry. This document presents the background information needed to consider this subject. The Telpak sharing issue is reviewed. The experiment with brokers using Series 11000 is presented. Value Added Network Services (VANS) are described. The rules currently in effect are explained. Services dependent upon shared use and resale are explained.

499 Congress, Subcommittee on Anti-Trust and Monopoly.
Industrial Reorganization Act, Part 2: The Communications
 Industry. July 30-31, Aug. 1-2, 1973, v+497-1771 p. 11.

Continuation of hearings before the Subcom on Antitrust and Monopoly on S.1167, the Industrial Reorganization Act, to supplement the antitrust laws. (For complete bill definition, see S. 521-27.) This volume focuses on the telecommunications industry and investigates the extent of competition in the industry and the role played by the American Telephone and Telegraph Co. (AT & T).

Includes report titled "Customer-Owned Equipment Interconnection in Japan" by the Research Institute of Telecommunications and Economics, Japan (p. 1089-1095).

July 30, 1973, p. 497-716.

WITNESS: Cox, Kenneth A., sr. vp. MCI Communications Corp.; former member, FCC.

STATEMENT: Review of AT & T reaction to development of private microwave technology and resulting effect on microwave equipment industry: steps taken by AT & T to discourage competition in specialized carrier services; urged Subcom reinforcement of FCC's regulatory ability and establishment of a Bureau of Competition within FCC. (pp. 497-507)

DISCUSSION: Overview of AT & T diversity and resulting costs to competitors and consumers; reasons for supporting S. 1167; estimated effect of increased competition on AT & T. (pp. 507-532).

WRITTEN STATEMENT: Examination of AT & T's dominant status in telecommunications industry (charts, p. 534-536); history of U.S. telecommunications development and regulation; review of FCC attempts to encourage industry competition; amplification of AT & T practices enforcing its monopoly position. (p. 532-716)

INSERTIONS: Testimony of Jerry S. Cohen (former Subcom Staff Dir and Gen Counsel) before FCC, Mar. 7, 1972, relating to AT&T dominance (p. 558-597).

"Regulating Prices in Competitive Markets" by Roger G. Noll and Lewis A. Rivlin," from Yale Law Journal, June 1973 (p. 598-606).

Court documents relating to antitrust actions against Western Electric Co. and AT & T, US Dist Court, Dist of NJ (p. 607-639).

Court decision and final judgment in International Telephone and Telegraph Corp. v. General Telephone and Electronics Corp. and Hawaiian Telephone Co., US Dist Court, Dist of Hawaii, Civil Action No. 2754 (p. 640-712).

WITNESS: McGowan, William G., bd chm, chief exec officer, MCI Communications Corp.

STATEMENT: Description of MCI business activities and area of competition with AT & T; charged AT & T continued attempts to maintain its monopoly status. (p. 716-723).

DISCUSSION: Explanation of private line market and extent of needed cooperation with local telephone companies; comparison of telecommunications industries in U.S. and Canada; sources of MCI financing (p. 723-738)

WRITTEN STATEMENT: Benefits to U.S. of specialized common carriers industry establishment: effect of specialized common carriers on public telephone users: description and status of specialized common carrier industry (table p. 749-750); description of AT & T alleged monopolistic activities (p. 738-771)

Recommendations to Improve Competition in telecommunications industry (p. 771-774)

INSERTIONS: "The Myth of Economies of Scale in Telephone Networks" by W. G. McGowan (p. 775-845)
"Specialized Common Carriers" by Philip M. Walker and Stuart L. Mathison (p. 846-865)

July 30, 1973, p. 893-911

WITNESS: Wolf, Sherman M., pres. Zip-Call, Mass; past pres. Natl Assn of Radiotelephone Systems

STATEMENT AND DISCUSSION: Description of radiotelephone industry and its dependence on Bell System; review of personal difficulties with New England Telephone and Telegraph Co.; examples of AT & T anticompetitive practices.

INSERTION: "The Evolution of the Radio Common Carrier Industry" with charts (p. 907-911).

July 31, 1973, p. 913-995.

WITNESS: Carter, Thomas F., pres. North Amer Telephone Assn, Dallas, Tex; ACC. BY: Splevack, Edwin B., counsel.

STATEMENT: Review of Hush-A-Phone and Carterfone antitrust suits against AT & T and of AT & T efforts to restrain competition; interconnect industry's difficulties in obtaining relief through legal processes (p. 913-920).

DISCUSSION: Examination of legal problems involving ownership of communications systems; review of problems with AT & T coupler designs; denial of AT & T allegations regarding possible damage to and/or distortion

of communications networks from use of customer-provided equipment; desirability of revising State statutes to provide for competition in the communications industry (p. 923-995)

INSERTIONS: State of NY Public Service Commission opinion No. 72x18. Re Case 26064 concerning Rochester Telephone Corp., opinion and order authorizing interconnection of customer-owned equipment, Aug. 21, 1972 (p. 943-962)

"Interconnection: How It Affects Telephone Company Finances" from Telephone Engr and Mgmt (p. 963-971)

"Public Utility Ratemaking and Competitive Structure: Carterfone in Jeopardy" by Warren J. Samuels (p. 978-992)

July 31, 1973, p. 996-1000

WITNESS: McKersie, Don, pres. TPI, Inc. Grand Rapids, Mich.

STATEMENT: Support for S. 1167 where applicable to telephone industry; effects of Michigan Bell practices on competition.

July 31, 1973, p. 1001-1088

WITNESS: Corman, W.F., gen mgr, Southland Telephone Co. Atmore, Ala.

STATEMENT: Absence of Bell System monopoly abuses; analysis of issues involved in customer-owned equipment interconnection prohibitions; consequences of competition in long distance lines (p. 1001-1088).

DISCUSSION: Advantages and accomplishments of independent phone companies (p. 1008-1088)

INSERTION: "The Misunderstood Half Billion Dollars: Independent Toll Revenue" by W. F. Corman (p. 1030-1088)

July 31, 1973, p. 1095-1126

WITNESS: Cosgrove, John S. Tate Communications Consultants, Troy, Mich.

STATEMENT AND DISCUSSION: Charges and examples of AT & T anticompetitive and monopolistic practices; recommended divestiture of Western Electric as the manufacturing arm of AT & T; personal observations, as a former AT & T employee, regarding competition.

INSERTION: Excerpts from Mich Bell Tie Lines, Jan. 1973, regarding competition (p. 1114-1126)

Aug. 1, 1973, pp. 1171-1237

WITNESS: Irwin, Manley R., economics prof. Whittemore School of Business, NH; ACC. BY: Ende, Asher, Chief, Agency Task Force and Dep. Chief, Common Carrier Bur., FCC.

STATEMENT AND DISCUSSION: Reasons for turmoil in telecommunications industry and review of options for public policies; recommended divestiture of all telephone manufacturing from telephone utility operations; description of FCC investigation into Bell System components interrelationships; types of sanctions available to FCC in noncompliance cases.

Aug. 1, 1973, p. 1238-1271

WITNESS: Melody, William H., Assoc. prof. of Communications Economics, Annenberg School of Communications, Univ. of Pa.

STATEMENT AND DISCUSSION: Charged Bell System benefits from public utility regulations operation and relative immunity from antitrust prosecution; need for and suggestions regarding communications industry restructuring; critique of AT&T public relations statement issued after previous hearing; denial of claimed social benefits from uniform tariffs based on cost averaging and of Bell System charges of "cream skimming" against its competitors.

INSERTION: "Interconnections: Impact on Competition, Carriers, and Regulation" (p. 1260-1271).

Aug. 2, 1973, p. 1273-1771

WITNESS: Fletcher, Stephen H., vp and gen counsel, Western Electric Co.; Baird, J.A., vp, engineering, AT&T; Cook, George V., vp State regulatory matters, AT&T.

STATEMENTS: Benefits from Bell System's Integrated structure; technical factors necessitating Bell System's vertical integration and terminal interconnection policy; historical basis and social implications of telecommunications ratemaking processes and potential harmful effects on users of competition (p. 1273-1294).

DISCUSSION: Justification for Bell System's centralized purchasing policies; desirability of a single nationwide telephone company; response to MCI comments on effects of competition on Bell System profits and rates; denial of Bell System obstruction of telecommunications industry progress (p. 1294-1350).

Nature of limitations on Western Electric's product exports; analysis of issues involving couplers used with interconnecting privately owned equipment; explanation

of Bell System's stand on competitive bidding process; extent of Bell's investigation into effects of Western Electric divestiture on telephone service (p. 1350-1363)

Defense of Bell's innovative success record; number and nature (correspondence with FCC p. 1368-1405) of consumer complaints about Bell System service (p. 1363-1771).

INSERTIONS: "Performance of Western Electric's Purchasing and Transportation Division" Chapter 111 of "A Study of Western Electric's Performance" by McKinsey & Co. 1969 (p. 1309-1324).

"Competition and Monopoly in Telecommunications Services" by William J. Baumol, et al., Nov. 23, 1970 (p. 1333-1349)

"Impact: A Compilation of Bell System Innovations in Science and Engineering which have Helped Create New Industries and New Products" by technical staff, Bell Telephone Labs and patent licensing div. Western Electric Co. (p. 1449-1599).

"Full Costing, Competition, and Regulatory Practice" by W. J. Baumol and Alfred G. Walton from Yale Law Journal, Mar. 1973, excerpt (p. 1600-1616).

Bell System supplemental statement and comments on previous testimony (p. 1617-1744).

Response to Bell's supplemental statement by Manley R. Irwin (p. 1744-1756).

Response to Bell's supplemental statement by John S. Cosgrove (p. 1756-1761).

500 Congress, Subcommittee on Antitrust and Monopoly, Industrial Reorganization ACT, Part 5: The Communications Industry, June 20, 21, 25, 27, 1974: x+2735-3836 p. 11.

Continuation of hearings before the Subcom on Antitrust and Monopoly on s.1167, the Industrial Reorganization Act to supplement antitrust laws by:

a. Declaring existence of monopoly power if any four or less corporations account for 50% or more of sales in any line of commerce in one year out of three preceding the filing of complaint.

b. Establishing an independent agency, the industrial Reorganization Commission, with authority to study structure and extent of concentration, and develop plans of reorganization for several specific industries.

c. Establishing an Industrial Reorganization Court to hear complaints on proposed reorganization orders.

This volume resumes 1973 hearings (see 1974 C15/Index, S521-37, S521-45, S521-46) on the telecommunications industry, and investigates the extent of competition in

the industry and the role played by the American Telephone and Telegraph Co. (AT&T) and its wholly or partly owned subsidiaries: Western Electric Co., AT&T Long Lines Dept., Bell Laboratories and Bell System operating companies.

Hearings focus on impact of FCC Carterfone decision, declaring that operating telephone companies could not refuse to allow connection of non-Bell System equipment to the national telephone networks. Witnesses and committee investigate alleged inhibition of interconnect industry functioning by AT&T and Bell companies obtaining tariff requirements for the use of protective connecting devices, known as "interfaces" in interconnection of privately owned or leased telephone equipment to the Bell network.

Most testimonies include extensive documentation. In addition, extensive exhibits introduced by subcom staff appear throughout, and include industry memos, correspondence, technical reports, and:

- a. Index to letters and documents provided to subcom regarding the Bell System and Interconnection (p. 2766-2767).
- b. Forty folders of correspondence and supporting documents filed by various parties complaining of unfair trade practices by Bell companies and examples of Bell System responses to competition.
- c. Exhibits filed by MCI Telecommunications Corp. detailing action AT&T and Bell operating companies have allegedly taken against MCI and their customers (p. 3002-3060).
- d. AT&T listing of officers and directors of associated companies of Bell System, with their other corporate affiliations as of Sept. 19, 1974 (p. 3462-3491).
- e. Exhibits relating to history of Rice International Corp. difficulty in marketing product because of inability in obtaining interface devices including legal documents and correspondence (p. 3654-3720).

June 20, 1974, p. 2736-2754.

WITNESS: Ashorn, Julie A., travel agent, Knox Intl. Tours, Houston, Tex.

STATEMENT AND DISCUSSION: Account of instructions not to book Bell personnel on Continental Airlines after airline's installation of non-Bell equipment.

INSERTION: AT&T response to Mrs. Ashorn, and various other communications alleging Bell operating companies' attempts to restrain competition (p. 2742-2754).

June 21, 1974, p. 2760-2765

WITNESS: Thrun, Wolfgang M., pres. Thrun Chevrolet, Inc., Des Moines, Iowa.

STATEMENT AND DISCUSSION: Claimed efforts of Northwestern Bell Telephone to induce purchase of its, rather than competitors', equipment.

INSERTION: AT&T response (p. 2765).

June 25, 1974, p. 3067-3287

WITNESS: Kelly, Thomas L., Jr., pres. TIE/Communications, Inc.

STATEMENT AND DISCUSSION: Profile of TIE and its growth; interconnect industry's impact on AT&T, and importance for AT&T and public of innovation; critique of AT&T arguments that competition jeopardizes U.S. communications network and economical service to public; nonlegislative solutions to assure industry competition, and reasons for needed legislation to divest Western Electric from AT&T.

INSERTIONS: Speech by Nicholas Johnson (FCC Commr) for Digitronics Users Assn Conf Oct 1970 (p. 3151-3159)
Bell Labs memo on Nitsuko/TIE 1030 features and economic evaluation, Feb. 1972 (p. 3180-3208).
NJ Bell Telephone proposed tariff for new package rates for competitors' Key Telephone Service, related documents (p. 3208-3240).

"The Domestic Telecommunications Carrier Industry," Chapter 6 of Final Report of Pres' Task Force on Communications Policy, Dec. 1968 (p. 3244-3260).

Testimony of Southern Pacific Communications Co. before Natl Assn of Regulatory Utility Commrs regarding impact of AT&T competitors on the public switched telephone network and on provision of telecommunication service, Feb. 5, 27, 1974 (p. 3260-3270).

"Interconnection: An Economic Impact Analysis," excerpts from "Dittberner Rpt" of 1968, Office of Telecommunications Policy, Exec Office of Pres; AT&T correspondence with and modification of rpt by Dittberner Assocs; and AT&T commentary, Sept. 30, July 30, 1974 (p. 3273-3287).

June 25, 1974, p. 3288-3461, 3491-3503.

WITNESS: Fox, Ronald B., vp mktg. TPI, Inc.

STATEMENT AND DISCUSSION: Examples of alleged Michigan Bell actions to stifle competition, and impacts on TPI; case history (chronology, p. 3306-3309) of Calvin College attempts to acquire interconnection; uses of AT&T-required interface and of State regulatory processes to thwart competition.

INSERTIONS: Various supporting documents on Bell System's, particularly Mich. Bell's, relationships with clients, prospective clients, and independent consultants (p. 3320-3461, 3491-3503), including;

a. AT&T technical manual for KS-20721 station coupler voice connection arrangements, May 1971 (p. 3362-3383).

b. Mich Bell correspondence, promotional materials, and sample contract for prospective customers (p. 3407-3434).

June 25, 1974, p. 3503-3653, 3720-3725

WITNESS: Feirer, Robert L., pres. Phonotele, Inc., Van Nuys, Calif.

STATEMENT AND DISCUSSION: Alleged failure of Justice Dept to enforce antitrust laws; account of own involvement and costs in various regulatory commission cases to change Bell tariffs for, and relieve alleged Bell obstructions of, interconnection of competitive equipment; alleged Bell obstructions of, interconnection of competitive equipment; analysis of AT&T economic reasons for fighting competing interconnection certification.

INSERTIONS: Exhibits related to Phonotele cases before Calif Public Utilities Commission involving Pacific Telephone & Telegraph Co. and General Telephone, and before the NY State Public Service Commission involving NY Telephone Co. and General Telephone of Upstate NY (p. 3521-3653), including:

a. Tabular index to exhibits (p. 3521-3526)

b. Calif Supreme Court decision supporting Phonotele text (p. 3595-3598)

c. Annotated bibliography of definitions of "natural monopoly" from 18 publications (p. 3623-3648).

June 27, 1974, p. 3728-3782, 3789-3805

WITNESS: Craver, Theodore F., dir. of trade regulations, business telephone systems div Litton System, Inc. (Litton BTS).

STATEMENT AND DISCUSSION: Recommendations for restructuring telephone terminal equipment market without Western Electric divestiture; examples of charged State regulatory commissions' ineffectiveness in implementing principles of competition and of their unresponsiveness or negative bias toward interconnection companies.

Bell companies' alleged anticompetitive use of below-cost pricing, and reasons for State agencies' disinclination to examine costs; support for total deregulation of industry; claimed unfairness of Bell companies' requirement for Bell interface equipment.

INSERTION: Documents pertaining to cases before several State regulatory commissions regarding Bell System operating companies' tariffs and interface/interconnect systems availability, including Litton BTS before Calif. Public Utilities Commission (Case 9625), filed Oct. 24, 1973 (p. 3789-3805).

June 27, 1974, p. 3805-3836

WITNESS: Colter, Cyrus J., Northwestern Univ.: former commr. Ill Commerce Commission.

STATEMENT AND DISCUSSION: Difficulties of State commissioners in dealing with rate cases; objections to Mr. Craver's suggested deregulation of industry.

INSERTION: "Interconnection of Customer-Owned Equipment with the Telephone Network" by William K. Jones (dep. chm. and commr. NY State Public Service Commission), for seminar of Intl. Communications Assn., Jan. 25, 1973, with attached "Preliminary Memorandum on the Nature of Telephone Company Costs" (p. 3813-3833).

501 Congress, Subcommittee on Anti-Trust and Monopoly, Industrial Reorganization Act, Part 6: The Communications Industry, July 9, 30, 31, 1974; x+3837-4832, p. 11.

Continuation of hearings before the Subcom on Antitrust and Monopoly on S.1167, the Industrial Reorganization Act, to supplement the antitrust laws. This volume resumes examination of the telecommunications industry, the extent of competition in the industry, and the role played by the American Telephone and Telegraph Co. (AT&T) and its subsidiaries.

Part 6 focuses on AT&T, other industry spokesmen, and other interested parties' responses to charges of Bell System anticompetitive practices and to proposed divestiture of Bell subsidiaries from the parent company.

Many witnesses address part of their remarks to the desirability of encouraging competing companies in the interconnect industry, so called because specialized equipment or lines manufactured or distributed by these companies must be connected to the Bell network lines.

Includes extensive documentation throughout. Appendix (p. 4749-4832) contains correspondence and statements subsequently received for the records, including:

- a. Data Transmission Co. (DATRAN) comments on s.1167 and allegations of Bell System anticompetitive practices, and AT&T response, Sept. 1974 (p. 4751-4767).
- b. Kraus, Raymond M. (Pres. Consulting Communications Engineers, Inc.), correspondence with supporting materials on merits of proposed "Voicegram" system for transmitting telephonic messages, currently opposed by Bell System (p. 4767-4327).

July 9, 1974, p. 3837-3914

WITNESS: Whitehead, Clay T., Dir. Office of Telecommunications Policy, Exec. Office of Pres.

STATEMENT AND DISCUSSION: Reasons for traditional regulatory apparatus having become impediment to new communications services' growth, suggested principles for future communications policy, including retention of monopoly only in basic local telephone service; need for enforcement, and congressional encouragement of FCC to facilitate range of communications capabilities; objections to s.1167 Industrial Reorganization Commission establishment.

INSERTIONS: "Barriers to Entry and Boundaries Between Regulated and Unregulated Telecommunication Services: The Equipment Market" by Richard Gabel, paper presented at Telecommunications Policy Research Conf. Airlie House, Va., Apr. 1974 (p. 3857-3870).

"Telecommunications Interconnection: Wherefrom and Whither to?" by R. Gabel, excerpt from Communications Technology and Social Policy, Chapter 8 (p. 3871-3689).

"The Early Competitive Era in Telephone Communication, 1893-1920" by R. Gabel, excerpt from Law and Contemporary Problems, Duke Univ. School of Law, Spring 1969 (p. 3890-3909).

July 9, 1974, p. 3954-3986

WITNESS: Nathan, Robert R., Robert R. Nathan Assocs, Inc.

STATEMENT AND DISCUSSION: Examination of telephone industry's economic characteristics and performance; rationale for industry monopoly; needed caution in imposing additional regulation on communications and in allowing entrance of competing terminal devices and special carriers.

July 30, 1974, p. 4009-4062.

WITNESS: Rostow, Eugene V., Sterling prof of law and pub aff. Yale Univ. former chm. President's Task Force on Communications Policy.

STATEMENT AND DISCUSSION: General objections to economic theories underlying s.1167 and to bill's enforcement machinery; specific objections to bill in application to Bell System; reaffirmation of Task Force 1968 final report findings on technological, economic, and security policy reasons for continuing vertically integrated Bell System.

Criticisms of alleged anticompetitive FCC policy and actions in protecting competitors in interconnection and other non-network lines businesses; certainty of adverse effects on consumer rates upon entrance of competing companies; Bell's achievements in innovation; challenges to Mr. Whitehead's arguments.

INSERTION: Text of s.3580, the Home Telephone Act, to provide that the Congress encourage establishment and maintenance of local telephone service rates economically feasible for all households (p. 4062).

July 30, 1974, p. 4062-4295

WITNESS: McDermott, Frank A., Jr., former dir of sales dev AT&T; vp and compt NY Telephone Co.

STATEMENT AND DISCUSSION: Descriptions of Bell System marketing and sales policy and practices in response to competition as ethical, legal, and aggressive; evidence of innovativeness and responsiveness to customer need in product development and pricing options; Bell System point-by-point responses to allegations and complaints of witnesses or in materials submitted into record of June 1974 hearings (see s521-21).

INSERTIONS: AT&T internal correspondence on Bell System mktg guidelines for competitive situations, 1969-73 (p. 4100-4123).

Histories of selected Bell System products and systems devs (p. 4127-4133)

Responses to allegations against Bell System activities

by June witnesses or of charges placed in record, including refutations by Mich Bell Telephone Co. of Ronald B. Fox in Calvin Coll case (p. 4141-4187 passim).

Rebuttal by Robert L. Feiner to Mr. McDermott's testimony (p. 4188-4190).

Pacific Telephone manual comparing Bell with non-Bell equipment (p. 4213-4285).

July 30, 1974, p. 4295-4316

WITNESS: Willbourn, Hugh R., Jr., pres. bd. chm. Allied Telephone Co. Little Rock, Ark; first vp, US independent Telephone Assn (USITA); ACC BY: Mott, William C. (adm., ret.), exec vp USITA.

STATEMENT AND DISCUSSION: Reasons for eventual increased residential telephone rates from new Federal policies on competition; anticipated sequence of adverse economic impacts from possible dissolution of AT&T complex and entrance of competitive telecommunications hardware companies.

July 31, 1974, p. 4317-4747

WITNESS: Crosland, Edward B., sr vp AT&T; dir. Chesapeake and Potomac Telephone Co. of Va and South Central Bell Telephone Co.; Fletcher, Stephen H., vp gen counsel, Western Electric Co.; Hough, Richard R., pres. AT&T Long Lines Dept.; vp engineering, AT&T; Trienens, Howard J. atty. Sidney & Austin, Chicago, Ill.; Baker, William O., pres. Bell Telephone Labs, Inc.

STATEMENT AND DISCUSSION: Economic considerations in Bell System's vertical and horizontal structure accounting for achievements in service and "value of service" averaged rate structure beneficial to householders; claimed harmful effects to network and on residential rates (study, p. 4428-4433) from fragmenting communications system through laws or policies encouraging entrepreneurs, in selected, more profitable, industry segments.

Reasons for claimed essentiality of single entity continuing responsibility for managing and operating telecommunications network; comparisons and points of similarity between results of regulatory enforcement of competition in railroad industry and possible breakup of Bell.

Greater stimulus for innovation from in-system pressures than from outside market for improved technology and cost-efficiency; rationale for required collaboration of Bell Labs with Western Electric and other subsidiaries; examples of service-oriented technological achievements.

INSERTIONS: Description of Western Electric costing, accounting, and pricing policies, submitted statement (p. 4394-4402).

"An Investigation Into the Economic and Quality of Service Impact on Telephone Service Subscribers Resulting from the Interconnection of Subscriber-Provided Equipment to the Public Switched Telephone Network, and From Competition by the Specialized Common Carriers in the Provision of Telecommunication Services" Natl Assn of Regulatory Utility Commrs (NARUC) Rpt. with extensive tables and figures, May 15, 1974 (p. 4460-4612).

Status of lawsuits filed against AT&T and Bell System companies involving antitrust matters since Carterfone decision, as of May 28, 1974 list (p. 4616)

"Stanford Research Institute Report re Insight Into Telephone Interconnection Industry" (p. 4654-4681).

Computer Industry Assn statement by A.G.W. Biddle (exec dir) submitted to subcom on problems from interaction between computer and communications industries, July 2, 1974 (p. 4740-4747); Bell System response (p. 4405-4410).

502 Congress, Antitrust Subcommittee. Investigation of Conglomerate Corporations, Part 3: International Telephone & Telegraph Corp. Nov. 20, 21, 26, Dec. 3, 1969; xii+1476 p. 11.

Committee Serial No. 91-23. Continuation of hearings before the Antitrust Subcom to investigate the economic and political significance of mergers and acquisitions by conglomerate corporations and the effectiveness of anti-trust laws. Each part of the hearings focuses on a separate conglomerate: this part covers International Telephone & Telegraph Corp. (ITT).

Includes submitted statements, correspondence and memoranda, legal and financial documents, magazine articles, and other documentation (p. 245-1476) and correspondence and memoranda concerning the acquisition of Avis, Inc. (p. 881-1102). Levitt & Sons, Inc. (p. 1346-1370), Sheraton Corp. of America (p. 1371-1465), and correspondence on ITT-Government relations (p. 1103-1345).

Nov. 20, 21, 26, 1969, p. 4-205.

WITNESS: Geneen, Harold S., chm and pres ITT; ACC.BY: Perry, Hart. exec up.

STATEMENT: Value of diversification for corporations, consumers, and encouraging competition; ITT growth, management, merger, and diversification policies; criticisms of FTC report on conglomerates (p. 4-20)

DISCUSSION: Amplification of ITT management and growth record and financial posture; examination of acquisition policies, including ITT preference for acquisition rather than internal growth, and policy of subsidiaries acquiring other companies (p. 20-84).

Analysis of the acquisition of Levitt & Sons, Inc., Sheraton Corp. of America, and Avis, Inc.; relationship of ITT and Lazard Freres & Co. in ITT acquisition program (p. 84-111).

Activities involving alleged use of reciprocity and leverage in ITT operations; analysis of accounting procedures, operational efficiency, and executive compensation (p. 111-205).

INSERTION: ITT acquisitions and locations, both domestic and foreign, tables (p. 37-50, 53-57).

- 503 Congress, Subcommittee on Small Business Problems. Rural and Urban Problems of Small Businessmen, Part 2. May 14, 15, 1970, iv+217, p. 11.

Hearings before the Subcommittee on Small Business Problems in Smaller Towns and Urban Areas held in Schenectady, N.Y., on May 14 and Rochester, N.Y. on May 15, to learn the rural and urban problems confronting the small businessman.

(For summaries of brief items of testimony, see H721-6.3 H721-6.7 and H721-6.8)

May 14, 1970, p. 97-119.

WITNESS: Bakal, Peter A. (Dr.), director, National Association of Radiotelephone Systems.

STATEMENT AND DISCUSSION: Accuses New York Telephone Co. of trying to stifle competition of small companies supplying telephone, paging, and answering services; discusses Motorola's discriminatory discounts and practices; sees need for SBA aid to obtain protection under the antitrust laws.

- 504 Dittberner Associates, Interconnection & Recommendations, Report to the FCC, Sept. 1, 1970, 126 p.

A detailed examination of the issue of interconnection including a section on foreign interconnection practices.

- 505 Dittberner Associates, Interconnection, An Economic Impact Analysis. Office of Telecommunications Policy, Washington, D.C., 1973, 202 p.

The report sets forth a methodology for evaluating the economic effects of subscriber-owned terminal equipment which is interconnected with the telephone common carrier network in the United States. These effects are identified with categories of interested parties, e.g. general public telephone users, communications common carriers, manufacturers and distributors of equipment to be interconnected, government agencies, and users or buyers of interconnected equipment.

- 506 Federal Communications Commission. Economic Implications and Interrelationships Arising from Policies and Practices Relating to Customer Interconnection, Jurisdictional Separations and Rate Structures. Docket No. 20003, Sept. 27, 1976, 176 p. + Appendices. (Also found in Congress, Subcommittee on Communications, Domestic Telecommunications Common Carrier Policies, Part 1, Mar. 21-22, 1977, Committee Serial No. 95-42.)

An exhaustive economic analysis of possible effects of competition in the telecommunications industry. Outlines the structure of the industry and effects of interconnect competition and competition from SCC's. Rejects the industry's arguments of the existence of economies of scale; that contribution losses from interconnect and transmission competition will produce increases in the rates of basic telephone services; and reject the arguments that competition will harm the independent telephone companies. Produce evidence to counter the industry's arguments. Favor competition for its positive effects on innovation, and that it will offer greater choice and improved services for the public.

- 507 Little, Arthur D. Telecommunications and Society, 1976-1991. Report to Office of Telecommunications Policy Executive Office of the President. Office of Telecommunications Policy, Washington, D.C., June 22, 1976, 153 p.

This report provides a set of five scenarios illustrating some of the impacts, conflicts, issues, and changes that might arise during the next 15 years from the interaction between technological innovation in telecommunications and the social context in which it occurs. This context includes the national economy, political framework, industrial structure, international relations, and personal life styles.

- 508 Owen, Bruce M. Specialized Carriers: A Conceptual Approach to Rates and Entry. Staff research paper, Office of Telecommunications Policy, Washington, D.C., June 1972, 40 p.

A study is given of alternative pricing policies and their effects on entry and efficiency in the telecommunications sector. It was motivated by the policy issues surrounding the entry of the 'specialized carriers' in competition with the Bell Telephone System for the private line or data transmission market. An appendix discusses the question of rate averaging, and proposes conditions under which it may be rational for a rate-regulated public utility to favor such a pricing policy (author).

- 509 Panko, R. R.; Edwards, G. C.; Penchos, K.; Russell, S.P. Analysis of Consumer Demand for Pay Television. Final Report. Stanford Research Inst., Merlo Park, Calif. Office of Telecommunications Policy, Washington, D.C. May 1975, 199 p.

The report contains background material on pay television in general and on the data used in our analysis. It gives analysis of demand for the current all-movie offering and for demand growth over time. It also presents the identification and estimation of key demand parameters in the assessment of alternative regulations.

- 510 Panko, R. R.; Edwards, G. C.; Penchos, K.; Russell, S.P. Analysis of Consumer Demand for Pay Television. Executive Summary. Stanford Research Inst., Merlo Park, Calif., Office of Telecommunications Policy, Washington, D.C., May 1975, 37 p.

Demand for pay cable television and broadcast pay (subscription) television is analyzed. Data from current pay cable operations are studied, as are data from live attendance at spectator events, television viewing, consumer surveys and early pay television experiments. An upper bound on current demand is estimated, as are upper bounds on subscribership and revenue growth over time. Demand parameters of particular interest in the assessment of economic interactions between pay television and free television are identified and quantified to the extent possible. The future availability of demand data is discussed.

- 511 Stannard, R. (ed.). Interconnection - A Regulatory Staff Report. State of New York, Communications Division, Dept. of Public Service, May 9, 1972, 44 p. and Appendices.

Examines the meaning of interconnection, financial implications of interconnection and its future.

- 512 Stanford Research Institute. Analysis of Issues and Findings in FCC Docket 20003. Study prepared for AT&T, 1976. (Summary & conclusions also found in Congress, Subcommittee on Communications, Domestic Telecommunications Common Carrier Policies, Part 1, Mar. 21-22, 1977, Committee Serial No. 95-42.)

Examination of FCC findings in Docket 20003 and in the reports prepared for the FCC by T & E, Inc. Argues that economies of scale do exist in long-haul transmission and that the FCC and T & E erred in rejecting the evidence presented concerning economies of scale. Conclude that interconnection has "probably" resulted in contribution losses. Argue that FCC has misunderstood the interrelationship between demand for private line services and the demand for MTS and WATS services, and erred in rejecting the evidence concerning potential contribution losses from competition from specialized common carriers.

- 513 Stone, R. F. et al., Selective Competition in the Telephone Industry -- An Independent Appraisal Based on Responses to FCC Docket 20003, Technology and Economics Inc. (T & E, Inc.), 1976.

Analysis of the telephone industry's responses to findings and conclusions in Docket 20003. Contain two chapters in which the various terminology used in the telecommunications industry relating to costs, revenues, rates, etc. are defined and explained (i.e., direct and indirect contributions, jurisdictional separations, common and joint costs, etc.).

- 514 Stone, R. F. et al. Final Report: Further Analysis of Docket 20003, Dec. 1977, Technology and Economics, Inc. 98 p.

Reviews and examines the various cost studies performed by state regulatory commissions; examines the historical development of cost of service studies and their emerging relationship to regulation at the state level; discusses cost allocation methodologies for the calculation of service subsidies; and compares and reconciles studies prepared by the NY Public Service Commission.

REPORTS; PAPERS; DISSERTATIONS; PAMPHLETS

- 515 Baran, P. and Lipinski, A. J. The Future of the Telephone Industry, 1970-1985. Institute for the Future, Merlo Park, California, September 1971, 172 p.

Study, sponsored by AT&T to examine the future of the telephone industry. The study compiled detailed forecasts of numerous trends and events relevant to the telecommunications industry and explored some new long range forecasting techniques.

- 516 Chaudry, M. A. The Economics of Competition in the U.S. Communications Industry - An Econometric Approach. Tufts U., Ph.D. 1972, 304 p.

Econometric analysis of potential entry into the U.S. communications industry resulting from the changing policies of the FCC. Shows that the economies of scale in the Bell System would be lost to "cream skimming" and that the competitive alternative would require more investment resources.

- 517 Doherty, A. Noel. "Econometric Estimation of Local Telephone Price Elasticities," Paper for the Institute for Public Utilities, Graduate School of Bus. Admin., Michigan State U., 9th Annual Conference, December 12, 1977, 22 p.

Telephone service demand of residential users is more price elastic than of business users which reflects the greater discretionary characteristics of residential telephone usage.

- 518 Goeller, L. F., Jr. "The Digital Future of the Telephone Network," Probe Research Inc., Milburn, N.J., 1978.

Examines developments in digital transmission and its implications for the telephone network.

- 519 Larkin, Edward P. "Competition From a States Point of View: The Brave New World of Telecommunications," paper presented at Symposium on Competition and Monopoly in the Domestic Telecommunications Industry, Aug. 27-30, 1973, 40 p.

Discusses various developments in the telecommunications industry and the effects that they have had with reference to the States.

- 520 Melody, William H. "Relations Between Public Policy Issues and Economies of Scale." IEEE Trans Syst Man Cybern v SCM-5 n 1 Jan 1975, p. 14-22.

The theoretical economic concept of economies of scale in contrast to concepts of short-run capacity utilization, economies of specialization, and economies of technological change is developed. The importance of time, uncertainty, and market characteristics in the measurement of scale effects is emphasized. Finally, the implications of economies of scale for current public policy issues in telecommunications such as the role of competition, cream skimming, and discriminatory rate reductions in response to competition are addressed.
13 refs.

600, 700, 800 REGULATORY REFERENCES

BOOKS

- 601 Bailey, E. Economic Theory of Regulatory Constraint. Mass.: Lexington Books, 1973, 200 p.

Presents a number of models of regulatory constraint, including the Averch-Johnson model. Rigorous analytical approach to regulation covering such aspects as fair rate of return, effect of logged regulation, effect of rising cost of capital, and peak-load pricing under regulatory constraint.

- 602 Bernstein, M. Regulating Business by Independent Commission. Princeton: Princeton University Press, 1965, 306 p.

Views government regulation as a highly political process, in which regulatory agencies are affected directly or indirectly by well-organized private groups seeking to identify their interests with the general welfare.

- 603 Capron, William M. Technological Change in Regulated Industries. Brookings Institutions, Washington, D.C. 1971, 238 p.

Introductory chapter deals with characteristics of regulation and regulated industries, and the effects of regulation on innovation. Chapter on "The Competitive Margin in Communications" has sections on the regulatory issues and measures, the sector, seven hypotheses, and policy implications.

- 604 Farris, Martin T. and Sampson, Roy J. Public Utilities, Regulation, Management and Ownership. Boston: Houghton Mifflin Co., 1973, 355 p.

Parts I & II examine the role of utilities, the basis and methods of regulation, and evaluate the regulatory process.

- 605 Garfield, Paul S. and Lovejoy, Wallace F. Public Utility Economics. Englewood Cliffs, N.J.: Prentice-Hall, 1964, 505 p.

Covers a wide range of public utility economics with primary emphasis on pricing and rate regulation. Includes a review of administrative procedure; a survey of developing problems where regulatory bodies and anti-trust problems overlap, and an exposition of the problems in the dual regulation of telephone rates.

- 606 Geller, H. A Modest Proposal to Reform the Federal Communications Commission. Rand Corp. paper, Santa Monica, Calif., April 1974, 52 p.
- "How can the political environment of the FCC be changed?" The author addresses this question in terms of what he maintains is the root problem. The FCC's overidentification with the powerful elements of the regulated industries at the expense of the public interest. Detailed examples are given of this root problem, in the areas of rule-making and adjudication.
- 607 Gerbner, G. et al (eds.). Communications Technology and Social Policy. New York: Wiley & Sons, 1973.
- Part II entitled, "Institutional Powers and Controls: The Direction of Change" contains a good description of the FCC and some of its recent decisions.
- 608 Green, M. J. (ed.). The Monopoly Makers. Ralph Nader's Study Group Report on Regulation and Competition. New York: Grossman, 1973, 400 p.
- Includes two chapters that relate to telecommunications and its regulation by the FCC. Ch. 3 examines the monopoly position of AT&T and its regulation by the FCC and State Commissions.
- 609 Herring, James M. and Gross, Harold C. Telecommunications Economics and Regulation. New York: McGraw-Hill, 1936, 544 p.
- Traces the early development of the telecommunications industry in the U.S. Analyzes factors affecting costs, rate structures, and regulation, including an analysis of the Communications Act of 1934. A chapter is included on the state regulation of the industry.
- 610 Hines, Sara. Bibliography on the Federal Communications Commission. May 1, 1974, 13 p.
- Discusses government/industry relations, aircraft communication, communication cables, international cooperation, submarine cables, transoceanic communication.
- 611 Kahn, Alfred E. The Economics of Regulation: Principles and Institutions, Vols. 1 & 2, Wiley & Sons, Inc., N.Y., 1970, 564 p.
- First volume deals with economic principles, with chapters on the rationale of regulation, traditional issues, marginal cost pricing, application of marginal

costs, decreasing costs and price discrimination, rate-making, and qualifications. Second volume concerns institutional issues, with chapters on monopoly, incentives and distortions, positive influences on public utility performance, role and definition of competition, destructive competition and service quality, and regulated monopoly.

- 612 Kildow, Judith L. INTELSAT: Policy-Maker's Dilemma. Lexington, Mass.: D. C. & Heath Co., 1973, 118 p.

Examines the U.S. communications satellite policies, considering both the background and determinant. Also studies the central issues of INTELSAT, including the operating philosophy - whether commercial or political, and the question a single global system versus separate systems.

- 613 Noll, R. Reforming Regulation: An Evaluation of the Ash Council Proposals. Washington, D.C.: Brookings Institute, 1971, 115 p.

The Ash Council (1971) report suggested that a principal cause of regulatory failure and inefficiency rested in the organization of regulation. This paper presents an alternative view - that the regulatory process is inherently flawed, regardless of the form of organization of the regulatory agencies. Their procedures are cumbersome, they do not make their policies sufficiently clear, and they tend to be overly responsive to the interests of the industries they regulate.

- 614 Phillips, Almarin (ed.). Promoting Competition in Regulated Markets. Washington, D.C.: The Brookings Institute, 1975, 397 p.

A series of articles examining the market structure, operation and regulation of a number of U.S. industries. Ch. 7 covers the regulation of inter city telecommunications; examines the communications industry as a natural monopoly and the feasibility of increased competition.

- 615 Phillips, Charles F. The Economics of Regulation, rev. ed. Homewood, Ill.: R. D. Irwin, 1969, 774 p.

A textbook covering the economic theory and practice of regulation of public utility industries. Examines the goals and procedures of regulation with emphasis on the rate structure and rate of return. Ch. 17 covers regulations of the communications industry and analyzes some of the FCC decisions, such as the "Above 890 Decision."

- 616 Phillips, Charles F. (ed.). Competition and Monopoly in the Domestic Telecommunications Industry. Department of Economics, Washington and Lee University, Lexington, Virginia, 1974, 130 p.

Includes 5 articles on various aspects of competition and monopoly in the telecommunications industry.

- 617 Phillips, Charles F. (ed.). Telecommunications, Regulation Public Choice. Washington and Lee University, Lexington, Virginia, 1975, 103 p.

Five articles on effects on firms and on consumers of regulation.

- 618 Russell, M. (ed.). Perspectives in Public Regulation. Illinois: Southern Illinois University Press, 1973, 130 p.

Series of articles examining various aspects of public utility regulations. The articles indicate that research bearing on regulated industries has undergone a striking transformation over the last decade, with the established empirical and institutional approach being augmented and supported by an infusion of modern theoretical and political analysis.

- 619 Shepherd, William G. and Gies, Thomas G., (eds.). Regulation in Further Perspective: The Little Engine that Might. Ballinger Publishing Co., Cambridge, Mass., 1974, 138 p.

Consists of chapters on regulation, entry and public enterprise; regulatory reform; a critique of regulatory accommodation to change; the Averch-Johnson hypothesis after ten years; perspectives on CATV regulation; reversals in peak and offpeak prices; a method for setting norms in regulated industries; and why industries are regulated.

- 620 Shepherd, W. G. and Gies, T.G. (eds.). Utility Regulation: New Dimensions in Theory and Policy. New York: Random House, 1966, 284 p.

A number of articles on various aspects of utility regulation; effectiveness of regulation; need for new concepts in public utility regulation, utility growth and profits under regulation, and price discrimination.

- 621 Sichel, W. (ed.). Salvaging Public Utility Regulations. Mass.: Lexington Books, D.C. Heath & Co., 1976, 154 p.

Series of articles on aspects of regulation, including two articles on deregulation. Argues that the process

of deregulation is likely to be resisted by the government regulatory services and the regulated industries themselves.

- 622 Smead, Elmer. Government Promotion and Regulation of Business. N.Y.: Meridith, 1969, 582 p.

An analysis of the reasons for government action and its effect on business. Traces the history of regulation, the means of regulation, and describes some of the regulatory agencies. Examines the regulation of selected industries. Ch. 17 covers the regulation of telegraph and telephone.

- 623 Solo, R. A. The Political Authority and the Market System. Cincinnati: Smith-Western Publishing Co., 1974, 418 p.

Deals with concrete and practical matters concerning the relationship between government and business, government policies and practices and market institutions that have been formed and changed through nearly two centuries of American experience. Ch. 18 traces the development of communications from monopoly regulation to planning the infrastructure.

- 624 Stigler, G. F. and Cohen, M. F. Can Regulatory Agencies Protect Consumers? Am. Enterprise Institute for Public Policy Research, 1971, 85 p.

Examination of this question, particularly the effectiveness and propriety of government regulation as a means of ensuring healthy competition and consumer satisfaction.

- 625 Trebing, Harry M. (ed.). Essays on Public Utility Pricing Regulation. Michigan State University Press, East Lansing, Mich., 1971, 469 p.

Consists of sections dealing with economic theory and public utility pricing; applied pricing practices and problems; pricing, competition and market structure; regulatory policies and pricing practices; the environmental and regulatory setting.

- 626 Trebing, Harry M. (ed.). Performance Under Regulation. Lansing, Mich.: Michigan State University Press, 1968, 169 p.

A number of articles on performance measurement, rate of return, pricing practices, regulation, and market structure with respect to regulated industries.

- 627 Trebing, Harry M. and Howard, R. N. (eds.). Rate of Return Under Regulation New Directions and Perspectives. Lansing, Mich.: Michigan State University Press, 1970, 217 p.

A number of articles on various aspects of rates of return - factors affecting, including regulation.

- 628 Wilcox, Clair. Public Policies Toward Business. Homewood, Ill.: Richard D. Irwin, Inc. 4th edition, 1971, 858 p.

Section on monopoly control by regulation contains, among others, chapters on the rate level and structure and regulation of communications.

ARTICLES; JOURNALS

- 629 "A Phone Rate Hike Stirs the Legislators." Business Week, No. 2372, March 17, 1975, p. 26.

The Federal Communications grant of a \$365 million rate increase as part of American Telephone and Telegraph Co.'s \$717 million request may precipitate legislation which is being considered by Congress to modernize the 40-year old Communications Act.

- 630 "A Whole Way To Figure AT&T Rates," Business Week, Feb. 14, 1977, pp. 86-.

A first step into an era of rate regulation based on more precise costs.

- 631 "AT&T's \$15 Billion Face-Off Over Long Distance Revenues." Business Week, No. 2454, Oct. 18, 1976, p. 116-120.

The Consumer Telephone Reform Act of 1976 would if passed further reduce competition in the telephone industry. Revenue division and matching of rates to costs is central to the debate.

- 632 "AT&T's Bold Bid to Stifle Competitors." Business Week, No. 2423, Mar. 15, 1976, p. 82-88.

American Telephone & Telegraph Co. is introducing legislation that would essentially put an end to competition. This action comes in response to recent regulatory and judicial decisions that have opened the industry to competition.

- 633 Adams, W. "The Role of Competition in the Regulated Industries." American Economic Review, May 1958, pp. 527-543.

Public regulation involves the application of two fundamental policies. One is purely regulatory in nature. Its aim is to assure the public of adequate service at reasonable rates in industries with "natural" monopoly characteristics. Its orientation is static, negative, and protective. The other policy involves primary reliance on competition. The yardstick device is used, not only as a measure of industry performance, but also as a spur to increased efficiency, rate reductions, and service improvements. Promotional competition is used to foster developmental pioneering and over-all growth of the industry. Throughout, the emphasis is on progressive performance - achieved through the maintenance of competitive opportunities and the promise of competitive rewards. Thus competition serves as a

useful adjunct to regulation and promotes the attainment of goals that are seemingly unattainable by administrative fiat.

Unfortunately, this regulatory role of competition has never been fully appreciated. The cost and delay of processing applications, the harassment by powerful protestants, the slavish adherence to legal technicalities, the pharisaical devotion to a case-by-case approach, the petulant defense of the status quo -- all these have militated against the competitive entrepreneur and the dynamic innovator.

- 634 Adelaar, R. H. and Hyman, L. S. "The Comparable Earnings Approach as a Useful Tool in Utility Regulation." Public Utilities Fortnightly, Mar. 4, 1973, pp. 30-40.

The procedures used by the Commissions that regulate public utilities in setting a fair rate of return vary from jurisdiction to jurisdiction. The judiciary has only attempted to construct flexible procedural guidelines for utility regulation. The comparable earnings approach may be considered a useful guide in the regulatory process.

- 635 Areeda, Phillip E. "Antitrust Laws and Public Utility Regulation." Bell Journal of Economics & Management Science, Spring 1972, pp. 42-56.

Many of those concerned with public utility regulation assume that federal antitrust law has little bearing on regulated industries. That assumption is erroneous. This paper indicates some of the ways in which antitrust law affects regulated firms. It begins with a few words about antitrust premises and characteristics of regulation and then turns to three topics: antitrust principles as applied by federal regulatory agencies, antitrust law as applied by the courts to federally regulated firms, and the interface of federal antitrust law with regulation by the several states.

- 636 Arieff, Irwin B. "House Panel Offers Plan to Deregulate Communications," Congressional Quarterly Report, June 17, 1978, pp. 1547-51.

Proposed revisions to the Communications Act of 1934.

- 637 Averch, Harvey & Johnson, Leland. "Behavior of the Firm Under Regulatory Constraint." American Economic Review, Dec. 1962, pp. 1052-1069.

Develops a theory of the monopoly firm (the domestic telephone and telegraph industry) seeking to maximize

profit but subject to regulatory constraint on its rate of return.

638. Baczko, Henryk. "Some Thoughts on the Reliability of Telecommunication Networks." Telecommunication Journal, December 1974, pp. 729-732.

Definition of reliability and concept of failure in telecommunication networks are analyzed; main reliability characteristic in telecommunication networks is defined. Difficulties encountered by maintenance staff, manufacturers of equipment and the CCITT in their work on reliability are discussed.

- 639 Benjamin, M. R. and Read, W. H. "Ma Bell Fights For Her Monopoly," The New York Times Magazine, Nov. 28, 1976.

Review of developments in the U.S. telecommunications carrier market, the competition permitted by the FCC, and the reaction by AT&T. Outline of the contents of the Bell Bill and the arguments for and against it. Examines the role of IBM behind Satellite Business Systems (SBS), which plans to use two satellites for data communications and even videophone.

- 640 Bailey, Elizabeth E. and Malone, John C. "Resource Allocation and the Regulated Firm." Bell Journal of Economics and Management Science, Spring 1970, pp. 129-142.

This paper extends a simple economic model of the regulated firm to include a wider range of both management objectives and of regulatory constraint. The authors find that these generalizations in the assumptions are able to effect profound alterations in the conclusions. For example, if a firm is constrained to a fair return on invested capital, we find that the profit-maximizing firm would have an incentive to undercapitalize. If any of several other methods of constraint are used, the authors find that there is no incentive to alter the relative amounts of labor and capital employed in the production process.

- 641 Baumol, William J. & Klevorick, Alvin K. "Input Choices and Rate-of-Return Regulation: An Overview of the Discussion." The Bell Journal of Economics and Management Science, Autumn 1970, pp. 162-190.

Reviews the substance of the literature stemming from the Averch-Johnson model of the firm under rate-of-return regulation. Examines a number of propositions and

describes two models involving regulatory lag. Offers some evaluative comments on the "A-J effect" and its importance in regulatory economics.

- 642 Baumol, W. J. and Bradford, D. F. "Optimal Departures From Marginal Cost Pricing," AER, June 1970, pp. 265-283.

Brings together three strands of discussions on MC pricing -- the welfare theoretic, the regulatory, and the public finance. Overview of the extensive literature in the area.

- 643 Bierman, Harold. "Accelerated Depreciation and Rate Regulation." The Accounting Review, Jan. 1969, pp. 65-77.

The FCC has been investigating whether or not AT&T should be forced to use accelerated depreciation for tax purposes. This paper examines the conflicting views relative to the consequences.

- 644 Brigham, E. F. "The Effects of Alternative Tax Depreciation Policies on Public Utility Rate Structures," National Tax Journal, Vol. XX, pp. 204-218.

Shows the effects of alternative depreciation policies on utility rate structures under different assumptions about the rate of growth in assets, the average depreciable life of assets, debt structure, etc.

- 645 Brown, G. and Johnson, M. B. "Public Utility Pricing and Output Under Risk," AER, Mar. 1969, pp. 119-128.

Extend the model of peak-load pricing to a world with risk and conclude that optimal price will be lower and output higher when risk is involved as contrasted to a riskless world.

- 646 Callen, J. et al. "The Benefits and Costs of Rate of Return Regulation," AER, June 1976, pp. 290-297.

Compares costs and benefits, under specified conditions, of rate of return regulation and average and marginal cost pricing.

- 647 Campbell, Thomas C. "Should Regulatory Commissions Be Abolished, Modified, or Retained." Public Utilities Fortnightly, July 19, 1973, pp. 17-23.

The focus of criticism of regulatory commissions appears to be getting more intense and to be coming from a wider range of sources, with increasing pressure for basic and broad-scale changes.

- 648 Coase, R. H. "The Theory of Public Utility Pricing and Its Application." Bell Journal of Economics and Management Science, Spring 1970, pp. 113-128.

In the 1930's and 1940's, the view came to be held that the right policy was to make public utility prices everywhere equal to marginal cost, even where marginal cost was less than average cost and a government subsidy was required to maintain production. This policy proposal had serious weaknesses. It did not take into account the stimulus to correct forecasting of having a subsequent market test whether consumers were willing to pay the total cost; it ignored the probable effects on the administrative structure, with state enterprise superceding private enterprise and centralized operations superceding decentralized operations; it involved a redistribution of income in favor of consumers of products produced in conditions of decreasing costs; it failed to take into account the misallocation of resources resulting from the additional taxation necessitated by the subsidies.

When appraising a policy proposal, it is necessary to discover its total effect. There is a growing realization among economists that this is the correct approach, and it may be that what advocates of marginal cost pricing have in mind is that the advantages of making price equal to marginal cost should be taken into account -- a position with which there would be general agreement. But if prices are not to equal marginal cost, the question of what the structure of rates should be needs to be examined. The treatment of this subject has not gone very far. But this should not obscure the agreement which exists among economists as to how costs should be calculated (which is very different from the way regulatory commissions view costs). The implications of this difference in approach for price determination may be illustrated by examining the situation created by the FCC's "Above 890-megacycle" decision, which exposed the common carriers to expanded competition from private microwave systems, and the response of the AT&T Company introducing the TELPAK Service.

- 649 Copeland, Basil L. "Alternative Cost-of-Capital Concepts in Regulation." Land Economics, Aug. 1978, pp. 348-361.

Examines two cost-of-capital concepts most widely employed in regulation as conceptual bases for recommendations regarding the return on equity to be allowed the regulated firm: "comparable earnings concept" which looks to the earned returns on equity of comparable firms as a purported measure of the opportunity cost of

capital invested in the regulated sector, and the "discounted cash flow concept" which bases the allowed yield on the share of public utility stocks.

- 650 Cox, Kenneth A. "An Appraisal of Regulatory Pricing Policies in Communications," in Essays on Public Utility Pricing and Regulation, Harry M. Trebing (ed.). Lansing: Michigan State University Press, 1971, pp. 317-332.

If certain conditions are met, regulatory pricing policies should become truly responsive to the dynamic changes which communications industry is undergoing.

- 651 Cox, Kenneth A. "The Federal Communications Commission," Boston College Industrial & Commercial Law Review, pp. 600-696.

Comprehensive and detailed description of the work of the FCC.

- 652 Crain, W. M. and Ekelund, R. B. "Chadwick & Demsetz on Competition and Regulation," Journal of Law & Economics, pp. 149-162.

Examines the position of Chadwick (1859) & Demsetz relating early to modern theory.

- 653 Criner, James C. "Telecommunications Resale: A Policy Analysis," Telecommunications Policy, Sept. 1977, pp. 319-328.

The traditional monopolistic character of common carrier telecommunications in the U.S. has meant that all communication functions have been the responsibility of the carrier. Recent proposals of the FCC would allow intermediaries to operate between the carrier and the user. The article examines the background to the issues involved, describes and analyses the policy options that were open to the FCC and finally summarizes the reasons behind its ultimate decision.

- 654 David, Adrian G. "Legislative Implications of Setting up a State Corporation to Manage Telecommunication Services." Telecommunications Journal, v 42 n 9 Sept. 1975, pp. 542-544.

Systematic review of recommendations and expected results of organizational changes is presented.

- 655 Debutts, J. D. "Regulation and Enterprise." University of Michigan Business Review, Vol. 29, No. 47, July 1977, p. 1-5.

There must be a distinction made between regulation in those industries where competition can only hurt the consumer, and regulation in those industries where it is only an added burden on producers. Government must also realize that there are some industries, such as the telecommunications industry, in which a unitary power is necessary for efficiency.

- 656 Debutts, John D. "The Consumer Communications Reform Act: The AT&T position on the Proposed Legislation," Telecommunications Policy, Vol. 1, #2, March, 1977, pp. 112-118.

Recent FCC decisions constitute a threat to the traditional principles of U.S. telecommunications policy. Division of responsibility, duplication of facilities, and increases in rates for basic telephone service are seen as consequences which will mitigate against efficiency in U.S. telecommunications.

- 657 Demsetz, Harold. "Why Regulate Utilities." Journal of Law and Economics, April, 1968, pp. 55-65.

Questions the existing legislation and regulation. Argues that the open market place and the competition it provides disciplines more effectively than do the regulatory processes of commissions.

- 658 Doherty, Noel & Gerald, M. O. "Will the Rates Produce the Revenues?", Public Utilities Fortnightly, May 12, 1977, pp. 15-23.

Explains why and how price elasticity of demand should be taken into account in determining what level and structure of new rates are necessary to afford a utility the opportunity to realize a "fair" rate of return.

- 659 Eger, J. "John Eger Tells AT&T How to Save Itself from Itself," Telephony, Jan. 16, 1978, pp. 78-83.

Emphasizes need for all-out competition - including AT&T's competing in the data processing marketplace.

- 660 Geller, Henry. "Competition and Monopoly Policies in Domestic Satellite Communications," Anti-Trust Bulletin, Vol. 13, 1968, pp. 953-961.

Reviews the procedural history of the matter before the FCC and discusses legal and policy implications. Competition will be one of the main factors in determining structure and ownership of any domestic satellite system.

- 661 Grainger, G. H. "The Proportional Responsibility Method of Capacity Cost Allocation," Public Utilities Fortnightly, Nov. 9, 1972, pp. 25-30.
- "Proportional responsibility," a new capacity cost allocation method, is designed to give a realistic and reasonable distribution of imbedded capacity costs, making it ideal for rate design purposes, rate of return determination, and support in rate cases.
- 662 Hayashi, Paul M. and Trepani, John M. "Rate of Return Regulation and the Regulated Firm's Choice of Capital - Labor Ratio: Further Empirical Evidence of the Averch-Johnson Model," Southern Economic Journal, Jan. 1976, pp. 384-398.
- Adds empirical evidence that the induced economic inefficiency of rate of return regulation may be a serious cost borne by the customers of regulated utilities.
- 663 Grigsby, J. "Should The FCC's License Be Revoked," Forbes, April 3, 1978.
- Examines some of the thinking behind the Rewrite of the Communications Act of 1934. Argues that technology is fast obviating the 1934 Act.
- 664 Hilton, George W. "The Basic Behavior of Regulatory Commissions," AER, May 1972, pp. 47-54.
- Examines the motives and incentives of regulators.
- 665 Hyman, L. S. "Rate Cases in 1970-1974: A Quantitative Examination," Public Utilities Fortnightly, Nov. 6, 1975, pp. 22-30.
- Comparative analysis of utility earnings.
- 666 Irwin, Manley R. "Future Dimensions of Communications Regulation," Public Utilities Fortnightly, Oct. 7, 1978, pp. 21-24.
- The monitoring of telephone company pricing under dual market conditions - part monopoly, part competition - is turning into a regulatory nightmare. It is time for a reexamination of all market structure alternatives for the telephone industry and a new public policy.
- 667 Irwin, Manley R. and Stanley, K. "Regulatory Circumvention and the Holding Co." Journal of Economic Issues, Vol. 8, June, 1974, pp. 395-411.

The formation of holding companies voices fundamental questions about the role of the regulated firms, the role of regulation, and the underlying philosophy of regulation as firms falling within regulatory jurisdiction use the holding company as a chance to expand into areas that have not been subject to regulation.

- 668 Johnson, Leland L. "A Review of the FCC & AT&T Positions," Telecommunications Policy, Mar. 1977, pp. 119-124.

Considers the Consumer Communications Reform Act. Examines issues such as subsidization, possible market expansion, service substitution, and possible second-round effects. Considers possible aspects of the development of competition.

- 669 Johnson, Leland L. "Behavior of the Firm Under Regulatory Constraint: A Reassessment," AER, May 1973, pp. 90-97.

Reexamines the Averch-Johnson model of the behavior of the firm under regulator constraint, notes some developments in the theory, examines bits of evidence that are available (argues that a great deal more empirical study is required), and addresses possibilities for further empirical work.

- 670 Johnson, N. "Harnessing Revolution: The Role of Regulation and Competition for the Communications Industries of Tomorrow," Anti-Trust Bulletin, Vol. 13, 1968, pp. 881-887.

Traditional tools of regulation and competition will continue to play an important role in telecommunications of tomorrow, but by themselves will be inadequate.

- 671 Johnson, Richard B. "Federal Regulations and Policies that have Affected the Telecommunications Industry," Business Communications Review, May-June, 1978, pp. 29-38. Also found in U.S. Dept. of Commerce, Federal Regulations Relevant to the Structural Development of Telecommunications Industries, Nov. 1977.

Provides those who may not be intimately acquainted with federal telecommunications regulations with a basic understanding of the historical development of those regulations, and the policy reasoning underlying them, which have at least in some way affected the structure of the common carrier industry.

- 672 Jordan, William A. "Producer Protection, Prior Market Structure and the Effects of Government Regulation," Journal of Law and Economics, April 1972, pp. 151-176.

Regulation has not had significant impact on public utilities (whose non regulated market structures are natural monopolies) whereas it has substantially influenced the transportation industries (having oligopolistic or competitive non regulated market structures).

- 673 Joskow, Paul L. "Pricing Decisions of Regulated Firms: A Behavioral Approach," Bell Journal of Economics & Management Science, Spring, 1973, pp. 118-140.

Attempts to specify and estimate a behavioral model of the pricing of regulated firms. The decision to file for a price increase is shown to depend on the growth rate of earnings per share by the firm in the current and previous year, on the level of interest coverage realized in the current year and on a variable that measures prior expectations of success in the hearing room.

- 674 Karber, James W. "Competition and the Regulatory Process," Quarterly Review of Economics and Business, Autumn, 1969, pp. 57-64.

Examines the consequences of competition in a regulated industry.

- 675 Kennedy, J. P. and Schall, D. P. "Competition," Telephone Engineer and Management, Three Part Series Sept.-Oct., 1978.

August 15, 1978. "Trends of the Federal Communications Commission"

Shows how the selective entry of competition into private line and terminal markets fostered by the FCC has been supported by the courts.

September 15, 1978. "Look to the Information Age."

Argues that the influence of the information age must be recognized and understood when decisions are made concerning competition.

October 15, 1978. "Brainstorm Your Options."

Competition is forcing the operating telephone industry to change its operations. The article lists some options for change.

- 676 Kestenbaum L. "The Limits of a Regulated Monopoly - Telephone Attachments, Interconnection and Use of Circuits," Anti-Trust Bulletin, Vol. 13, 1968, pp. 979-989.

Examines the benefits in communications equipment and services promised by competition. Restrictions should not be allowed to continue without renewed justification.

- 677 Keyes, L. S. "The Protective Functions of Commission Regulation," AER, May 1958, pp. 543-552.

Regulatory agencies should permit regulated industries a fair rate of return. This should be established by a adoption of arbitrary rate standards. Regulatory agencies might also become over-protective to the detriment of efficiency.

Insofar as government action can be counted on to prevent or reduce private losses in regulated firms, investment in them is promoted to an uneconomic extent. The case becomes similar to that of the nationalized industries, which cannot in the nature of things compete for capital without a built-in advantage over private firms.

- 678 Leland, Hayne. "Regulation of Natural Monopolies and The Fair Rate of Return," The Bell Journal of Economics and Management Science, Spring 1974, pp. 3-15.

Develops a general concept of fair return based on an equilibrium model of production under uncertainty. Proposes regulatory behavior which will induce firms to make efficient input choices, while at the same time guaranteeing fair returns.

- 679 Leone, Robert A. "The Real Costs of Regulation." Harvard Business Review, Nov.-Dec. 1977, pp. 57-66.

The fact that regulations alter the cost structure of doing business, influence institutional relationships, and change the kinds of skills managers need can have a much more profound impact on a company than the problems involved in complying with the regulation themselves.

- 680 Lilley, W. and Miller, J. "The New 'Social Regulation,'" The Public Interest, Spring 1977, pp. 49-61.

The last few years have witnessed a quiet explosion in the scope and pervasiveness of federal regulation, with highly significant and political implications. The increased regulations reflects a growth in "social" regulation rather than the old style economic regulation, which focused on markets and rates. Social regulation focusses on conditions under which goods and services are produced.

- 681 "Litton Hauls AT&T Into Court Again." Business Week, No. 2437, June 21, 1976, pp. 34-35.

Litton Industries has an antitrust action in court in its assault on AT&T. Asking \$330 in damages and an injunction to force AT&T to allow connection of customer-owned phones to terminal equipment. Litton also asks Bell's telephone and manufacturing operations be divided to separate regulated and competitive businesses.

- 682 Loomis, C. J. "The Further Misadventures of Harold Gennen." Fortune, Vol. 91, No. 6, June 1975, pp. 110-112+.

International Telephone and Telegraph faced political problems from antitrust consent decrees and also suffers business losses from currency fluctuations. A corporation so diffuse presents managerial difficulties.

- 683 Magat, W. A. "Regulation and the Rate of Direction of Induced Technical Change," Bell Journal of Economics, Autumn, 1976, pp. 478-496.

Theoretical examination of the effect of 3 forms of regulation (rate of return, ceiling price, and markup) upon the rate and direction of technical advance. Results show that ceiling-price regulation induces a faster rate of technical progress than would result without regulation and faster than that which would result with mark-up regulation. Ceiling-price regulated rate also exceeds the rate of return regulated rate.

- 684 Martin, Neil A. "Pie in the Sky? Regulatory, Political Uncertainties are Besetting Comsat," Barrons, March 20, 1972, pp. 9+.

Gives a businessman's view of Comsat as a business enterprise: reports on Comsat's favorable image, following President Nixon's live televised visit to the People's Republic of China. It then goes into further detail on Comsat's problems: reduced growth, FCC rate regulation, its role in the domestic satellite market, a question of ill management, its role in management.

- 685 McDonald, John. "Getting Our Communication Satellite Off the Ground," Fortune, July 1972, 9 p.

Examines the FCC decision concerning the ownership and operation of domestic communication satellites.

- 686 McKie, James W. "Regulation and the Free Market: The Problem of Boundaries," Bell Journal of Economics and Management Science, Spring, 1970, pp. 6-26.

Examines the problem of setting appropriate limits to the direct regulation of public utilities. The problem concerns both the internal and the external relationships of the public utility enterprise. Regulation cannot control all of the decisions and internal relationships of the public utility. Regulatory bodies therefore must economize the means and limit the scope of regulation; but they encounter considerable difficulty in doing so, because the regulated decisions affect the unregulated ones and the ultimate reactions may escape control.

External limits to regulated activities of public utilities must also be determined. A boundary problem appears whenever regulated activities are intermingled with non-regulated ones, or when public utilities compete with each other or with unregulated industries, or where technological innovation and new forms of organization lead to new kinds of activities for the public utility. Control authorities are always looking for neutral interfaces which will set boundaries to the regulated sectors without affecting activities outside them or relationships that cut across them. But such boundaries are not easy to find.

- 687 McNicol, David L. "The Comparative Statics Properties of the Theory of the Regulated Firms," Bell Journal of Economics and Management Science, Autumn, 1973, pp. 428-453.

It is assumed that the firm either maximizes profit, subject to regulatory constraint, or maximizes revenue, subject to a regulatory and a profit constraint. Determines that there are properties which conclusively distinguish revenue maximization from profit maximization.

- 688 Misner, M. L. "Trends in Rate of Return Regulation," Canadian Research, Merrill Lynch Royal Securities Ltd., Feb. 15, 1977, 3 p.

A key indicator of regulatory trends is the rate of return permitted on common equity capital. Empirical evidence indicates that an approved return on common equity in the vicinity of 14-15% is the most common.

- 689 Moore, Beverly C. "AT&T: The Phony Monopoly," in The Monopoly Makers, edited by M. J. Green, N.Y. Grossman Publishers, 1973, pp. 74-99.

Argues that after over half a century of unsuccessful utility regulation and dominance by AT&T of the telephone industry, it is time to consider new approaches. Argues abandon reliance upon the rate of return and rate base criteria.

- 690 Morton, Walter A. "Do Utilities Waste Capital? The Averch and Johnson Theory," Public Utilities Fortnightly, May 27, 1971, pp. 13-24.

The Averch-Johnson thesis that public utilities will misallocate resources, waste capital, and operate inefficiently if they are permitted by regulation to earn a return above the cost of capital may be correct with its postulates. It is not a time factual description, however, of the regulation and operation of investor-owned utilities in the U.S. It fails to distinguish between efficiency profits which regulation should encourage and monopoly profits which it should inhibit.

- 691 Morton, Walter A. "Guides to a Fair Rate of Return," Public Utilities Fortnightly, July 2, 1970, pp. 12-30.

A discussion of the various methods that have been used for determining a fair rate of return in regulatory proceedings.

- 692 Mullen, Louis E. "Adjusted Price Index Numbers - An Aid to Rate Regulation," Public Utilities Fortnightly, May 13, 1971, pp. 19-24.

A financial statement adjusted by price index numbers may be a useful aid to the regulation of public utilities. Higher rates of return on both stocks and bonds are being allowed. This has not been without an apparent need as utilities must meet this tremendous capital requirement to maintain and install service plant.

- 693 Nelson, James R. "The Role of Competition In The Regulated Industries," Anti-Trust Bulletin, Jan.-April, 1966, reprinted in The Journal of Reprints for Antitrust Law and Economics, Winter-Spring, 1973-74, pp. 393-428.

Competition has been tried for every utility service. It has been found uneconomic because of the fact that average unit costs of utilities decrease with increases in density of use of the service.

- 694 Noll, R. G. and Rivlin, L. A. "Regulating Prices in Competitive Markets," Yale Law Review, Vol. 82, 1973, pp. 1426-1434.

Questions Baumol & Walton's position that incremental costs rather than fully distributed costs should be used to set minimum prices in competitive markets.

- 695 "New Law for TV and Radio." Dun's Review, Vol. 109, No. 4, April 1977, p. 65.

Lionel Van Deerlin, Congressman from California, is trying to have the Communications Act of 1934 rewritten to reflect changes in technology and competition. He believes the present Congress and White House have shown more interest in rewriting the law than previous Congresses.

- 696 Ostergren, C. N. "Is the Averch-Johnson Theory Tenable?," Public Utilities Fortnightly, January 30, 1975, pp. 28-32.

Gives a critical analysis of the Averch-Johnson theory as it relates to the present-day structure of AT&T.

- 697 Peles, Y. C. and Stein, J. L. "The Effect of Rate of Return Regulation is Highly Sensitive to the Nature of the Uncertainty," AER, June 1976, pp. 278-289.
- Argues that the nature of uncertainty must be taken into account before adhering to the Averch-Johnson theory, otherwise the tightening of regulatory constraint may lead to a decrease in output as well as to production inefficiency.
- 698 Peltzman. "Towards a General Theory of Regulation," Journal of Law and Economics, Vol. 19, 1976.
- Attempts to model the regulatory process.
- 699 Petersen, H. C. "An Empirical Test of Regulatory Effects," Bell Journal of Economics, Spring, 1975, pp. 111-126.
- Averch & Johnson have provided analytical support for the assertion that rate of return regulation causes inefficient production because of the overuse of capital. Empirical evidence in support or refutation of this thesis is just beginning to appear. Evidence in this work suggests that lower allowed rates of return are significantly associated with higher costs and larger proportions of cost going to capital findings which are consistent with the A-J model.
- 700 Phillips, Charles F. "Increasing Conflict Between Regulation and Anti-Trust," Public Utilities Fortnightly, Jan. 7, 1971, pp. 27-38.
- Increasing competition of both the inter industry and intra industry varieties presents new challenges to both regulation and utility management. Changing technology has been responsible in part, at least, for a trend toward more competition. But so has the Dept. of Justice. The new competitive forces present many challenges to all parties concerned with providing public utility services at just and reasonable costs.
- 701 Phillips, Charles F. "Domestic Telecommunications Policy: An Overview," Washington & Lee Law Review, Vol. XXIX, Fall, 1972, pp. 235-252.

New markets and new potential suppliers have raised the possibility of rendering obsolete the traditional natural monopoly concept. A concern is to what extent

should competition be encouraged and how is competition to be accommodated within a regulatory framework.

- 702 "Phone Companies Try Saving a Bill." Business Week, No. 2515, Dec. 26, 1977, p. 44J-44K.

After the uproar which followed the introduction of the Consumer Communications Reform Act, the telephone industry has introduced a new proposal which allows for more competition in the industry. The proposal would divide the industry into four areas, with some being more competitive than others. Critics still oppose the new proposal, however, for they claim that it still protects AT&T's monopoly.

- 703 Pierce, J. R. "On Some Social Aspects of Telecommunications." Commun. Soc. v 13 n 2 Mar. 1975, pp. 10-12.

The author takes a strong stand against the government's AT&T antitrust suit.

- 704 Posner, Richard A. "Taxation by Regulation," Bell Journal of Economics and Management Science, Spring, 1971, pp. 22-50.

Students of the regulated industries often assume the regulation is designed either to approximate the results of competition or to protect the regulated firms from competition. But neither view explains adequately a number of important phenomena of regulation and regulated industries. Foremost among them is the prevalence of "internal subsidies," whereby unremunerative services are provided, sometimes indefinitely, out of the profits from other services. To understand this and other phenomena, we must assign another important purpose to regulation: we can call it "taxation by regulation." The purpose of this paper is to explore this dimension of the regulatory process, to demonstrate that it explains some otherwise perplexing features of the process and the industries subject to it, and to compare it with other methods of public finance.

- 705 Posner, Richard A. "Natural Monopoly and Its Regulation," Stanford Law Review, Feb. 1969, pp. 548-643.

Examines the question of whether natural monopoly provides an adequate justification for the imposition of various regulatory controls in effect.

- 706 Posner, Richard A. "Theories of Economic Regulation," Bell Journal of Economics & Management Science, Autumn, 1974, pp. 335-358.

Analyzes several theories that have been advanced to explain the observed pattern of government regulation, including the "public interest" theory and the "interest group" or "capture" theory. Argues that the latter two are unacceptable in their present form.

- 707 Posner, R. "The Social Costs of Monopoly and Regulation," Journal of Political Economy, Vol. 83, 1975, pp. 807-827.

This paper presents a model and some highly tentative empirical estimates of the social costs of monopoly and monopoly-inducing regulation in the United States. Unlike the previous studies, it assumes that competition to obtain a monopoly results in the transformation of expected monopoly profits into social costs. A major conclusion is that public regulation is probably a larger source of social costs than private monopoly. The implications of the analysis for several public policy issues, such as appropriate policy toward mergers and price discrimination, are also discussed.

- 708 Raynor, Richard A. "Competition Within a Regulated Environment," Public Utilities Fortnightly, July 4, 1974, pp. 24-32.

"Changes in traditional regulatory policy have resulted from external pressures exerted on regulatory agencies. Although the FCC has introduced the potential of competition in the industry, no definite regulatory guide-lines have been established. The author suggests that new entrants to this field must actively participate in the regulatory arena to insure their continued viability."

- 709 Sampson, Roy J. "Inherent Advantages Under Regulation," AER, May 1972, pp. 55-61.

This article deals primarily with transportation but many of the principles and concepts also apply to telecommunications. Argues that regulatory commissions do not have a carefully reasoned and consistently applied philosophy of the meaning of inherent advantage.

- 710 Samuels, Warren J. "Normative Premises in Regulatory Theory," Journal of Post Keynesian Economics, Vol. 1, No. 1, 1975, pp. 100-113.

Examines two basic questions: What is being done when certain techniques of regulatory analysis are used? In what ways do normative premises condition the conclusions reached?

- 711 Scala, B. "Telecommunications: Issues Abound, Arguments Mount Up." Administrative Management, Vol. 37, No. 5, May 1977, pp. 30-31.

The Consumer Communications Reform Act, or the "Bell Bills" does not have many remaining supporters in Congress. Its impact on telecommunications would affect communications systems such as electronic transmissions. Questions it raised included competition, monopolies, and regulation.

- 712 Schmolensee, R. "Estimating the Costs and Benefits of Utility Regulation," Quarterly Review of Economics & Business, Vol. 14, No. 2, 1974, pp. 51-69.

Adopts the theoretical framework underlying conventional cost-benefit analysis and explores its application to the analysis of decisions to remove or impose utility regulation.

- 713 Schnee, V. and Gorkiewicz, W. J. (eds.). "The Communications Act of 1978: The Larger Issues," Probe: Telecommunications Journal, Summer, 1978, pp. 1-10.

Examines the key common carrier sections of this bill and how the new emphasis on competition relates to prior FCC policy.

- 714 Schnee, V. and Gorkiewicz, W. J. (eds.). "Legislating Without Facts," Probe Telecommunications Journal, Vol. 1, No. 2, Aug.-Oct, 1977, pp. 54-71.

The House Communications sub-committee is pressing ahead to rewrite the Communications Act of 1934. However, the subcommittee and "Options Papers" have overlooked key options and have taken a step in the wrong direction.

- 715 "Selling Telecommunications Wholesale." Business Week, No. 2383, June 2, 1975, p. 55.

Federal Communications Commission attempts to reduce barriers caused by regulation to encourage technological development of networks.

- 716 Shepherd, William G. "Regulatory Constraints and Public Utility Investment," Land Economics, Vol. XLII, 1966, pp. 348-354.

Regulatory emphasis should be shifted from controls on overall profits - toward rate structures and closer scrutiny of operating costs and investment flows.

- 717 Shepherd, William G. "Entry As a Substitute for Regulation," AER, May, 1973, pp. 98-105.

Discusses the life cycle of utilities, the regulatory contract, the reverse evolution of regulation, and several varieties of entry such as new seller entry (Carterfone and MCI vs the Bell System), entry to the marginal and supervisory functions, revision of existing sellers, and inter-area competition.

- 718 Skogh, G. "The Social Costs of Monopoly and Regulation: Some Comments," Journal of Political Economy, Dec. 1976, Vol. 84, No. 6, pp. 1319-1323.

Examines Posner's analysis of social costs and regulation and extends the analysis.

- 719 Slesinger, Rueben E. "Regulatory Response to Changing Conditions," Public Utilities Fortnightly, Sept. 30, 1971, pp. 11-18.

A weakness of the rate of return methodology in regulation may be that it does not provide sufficient incentives to public utilities to undertake invention and innovation. The Cost Analysis Program has been suggested as a substitute for the traditional rate-making process. The use of CAP is examined.

- 720 Solomon, Ezra. "Alternative Rate of Return Concepts and Their Implications for Utility Regulation," Bell Journal of Economics and Management Science, Spring, 1970, pp. 65-81.

The rate of return on invested capital is a widely used concept in both regulated and unregulated sectors of the economy. It provides a measure of actual performance as well as required or expected performance (the latter is often termed the "cost of capital"). In the utility field, regulatory agencies often focus on the rate of return as a major instrument for assessing and controlling the performance of firms under their jurisdictions. Unfortunately, two altogether distinct units are employed for measuring rate of return: (1) book rate units and (2) discounted cash flow units. Rarely will the two produce the same result, and the use of one measure as a surrogate for the other may prove highly misleading. This paper indicates the relationship between the two measures and shows the impact of some variations in depreciation and expensing procedures, growth rate, etc. The object is to point out the potential hazards associated with the use of measures of different things in a context that requires the use of measures of the same thing.

- 721 Spann, Robert M. "Rate of Return Regulation and Efficiency In Production: An Empirical Test of the Averch-Johnson Thesis," Bell Journal of Economics & Management Science, Spring 1974, pp. 38-52.

Empirically tests the A-J theory using the trans-log production function. Findings support the theory that firms subject to rate of return regulation have an incentive to use inputs in proportions that differ from the cost minimizing input levels. Test is applied to data from regulated electric utilities.

- 722 Spence, A. M. "Monopoly, Quality and Regulation," Bell Journal of Economics, Autumn 1975, pp. 417-429.

Deals with the market problems that arise when a monopoly sets some aspect of product quality as well as price. Suggests that rate-of-return regulation may have attractive features when quality is a variable.

- 723 Spengler, Joseph P. "Evolution of Public-Utility Industry Regulation: Economists and Other Determinants," South African Journal of Economics, Vol. 37, Mar. 1969, pp. 3-31.

Describes the very early history of regulation in the U.S.

- 724 Sperry, Robert. "A Selected Bibliography of Works on the Federal Communications Commission," Journal of Broadcasting, Winter 1975, p. 1.

Unannotated listing of articles, government documents, law review discussions and FCC releases dealing with the Commission and its activities; also includes material on and about OTP. Covers period 1970-1973.

- 725 Stigler, George J. "The Theory of Economic Regulation," Bell Journal of Economics and Management Science, Spring, 1971, pp. 3-21.

The potential uses of public resources and powers to improve the economic status of economic groups (such as industries and occupations) are analyzed to provide a scheme of the demand for regulation. The characteristics of the political process which allow relatively small groups to obtain such regulation is then sketched to provide elements of a theory of supply of regulation. A variety of empirical evidence and illustration is also presented.

- 726 Takayama, A. "Behavior of the Firm Under Regulatory Constraint," AER, June 1969, pp. 255-280.

Re-formulation of Averch-Johnson's theory to obtain the same results - that firms will tend to invest more with the introduction of an active constraint.

- 727 "TCA States Its Position On Communications Reform Act," Communications News, Oct. 1977.

Reviews developments in the communications field since the FCC Carterfone decision. Describes impact of new technology and the merging of computers and telecommunications. Competition has resulted in more rapid development of technology and reduced prices. Argues that the Communications Reform Act would severely hamper competition and reverse recent developments.

- 728 "The FCC Lofts a New Satellite Network." Business Week. No. 2468, Jan. 31, 1977, p. 37.

FCC has felt obliged to invite IBM in to a consortium that will provide nationwide communications service over a satellite network. Antitrusters need not worry, since IBM's formidable powers have been curtailed by agreements.

- 729 Thompson, H. E. and Thatcher, L. W. "Required Rate of Return for Equity Capital Under Conditions of Growth and Consideration of Regulatory Lag," Land Economics, May, 1973; pp. 148-162.

Analyzes the problem of required rate of return by developing theoretical ideas in a mathematical model and then demonstrates its usefulness by application to a public utility.

- 730 Trebing, Harry M. "Common Carrier Regulation - The Silent Crisis," Law and Contemporary Problems, Vol. 34, Spring, 1969, pp. 299-329.

Explores the problem of regulation of common carriers with a view toward presenting a better delineation of the issues involved, a critique of regulatory policy, and recommendations for improving Commission Control.

- 731 Trebing, Harry M. "Realism and Relevance in Public Utility Regulation," Journal of Economic Issues, June 1974, pp. 209-233.

Consider orthodox and institutionalists' views on public utility regulation and directions for reform in the commission system.

- 732 Trebing, Harry M. "Broadening the Objectives of Public Utility Regulation," Land Economics, 53, 1, Feb. 1977, pp. 106-122.

An effort to broaden the objective of regulation while maintaining an industry structure characterized by flexibility and pluralism holds the promise of improving the effectiveness of regulation.

- 733 Vaden, T. "Bell Telephone Presses Case for Monopoly," Congressional Quarterly Report, 1976, pp. 2615-21.

Background, problems, bill-backed legislation, competition and lobbying.

- 734 Van Sinderen, A. W. "Once More - The Public Interest," Vital Speeches, Vol. 42, No. 21, Aug. 15, 1976, pp. 658-661.

There is concern about the effect on the telephone system and other similar businesses of the FCC's change to a policy maker rather than an administrator of communication, as it was originally established by Congress.

- 735 Watson, K. S. "Monopolization by Regulated Monopolies," Anti Trust Bulletin, Fall, 1977, pp. 559-592.

The application of anti-trust monopolization standards to regulated industries, including telephone and telegraph utilities.

- 736 Waverman, L. "The Regulation of Telecommunications: Pandora's Telephone Box." Challenge, Vol. 19, No. 5, Nov/Dec. 1976, pp. 47-48.

The FCC has begun to deregulate the telecommunications industry but has been challenged by the legislature and the Justice Department. Present regulations restrict AT&T's competitive responses while allowing other firms to provide private line services.

- 737 Waverman, L. "The FCC and the Regulation of Intercity Communications," in A. Phillips, ed. Promoting Competition in Regulated Industries. Washington: The Brookings Institute.

Examines the regulation of intercity telecommunications, the industry as a natural monopoly, and the feasibility of increased competition.

- 738 Waverman, Leonard. "Peak-Load Pricing Under Regulatory Constraint: A Proof of Inefficiency," J. of Political Economy, Vol. 83, June 1975, pp. 645-654.

In a model where the firm chooses ex ante the capital-labor ratio (technique of production) it will use over

a number of periods, the choices of capital and labor are biased by regulation on capital's rate of return.

This capital bias has important effects on the pricing policies of the regulated firm, peak and off peak. The existence of a capital-labor ratio greater than that dictated by market prices of factors leads to the firm's expansion of output in all periods. Both peak and off-peak users benefit from rate-of-return regulation.

- 739 Weintraub, Sidney. "Rate Making and an Incentive Rate of Return," Public Utilities Fortnightly, April 25, 1968, pp. 23-33.

An appeal for a change in the regulatory approach to foster new, efficient pricing techniques. Recognition of "change-over" costs is suggested as a starting point.

- 740 Welch, J. B. "Workable Alternatives to Regulation," Public Utilities Fortnightly, Oct. 23, 1975, pp. 37-39.

Regulation is a poor substitute for competition where competition is workable. Competition can be defended on a number of grounds, but its most powerful influence may be on technological progressiveness.

- 741 Westfield, Fred M. "Methodology of Evaluating Economic Regulation," AER, May 1971, pp. 211-217.

Argues that real-world choices are generally not between regulation and no regulation, but between various methods of regulation and degrees of regulation. Acquire research on how these methods and degrees influence firms' behavior.

- 742 "Who Won." Forbes, Vol. 119, No. 9, May 1, 1977, p. 46.

AT&T will have problems, having been ordered by the FCC to plan more autonomy in buying equipment for operating companies and to give outside vendors timely bidding information, and their plan will be closely monitored. Western Electric, AT&T's supply arm, will be bidding for foreign contracts.

- 743 White, Lawrence J. "Quality Variation When Prices Are Regulated," Bell Journal of Economics and Management Science, Autumn 1972, pp. 425-436.

Quality has been a neglected area of public utility regulation analysis. Many authors are uneasy about the quality levels that result from regulation but they frequently can only conclude that "it is uncertain

whether consumers found this quality to be worth the price that they paid."

This paper includes a quality variable in a simple model of competition and monopoly under price regulation. Competitors compete away any potential revenue above the cost of the basic output by offering higher quality; a monopolist chooses the profit maximizing quality level. Some important conclusions are as follows: (1) A regulated competitive industry will offer more quality per unit of basic output than will an equally regulated monopolist; (2) the competitors quality offerings will vary directly with the regulated price; (3) regulation induces a uniformity of quality offerings, whereas an unregulated industry would offer a variety; and (4) virtually all consumers must be worse off when a competitive industry is regulated, because they lose quality choice. If a separate unregulated price can be charged for quality, results comparable to an unregulated industry may be achieved.

- 744 Wiley, Richard F. "The Consumer Communications Reform Act: The FCC Position on the Proposed Legislation," Telecommunications Policy, Vol. 1, #2, March 1977, pp. 99-111.

The proposed legislation constitutes a serious disservice to the very class of people it purports to protect - the American customer. The author concludes with a detailed summary of the FCC position.

- 745 Williams, R. J. "Politics and the Ecology of Regulation," Public Administration, Vol. 54, Autumn 1976, pp. 319-331, Bibliog. 25.

The excessive emphasis laid on the relationship between regulator and regulated in the U.S. has hindered the development of a broader understanding of regulatory behavior. The FCC operates in an environment in which technological change is rapid. Various political pressures exerted on regulatory agencies are discussed.

- 746 Williamson, Oliver E. "Franchise Bidding for Natural Monopolies in General and with Respect to CATV." Bell J. Econ. Spring 1976, pp. 73-104.

The orthodox attitude among economists toward regulation is one of disdain and contempt. The general reputation is not undeserved, but it fails to discriminate among different economic activities and different types of regulation. An effort to distinguish between those circumstances in which regulation, in some form, is imminent from those in which market modes can be made to work relatively well is needed. 46 refs.

- 747 Wilson, J. Q. "The Dead Hand of Regulation," The Public Interest, Fall, 1971, pp. 39-58.

Argues that regulation is here to stay and will likely increase. The issue of "consumerism" will lead to demands for increasing the power and aggressiveness of regulatory agencies. A move toward a greater reliance on market forces in industries where competition is adequate is also unlikely.

- 748 Wilson, John W. "Rate of Return Regulation Under Changing Economic Conditions," Public Utilities Fortnightly, July 6, 1972, pp. 16-21.

The profit margin approach to utility rate making is inadvisable. Because it is impossible to establish a rational mark-up without basing it on the required rate of return on invested capital, any reasonable implementation of a mark-up pricing formula would constitute the imposition of an additional step in the rate making process.

- 749 Wohlstetter, Charles. "Government Meddling Can Ruin America's Telephone Industry," Telephony, July 16, 1973.

Inundated with demands for more and better service by the very agencies that are setting up roadblocks along the path to good service, telephone companies could wind up unwilling recipients of government subsidy.

- 750 Zojoc, E. E. "A Geometric Treatment of Averch-Johnson's Behavior of the Firm Model," AER, March 1970, pp. 117-125.

A simple geometric analysis of the A-J model is given which uses no advanced mathematics.

GOVERNMENT DOCUMENTS

- 751 Alleman, James H.; Ax, Gene G.; Hart, Burgette A.; Johnson, Richard B.; Salaman, Roger K. Rural Telecommunications Service: Cross-Ownership Rule. Office of Telecommunications, Boulder, Colo., Policy Research Div., Mar. 22, 1977, 81 p.

The paper examines the Federal Communications Commissions (FCC) cross-ownership rule concerning CATV-telephone facilities and operation in order to determine if it has had an economic effect on the supply of broadband (CATV) telecommunications services to rural areas. In order to evaluate its impact, other pertinent rules and legislation were reviewed and discussed. It is concluded that the CATV/telephone cross-ownership rule has not had an appreciable effect in the past but that it might have more effect in the future. Lack of low-cost loans, prohibitions against translators, and the economics of the sparsely populated regions have contributed significantly to the lack of broadband telecommunications services to rural areas.

- 752 Battle, C. Tucker; Gardner, C. Patrick; Dietrick, Laurie J.; Lucas, Gary L. Towards Improved Methods of Analyzing Policy Issues Related to Interstate Telephone Services. System Planning Corp., Arlington, Va., Office of Telecommunications, Boulder, Colo., Policy Research Div., Feb. 28, 1977, 128 p.

The regulation of a multiservice firm or group of firms such as those which make up the interstate telephone system is a complex undertaking. It has been proposed that issues related to pricing telecommunications services and industry structure be analyzed by maximizing the sum of consumers' surplus and producers' surplus, subject to certain constraints. The report describes three important additional steps in the process of implementing and extending the analysis of regulatory pricing issues. First, the approach is broadened to include objective functions other than total surplus; second, procedures are developed for estimating the coefficients of cross-elastic demand functions for interstate telephone services; and third, preliminary estimates of the demand coefficients for a seven-service representation of interstate telephone services are developed from material filed in support of rate changes by the American Telephone and Telegraph Company (AT&T).

- 753 Berman, Paul J. Computer or Communications. Allocation of Functions and the Role of the Federal Communications Commission. Harvard Univ., Cambridge, Mass. Program on Information Technologies and Public Policy. May 28, 1974, 88 p.

The Commission in 1971 established rules, guidelines and categories to deal with newly developed and perceived functions and services. However, examples of new or proposed services -- separately-charged directory assistance, automatic location of callers summoning emergency aid, and packet-switched computer networking -- demonstrate the difficulties and uncertainties to be encountered as the FCC attempts to implement its rules on a case-by-case basis. The issues thus raised lead to a discussion and examination of the concept of communications common carriage. This concept is at the center of FCC regulatory jurisdiction over point-to-point communications services. Determination of the scope of communications common carriage lends insight into the kinds of services that policy makers outside the FCC thought the Commission should allocate and regulate. Defining communications common carriage also helps to illuminate some of the issues, options and consequences facing policy makers as they decide whether or not or how to regulate services and functions based on converging computer and communications technologies.

- 754 Congress, Subcommittee on Antitrust & Monopoly (Competition Improvements Act of 1975) Dec. 10-11, 1975, Feb. 4-5, 1976, ix+1082 p.

Hearings before the Subcom on Antitrust and Monopoly on S. 2028 (text. p. 4-15, dept reports, p. 1034-1080), the Competition Improvements Act of 1975, to amend the Clayton Antitrust Act to strengthen Federal enforcement of anti-trust and procompetitive policies by prohibiting Federal agencies from creating or maintaining situations inconsistent with antitrust laws, unless certain findings are made, and requiring notice and opportunity for hearings on any agency actions at the request of the Attorney General or the FTC.

Includes digest of hearings (p. vii-ix). Supplementary material (p. 126-132, 329-1082) includes submitted statements and:

- b. CRS. "The Extent to Which Federal Agencies Must Consider Antitrust Policies: An Analysis of the Potential Impact of S. 2028," Jan 22, 1976 (p. 347-416).
- c. Columbia Broadcasting System, "Impact of Cable on Broadcasting" research summary, Jan. 1976 (p. 417-424).

d. Optical Systems Corp., responses to FCC proposed rulemaking and notice of inquiry on regulation of cable TV (CATV) and on network TV feature film procurement practices (p. 425-500).

i. Kahn, Alfred E. (Chm. NY Public Service Commission). Comments on S. 2028, with 1956 memos on competition policy guidelines and text of related 84th Congress Bill, H.R. 9762 (p. 856-615).

j. Fraas, Arthur (economist), assessment of benefits and costs of introducing new competitive factors into regulated and subsidized industries, statement to subcom (p. 616-628).

k. National Association of Manufacturers, testimony before Subcom on Antitrust and Monopoly on 93rd Congress bill, S. 1167, the Industrial Reorganization Act, Mar. 27, 1973 (p. 636-660).

m. Arreda, Phillip E. (law prof., Harvard Univ.), "Anti-trust Law and Public Utility Regulation," (p. 779-794).

n. Zimmerman, Edwin M., "Legal Framework of Competitive Policies Toward Regulated Industries," Brookings Inst. (p. 795-811).

o. Schwartz, David S. (Mich State Univ), "Deregulation of Industry: How Far Should We Go? A Built-in Bias," Indiana Law J. Spring 1976 (p. 812-836).

p. SEC. "The Effect of the Absence of Fixed Rates of Commissions," Dec. 1, 1975, report to Congress (p. 837-905).

q. Nuclear Regulatory Commission, "Coordination, Competition, and Regulation in the Electric Utility Industry," June 1975, with bibliography (p. 906-959).

r. Justice Dept. response to FCC rulemaking petition involving assignments of new VHF television stations, Dec. 16, 1975 (p. 974-1012).

s. Office of Telecommunications Policy, "Technical Analysis of VHF Television Broadcasting Frequency Assignment Criteria," Oct. 1973 (p. 1013-1033).

Feb. 5, 1976, p. 294-312.

WITNESS: Cox, Kenneth A., sr vp MCI Communications Corp, former FCC Commr.

STATEMENT AND DISCUSSION: Support for bill; analysis of FCC regulation of common carrier communication systems, including mobile radio telephones, video carriers, private microwave systems, and domestic satellite carriers.

755 Congress, Subcommittee on Antitrust & Monopoly, Communications, May 21-22, June 24-25, July 15, 1975, xxviii+583 p. 11, foldouts.

Hearings before the Subcom on Antitrust and Monopoly to determine whether the growth of cable television (CATV), and pay-cable in particular, has been retarded by private or official restraints of trade, in the form of denial of access to feature films. Consider FCC jurisdiction over CATV, particularly its exclusivity rulings, requiring purchase of motion pictures only under exclusive license arrangements covering a specific period of time.

Includes digest of the hearings (p. vii-xxviii) and submitted statement (p. 267-276). Appendix (p. 277-583) contains submitted articles, correspondence, and statements, including:

- a. Pearson, D. Bruce (Staff Atty. Antitrust Div), "Cable: The Threat by Which Television Competition Hangs," from Rutgers Law Review, Summer 1974 (p. 281-316).
- b. Anderson, Don, "The Effect of the FCC's Regulations on Cable Development in the Cities" (p. 321-332).
- g. Bazelon, David L. (Chief Judge, U.S. Court of Appeals, D.C.), "FCC Regulation of the Telecommunications Press," from Duke Law Review, May 1975 (p. 463-502).
- h. Greenberg, Edward (Wash Univ), "Wire Television and the FCC's Second Report and Order on CATV Systems" from J. of Law and Economics (p. 503-514).
- i. Geller, Henry (communications Atty. Rand Corp), "A Modest Proposal for Modest Reform of the Federal Communications Commission" from Georgetown Law J. Feb. 1975 (p. 515-534).
- j. FCC report and rules of operation for pay-TV broadcasting and cablecasting, released Apr. 1975, and notice of inquiry on exclusivity (p. 548-583).

July 15, 1975, p. 231-255.

WITNESS: Baker, Donald I., Dep Asst Atty Gen, Antitrust Div. Justice Dept.

STATEMENT AND DISCUSSION: Analysis of competitive issues relating to CATV; alternative actions to aid CATV development, including industry deregulation. Legislation to insure competition, and restriction of FCC role to over-the-air broadcasting regulation and cable system standards enforcement.

Commercial Broadcasting Witnesses

WITNESSES: Wasilewski, Vincent T., pres Natl Assn of Broadcasters, p. 137-147; Taylor, Arthur R., pres. Columbia Broadcasting System, p. 149-179; Erlick, Everett H., sr vp and gen counsel, ABC, p. 180-218; Howard, Robert T., pres. Natl Broadcasting Co TV Network, p. 219-230.

STATEMENTS AND DISCUSSION: Analysis of issues surrounding and defense of exclusivity contracts; concern over potential growth of CATV through satellite technology; need for FCC regulations to govern CATV growth and to counteract pay-cable ability to outbid free TV for best entertainment attractions.

756 Congress, Subcommittee on Antitrust & Monopoly, Industrial Reorganization Act, Part 7: The Computer Industry, July 23-26, 1974, iv+4833-5910 p. 11.

Continuation of hearings before the Subcom on Antitrust and Monopoly on S. 1167, the Industrial Reorganization Act.

Witnesses in volume examine the computer industry, effects of the International Business Machines Corp. (IBM) dominance, and need for and potential methods of industry restructuring. Appendix (p. 5699-5910) includes court documents relating to the U.S. v. IBM antitrust sections.

July 25, 1974, p. 5436-5448.

WITNESS: Sanders, Royden C., Jr., Sanders Assocs. Inc. computer terminal mfrs.

STATEMENT AND DISCUSSION: Predictions of, and need to legislate against IBM monopoly in the interconnected satellite communications and terminal equipment fields.

757 Congress, Subcommittee on Communications, Cable Television, June 6-8, 1977, iv+338 p. 11.

Committee Serial No. 95-32. Oversight hearings before the Subcom on Communications to examine cable TV (CATV) regulatory issues, including respective roles of FCC and State and local governments in regulating industry rates and practices.

Also considers FCC restrictions on cable retransmission of programs under specific license to local broadcast stations (exclusivity rule) and on number of distant signals which may be imported and rebroadcast by cable (signal carriage rule). Present copyright law does not require program owners' consent for distant signal importation.

Includes submitted statements and correspondence (p. 325-338).

Cable TV Operators

WITNESSES: Hauser, Gustave M., chm and chief exec officer, Warner Cable Corp., p. 57-74; Hutchison, Anna M. pres, Eagle North CATV, Oakhurst, Calif., p. 74-82; Effros, Stephen R., counsel, Community Antenna TV Assn.; also or behalf of; Moore, Kyle, pres. p. 82-89; Aaron, Daniel, chm. Natl CATV Assn, p. 299-318.

STATEMENTS AND DISCUSSION: Request for deregulation of CATV to permit market competition; varied views on extending FCC forfeiture authority to CATV operators failing to comply with technical standards; objection to conflicting rules promulgated by various government levels (Hauser, Effros, Aaron).

758 Congress, Subcommittee on Communications, Cable Television Regulation Oversight, Part 1., May 17-20, 24-26, July 20-22, 1976; x+632 p. 11.

Committee Serial No. 94-137. Hearings before the Subcom on Communications to explore regulatory issues surrounding the development and widespread public acceptance of cable TV (CATV), particularly pay-cable programming and services.

Considers questions raised in a subcom staff study, "Cable Television: Promise Versus Regulatory Performance," particularly whether FCC limitations on pay-cable services meet with requirements of protecting the public interest established by the Communications Act of 1934.

Also examines competitive impacts of pay-cable on conventional broadcasting markets, and considers the implications for cable programming of changes in copyright laws governing syndicated exclusivity which presently limits cable systems transmission of local and network programs in certain viewing areas.

Includes submitted statements throughout.

July 20, 1976, p. 420-430.

WITNESS: Williams, Donald O., Cox Cable Communications, San Diego, Calif.

STATEMENT AND DISCUSSION: Accomplishments of CATV transmissions via satellite in the San Diego, Calif. market area.

759

Congress, Subcommittee on Communications, Cable Television Regulation Oversight, Part 2. July 27-29, Aug. 3-5, Sept. 22, 1976, x+633-1325 p.

Committee Serial No. 94-138. Continuation of hearings before the Subcom on Communications to explore regulatory issues surrounding the development and utilization of cable TV (CATV) programming and services. This volume examines various aspects of pay-cable operations, including cable systems access to and airing of motion pictures, conflicts over agreements among cable systems and utility companies regarding CATV transmission lines attachment to utility poles, and the status of State and local regulations governing pay-cable services. Includes submitted statements (p. 1015-1056, 1310-1325 and throughout).

WITNESSES: Hostetter, Amos B., Jr., exec vp Continental Cablevision, Inc.; Kinley, David D., vp planning and dev Amer TV and Communications Corp; representing NCTA.

STATEMENTS AND DISCUSSION: Need for FCC regulation of agreements among cable systems and utilities regarding pole attachments in light of recent increases in rental charges; examples of agreements with and rentals paid to telephone companies for pole attachments; viewed in-effectiveness of State regulations governing pole attachment arrangements.

July 28, 1976, p. 839-903.

WITNESSES: Eaker, Warren E., exec vp and gen counsel, United Telecommunications, Inc.; Cluen, Jack C., pres. Carolina Telephone and Telegraph Co.

STATEMENTS AND DISCUSSION: Viewed lack of FCC authority to establish pole attachment rental rates; benefits of existing cable systems and telephone companies arrangements to their respective customers; operational aspects of pole attachment agreements and rate structures (sample agreements, diagrams and cost tables, p. 856-893).

July 28, 1976, p. 908-917.

WITNESS: Farrow, Harold R., spec counsel, Calif Community TV Assn.

STATEMENT AND DISCUSSION: Refutation of telephone company arguments against FCC regulation of pole attachments.

Sept. 22, 1976, p. 1230-1310.

WITNESS: Wiley, Richard E., Chm. FCC; ACC. BY: Lee, Robert E.; Hooks, Benjamin L.; Quello, James H.; Washburn, Abbott M.; Fogarty, Joseph R., all Commrs; Hobson, James R.

Chief, Cable TV Bur; Krauss, Jeffrey, Office of Plans and Policy; Ungar, Robert J., Chief, Research Div. Cable TV Bur; Putney, Paul W., Dep Chief, Broadcast Bur.

STATEMENT AND DISCUSSION: Background and development of FCC regulation of CATV, including pay-cable, operations; endorsement of H.R. 15372, to expand FCC forfeiture authority over nonbroadcast licenses (p. 1230-1246).

Review of efforts to deal with major issues in CATV regulation, including cross-ownership of competing media and freedom of expression; preference for gradual revisions in CATV regulation to reflect changes in the public expectations of broadcast industry performance (p. 1246-1272).

Explanation of FCC authority over broadcasting via satellite; issues surrounding Federal involvement in local programming standards development; difficulties in achieving regulatory balance between CATV and conventional broadcasters' interests, and prospects for regulatory improvement (p. 1273-1310).

760 Congress, Subcommittee on Communications, Competition in the Telecommunications Industry, Sept. 28-30, 1976, x+1331.

Committee Serial No. 94-129. Hearings before the Subcom on Communications to consider extent and aspects of competition in the telecommunications industry. Focuses on recent court-upheld FCC rulings that telephone companies could not prohibit attachment of customer-owned terminal equipment to the telephone system, and that specialized common carriers could supply interstate private lines in competition with AT&T and domestic satellite systems.

Includes consideration of H.R. 12323, the Consumer Communications Reform Act of 1976, also called the "Bell Bill," introduced at request of several telephone companies, to grant additional FCC authority to permit common carrier mergers, and to reaffirm State authority to regulate terminal and station equipment used for telephone exchange services.

Includes submitted statements and correspondence (p. 1230-1331 and throughout).

Sept. 28, 1976, p. 10-57.

WITNESS: deButts, John D., bd chm chief exec officer, AT&T.

STATEMENT AND DISCUSSION: Outline of telephone industry development; problems associated with allowing competing specialized carriers direct access to AT&T's switched

network; technical problems experienced with inter-connection of customers' nonconforming telephone apparatus; criticism of FCC policies (related memo, p. 43-55) on competition in telecommunications; telephone industry's role in H.R. 12323 introduction.

Sept. 28, 1976, p. 57-128.

WITNESS: Henson, Paul H., bd chm, United Telecommunications, Inc.

STATEMENT AND DISCUSSION: Need for a national telecommunications policy; criticism of FCC decisions allowing selective competition within industry; examination of economics of private line systems and other segments of the telecommunications market; description of the telephone network and ratemaking methods (summaries with tables, graphs, and diagrams, p. 105-126).

Sept. 28, 1976, p. 128-154.

WITNESS: Brophy, Theodore F., bd chm Gen Telephone & Electronics Corp (GTE).

STATEMENT AND DISCUSSION: Criticism of FCC decision on telecommunications rates and competition; importance of issues addressed by H.R. 12323; extent and nature of GTE distribution of information on H.R. 12323 to customers.

Sept. 28, 1976, p. 154-238

WITNESSES: Barnes, Frank S., Jr., pres. Rock Hill Telephone Co., Rock Hill, SC; pres. US Independent Telephone Assn.; Nehring, Roland G., pres. Ariz Telephone Co. Phoenix, Ariz.; Chastain, C.W., gen mgr., Grand River Mutual Telephone Corp., Princeton, Mo.

STATEMENTS AND DISCUSSION: Extent and nature of independent telephone company service throughout the U.S.; criticism of FCC policies and decisions regarding competition in telecommunications; examination of British policy on terminal equipment interconnection (summary, p. 178-179).

INSERTIONS: Views on H.R. 12323 of Benjamin L. Hooks, FCC Commr., correspondence and submitted statement, May 1976 (p. 181-194).

"The Case for Congressional Action to Safeguard the Telephone Network as a Universal and Optimized System," Eugene V. Rostow, Yale Law School prof and member of Pres Task Force on Communications Policy, 1967-68, memo for AT&T, Nov. 8, 1975 (p. 196-201).

Sept. 28, 1976, p. 238-244.

WITNESS: Schecher, Leroy D., gen mgr, West River Coop Telephone Co., Bison, SDak; member, bd of dirs, Consumer Fedn of Amer.

STATEMENT AND DISCUSSION: Predictions of impact of FCC competition decisions on rural telephone firms' rates.

Sept. 28, 1976, p. 244-252.

WITNESS: Morgan, John F., member, Natl legis committee, Telecommunications Intl Union.

STATEMENT AND DISCUSSION: Criticism of FCC decisions on competition, especially their possible impact on union members.

Sept. 29, 1976, p. 257-544.

WITNESSES: Jasper, Herbert N., exec vp Ad Hoc Committee for Competitive Telecommunications (ACCT); Grant, C. Gus. pres. ACCT; pres, Southern Pacific Communications Co.; Cox, Kenneth A., sr vp MCI Communications Corp.; McGowan, William G., bd chm MCI Communications Corp.; Miller, Thorman, gen counsel, Southern Pacific Communications Co.; Fthenakis, Emanuel, pres. chief exec officer, Amer Satellite Corp.; Walker, Philip M., vp, gen counsel, Telenet Communications Corp.; Whittaker, Philip N., pres, Satellite Business Systems.

STATEMENTS AND DISCUSSION: Charged monopolistic behavior of AT&T, particularly in contributing to bankruptcy of Data Transmission Co. (DATRAN); opposition to H.R. 12323 as thwarting beneficial involvement of specialized common carriers in intercity telephone and data communications transmission; descriptions of specific firms' operations and facilities.

Analyses of economic effects of competition within telecommunications industry; future of telecommunications and importance to U.S. economy; detailed analysis (p. 369-396) of H.R. 12323; recommended plan to enhance competition in specialized communications field (Telenet position paper, p. 517-531).

INSERTION: "Packet-Switching Technology and Services," Telenet Communications Corp. paper summarizing computer communications applications of telecommunication networks, with charts (p. 498-516).

Sept. 29, 1976, p. 544-634.

WITNESS: Long, Richard B., pres. North Amer Telephone Assn.; ACC.BY: Splevack, Edwin B., gen counsel.

WITNESSES: Averitt, Robert T., prof of economics, Smith Coll.; McCloskey, Peter F., pres. Computer & Business Equipment Mfrs. Assn.; Carr, Arthur, member, bd of dirs. Independent Data Communications Mfrs. Assn.

STATEMENTS AND DISCUSSION: Criticism of H.R. 12323; present state of competition and economic problems in telecommunications industry; examples of specialized telecommunications services used by certain businesses and of new product and services development by independent firms; merits of FCC decisions on competition in industry.

INSERTION: "Prices and Services; Subscriber Reactions to Copy Statements (Illinois) - An Overview," AT&T-Illinois Bell Telephone Co. survey of customer attitudes regarding competition in telephone business. Jan. 23, 1974 (p. 550-559).

Sept. 29, 1976, p. 702-725.

WITNESS: Feirer, Robert L., pres. Phonetele, Inc., Van Nuys, Calif.

STATEMENT AND DISCUSSION: Description of Phonetele's phone call control equipment; summary of firm's regulatory and judicial actions against large telephone companies; suggested policy on competition within communications industry.

Sept. 30, 1976, p. 733-950.

WITNESS: Wiley, Richard E., Chm. FCC; ACC.BY: Washburn, Abott M., Commr. FCC; Hinchman, Walter R., Chief, Common Carrier Bur.

STATEMENT AND DISCUSSION: Opposition to H.R. 12323 (sectional analysis, p. 763-780); explanation of FCC policy and decisions based on Communications Act of 1934, regarding universal telephone service, rates, and competition.

INSERTIONS: Dissenting views of FCC Commr. Benjamin L. Hooks, regarding various FCC decisions, statements with related correspondence, memos, and article. Sept. 1976 (p. 740-761).

"Overview of the Domestic Telecommunications Industry and the Commission's Policies Concerning Terminal Equipment and Private Line Services," FCC Rpt (p. 781-934).

State Regulatory Officials

WITNESSES: Larkin, Edward P., member, committee on communications, Natl. Assn of Regulatory Utility Comms. (NARUC); member, NY State Public Service Commission, p. 950-1026; Kahn, Alfred E., chm NY State Public Service Commission; member, NARUC exec committee, p. 973-1026; Barnes, Michael D., member, Md Public Service Commission; vice chm. Wash Metropolitan Area Transit Commission, p. 1021-1026; Johnson, Norman A., Jr., commr. Miss Public Service Commission; member, NARUC exec committee, p. 1121-1128.

STATEMENTS AND DISCUSSION: Concern regarding impact of FCC policies on local and intrastate telephone rates; summary of NARUC report on economic impact of increased competition in telecommunications industry; suggested procedures to allow State regulatory representatives to participate in certain FCC decisions, under the Federal-State Communications Joint Board Act (Larkin); varying views on merits of H.R. 12323.

September 30, 1976, p. 1027-1071.

WITNESS: Houser, Thomas J., Dir. Office of Telecommunications Policy (OTP).

STATEMENT AND DISCUSSION: Analysis of various studies on economic impact of competition in telecommunications industry; interest in helping develop a national telecommunications policy; effects of technological advances on industry.

INSERTION: "Competition in Telecommunications: The Telephony Industry Bill," OTP rpt (p. 1040-1066).

September 30, 1976, p. 1072-1121.

WITNESS: Baker, Donald I., Asst Atty Gen. Antitrust Div. Justice Dept.

STATEMENT AND DISCUSSION: Support for FCC policies on competition in telecommunications industry; impact of competition in common carrier field, including market development and product innovation; examples of competitive developments in the securities and transportation industries; outline of common carrier regulatory issues recommended for congressional attention.

Sept. 30, 1976, p. 1167-1206.

WITNESS: Watts, Glenn E., pres. Communications Workers of Amer.

STATEMENT AND DISCUSSION: Recommended issues to consider in congressional review of telecommunications policy; analysis (p. 1193-1200) of H.R. 12323; criticism of FCC Trial Staff recommendation for Western Electric Co. divestiture from AT&T despite outside consulting firm's analysis; extent of unemployment in telecommunications industry.

761 Congress, Subcommittee on Communications, Domestic Common Carrier Regulation, Nov. 10, 11, 13, 17, 18, 1975; v+527 .

Committee Serial No. 94-100. Hearings before the Subcom on Communications to consider H.R. 7047 (text p. 3-5), to amend the Communications Act of 1934 to extend the time during which the FCC can delay the effective date of telephone service rate charges.

Considers the role of competition in the provision of telephone service, focusing on adequacy of FCC common carrier regulation and implementation of recent FCC rulemakings relating to common carrier regulation, including;

a. FCC Carterfone Device ruling permitting attachment to telephone network of terminal devices not provided by the local telephone company, 1968.

b. FCC Establishment of Policies and Procedures for Consideration of Applications to Provide Specialized Common Carrier Services in Domestic Point-to-Point Microwave Radio Service and Proposed FCC Rules Amendments (Specialized Carrier), ruling authorizing new competing specialized carriers on a general basis, 1970.

c. FCC Establishment of Domestic Communications Satellites (Domsats) by Non-Governmental Agencies, ruling authorizing an "open-skies" policy to encourage competition in the domestic satellite field.

Supplementary material (p. 6-39, 488-527) contains submitted statements, correspondence, and;

a. Nader v. FCC D.C. Circuit, opinion regarding denial of due process due to extensive delays in FCC regulatory decision making and ordering the FCC to submit a schedule for resolution of certain rate proceedings, 1975, with related FCC orders and trial staff response (p. 7-39).

Nov. 10, 1975, p. 39-78.

WITNESS: Eger, John M., Act Dir. Office of Telecommunications Policy (OTP)

STATEMENT AND DISCUSSION: Importance of introducing competition into the common carrier industry and views on role, function, and effects of competition; suggested regulatory instruments and procedures for use in promoting telephone industry competition.

INSERTIONS: "Economic Implications and Interrelationships Arising from Policies and Practices Relating to Customer Interconnection, Jurisdictional Separations and Rate Structure," OTP comments in FCC Docket No. 20003, Apr. 21, 1975 (p. 55-63).

"Telephone Rates: Remarks," George E. Ashley, Public Utilities Fortnightly, Sept. 11, 1975 (p. 63-39).

Nov. 10, 11, 1975, p. 78-120.

WITNESSES: Wohlstetter, Charles, bd chm Continental Telephone Corp.; Henry, E. William, counsel; Maguire, Jack P., pres.

STATEMENTS AND DISCUSSION: Role, operations, and functions of Continental and other independent phone companies; review of industry economics and viewed precarious financial position of independents; views on effectiveness of FCC policies and regulations and problems caused by delays in regulatory actions, with suggested procedural steps for current policy implementation.

Nov. 11, 1975, p. 120-217.

WITNESS: Cox, Kenneth A., sr vp MCI Communications Corp.

STATEMENT AND DISCUSSION: Commendation of recent FCC actions to introduce competition into telecommunications, and urged actions to decrease regulatory delays; views on FCC implementation of the Specialized Carrier ruling; assessment of AT&T response to FCC actions to induce competition within common carrier industry, including charged AT&T efforts to reduce competition; support of H.R. 7047 to improve evaluations of proposed rate changes.

INSERTIONS: "Can We Allow a Utility to Exist Half Regulated Monopoly and Half Competitive Enterprise," K. A. Cox, presentation at symposium sponsored by Foster Assocs et al., Feb. 23-26, 1975 (p. 161-179).

"The Economic Implications of AT&T's Effort to Maintain Its Monopoly," D. E. Winslow, with graphs (p. 180-189). MCI responses to testimonies of witnesses representing FCC, OTP, and AT&T (p. 196-214)

Nov. 13, 1975, p. 219-346.

WITNESSES: Crosland, Edward B., vp AT&T; Minow, Newton N.,

counsel, AT&T; former Chm. FCC; Rostow, Eugene V. prof of law, Yale Univ; consultant, AT&T.

STATEMENTS AND DISCUSSION: Viewed failure of H.R. 7047 to address causes of regulatory lag and suggested alternative procedures to expedite rate review cases; detrimental effects of FCC attempts to spur competition and related regulatory actions; need for prompt rate changes and effects of delays on consumer prices; charged FCC failure to fulfill objectives of the act, congressional intent, and recent FCC rulings.

INSERTIONS: "The Case for Congressional Action to Safeguard the Telephone Network as a Universal and Optimized System," E. V. Rostow, paper with graphs (p. 255-284).

"Competition and Monopoly in Telecommunications Services," William J. Baumol et al., paper prepared for AT&T, Nov. 23, 1970 (p. 315-332).

Nov. 13, 1975, p. 346-366.

WITNESS: Baker, Warren E., exec vp and gen counsel, United Telecommunications, Inc.

STATEMENT AND DISCUSSION: Reasons for viewed ineffective FCC implementation of intercity services competition policies, including vagueness of rulings; review of FCC competition decisions; opposition to H.R. 7047 as furthering rate review delays.

Nov. 17, 1975, p. 368-437.

WITNESS: Wiley, Richard E., Chm. FCC; ACC. BY: Hinchman, Walter R., Chief, Common Carrier Bur.

STATEMENT AND DISCUSSION: Review of FCC common carrier regulation activities, including implementation of recent FCC regulatory decisions, development of competition in terminal equipment marketing, and efforts to improve rate review procedures; urged enactment of H.R. 7047 to facilitate FCC carrying out of policy decisions, including Specialized Common Carrier, Domsat, and Carterfone rulings; views on role of competition in common carrier industry; details of FCC investigations into Execunet long-distance direct dialing system developed by MCI.

Nov. 18, 1975, p. 439-456.

WITNESS: Strassburg, Bernard, communications consultant, Ash, D.C. former Chief, FCC Common Carrier Bur.

STATEMENT AND DISCUSSION: Endorsement of H.R. 7047 and FCC competition policies; assessment of FCC problems in implementing recent rulings and regulating AT&T.

Nov. 18, 1975, p. 456-476.

WITNESS: Kahn, Alfred E., chm. NY State Public Service Commission.

STATEMENT AND DISCUSSION: Opposition to National Association of Regulatory Utility Commissioners (NARUC) proposals for subsidizing some types of telephone service with revenues from other services; need to set rates to cover service costs; problems with and potential impact of increased competition in industry.

Nov. 18, 1975, p. 476-488.

WITNESS: Long, Richard B., pres. North Amer Telephone Assn.

STATEMENT AND DISCUSSION: Ineffectiveness of FCC regulation of terminal equipment industry competition and implementation of the Carterfone decision; charged competitive advantage of the Bell System.

762 Congress, Subcommittee on Communications, Domestic Telecommunications Common Carrier Policies, Part. I.
Mar. 21-22, 1977, iii+820.

Committee Serial No. 95-42. Hearings before the Subcommittee on Communications, to consider revising Federal Communications Act of 1934 provisions governing competition within the telecommunications industry. Focuses on competition impact on communication and computer technology development and application in certain sectors of the telecommunications industry. Includes consideration of the Consumer Communications Reform Act, also called the "Bell bill," originally introduced as 94th Congress H.R. 12323 at request of several telephone companies, to grant additional FCC authority to permit common carrier mergers, and to reaffirm State authority to regulate terminal and station equipment used for telephone exchange services.

Mar. 21, 1977, p. 3-16.

WITNESS: Hart, Gary (Sen. D-Colo)

STATEMENT AND DISCUSSION: Summary of major telecommunications industry changes and resulting regulatory problems; support for increasing industry competition.

Mar. 21, 1977, p. 16-26.

WITNESS: Hansen, Clifford P., (Sen. R-Wyo).

STATEMENT AND DISCUSSION: Support for Bell bill; advantages of limiting competition in telecommunications industry.

Mar. 21, 1977, p. 26-263.

WITNESS: Wiley, Richard E., Chm. FCC.

STATEMENT: Review of telecommunications industry development and modifications in FCC regulations to encourage greater competition in specialized private line services and terminal equipment (overview, p. 90-143), (p. 26-38, 53-250).

DISCUSSION: Progress toward integrating Alaska, Hawaii, and Puerto Rico into mainland telecommunications system (p. 38-53, 250-263)

INSERTION: "Economic Implications and Interrelationships Arising from Policies and Practices Relating to Customer Interconnection, Jurisdictional Separations and Rate Structures," FCC Docket No. 20003, 1st rpt Sept. 23, 1976 with appendices, including interconnect market penetration forecasts, dissenting and separate views, and correspondence, (p. 143-249).

Mar. 21, 1977, p. 263-489.

WITNESS: de Butts, John, bd chm AT&T

STATEMENT: Adverse impact of FCC pro-competition policies on telecommunication system development (p. 263-269, 283-489)

DISCUSSION: Explanation of costs to AT&T for providing various services; acceptability of limited competition with proper safeguards (p. 269-283).

INSERTIONS: "Analysis of Issues and Findings in FCC Docket 20003," Stanford Research Inst. prepared for AT&T, summary and conclusions (p. 294-302).

Relationship between telecommunications market structure and the innovation process, Arthur D. Little, Inc., prepared for AT&T submitted to FCC in response to proposed rulemaking in Docket No. 20003, Jan. 1976, with tables, charts, bibl. and correspondence, Apr. 8, 1976 (p. 302-437). Cost comparison of multiple intercity to single integrated networks, Bell Labs. prepared for AT&T, submitted to FCC in response to proposed rulemaking in Docket No. 20003, July 12, 1976, with tables (p. 430-448).

"Impact of Cost-Pricing on Telephone Customers," AT&T, with charts and memos (p. 451-460).

"1975 Residential Cost Study," AT&T, with charts and memos (p. 460-470).

Privacy safeguards regarding electronic info transfer, H. William Caming (atty, AT&T), submitted statement (p. 475-489).

Mar. 21, 1977, p. 489-594.

WITNESS: Kahn, Alfred E., chm NY State Public Service Commission (PSC).

STATEMENT AND DISCUSSION: Support for increased competition in the terminal equipment field; refutation of AT&T arguments concerning the adverse impact of competition.

INSERTIONS: AT&T rebuttal of A. E. Kahn statement, Apr. 18, 1977, and A. E. Kahn response, June 9, 1977 (p. 513-521).

Revised regulations permitting connection of subscriber-provided terminal equipment and comments to PSC on regulations, Rochester Telephone Corp., May 25, 1977, with correspondence, May 24, 1977 (p. 522-532).

New York Telephone Co. compliance with requirements to advise customers of economical service options, PSC, Apr. 5, 1977 (p. 532-539).

Critique of PSC staff study on terminal equipment, New York Telephone Co., May 28, 1976, with PSC reply, Aug. 30, 1976, with tables (p. 547-578).

Criticism of Consumer Communications Reform Act. A. E. Kahn, statement before House Interstate and Foreign Commerce Committee Subcom on Communications, Sept. 1976 (p. 578-594).

May 22, 1977, p. 595-651.

WITNESSES: Pierce, John R., prof. engineering, Steele Lab. Calif Inst of Technology; Davenport, Lee L., pres Gen Telephone and Electronics Corp (GTE); Baer, Walter S., sr. physical scientist and dep dir, energy program, Rand Corp.

STATEMENTS AND DISCUSSION: Review of telecommunication and related computer technology advances; significance of technology advances for telecommunication system development.

INSERTIONS: Optical communications systems, including laser technology applications, GTE, Lenkurt Demodulator, Nov/Dec 1975, with illustrations and bibl (p. 614-663).

"U.S. Switched Network Finally Gets Its Own Domestic Satellite Service," Albin R. Meier, technical editorial dir. GTE (p. 634-637).

Mar. 22, 1977, p. 651-712

WITNESSES: Davis, Ruth M., Dir. Inst. for Computer Sciences and Technology, Natl Bur of Standards ; Branscomb, Lewis M., vp and chief scientist, Intl Business Machines Corp; Licklider, J.C. prof, electrical engineering dept. MIT.

STATEMENTS AND DISCUSSION: Summary of major computer technology developments relevant to telecommunications; description of various computer information systems and degree of interconnection with telecommunication system; need for greater deregulation of communications industry, to permit greater competition.

INSERTION: "Trends and Developments in Computer-Telecommunications Technologies," L. M. Branscomb, given at the Organization for Economic Cooperation and Dev Conf on Computer/Telecommunications Policy, Feb. 4-6, 1975, with charts, tables, photos (p. 674-702).

Mar. 22, 1977, p. 712-763.

WITNESS: Biddle, Jack, pres. Computer and Communications Industry Assn.

STATEMENT AND DISCUSSION: Arguments against continued AT&T monopoly; recommendation for extending competition into currently regulated sectors; examples of technology innovation and distribution delays resulting from AT&T monopolistic position (summary, p. 721-732).

INSERTION: Summary of telecommunication technology dev trends, Manley R. Irwin, excerpts from testimony before the House Interstate and Foreign Commerce Committee Subcom on Communications, 1976, with charts (p. 737-745).

Mar. 22, 1977, p. 800-820.

WITNESS: Prince, Warren, vp Tymshare, Inc. Cupertino, Calif. representing the Remote Processing Service Section (RPSS), Assn. of Data Processing Service Organizations.

STATEMENT AND DISCUSSION: Advantages of competition in remote processing service technology development and application.

INSERTION: Comments on FCC reexamination of data processing/communications distinction, RPSS, June 6, 1977 (p. 812-820).

763 Congress, Subcommittee on Communications, Domestic Telecommunications Common Carrier Policies, Part 2.
Mar. 23, 28, 1977, iv+821-1376, p. 11.

Committee Serial No. 95-42. Continuation of hearings before the Subcom on Communications to consider revising the Federal Communications Act of 1934 to encourage greater competition within the telecommunications industry.

Includes consideration of the Consumer Communications Reform Act, also called the "Bell bill," originally introduced as 94th Congress H.R. 12323.

Supplementary material (p. 1349-1376) contains submitted statements and correspondence.

Mar. 23, 1977, p. 936-1035.

WITNESS: Larkin, Edward P. commr. NY State Public Service Commission; representing Natl Assn of Regulatory Utility Commrs (NARUC).

STATEMENT AND DISCUSSION: Support for Bell bill; opposition to increased competition in telecommunications industry as harmful to public interest and costly for local users.

INSERTIONS: Subscriber-provided equipment and specialized common carrier impact on telephone service quality and economy, NARUC. summary, May 15, 1974, with tables and charts (p. 947-1004).

"Brave New World of Telecommunications," E. P. Larkin, Competition and Monopoly in the Domestic Telecommunications Industry, 1974 (p. 1005-1032).

Mar. 23, 1977, p. 1045-1063

WITNESSES: Earnwell, Robert, corporate mgr. office services, Fiberboard Corp San Francisco, Calif; pres. Tele-Communications Assn.; Moore, Vincent P. Jr., sr vp Securities Industry Automation Corp; Capone, Robert, vp systems and data processing div, JC Penney, NYC.

STATEMENTS AND DISCUSSION: Implications of technological advances for telecommunication system development and use; envisioned development of securities industry communications systems; advantages of competition in telecommunications data transmission sector.

Mar. 23, 1977, p. 1063-1077

WITNESS: Baruch, Ralph M., pres and chief exec officer, Viacom Intl Inc. representing Natl Cable TV Assn.

STATEMENT AND DISCUSSION: Support for deregulation of cable TV industry to promote diversity in services and innovation; opposition to Bell bill(summary, p. 1070-1077).

Mar. 28, 1977, p. 1079-1091

WITNESS: James, Frank, pres. Natl Telephone Coop Assn.
ACC.BY: Cosson, David, staff counsel.

STATEMENT AND DISCUSSION: Need for FCC regulation of interconnect equipment and specialized carrier competition to preserve rural service.

Mar. 28, 1977, p. 1091-1245

WITNESSES: Grant C. Gus. pres. Southern Pacific Communications Co. also representing Ad Hoc Committee for Competitive Telecommunications (ACCT); Cox, Kenneth A., sr vp MCI Communications Corp; representing ACCT; Jasper, Herbert N., exec vp. ACCT.

STATEMENTS AND DISCUSSION: Effectiveness of competition in stimulating technological innovation; need for narrowing portion of telecommunications industry granted monopoly status; opposition to Bell bill as restricting competition; examples of communication innovation introduced by AT&T's competitors and not offered by AT&T.

INSERTIONS: "Consequences of the Bell Bill; H.R. 12323 and related bills," Arthur D. Hall III, pres, Advanced Decision Handling Inc., prepared for ACCT with tables and charts (p. 1107-1126).

"Information Transfer and Public Policy; Competition or Nationalization," Manley R. Irwin, with tables and charts (p. 1126-1148).

"Competition and Natural Monopoly in Regulated Telecommunications: Economic Analysis of Basic Concepts," William H. Melody, chm and prof communications studies dept, Simon Fraser Univ (p. 1159-1171)

US v. AT&T, Dist Court for D.C., Justice Dept response to defendant's interrogatories detailing AT&T abuse of monopoly position, excerpts, Dec. 15, 1976 (p. 1183-1196).

"Competition in Communications: An Historical Perspective," ACCT, 2nd ed. (p. 1196-1234).

Mar. 28, 1977, p. 1246-1249.

WITNESS: Wittaker, Philip, pres. Satellite Business Systems (SBS).

STATEMENT AND DISCUSSION: Need for telecommunication industry competition for successful implementation of SBS communications network.

Mar. 28, 1977, p. 1249-1290.

WITNESS: Spievack, Edwin B., counsel, North Amer Telephone Assn; Peltz, Farrel, vp regulatory planning, Codex Corp; representing Independent Data Communications Mfrs. Assn.

STATEMENTS AND DISCUSSION: Approval of FCC pro-competitive telecommunications rulings; examples of technological innovation stimulated by competition, and of AT&T anti-competitive practices (p. 1249-1278).

Recommendations for pro-competitive telecommunications policy, prohibition of AT&T predatory pricing policies, enlargement of FCC regulatory staff, and investigation of AT&T corporate structure effectiveness (p. 1279-1290).

INSERTIONS: "Impact of Competition on Consumers and Workers: The Case of the Interconnect Industry," E. B. Spievack, with tables and graphs (p. 1256-1264).

Analysis of AT&T anticompetitive and unfair mktg practices, E. B. Spievack (p. 1267-1274).

Mar. 28, 1977, p. 1290-1348

WITNESSES: Garnett, Wilson B., exec vp Central Telephone and Utilities; representing US Independent Telephone Assn.; Nehring, Roland G., pres. Ariz Telephone Co.; Henson, Paul H., bd chm, United Telecommunications Inc.

STATEMENTS AND DISCUSSION: Adverse impact of competition on independent telephone companies and residential user rates; recommendations for revised telecommunication system limiting competition primarily to terminal equipment sales.

INSERTION: Intercity telecommunications carriers' carrier concept, P. H. Henson, 1977, with tables and charts (p. 1338-1345).

764 Congress, Subcommittee on Communications, Fundamental Changes Needed to Achieve Effective Regulation of Communications Common Carriers, Nov. 10, 1975, v+18 p.

Committee Print No. 15. Study prepared for the Subcom on Communications by John T. Carney of GAO, criticising FCCs regulatory planning and policy procedures affecting

the communications common carrier industry. Includes recommendations for FCC management improvements and congressional legislative action to better insure technological and rate competition within the telecommunications sector.

765 Congress, Subcommittee on Communications, Office of Telecommunications Policy Overview, Mar. 13, 1975, iii+79 p.

Committee Serial No. 94-7. Hearing before the Subcom of Communications to examine the functions and activities of the White House Office of Telecommunications Policy (OTP) and the relative roles of OTP and the Commerce Dept. Office of Telecommunications (OT) in formulating telecommunications policy.

Includes OT written responses to submitted subcom questions (p. 52-55), mainly relating to proposed consolidation of OT programs with those of the National Bureau of Standards.

Mar. 13, 1975, p. 2-52, 55-79.

WITNESS: Eger, John M., Act. Dir. OTP; ACC. BY: Goldberg, Henry, Gen. Counsel; Homet, Roland, Chief, Studies and Analysis; Fishman, William L., Asst. Dir. for Intl. Communications.

STATEMENT AND DISCUSSION: Highlights of OTP activities (1974-75 rpt. p. 6-24), responsibilities, and internal organization; clarification of OTP relationships to FCC; policies on cable TV, public and educational broadcasting, fairness doctrine in broadcasting, and Radio Free Europe. desirability of competition in the data communications market.

Reorganization Plan No. 1 of 1970 establishing OTP, and Exec. Order 11556, assigning telecommunications functions, texts (p. 70-73).

766 Congress, Subcommittee on Communications and Power, Regulation of CATV, 1969, May 19-23, 1969; vi+421 p.

Committee Serial No. 91-91. Hearings before the Subcom on Communications and Power on H.R. 10268, H.R. 10510, H. Con. Res. 87 and Identical H. Con. Res. 205 (texts, p. 1-3), concerning regulation of Community Antenna Television (CATV) systems; and on the role of the FCC in such regulation.

Includes submitted statements and correspondence (p. 350-421), and "Report on Cable Television" by the New York State Bar Association committee on Federal legislation (p. 376-382). (For summary of brief terms of testimony, see H501-7.9 and H501-7.10).

May 22, 1969, p. 287-313.

WITNESS: Anello, Douglas A., gen counsel, Natl Assn of Broadcasters.

STATEMENT AND DISCUSSION: Support for FCC regulations of CATV; consideration of FCC proposal that CATV operate as common carrier as premature; competition between cable television and broadcast stations.

767. Congress, Subcommittee on Communications and Power, Subscription Television, 1969, Nov. 18-21, 24, Dec. 9-12, 1969, viii+486 p. 11.

Committee Serial No. 91-37. Hearings before the Subcom on Communications and Power on H.R. 420 (text, departmental reports, p. 2-3) and 22 identical bills, to prohibit the FCC from authorizing Subscription Pay Television (STV) operations. Includes supplementary statements, letters, and telegrams (p. 454-486). (for summary of brief items of testimony, see H501-8.17)

Nov. 20, 1969, p. 107-138.

WITNESS: Wright, Joseph S., Chairman of the Board, Zenith Radio Corp; ACC. BY: Pierson, W. Theodore, Counsel.

STATEMENT: Opposes legislation to outlaw STV and outlines benefits to industry and general public (p. 107-115)

DISCUSSION: Pros and cons of the viewer's opportunity for selectivity under STV; considerations of schedules of charges for users, possibilities for monopolies and networks, and placing responsibility for selection of movies in the STV system (p. 115-138).

Dec. 12, 1969, p. 423-454.

WITNESS: Dean, Sidney W., Jr., Chairman on Communications, Americans for Democratic Action.

STATEMENT AND DISCUSSION: Danger that proposed FCC rules will encourage communications monopolies; importance of keeping new cable TV channels open to widest possible variety of potential broadcasters; proposal for regulation of all forms of electronic communications on a common-carrier basis.

768. Douglass, D. Crombie (ed.). Lowering Barriers to Telecommunications Growth. Science & Technology Telecommunications Task Force, Washington, D.C., Dept. of Commerce, Office of Telecommunications, 1976 (for sale at Govt. Printing Office).

- 769 Duggan, Maryann. Legal and Contractual Aspects of Inter-library and Information Service Operations. American Library Association, Chicago, Ill., Sept. 1970, 14 p.

Legal and contractual aspects of networks are reviewed from a lay practitioner's viewpoint. The legal basis for establishment of networks determines the authorization to enter into contracts, receive and convey funds, cross state lines, etc. Existing state laws (or lack of appropriate state laws) hinder development of networks by the process of interlocking agreements among existing institutions. Enabling federal legislation creating networks does not clarify legal identity or authority of such networks in relation to state or host institution laws or regulations. Once networks are established, the administrators are faced with legal interpretations pertaining to operations. The composition and nature of contracts with participants are not uniform and are often vague and lack clarity. Legal interpretation pertaining to ownership and use of information banks within networks present administrative problems. The contractual interfacing of networks for extension of services or resources is difficult within the present confusion of legal jurisdiction and authority of networks. Suggestion for needed action consider a legal review of existing laws, a recodification or a national network law, and a 'standardized' contract format (other papers from this conference are available as Li 003360 - 003380 and Li 003382 through Li 003390) (author)

- 770 Economic Regulation and Technological Innovation: A Cross-National Literature Survey and Analysis, Volume I: Analysis. Gellman Research Associates, Inc., Jenkintown, Pa., Jan. 1974, 238 p.

The objective of the study was to survey and analyze the literature concerning the relationship between economic regulation and technological innovation in three regulated industries that has been published since World War II in six industrialized nations. The countries surveyed were the United States, Canada, Great Britain, France, West Germany, and Japan; the industries specifically considered were transportation, communications, and the energy utilities.

- 771 Economic Regulation and Technological Innovation: A Cross-National Literature Survey and Analysis, Vol. 2, Part 1. Gellman Research Associates, Inc., Jenkintown, Pa. National Science Foundation, Washington, D.C. Office of National Research and Development Assessment, January 1974, 1097 p.

The objective of this two-part study was to survey and analyze the literature concerning the relationship between economic regulation and technological innovation in three regulated industries that has been published since World War 2 in six industrialized nations. Countries surveyed were the United States, Canada, Great Britain, France, West Germany, and Japan; industries specifically considered were transportation, communications and the energy utilities. Volume 2 includes a set of abstracts covering the 345 items which considered to any significant degree the relationship between economic regulation and technological innovation, and 793 negative information reports. Part 1 contains the first half of the review.

- 772 Economic Regulation and Technological Innovation: A Cross-National Literature Survey and Analysis, Volume 2 Part 2, Gellman Research Associates, Inc. Jenkintown, Pa., National Science Foundation, Washington, D.C., Office of National Research and Development Assessment. January 1974, 678 p.

Part 2 of a two-part report continues the literature review of relationships between economic regulation of industry and technological innovation in three regulated industries in six industrialized nations.

- 773 Federal Communications Commission. Report of the FCC on Domestic Telecommunications Policy, submitted to the Subcommittee on Communications, Committee on Interstate and Foreign Commerce, Sept. 30, 1976, 176 p. plus Appendix. (Also found in Hearings of the Subcommittee, Sept. 30, 1976, Serial No. 94-129.)

Report contains a detailed analysis of the "Consumer Communications Reform Act of 1976" and related bills; an overview of the domestic telecommunications industry and FCC policies concerning terminal devices and private line services; and a report on Docket 20003, Economic Implications and Interrelationships Arising from Policies and Practices Relating to Consumer Interconnection, Jurisdictional Separations & Rate Structures.

- 774 Final Report: President's Task Force on Communications Policy, December 7, 1968, 414 p.

This is the comprehensive study of communications policy made by the Task Force assigned by President Johnson in 1968. Subject material includes the organization of the U.S. international communications industry, the future of INTELSAT, satellite communications and educational television in developing countries, domestic applications of communication satellite technology, the domestic

telecommunications carrier industry, future opportunities for television, the use and management of the electromagnetic spectrum, and the roles of the federal government in telecommunications.

- 775 Geller, Henry. A Modest Proposal to Reform the Federal Communications Commission, Rand Corp., Santa Monica, Calif., April 1974, 55 p.

Several examples are given of over-identification with the industries regulated, in the areas of rulemaking and adjudication. The discussion then treats the possible reasons for the over-identification with the vested aspects of the industries regulated, and recommended courses of remedial action.

- 776 Johnson, Richard B. Federal Regulations Relevant to the Structural Development of Telecommunications Industries. Office of Telecommunications, Boulder, Colo., Policy Research Div., Nov. 1977, 68 p.

The report discusses major federal telecommunications regulations and policies which have had a significant impact on the structural development of the broadcast, common carrier, and cable television (CATV) industries. Included in this discussion are a historical treatment of the development and reasoning behind those regulations and policies, and the major judicial decisions which have interpreted them.

- 777 Johnson, Leland L. Problems of Regulating Specialized Telecommunications Common Carriers. Rand Corp., Santa Monica, Calif., May 1976, 22 p.

In contrast to the traditional view of the telephone industry as a natural monopoly to the regulated along classical public utility lines, the FCC's MCI decision in 1969, its Specialized Common Carrier decision in 1971, and its 'open skies' policy announced in 1972 with respect to satellites, have permitted entry of new carriers competing with the Bell system, Western Union, and among themselves. The purpose of this paper is to discuss (a) issues relating to the potential impact of competition, (b) the problems posed for regulation, and (c) prospects for the future of specialized carriers. Three major issues emerge with respect to the introduction of competition: (1) Effects on the distribution of costs and benefits among users, especially between business and residential. (2) Effects on the efficiency with which facilities are built and operated, involving questions of whether undue duplication would arise, depending in part on the degree of economies of scale relative to traffic loads; (3) Effects on innovation, leading to reductions

in costs for existing services and to introduction of new ones.

- 778 Johnson, Leland L. The Cabinet Committee Report to the President on Cable Communications. Rand Corp., Santa Monica, Calif., Feb. 1974, 11 p.

This report recommends that: control of cable distribution facilities be separated from control of programming and other services provided over cable systems; no restrictions be placed on cross-media ownership or multiple ownership of cable systems; telephone companies not be permitted to control or operate cable systems within their own service areas; Consumers have the opportunity to purchase new television programming and other information services over cable without being impeded by government-established barriers; programming and other services not be subject to government regulation of content or prices; incentives to create programming for cable be fostered by full applicability of copy-right laws to channel users; strong legal and technical safeguards be erected to protect individual privacy in cable communications; cable services be assured for the poor and for residents of rural areas; participation by minority racial and ethnic groups in cable ownership, operation, and programming be facilitated.

- 779 Karydes, Marianne; Gabel, Richard. An Analysis of Domestic Public Message Telegraph Service. Office of Telecommunications Policy, Washington, D.C., May 29, 1973, 140 p.

The report is a working paper which was undertaken as a point of departure for further analysis of the efficiency of conventional regulatory treatment of the services provided by Western Union, principal among which is its Public Message Telegraph Service.

- 780 President's Task Force on Communications Policy. Staff Paper Five: The Domestic Telecommunications Carrier Industry, 1968.

Examines the domestic common carrier industry, which includes the Bell System, General Telephone & Electronics, and Western Union. Covers such issues as interconnection, and argues that it is vital. Argues in favor of competition, but regulation will still remain necessary.

- 781 Lipinski, Andrew J. Toward a Framework for Communications Policy Planning. Institute for the Future, Merlo Park, Calif., Dec. 1971, 40 p.

The paper suggests a modeling approach to the future interaction of the CATV and TV broadcast industries.

It addresses the consequences of FCC, Supreme Court, and Congressional actions and considers the desirability of these consequences to the FCC (representing the public interest) and to each of the two industries (author).

- 782 Mandanis, George P.; Liu, Laurence; Kamath, Dinesh. Regulation and Technology Choice in Telecommunications. Systems Applications, Inc., San Rafael, Calif., National Science Foundation, Washington, D.C., Div. of Policy Research and Analysis. September 1977, 297 p.

The study analyzed two alternatives of rate-of-return regulation in terms of their effects on economic efficiency and technology choice. The alternative regulatory environments under the sliding scale plan (variable rate of return) and the cost efficiency plan (price adjusted according to unit cost changes) were simulated for a telecommunications common carrier using a computer model of a real long-haul network and real technologies. Capital structure and important financial variables were carefully accounted for. Under each of the regulatory environments, the firm management was assumed to choose among technology investment possibilities so as to maximize one of four objective functions -- economic profit, book profit, revenue, and return on equity. Among the three regulatory forms tested -- rate-of-return, sliding scale, and cost efficiency -- the cost efficiency plan was found the most promising method for encouraging efficient technology choice.

- 783 Responsibilities, Actions, and Coordination of Federal Agencies In International Telecommunications Services. General Accounting Office, Washington, D.C., Community and Economic Development Div., Sept. 29, 1977, 92 p.

The report considers: What are the responsibilities of each agency in the development of international telecommunications plans and policies; and, what is each agency actually doing.

- 784 Report to the President. The Cabinet Committee on Cable Communications, 1974. Office of Telecommunications Policy, Washington, D.C., Jan. 1974, 149 p.

Broadband cable technology offers the potential for increasing consumer choice in television programming and providing many new communications services. The Committee's recommended new policy is based upon the principle of separating the cable system owner's control over the medium from control over the messages distributed over that medium. The Committee concluded that programming, advertising and other information services on cable channels should be allowed to develop on a free and

competitive basis, with no more government regulation over the content of this communications medium than is exercised over the print medium. The Committee further concludes that current restrictions against cable ownership by television networks and broadcasters be lifted. A transition period was recommended during which new cable policies would be implemented gradually.

- 785 Snowberger, Vinson. Efficiency, Sustainability, and Ramsey Optimality of a Multi-Product Regulated Monopoly. Snowberger (Vinson), Boulder, Colo., Office of Telecommunications Policy, Washington, D.C., Office of Telecommunications, Boulder, Colo., Policy Research Div. Sept. 1977, 138 p.

The economists at Bell Laboratories have extended the theory of the multiproduct firm into areas relevant to public utility regulation. They specify conditions sufficient for such a firm to be a natural monopoly and characterize sets of circumstances under which this natural monopoly can still be vulnerable to profitable entry by competing firms. They then discuss why such entry might be detrimental to society, the implicit policy conclusion being that governmental restriction of entry is warranted. This report begins by presenting their results succinctly. It next enumerates the policy implications which may follow from them. Finally, it critiques their work from the point of view of evaluating a government policy of restricting entry into such an industry. The conclusion is that there is no set of circumstances which unequivocally supports such a policy and that there are many reasons to imagine it is inadvisable.

- 786 Telecommunications Policy Research Conference (Fifth Annual). Held at Airlie, Virginia, March 30-April 2, 1977, Volume 1. Urban Inst., Washington, D.C., Cable Television Information Center. John and Mary R. Markle Foundation, New York, Federal Communications Commission, Washington, D.C., National Science Foundation, Washington, D.C., Applied Science Research Applications, Office of Telecommunications Policy, Washington, D.C., 1977, 407 p.

The texts of papers presented at the telecommunications policy research conference are included. Critical issues relevant to telecommunications are addressed: (1) An argument for communications indicators and some suggestions for the institutionalization of their development are presented; (2) Some innovative service technologies are described; (3) Revision of the 1934 Communications Act is discussed in terms of common carrier issues and adjustments to competition in the telephone industry; (4) The limits of television are examined in relation to

its artistic, educational, sociological, and informative potential; (5) United States policy on international telecommunications is discussed in terms of recent developments and future applications of international data communications networks and forecasting demand for international message telephone services; (6) New dimensions in radio spectrum management are discussed in terms of the citizens' band user in personal radio spectrum allocation, market structure and spectrum considerations in the land mobile communications industry, the electromagnetic spectrum, and the relation between spectrum input rights and user charges from the engineer's viewpoint; and (7) Domestic satellite policy is examined in terms of the delivery of rural communications by satellite, the use of small earth stations, and Intelsat and domestic satellite systems.

- 787 Telecommunications Policy Research Conference (Fifth Annual), Held at Airlie, Virginia, March 30-April 2, 1977, Volume II. Urban Inst., Washington, D.C., Cable Television Information Center. John and Mary R. Markle Foundation, New York. Federal Communications Commission, Washington, D.C. National Science Foundation, Washington, D.C. Applied Science Research Applications. Office of Telecommunications Policy, Washington, D.C., 1977, 425 p.

The texts of papers presented at the telecommunications policy research conference are included. Critical issues relevant to telecommunications are addressed; (1) Aspects of television advertising and children are discussed in terms of fairness in advertising aimed at children, teaching children to analyze commercials, children's response to advertising, and facts and values in children's advertising regulation; (2) Policy relevant research is discussed in relation to the idea of a policy research agenda clearing-house; (3) Television's effect on political behavior is examined; (4) Recent empirical work in common carrier regulation is reported; (5) Pricing theory is discussed in terms of pricing and cost allocation in a regulated firm and multi-part tariffs; (6) Telecommunications policy research is discussed in relation to issues of professionalism and impact; (7) Social service delivery roles for telecommunications are presented; (8) The role of visual telecommunications in the criminal justice system is evaluated; and (9) Regulation, invention, and innovation are discussed in terms of resource allocation in agencies with diverse responsibility and the relationship between innovation and market structure.

- 788 The Effect of Existing Law and Regulation on the Offering of Telecommunications Services. National Commission on Electronic Fund Transfers, Washington, D.C., June 1977 19 p.

The paper describes the present statutory and regulatory environment for the offering of telecommunication services. It deals primarily with regulation by the Federal Communication Commission, pursuant to the Communications Act of 1934, as amended, 47 U.S.C. §151, et seq. (197), of entry to construct new transmission facilities or offer new services on an interstate communications common carrier basis; the development and sale of EFT terminals; and the pricing of common carrier services.

PAPERS; REPORTS; DISSERTATIONS; PAMPHLETS

789. "A Major Rate Restructuring in the Making," Centre for Communications Management, Ramsey, N.J., 1972.

Examines the issue of restructuring telephone rates as a result of FCC decisions and competition.

- 790 Baer, W. S. Testimony Prepared for Presentation to the Subcommittee on Communications, Senate Commerce Committee, March 22, 1977, The Rand Corp., March 1977, 10 pp.

A discussion of general trends in telecommunications technology and their implications for communications services. Advances in technology improve performance and enable new modes of communications, as well as reduce costs of existing services that often lead to their rapid expansion. Today most advances are of the cost-reducing kind. Particularly impressive have been cost reductions in long-distance transmission. The reason why the diffusion of a new telecommunications technology takes so long -- often 20 years or more -- is the need for compatibility with existing facilities. As a result, a new technology may find widespread application in other countries earlier than the U.S. New developments and changing costs make it important to avoid cartelization by technology. Firms should generally be free to use whatever technology will enable them to deliver better service at lower cost.

- 791 Criner, James C. An Analysis of Policy Options in the Regulation of Value Added Network Services, Ph.D. Dissertation, School of Government and Business Administration of the George Washington University, Feb. 21, 1977, 339 p.

Describes Value Added Networks (VANS), its cost characteristics, and examines policy. Includes a description of the historical development of the structure of the telephone industry and a history of resale in common carrier telecommunications.

- 792 Geller, H. A Modest Proposal to Reform the Federal Communications Commission, April 1974, The Rand Corp., 52 p.

How can the political environment of the FCC be changed? The author addresses this question in terms of what he maintains is the root problem; the FCC's overidentification with the powerful elements of the regulated industries at the expense of public interest. Detailed examples are given of this root problem in the areas of rule-making and adjudication. Possible reasons for the FCC's overidentification with industry are discussed, and a

three-step revision of the Commission's environment is recommended that would give the FCC real independence: (1) Reduce the number of Commissioners to five, and afford them 15-year terms. (2) Bar reappointment after the 15-year period. (3) Bar employment in the communications field for a 10-year period following FCC service. (Presented at the April 18, 1974 Telecommunications Policy Research Conference, Airlee House, Virginia.) 52 pp. (DGS).

- 793 Johnson, L.L. Domestic Common Carriers and the Communications Act of 1934. March 1977, The Rand Corp., 15 pp.

The Communications Act of 1934 is serving well in directing changes in market structure in light of opportunities and problems posed by technological advance. The Act is broadly worded, thus giving the FCC and other parties wide latitude to make judgments and decisions. The author argues that the Act provides a suitable framework within which issues can be debated, evidence accumulated, critical assumptions examined and a sounder basis constructed for decision-making. Examples of issues are presented and their resolutions discussed: (1) private-line services, (2) Hush-A-Phone decision in 1957 and Carterfone decision in 1968, (3) concerns about rate structure as a consequence of emerging competition in the industry, (4) accommodating to communication satellites and data process/communications, (5) problems in the future such as fiber optics and electronic message services. New issues may require modification to the Act, but it would be premature to seek amendments now for developments 20 or 30 years in the future.

- 794 Johnson, L. L. Problems of Regulating Specialized Telecommunications Common Carriers, May 1976. The Rand Corp., 20 p.

Competition by specialized carriers will probably not cause severe redistribution of costs toward small users or erode the nearly universal telephone coverage we now have. It is important to permit Bell and other carriers to respond to competition with modified tariffs with assurance that these reductions not fall below the cost of service. Because of difficulty in determining these costs, an enormous burden will be placed on the FCC and courts. This paper suggests optimism toward the future of the industry. The nature of the industry, to take advantage of technological advances, has permitted striking reductions in costs and development of new services. Now we have new entrants, miniscule compared with Bell, with uncertain futures. We will see mergers, consolidations and bankruptcies, events familiar when

competition is permitted play and progress has been rapid. Having similar forces operating in the telecommunications field does not seem unduly risky.

- 795 Kamman, A. B. "Measurement of Service Rendered by Telecommunications Public Carriers." Int. Conf. on Comput Commun. (ICCC), 2nd, Proc. Stockholm, Sweden, Aug. 12-14 1974, p. 107-111. Publ. by Int. Counc. of ICC. Stockholm, Sweden, 1974.

The telephone public carriers in the United States are regulated by Public Utility Commissions in 49 of the 50 states in the Union. These carriers have chosen, recently, to place demands on an objective grade of service to be rendered to the subscribers of each State, in addition to the Commissions' function of regulating tariffs and fees. The New York Public Service Commission has computerized the thousands of service statistics supplied to it by the carriers in the state, and these programs probably herald the start of a massive data processing trend on the part of all utility commissions. This paper describes the background and reasons for implementation of the New York data processing activity.

- 796 Mathison, Stuart L.; Walker, Philip M. "Regulation of Value Added Carriers," Telenet Commun. Corp., Washington, D.C., Data Commun. Symp. 4th, Proc., Quebec City, Que. Oct.-7-9, 1975. Publ. by IEEE, New York, N.Y., 1975.

The Office of Telecommunications Policy has urged that all forms of communications resale be freed of common-carrier-type regulation. Analysis of value-added carriers in the context of the Commission's historic "service" approach considerations of interconnection and fairness to competing entities, mandates treatment of VACs as common carriers subject to the Communications Act. At the same time, the Commission's "open entry" policy can be expected to result in competition among the value-added carriers and the early introduction of other innovative communications services. In order to maximize the benefits derived from value-added communication services, without compromising the Commission's ability to carry out its statutory functions, simplification of the certification and post-certification procedures is desirable. Questions of overall rate regulation of value-added carriers are premature at best; and, given the competitive environment, the need for such regulation is not likely to arise even in the future.

- 797 Mathison, Stuart L.; Walker, Philip M., "Regulatory and Economic Issues in Computer Communications," Proc. IEEE v 60 n 11 Nov 1972 p 1254-1272.

The rapid growth of computer communications in recent years has brought with it a number of difficult and controversial regulatory and economic problems. As the government agency responsible for the regulation of interstate common-carrier communications, the Federal Communications Commission (FCC) has been faced with many of these issues. This paper attempts to focus, in a tutorial fashion, upon four areas in the computer-communications field in which the influence of the FCC has been particularly significant. An overview of the regulatory process is given as background, after which is discussed the regulation of commercial computer-communications services, the interconnection of subscriber equipment to the telephone network, the creation of specialized communications carriers and of domestic satellite systems, and finally a number of data communications pricing problems which have arisen as a result of these developments. 18 refs.

- 798 Melody, William H. Regulation and Competition in Data Communications in the U.S. Paris: OECD Publications, 1971.

- 799 Nelson, Boyd L. "Regulation of Telecommunications Common Carriers," Paper given at the Metro Corporation Seminar at Lancaster, Penn., Feb. 2, 1978, 24 p.

Presents a general outline of common carrier regulation and describes how regulation has been put into practice at the FCC in recent years. One of the unique features of regulation as applied by the FCC is that it is accompanied and reinforced by the use of competitive forces.

- 800 Shapiro, Peter D. Public Policy As a Determinant of Market Structure: The Case of the Specialized Communications Market, Sept. 1974, 177 p. Working paper presented at Harvard University Program on Information Technologies and Public Policy.

Examines the role of public policy in determining which firms get to perform what functions in an information/communications market and in determining their relative market positions.

- 801 Stanford Research Institute. Regulatory and Policy Problems Presented by the Interdependence of Computer & Communication Services and Facilities. Merlo Park, Calif., 1969.

- 802 U.S. Independent Telephone Assoc. Regulatory Policy Changes and the Future of the Independent Telephone Industry: Final Report Abstracts, 1976 (Washington), "A Study of the economic impacts on independent telephone companies and their customers from competition in the supply of terminal equipment and intercity service." (Prepared by Systems Applications, Inc.).
- 803 Wewer, William. "Competition and Computer Communications: Monopoly Threatens the Emerging Domsat Industry." Proc. Natl. Telecommun. Conf. 1975, for Meet, New Orleans, La., Dec. 1-3 1975.

This paper analyzes the impact of Section 7 of the Clayton Act upon IBM's proposed merger with CML. The recent trend of FCC decisions favoring increased competition in the common carrier industry is contrasted with the CML order, the duty of the FCC to take national antitrust principles into consideration when making policy is reviewed. 16 refs.

900 TECHNOLOGICAL REFERENCESBOOKS

- 901 Collins, Arthur A. & Pedersen, Robert D. Telecommunications: A Time for Innovation. Merle Collins Foundation, Dallas, Texas, January 1973.

If potential users of high-power satellites make the necessary arrangements for frequency assignments, user agreements, financing, regulation, and legislation (both national and international) and establish appropriate interfaces with other communication entities and systems, then many new applications with large growth potential can be developed for populated as well as underdeveloped regions.

ARTICLES; JOURNALS

- 902 "A Satellite Network That Bypasses AT&T." Business Week, No. 2414, Jan. 12, 1976, p. 26.

Satellite Business Systems, Inc., in a joint venture of IBM, Aetna and Comsat, has proposed a new communications network based on advanced computer and digital technology completely separate from existing telephone systems. The Federal Communications Commission must decide whether to approve it in light of competition.

- 903 "A Satellite Show to Lure Business." Business Week, No. 2512, Dec. 5, 1977, p. 92G-92H.

Satellite Business Systems is currently exhibiting a new communications system which would compete with AT&T by offering the same services at a lower cost. SBS has already attracted some customers, among them Rockwell International. Approval by the FCC should be forthcoming for SBS has worked out detailed rate schedules.

- 904 "A New Star Rises in an Overcrowded Sky." Business Week, No. 2434, May 31, 1976, p. 25.

The Domestic communications satellite industry has new competition, with three identical satellites in service by 1978. The Federal Communications Commission has restricted AT&T and General Telephone & Electronics from handling any but telephone calls for three years to allow for competition from other companies.

- 905 "A Different Way to Make a Point." Business Week, No. 2526, March 20, 1978, p. 146S-146U.

Both AT&T and Ridgeway Electronics Inc. have introduced products which can be attached to a telephone line, but which are not as complicated or as expensive as television meeting machinery. While the Ridgeway product can perform fewer functions than the AT&T product, the Ridgeway product is less costly. Ridgeway has already found a customer for its product in Federal Express Corp.

- 906 Ball, J. E. D. "Some Technical Considerations in Providing Television Coverage by Satellite," Journal of the Society of Motion Picture and Television Engineers, February 1972, pp. 97-99.

Deals with international cooperation, satellite networks, television systems, cost analysis.

- 907 Bylinsky, G. "Datran's Hazardous High-Wire Act." Fortune, Vol. 93, No. 2, Feb. 1976, p. 131-139.

Datran is competing against American Telephone and Telegraph Co. in producing a communication network to transmit digital data.

- 908 Charyk, J. V. "Future of Satellite Telecommunication Systems," Telecommunication Journal, May 1971, pp. 296-300.

Discusses difference between terrestrial and satellite facilities, growth of satellite systems, potential for the newer services, technological developments, multi-purpose satellites, inter-system coordination, and the longer-term future.

- 909 Coburn, Alan R. "Satellite Communications," Telephone Engineer and Management, September 15, 1971, pp. 42-47.

Third of a six-part series, this article discusses the factors involved in earth station technology: improving the stations, locating earth station sites, costs and trends, unmanned stations.

- 910 Connolly, Ray & Scrupski, Stephen E. "Can the FCC Cope With Changing Technology?", Electronics, July 25, 1974, pp. 106-113.

Says that the FCC's new leadership "is handicapped by limited resources and static budget that doesn't reflect shifting workload."

- 911 Conway, Donald and L. Waverman. The Interdependence of Communications and Data Processing; Issues in Economics of Integration and Public Policy. Toronto: Institute for the Quantitative Analysis of Social and Economic Policy, University of Toronto, 1972.

Examines whether there are economies to be achieved if the common carriers are allowed to offer data processing services, since many of the communications and computing functions might be integrated.

- 912 Dugmore, Kent C. "The Newest Frontier in Communications: The Direct Broadcast Satellite," The United States Air Force JAG Law Review, Fall 1971, pp. 259-269.

Discusses some basic technological aspects of direct broadcasting, the international political implications and problems, the U.S. attitude, and the question of regulation of direct broadcast satellites.

- 913 Dunn, D. A. "Policy Issues Presented by the Interdependence of Computers and Communication Services," Law and Contemporary Problems, Spring 1969 (see #430).

- 914 "Future of Telecommunications." Journal of Systems Management, Vol. 27, No. 4, April 1976, p. 12-17.

A look at the next five years in the evolution of telecommunications. The major trend will be the continued blurring of the lines between computers and communications. They are on a collision course at present.

- 915 Gundlach, Richard. "Telephones at 100 Transformed by Technology for New Functions." Electronics, v 48 n 25 Dec. 11, 1975, pp. 90-100.

On its 100th birthday, the telephone is not only doing its old job better, aided by more intelligent switching systems, but is also taking on several other roles as a low-cost data terminal, an interface to peripheral equipment, and in radiotelephony. Promoting this versatility are the advances in large-scale integration, the spread of data communications, and FCC regulations favoring more competition in telecommunications.

- 916 Kamien, M. I. and Schwartz, N. L. "Market Structure and Innovation: A Survey," Journal of Economic Literature, March 1975, 37 p.

A comprehensive survey of the literature on the relationship between market structure and innovation. Concludes that no definite relationship has been established, although more support is found for some hypotheses than others. Finds little support for the standard hypothesis that research and inventive activities increase with monopoly power.

- 917 Kimbel, Dieter. Computers and Telecommunications: Economic, Technical and Organizational Issues, OECD, 1973, 222 p.

Studies the interaction of computers and telecommunications in such areas as technological development, macro-economic considerations, market entry issues, economic planning and policy consideration and international cooperation.

- 918 Nelson, Richard W. "Domestic Satellites, the FCC, and Competition in Domestic Telecommunications," Land Economics, WI 3, Aug. 1975, pp. 236-246.

The development of satellite technology touched off forces leading to an increase in the number of actual suppliers, the development of more intense rivalry, and increased significance of the threat of entry as a force in shaping market behavior.

- 919 "Portable Phones Get Closer to Market." Business Week, No. 2387, June 30, 1975, p. 32.

Wireless phones may grow to a \$10-billion business over the coming 15 years. American Telephone & Telegraph Co. and Motorola have developed equipment which they expect to go into the market with soon.

- 920 Reid, A. L. "CEPT Long Term Telecommunications Studies." IEEE Transactions on Communications, September 1974, pp. 1440-1446.

Describes and discusses the CEPT studies on the following subjects: long term growth of telephone service, external factors likely to influence long term demand for telecommunications, possibilities for new telecommunications services arising from technological developments, application of advanced telecommunications services in the field of education, and the potential of telecommunications as a substitute for face-to-face business meetings.

- 921 Smith, L. "The Comsat War Gets Tougher and Costlier." Dun's Review, Vol. 109, No. 5, May 1977, pp. 72-75.

Communications satellites offer substantial cost savings on commercial long distance telephone calling packages. But part of these cost advantages are attributable to oversupply of facilities in this high technology business. A weeding out of competitors should begin soon.

- 922 Strassburg, Bernard, "New Technology and Old Institutions," Telecommunications, June 1974, pp. 23-25.

Views the regulatory framework for established domestic communications that has been used by FCC for satellite communications as well.

- 923 "Technology Changes the Office Telephone." Business Week, No. 2415, Jan. 19, 1976, p. 42-44.

New private branch exchange systems for office switchboards are competing against established telephone equipment makers with control over telephone costs and greater versatility in office telephones. Integrated circuits make the cost cut possible, but certification, tariff, and registration issues are not ironed out.

- 924 "The Blue-Moon Blues." Forbes, Vol. 121, No. 8, April 17, 1978, pp. 106-111.

Telenet Communications Corp. with the first FCC approved packet-switching system and a large potential market is hoping to contain losses and start showing a profit by

1979. Behind in sales growth, Telenet hopes to achieve \$100 million by 1982, competing with AT&T and ITT giants.

- 925 "The Next Big Market for Semiconductors." Business Week, No. 2535, May 22, 1978, p. 84C-84J.

Semiconductor firms have begun to compete for an advantageous position in integrated circuits for the telecommunications industry. The firms are attempting to develop technology which will allow a great number of functions to be put on a single chip. The potential for growth in the market is high.

- 926 "The New New Telephone Industry." Business Week, No. 2521, Feb. 13, 1978, pp. 68-78.

Many new opportunities are developing in the telephone communications industry as a result of a decision by government to open the field to more intense competition. Technological advances have also created new opportunities, business customers are turning more toward digital and data processing equipment. Industry competitors are trying to enlarge the consumer market.

- 927 Uhl, Edward G. "Evolution of a Satellite Communications Business." Telecommunications, August 1974, pp. 49-52.

Views growth and development of satellite communications industry in U.S., both domestic and international applications.

- 928 Voorhees, R. D. "Communications: A New Logistics Factor in Location Decision and Patterns of Regional and National Development." Transportation Journal, Vol. 15, No. 4, Summer 1976, pp. 73-83. Bibliog. 20.

Communications service is evolving as an important new factor in logistics management and also has an important influence on regional and national development. The technology of data communication applications, management's applications of communication services, the changes in the pricing of communication services, the competition on the micro-level and macro-level are discussed.

GOVERNMENT DOCUMENTS

- 929 A Preliminary Review of Current Practices and Trends in Rural Telecommunications Development and Recommendations for Future Development. Final Report, Booker T. Washington Foundation/Cablecommunications Resource Center. Washington, D.C. Economic Development Administration, Washington D.C., Office of Economic Research, Aug. 1975, 131 p.

The goal of this review is to identify various opinions, demonstrations, programs, and proposed pilot projects which indicate that telecommunications technology can create significant impacts upon rural living conditions. The review offers insights into: (1) the type of potential impacts that telecommunications technology is expected to create in rural areas; (2) the range of present institutional and Federal interest and involvement in this area; (3) the major needs of rural areas; (4) significant pieces of proposed legislation and official Federal agency mandates which can influence the implementation of telecommunications in rural areas; (5) the thinking of informed experts on the issue of telecommunications' potential impact upon rural development; and (6) tangible recommendations that can possibly accelerate the integration of telecommunications technology into major rural economic development schemes. An extensive annotated bibliography on telecommunications and rural development is included.

- 930 Congress, Subcommittee on Space Science. Assessment of Space Communications Technology. Hearings before the subcommittee on space science and applications on NASA's development of space communications systems and the applicability of communication satellites to domestic use.

WITNESS: Hough, Richard R., Vice President, Long Lines Department, American Telephone & Telegraph Co.

DISCUSSION: Need for integration of satellite and terrestrial technology: economic and technological disadvantages of satellites; advantages of open competition in domestic communications (p. 182-196).

- 931 Dubnitski, V. V.; Lanin, M. I.; Chernyshev, V. E.; Vladimirova, G. I. Systems of Control and Regulation (selection of articles) (translation). Foreign Technology Div. Wright-Patterson AFB Ohio, 22 Oct. 69, 28 p.

Contents: the designing of data-transmission systems; an error recording device for discrete information transmission channels; and formation of high-frequency

channels of transmission of information over high-voltage cable lines.

- 932 False, H.; Gregory-brive, S. New Means of Audiovisual Message Transmission, Volume C: Video Cassettes Nouveaux Moyens de Diffusion de messages Audio-Visuels. Office Radio-diffusion et Television Francaise, Paris, Service de la Recherche.

A review of existing systems and future technical developments for video-cassette recording devices is presented. Read only systems, such as helicoidal magnetoscopes and super 8 telecinemas, are described and compared. The market situation and property rights problems are analyzed. The activities of various commercial organizations in a number of nations are reviewed.

- 933 Hartl, P.; Koelle, D. Technological and Commercial Development Trends in Communication Satellites Technologische und Kommerzielle Entwicklungstrends bei Nachrichtensatelliten. Messerschmitt-Boelkow-Blohm G.m.b.H., ottobrunn (West Germany), 1973, 8 p.

A review of the application and the technological and commercial development of communication satellites is presented. The applications include: intercontinental communication (Intelsat network), regional communication, tactical and strategical services, aeronautical and maritime traffic control, and direct TV broadcasting. Some trends in technological development are indicated, such as global satellites, three-axis stabilization, frequency bands, and power supply. A prognosis for the commercial development of intercontinental and regional communication is given.

- 934 Norwood, Frank W. Telecommunications Programs Affecting Network Development. American Library Association, Chicago, Ill., Sept. 70, 39 p.

In a recent issue of "Fortune," the leading article carried the predictive title, "The Coming Shake-up in Telecommunications." Increasingly, the attention of the business community and the general public is being called to the emergence of such new and potentially revolutionary communications technologies as CATV (community antenna television) and communications satellites. Adding new ingredients to the communications mix has a strong catalytic effect, releasing powerful forces which churn up established and long-stable policy matters, raising new questions and reopening old ones. This paper examines those regulatory, technical, and program developments which are a part of the 'shake-up in telecommunications,' and explores their implications for those planning library

and other 'public-service oriented' communications networks. Such consideration must include recent and proposed changes in Federal Communications Commission rules and procedures; plans for new commercial special service common carrier networks; the predicted evolution of CATV into a national system of broadband cable communications; and developments in the satellite field. In addition, it is important to see that other public and semi-public agencies are interested in network development and to explore what opportunities for cooperative effort and mutual benefits may exist. (Other papers from this conference are available as Li 003360-003363 and Li 003365 through Li 003390) (author/Nh)

- 935 Ng, Harold J. Technical Consideration of Small Fixed, Mobile, and Transportable Satellite Systems. Office of Telecommunications, Annapolis, Md., Mar. 1977, 72 p.

The potential impact of current rules and regulations on the implementation of small earth terminals in the satellite services was investigated. This investigation shows that the current ITU, OTP, and FCC regulations do not adequately consider the technical and operational factors unique to the fixed, the mobile and the transportable earth terminals with small aperture antennas. The report has identified the main areas in the current regulations and the technical characteristics associated with small earth terminals which might inhibit the introduction of such systems in the satellite services. The report recommends that follow-on tasks are required to develop special sharing criteria for small earth terminals in order to ensure the efficient use of the available orbit-spectrum resource.

- 936 Park, John H. Jr. A Study and Forecast of the Electromagnetic Spectrum Technology. Minnesota Univ., Minneapolis, Dept. of Electrical Engineering, Sept. 1970, 162 p.

The report gives the results of a study of the effect of current technology on electromagnetic spectrum in the next decade. The areas of technology considered were (1) devices including solid state and vacuum devices, sub-millimeter and optical devices and display and response devices. (2) modulation methods including multiplexing and cross-talk problems and (3) systems techniques. It was found that the areas of greatest impact are solid state devices and certain systems concepts. The results indicate a crisis in spectrum congestion in the next decade unless steps are taken to properly utilize current technology to its greatest advantage. Some recommendations for regulatory action are made including a review of regulations concerning UHF and VHF TV and a careful

allocation of frequencies out to 100 GHz since they will be widely used before the end of the decade. Common user systems should be encouraged whenever possible and further studies are recommended in this area. Further study is also needed in space diversity systems in the 10 to 100 GHz region, piggyback techniques, and modulation systems. Pilot programs or 'experimental city' projects are needed to demonstrate technically feasible services that are not currently available to the public (author).

- 937 Technical Interface Criteria Related to Direct Interconnection to the Public Telecommunications Network of Customer-Provided PBX Systems Having Repeat Coil Coupled Interfaces, Revision B. Federal Communications Commission, Washington, D.C., Common Carrier Bureau, June 1975, 68 p.

The Federal Communications Commission PBX Advisory Committee was formed to develop technical standards and procedures which would permit the interconnection of privately owned terminal devices and systems to the switched telecommunications network. The report is concerned with the technical interface criteria for the repeat-coil type PBX. Subsequent reports will cover equipment test standards and on-site test standards.

- 938 The Impact of Future Developments in Communications, Information Technology and National Policies on the Work of the Aerospace Information Specialist. Advisory Group for Aerospace Research and Development, Paris (France), Sept. 1977, 188 p.

The rapid development of new communication techniques, combined with greatly reduced unit costs of communication hardware, has led to easier access to more information for larger segments of the population. In the area of aerospace scientific and technical information, this development should provide greater opportunities for making systematic use of mankind's aggregated experience and knowledge, collected and stored over time. However, good use can only be made of these opportunities if preparations are begun now. The role of the information specialist is undoubtedly changing with the advent of these developments, and it may also be desirable for him to influence their future course. The theme of this meeting was to identify the main trends in communications and information technology, to assess their impact on the information specialist, and to consider what other developments might be desirable, particularly in relation to aerospace scientific and technical information. To this end, it brought together those in the forefront of these technologies and the information specialists who will have to make use of them, or provide complementary

services, in order that each may benefit from the other's knowledge and experience. In addition, a number of papers outlined national plans for the future of their scientific and technical information activities.
(author)

PAPERS; REPORTS; DISSERTATIONS; PAMPHLETS

- 939 Dickson, Edward M. "Potential Impacts of the Video Telephone." IEEE Trans. Commun. v COM-23 n 10 Oct. 1975 pp. 1172-1176.

The current status of video telephone technology is reviewed briefly, and the form of the video telephone of the future is projected. Likely impacts of these future devices are then described and assessed. The impacts considered are: influence on personal behavior; delivery of medical care; increased communication among the deaf; expanded educational opportunities; changes in the structure of organizations; limited substitution of communications for travel, short and long distance; economy of scale in transmission facilities; competition for investment capital; effect on balance of payments; and new outlooks in utility regulation. 1 ref.

- 940 Harrington, John V. Notes on Talks Given at MIT Communications Policy Seminar - "Issues and Dilemmas Regarding Satellite Communications," Cambridge: MIT Press, Feb. 1974.

Summary of talks on communications satellites, industry, and policy issues given by COMSAT V.P. of Research and Engineering.

- 941 Melody, William H. "Technology, Services, and the Changing Regulatory Boundaries in Telecommunications." Conference of Telecomm Policy Research, April 16-19, 1974, University of Pennsylvania, 22 p.

The changing characteristics of supply and demand in telecommunications and related industries have rendered obsolete the simple identity of "services and facilities" in telecommunications policies. Policy makers must begin to distinguish the applicability of their policies to production and distribution functions.

- 942 Loomis, H. "The Impact of Communication Satellites on Television," paper presented at the AIAA 10th Annual Meeting and Technical Display, Washington, D.C., January 28-30, 1974, 7 p.

Discusses satellite television transmission, economic analysis, international cooperation, satellite networks.

- 943 Puente, John G. "Designing the American Satellite Corporation System." IEEE Electron and Aerosp Syst Conv Rec. Washington, D.C., Sept. 17-19, 1973, p. 75-82.

American Satellite Corporation is one of several U.S. companies which have applied to the FCC for a license to

provide to the American public domestic satellite communication services. In the United States unlike the domestic systems of Canada and Russia there is a competition to supply these services. The system design in many cases will reflect the corporate interests. The paper covers the overall system plans of American Satellite and discusses the technical approach of its early phased program. A brief description is given of the earth stations, satellites interconnect and system performance objectives.

- 944 Technology Requirements for Post-1985 Communications Satellites; Summary Report, Lockheed Missiles and Space Co., Sunnyvale, Calif., September 1973, NTIS No. N74-16888.

Discusses technical and functional requirements for commercial communications satellites and emphasizes the need for providing quality service at acceptable cost. Specialized services are postulated in a needs model which forecasts future demands. This needs model is based upon 322 separately identified needs for long distance communications.

- 945 Technology Requirements for Communication Satellites in the 1980's; Final Report, Lockheed Missiles and Space Co., Sunnyvale, Calif., October 1973, NTIS No. N74-17567.

Defines key technology requirements for meeting forecasted demands for communication satellite services in the 1985-1995 time frame. Evaluates needs for services and technology and functional requirements for providing services, and forecasts future growth capabilities of terrestrial telephone network, cable TV, and satellite networks.

1000 JUDICIAL REFERENCESARTICLES; JOURNALS

- 1001 "AT&T and the Anti-trust Laws: A Street Test for Implied Immunity," Yale Law Journal, Vol. 85, 1975, pp. 254-79.

The article argues that the anti-trust action being brought by the Justice Department against AT&T may interfere with the FCC's efforts to formulate and implement regulatory policy in the communications industry. The interference is most clearly evident in the sub-market of interstate telecommunication services, inter-city voice and data transmission. The conclusion is reached that in this submarket, the conduct challenged by the Government is within the exclusive jurisdiction of the FCC and is therefore immune from the anti-trust laws.

- 1002 Berman, Paul, "Computer or Communications? Allocation of Functions and the Role of the Federal Communications Commission." Federal Communications Bar Journal, Vol. 27, 1974, pp. 161-230.

The article concentrates on the allocation of services which traditionally have been treated as incidental to message transmission. Because of the interdependence of computer and communication services, the FCC is finding it increasingly more difficult to distinguish between data transmission and processing. The problems which arise when trying to determine the jurisdiction of the FCC ~~are considered~~ and the services which can be regulated are considered.

- 1003 Bigelow, Robert, "Some Legal and Regulatory Problems of Multiple Access Computer Networks," Jurimetrics, Vol. 11, 1970, pp. 47-62.

This paper discusses some of the regulatory forces at work in the computer and communications industries and some of the current legal problems of interest to developers and users of multi-access computer networks. Questions considered include standards, separate pricing, taxation and proprietary software, the computer-communications interface, wire communications, CATV, microwave, privacy, and antitrust. The paper suggests the need for industry agreement on appropriate regulation.

- 1004 Brooks, J., "Telephone: The First Hundred Years." Forbes, Vol. 117, No. 1, Jan. 1976, p. 208-227.

The background and implications of the Government's antitrust suit against American Telephone and Telegraph is discussed.

- 1005 "The Common Carrier and Regulation," Federal Communications Bar Journal, Vol. 25, 1975, pp. 113-226.

A transcript of a seminar conducted for the Federal Communications Bar Association which gives the history of both domestic and international common carrier regulation in the U.S. The difference in the regulatory approach between domestic and international communications is discussed. Finally the seminar addresses the relationship between monopoly, competition and regulation.

- 1006 "Competition in the Telephone Equipment Industry: Beyond Telerent," Yale Law Journal, Vol. 86, 1977, pp. 538-560.

This article deals with the FCC's establishment of its jurisdiction in the regulation of terminal interconnections. It is shown that common carriers can still thwart competition by manipulating intrastate telephone rates which are beyond the reach of the FCC in order to subsidize equipment prices and thus gain an advantage over their competitors.

- 1007 Cutler, Charles. "The Relationship Between Government Regulation and Competition," Washington University Law Quarterly, Vol. 1977, pp. 493-7.

A short survey of the FCC policy encouraging competition in the specialized common carrier and terminal attachment areas. It is suggested that Bell's reaction to competition will be evident in the manner in which they price their competitive services and the effect this will have on the rates of monopoly services.

- 1008 "The FCC, as an Alternative to Divestment of Western Electric Ordered Greater Autonomy for the Bell Operating Companies in Purchasing Decisions. In re AT&T 64 FCC 2d 1 (1977)," Catholic University Law Review, Vol. 27, 1977, pp. 162-65.

An examination of FCC policy ordering maximum separation short of divestment of the Bell System telecommunications equipment manufacturer from the Bell operating telephone companies which purchase the equipment. The article praises this approach to regulating AT&T over a policy which would make Bell divest itself of Western Electric.

- 1009 "The Federal Communications Commission and the Bell System: Abdication of Regulatory Responsibility," Indiana Law Journal, Vol. 44, 1969, pp. 459-477.

The article focuses on the telephone equipment industry and the adequacy of the FCC response to that monopoly. Bell's efforts to extend that monopoly to apparatus peripheral to the telephone system are examined.

- 1010 "The FCC Computer Inquiry: Interfaces of Competitive and Regulative Markets," Michigan Law Review, Vol. 71, 1972, pp. 172-202.

An in depth analysis of the FCC's rules which resulted from the Computer Inquiry begun in 1970 and completed in 1972. The article weighs the arguments presented by the common carriers used to support their participation in data processing and discusses the detrimental results which could accrue. Among the problems foreseen are predatory pricing, discrimination in providing competitors with services, and decrease in choice among consumers. The FCC's separation policy is then analyzed.

- 1011 Flato, L. J. "Justice Takes on AT&T, Slowly," Data Motion, March, 1977, pp. 62-66.

The Justice Department's anti-trust charges include exclusionary and unfair marketing, predatory and anti-competitive rate setting, secret surveillance, and destroying evidence.

- 1012 "GTE Feels the Sting of an Antitrust Ruling." Business Week, No. 2526, March 20, 1978, pp. 37-38.

ITT has won a suit against GTE in which ITT claims that GTE unfairly restrained trade in the telephone equipment industry. The suit rests on the claim that GTE prevented ITT from selling equipment to GTE's operating companies. The suit may have significant consequences for a suit currently pending against AT&T.

- 1013 Jones, William. "An Example of a Regulatory Alternative to Anti-trust: New York Utilities in the Early Seventies." Columbia Law Review, Vol. 13, 1973, pp. 462-554.

This article considers the problems which face American society because of the fact economic power is concentrated in the hands of a few firms and the fact public management is becoming an alternative. The author studies the alternative to anti-trust and socialization which is specific economic regulation of business behavior. The regulated utilities in New York are studied in detail in order to indicate the problems encountered in the course of regulation and the techniques developed to meet these problems.

- 1014 Kerner, J. R. "The Communications Satellite Corporation: Toward a Workable Telecommunications Policy," Hastings Law Journal, Vol. 27, 1976, pp. 721-52.

The article surveys the history of Comsat and focuses on the legislative history of the Communications Satellite Act and the congressional debate concerning whether Comsat should be publicly or privately owned. The mysterious retreat of the private common carrier from 50% stock ownership is examined as well as the corporation's role in the creation of Intelsat. The article also suggests modification to legislation being considered which would restructure the statutory scheme of the 1962 Satellite Act.

- 1015 Kestenbaum, Lionel. "Competition in Communications," Anti-Trust Bulletin, Vol. 16, 1971, pp. 769-87.

A review of early FCC decisions favoring competition in the telephone industry and a consideration of FCC policy which puts the burden on the common carrier system to justify the need for monopoly.

- 1016 Kestenbaum, Lionel. "The Limits of a Regulated Monopoly - Telephone Attachments, Interconnection and Use of Circuits," Anti-Trust Bulletin, Vol. 13, 1968, pp. 979-89.

The article examines existing anti-trust and patent law in order to indicate established legal thinking regarding monopoly in industry. The common carrier industry is seen within this context and it is suggested that increased competition would end discrimination and that the market discipline of price and services can be beneficial to diversity in the industry.

- 1017 Marks, Herbert and Stephen Bell. "Computer Communications: Government Regulation," Washington University Law Review, Vol. 1977, 1977, pp. 479-491.

The article discusses the FCC computer policy which states that carriers may conduct a data processing activity only through a separate corporate subsidiary. In addition it discusses those services which the Commission would define as data processing in their Second Computer Inquiry.

- 1018 Madson, Kenneth. "Anti-Trust Consent Decree - The History and Effect of *Western Electric Co. v. United States* 1956 Trade Case," Cornell Law Quarterly, XLV, 1959.

- 1019 Phillips, Charles Jr., "Domestic Telecommunications Policy: An Overview," Washington and Lee Law Review, Vol. XXIX, 1972, pp. 235-52.

A survey of FCC decisions regarding competition in the telephone industry and a consideration of the various options open to the Commission regarding the structure of the industry. The alternatives ranging from maintaining a near monopoly to establishing open competition are considered.

- 1020 "Recent Federal Actions Affecting Long Distance Telecommunications: A Survey of Issues Concerning the Microwave Specialized Common Carrier Industry." George Washington Law Review, Vol. 43, 1975, pp. 878-913.

An examination of various issues raised by recent federal judicial and administrative actions that introduce competition to the long distance telecommunications industry. An inquiry is made into the jurisdictional conflict between the FCC and the Justice Department. It is concluded that regulatory action was made possible and expedited by a recent trend in administrative law favoring extrajudicial procedures and relaxed standards of entry for potential competitors in regulated industries.

- 1021 Robins, Wayne. "Computer Communications: Industry Interdependence." Washington University Law Quarterly, Vol. 1977, 1977, pp. 471-77.

A survey of the markets which the computer and communications industries are seeking to satisfy. The article states that both industries are competing in the same markets, are dependent upon the same technologies, and are producing similar terminal attachments.

- 1022 Schnee V. & Gorkiewicz, W. J. (eds.). "Probe Special Report, The Execunet Blockbuster," Probe Telecommunications Journal, Vol. 1, No. 2, Aug.-Oct., 1977, pp. 1-9.

The U.S. Circuit Court of Appeals has concluded that AT&T does not have a legal monopoly on interstate toll service. This momentous decision and its possible impact on the legislative fight are analyzed.

- 1023 Schnee, V. & Gorkiewicz, W. J. (eds.). "Terminal Equipment (Interconnect): The Government's Case Against AT&T," Probe Telecommunications Journal, Feb.-April, 1978, pp. 54-87.

The Government's case is a four-pronged attack on the

issues of Interface Devices, Pricing Policies, New Anti-competitive Products and Monitoring and Harassment of competitors. The evidence and the strength of the Government's approach in each area are discussed.

- 1024 Schnee, V. & Gorkiewicz, W. J. (eds.). "The U.S. vs AT&T," Probe Telecommunications Journal, Nov.-Jan. 1978, pp. 91-100.

The Government's anti-trust suit is three years old and ready to move ahead. This article gives an overview of the present status and the nature of the Government's case in each competition area.

- 1025 "Separating the Jurisdictional Authorities of State and Federal Administrators in the Regulation of the Physical Equipment within the Nation's Telephone Network," Toledo Law Review, Vol. 8, 1977, pp. 733-765.

The article provides an in depth analysis of North Carolina Utilities Commission v. Federal Communications Commission and the court's decision that the FCC has jurisdiction in the regulation of terminal interconnection. The author takes into consideration the question of jurisdiction over the remaining facilities of the telephone network. The growth of the federal government in regulating the telephone network as well as the apparent futility of state resistance to the growth are chronicled.

- 1026 Strassburg, Bernard. "Competition and Monopoly in the Computer and Data Transmission Industries," Anti-Trust Bulletin, Vol. 13, 1968, pp. 991-97.

This article deals with the merger of the communication and data processing services. The pre-Carterphone terminal attachments rule of the FCC is analyzed and the suggestion is made that the further competition in this area would be advantageous to the development of the industry.

- 1027 Taut, Barry. "Federal Communications Commission Regulation of Domestic Computer Communications: A Competitive Reformation," Buffalo Law Review, Vol. 22, 1973, pp. 947-84.

An analysis of the nature of contemporary computer regulation entrusted to the FCC and a delineation of how the impact of recent technological advances has caused the Commission to rethink its traditional natural monopoly rationale in favor of a procompetitive approach in the telecommunications field. The article

surveys the major FCC and court decisions which promote the policy of increased competition.

- 1028 Turner, D. G. "The Role of Anti-Trust Policy in the Communications Industry," Anti-Trust Bulletin, Vol. 13, 1968, pp. 873-879.

Argues that anti-trust and regulation are mutually supportive - both geared to efficient and progressive economic performance.

GOVERNMENT DOCUMENTS

1029 Communications Act of 1934. 47 USC sections 200-222.

Sec. 201. Service and charges (a) It shall be the duty of every common carrier engaged in interstate or foreign communication by wire or radio to furnish such communication service upon reasonable request therefor; and, in accordance with the orders of the Commission, in cases where the Commission, after opportunity for hearing, finds such action necessary or desirable in the public interest, to establish physical connections with other carriers, to establish through routes and charges applicable thereto and the divisions of such charges, and to establish and provide facilities and regulations for operating such through routes.

(b) All charges, practices classifications, and regulations for and in connection with such communication service, shall be just and reasonable, and any such charge, practice, classification, or regulation that is unjust or unreasonable is hereby declared to be unlawful; Provided, That communications by wire or radio subject to this Act may be classified into day, night, repeated, unrepeated, letter, commercial, press, Government, and such other classes as the Commission may decide to be just and reasonable, and different charges may be made for the different classes of communications: Provided further, That nothing in this Act or in any other provision of law shall be construed to prevent a common carrier subject to this Act from entering into or operating under any contract with any common carrier not subject to this Act, for the exchange of their services, if the Commission is of the opinion that such contract is not contrary to the public interest; Provided further, That nothing in this Act or in any other provision of law shall prevent a common carrier subject to this Act from furnishing reports of positions of ships at sea to newspapers of general circulation, either at a nominal charge or without charge, provided the name of such common carrier is displayed along with such ship position reports. The Commission may prescribe such rules and regulations as may be necessary in the public interest to carry out the provisions of this Act.

Sec. 202. (a) It shall be unlawful for any common carrier to make any unjust or unreasonable discrimination in charges, practices, classifications, regulations, facilities, or services for or in connection with like communication service, directly or indirectly, by any means or device, or to make or give any undue or unreasonable preference or advantage to any particular

person, class of persons, or locality, or to subject any particular person, class of persons, or locality to any undue or unreasonable prejudice or disadvantage.

Sec. 203. (a) Every common carrier, except connecting carriers, shall, within such reasonable time as the Commission shall designate, file with the Commission and print and keep open for public inspection schedules showing all charges for itself and its connecting carriers for interstate and foreign wire or radio communication between the different points on its own system, and between points on its own system and points on the system of its connecting carriers or points on the system of any other carrier subject to this Act when a through route has been established, whether such charges are joint or separate, and showing the classifications, practices, and regulations affecting such charges. Such schedules shall contain such other information, and be printed in such form, and be posted and kept open for public inspection in such places, as the Commission may by regulation require, and each such schedule shall give notice of its effective date; and such common carrier shall furnish such schedules to each of its connecting carriers, and such connecting carriers shall keep such schedules open for inspection in such public places as the Commission may require.

(c) No carrier, unless otherwise provided by or under authority of this Act, shall (1) charge, demand, collect or receive a greater or less or different compensation, for such communication, or for any service in connection therewith, between the points named in any such schedule than the charges specified in the schedule then in effect, or (2) refund or remit by any means or device any portion of the charges so specified, or (3) extend to any person any privileges or facilities, in such communication, or employ or enforce any classifications, regulations, or practices affecting such charges, except as specified in such schedule.

Sec. 205. (a) Whenever, after full opportunity for hearing, upon a complaint or under an order for investigation and hearing made by the Commission on its own initiative, the Commission shall be of opinion that any charge, classification, regulation, or practice of any carrier or carriers is or will be in violation of any of the provisions of this Act, the Commission is authorized and empowered to determine and prescribe what will be the just and reasonable charge or the maximum or minimum, or maximum and minimum, charge or charges to be thereafter observed, and what classification, regulation or practice is or will be just, fair, and reasonable, to

be thereafter followed.

Sec. 221. (b) Subject to the provisions of section 301, nothing in this Act shall be construed to apply, or to give the Commission jurisdiction, with respect to charges, classifications, practices, services, facilities, or regulations for or in connection with wire, mobile, or point-to-point radio telephone exchange service, or any combination thereof, even though a portion of such exchange service constitutes interstate or foreign communication, in any case where such matters are subject to regulation by a State commission or by local governmental authority.

(c) For the purpose of administering this Act as to carriers engaged in wire telephone communication, the Commission may classify the property of any such carrier used for wire telephone communication, and determine what property of said carrier shall be considered as used in interstate or foreign telephone toll service. Such classification shall be made after hearing, upon notice to the carrier, the State commission (or the Governor, if the State has no State commission) of any State in which the property of said carrier is located, and such other persons as the Commission may prescribe.

(d) In making a valuation of the property of any wire telephone carrier the Commission, after making the classification authorized in this section, may in its discretion value only that part of the property of such carrier determined to be used in interstate or foreign telephone toll service.

Terminal Interconnection

1030 In the Matter of Hush-a-phone Corporation. 20 FCC 391 (1955).

FCC held that the unrestricted use of Hush-a-phone could result in an impairment in the quality of telephone transmission and a general deterioration of the quality of interstate and foreign service. Therefore AT&T was neither unjust nor unreasonable in prohibiting the use of Hush-a-phone.

1031 Hush-a-Phone v U.S. 238 F 2d 266 (1956)

U.S. Court of Appeals held that AT&T acted unlawfully in disallowing the attachment of Hush-a-phone. It held that AT&T's tariff prohibition of a customer supplied foreign attachment was an unwarranted interference with the telephone subscribers right to use reasonably his telephone in ways that were privately

beneficial without being publicly detrimental.

The Court set aside the FCC's decision and order, dismissed complaint of FCC against AT&T, and remanded the case to FCC for further proceedings.

- 1032 Hush-a-Phone Corp. v. AT&T. 22 FCC 112, 113 (1957).

The FCC held that AT&T must file tariffs rescinding and cancelling any tariff regulations to the extent that they prohibit a customer from using, in connection with interstate or foreign telephone service, the Hush-a-phone device or any other device which did not injure AT&T's employees, facilities, and the public in their use of AT&T's services or impair the operation of the telephone system.

- 1033 Carter v. AT&T. 250 F. Supp. 188, 1922 (1966).

(AT&T threatened to discontinue telephone service to prospective customers of Carter). This was a private anti-trust action brought by Carter against AT&T for injunctive relief. Court held that because of its competence and expertise in the telephone communication field, the FCC, under the doctrine of primary jurisdiction, was vested with the right to determine the justness and reasonableness of AT&T's tariff to forbid attachment of Carterphone.

- 1034 Carter v. AT&T. 365 F 2d 486 (1966).

The appeals court upheld the decision of the district court that the FCC had primary jurisdiction to resolve questions relating to the validity of a tariff permitting the telephone company to suspend or terminate service if Carter's device was connected with telephone company facilities.

- 1035 In the Matter of Use of the Carterphone Device in Message Toll Telephone Service. 13 FCC 2d 420 (1968) recon. denied, 14 FCC 2d 571-573 (1968).

FCC found that the Carterphone device filled a need, that its use was nevertheless prohibited by provisions in an AT&T tariff for interstate service. The Commission held the tariff unlawful under 201(b) of Communications Act because the tariff prohibited the use of inter-connecting devices which would not adversely affect the telephone system.

- 1036 In The Matter of the Use of the Carterphone Device in Message Toll Telephone Service. In the Matter of Thomas F. Carter et al. v. AT&T et al. 14 FCC 2d 571, 573 (1968).

FCC held that a tariff was unlawful if it assumed a priori that the interconnection of customer provided terminal equipment would cause technical or economic harm to telephone networks.

- 1037 In the Matter of AT&T Foreign Attachments' Tariff Revisions. 15 FCC 2d 605 (1968) recon. denied 18 FCC 2d 871 (1969).

AT&T submitted tariffs which set forth new provisions regarding the attachment of terminal devices - data, voice and accessories. FCC permitted AT&T to require protective interface devices on all customer provided equipment. The Commission initiated informal proceedings to explore technical feasibility of liberalizing these restrictions.

- 1038 General Telephone of California v. FCC. 413 F 2d 390, 398 (1969).

The decision provided the rationale for later court rulings that the FCC would have jurisdiction over terminal attachments. The Court affirmed a Decision and Order of the FCC that the Commission has jurisdiction over channel transmission service and facilities of telephone companies constructed to carry TV and FM radio signals by wire between CATV antenna or microwave received and subscribers, when the reception and transmission facilities are entirely within one state and when they are constructed to provide transmission service to CATV operators carrying signals which originate from TV and FM broadcasters in another state.

- 1039 In the Matter of Telerent Leasing Corp. et al. 45 FCC 2d 204, 220 (1974).

In a declaratory ruling made at the request of the North American Telephone Association, the FCC held that it had primary authority over the terms and conditions governing interconnection of customer provided equipment to the nationwide telephone network. No state regulation could oust the Commission from its clear jurisdiction over interstate commerce and the regulation of the terms and conditions governing such communications including the right of subscriber interconnection. This decision was made in response to North Carolina Utilities Commission public notice of a proposed rule making to prohibit connection of customer provided equipment in North Carolina.

- 1040 Sherdon v. Dann. 229 NW 2d 531, 536-537 (1975).

The Nebraska Public Service Commission found that motel

operators, who had leased a complete telephone inter-connection system for use in new motel buildings, were in violation of law by offering telephone service to the public for hire without having a certificate of public convenience and necessity and ordered defendants to cease and desist from offering such a service without a certificate. On appeal the court held that exercise of jurisdiction by Federal Communications Commission over terms and conditions governing interconnection of customer-provided telephone equipment to the nationwide telephone network had established the primacy of federal authority and had preempted conflicting or inconsistent state regulations. To require defendants to hold a certificate for the operation of in-house system if anyone other than the certificated telephone company furnished the exchange telephone service was arbitrary as well as legally prohibited under federal regulations and that it was equally arbitrary to permit 22 other Nebraska customers of the telephone company to operate in-house telephone systems without a certificate but to refuse to permit defendants to operate such system solely because they operated a motel business.

- 1041 North Carolina Utilities Commission v. FCC.
537 F 2d 787 (1976).

The court held that the FCC's declaratory order with respect to jurisdiction over interconnection policy was not premature; that the FCC declaratory statement of its primary authority over the interconnection of customer provided terminal equipment was a proper and reasonable assertion of jurisdiction conferred by Communications Act.

- 1042 Proposals for New or Revised Classes of Interstate and Foreign Message Toll Service (MTS) and Wide Area Telephone Service (WATS). First Report and Order 56 FCC 2d 593 (1975) Second Report and Order 58 FCC 2d 739 (1976) Third Report and Order FCC 2d (1978) (Docket 19528).

FCC abandoned the interface requirement in favor of direct interconnection of certified equipment. The registration program for certification of terminal attachments was extended to include main telephones, PBX's and key telephones.

Its treatment of premises wiring was to allow for three complementary techniques for its implementation: (1) wiring in accordance with the tentative requirements of the Second Report and Order (called "fully-protected wiring"), (2) wiring in accordance with a proposal by AT&T using protective apparatus which protects solely against contact of telephone wiring with commercial

power wiring, and (3) wiring in accordance with a proposal by GTE using no protective apparatus, but subject to controls in a new rule which would assure its proper planning and installation. The FCC also allowed equipment suppliers the option of balancing the costs associated with these three techniques against the costs associated with the new controls which the Commission would be adopting, which would become more stringent as wiring moved from the "fully-protected" first category to the "unprotected" third category. Since wiring in the "fully-protected" category was meant to be specifically protected by apparatus presently accommodated by FCC rules, no new requirements on this form of wiring were adopted.

1043 North Carolina Utilities Commission v. FCC. 552 F 2d 1036 (1977).

This holding is an appeal of the FCC's attempt to exercise primary jurisdiction over the regulation of telephone terminal equipment. The rule for registration programs for terminal equipment attached to interstate telephone line network was established in Docket 19528, which permits customers to attach any registered terminal equipment without being forced to use the carrier supplied intermediary devices. The court affirmed that FCC has primary authority over terminal equipment used for both interstate and local communication. The Court determined that the powers delegated to the Commission by the Act included power to establish a registration program for terminal equipment. The FCC's registration program was not unlawful because the FCC had not denied its responsibility to consider its economic impact.

1044 In the Matter of AT&T's Tariff Revision Exempting Mebane Home Telephone from the Obligation to Afford Customers the Option of Interconnecting Customer Provided Equipment to Mebane's Facilities. 53 FCC 2d 473 (1975).

FCC rejected as speculative and hypothetical Mebane's request for a waiver of its interconnection obligation on grounds of economic harm. The Commission gave Mebane an opportunity to establish in a hearing that it had good cause for waiver of its terminal interconnection duty based upon economic impact. FCC stated that it would make available to every carrier procedures whereby it could obtain such a waiver.

1045 In the Matter of the Implications of the Telephone Industry Primary Instrument Concept. 43 RR 2d 1205 (1978)

The Commission concluded that the telephone industry's

Primary Instrument Concept which proposes that each single line subscriber to basic telephone service should be required to lease one telephone set from the telephone company, would be unlawful under Sections 201(b) and 202(a) of the Communications Act if initiated by a telephone carrier. The industry's premise that a carrier instrument was an integral part of complete telephone service was again rejected.

Specialized Common Carriers

1046 In the Matter of Allocation of Frequencies in the Bands Above 890. 27 FCC 359 (1959).

FCC decided that any private microwave system which met proper technical criteria would be authorized even though the service offered could be provided by existing common carriers. The Commission found that a sufficient number of frequencies were available in the microwave range to permit the entry of private point-to-point systems and such entry would not have a detrimental economic effect upon the traditional common carriers nor affect their ability to provide service to the general public at a reasonable cost. When the question would arise as to which of the private systems should be allowed to interconnect with the common carrier the FCC stated that these matters would be covered by tariffs and practices which would meet statutory test of justice and reasonableness. Therefore the facts of each case would determine the question of interconnection.

1047 In the Application of Microwave Communication Inc. (specialized common carrier services from Chicago-St. Louis). 18 FCC 2d 953 (1969).

The FCC held that it would be inconsistent with the public interest to deny Microwave Communication Incorporated's application and thus deprive the applicant of an opportunity to demonstrate that its proposed microwave facilities would bring to its subscribers the substantial benefits which it predicted. The Commission decided that the public interest would be served by a grant of MCI's application.

The FCC further held that absent a significant showing that interconnection was not technically feasible, the issuances of an order requiring the existing carriers to provide loop service to MCI was in the public interest.

1048 In the Matter of Telpak Tariff Sharing Provision of American Telephone and Telegraph and Western Union Co. 23 FCC 2d 606 (1970).

FCC ruled the tariffs unlawful because they were discriminatory and preferential and therefore violated 202(a). The tariff resulted in a rate discount to certain private line users and denied a discount to other users without justification. Certain categories of private line customers were allowed to share their communications requirement in order to qualify for lower private line rates available to bulk users. The FCC declared that the tariff regulations did not accurately reflect the actual practices of the tariffs. While the tariffs suggested the services would be shared only when discreet broad band channel facilities were being furnished, in actuality, the benefits of the tariffs were being applied to private line channels furnished over diverse facilities. FCC ordered that sharing rates be extended to all private line customers.

1049 AT&T v. FCC (Telpak). 449 F 2d 439 (1971)

AT&T appealed the Telpak decision. The Court affirmed the FCC decision that the tariff provisions were discriminatory and held that the FCC could not prescribe that rule-sharing permission be extended to all private line customers without statutory findings that the practice would be just, fair and reasonable and that the resultant rate would be just and reasonable. The case was remanded to the FCC for a hearing and determination as to what remedy for the discriminatory sharing would satisfy the statutory requirement. The issue has yet to be resolved.

1050 In the Matter of Establishment of Policies and Procedures for Consideration of Application to Provide Specialized Common Carrier Services in the Domestic Public Point-to-Point Microwave Radio Service. 29 FCC 2d 870 (1971).

This FCC decision was occasioned by a large number of applications seeking authorization to construct microwave facilities in order to provide specialized common carrier service. The Commission held that a public need and demand exists for the proposed services and facilities; that competition in the specialized common carrier field is feasible; that the new entries will have a beneficial effect; that there is no reason to anticipate that the new entry would have any adverse impact on service to the public by existing carriers such as to outweigh the considerations supporting new entries; that a general policy in favor of the entry of new carriers in the specialized communications field would serve the public interest, convenience and

necessity.

Existing carriers would be permitted to price their competitive services in a fashion that would reasonably and realistically reflect economic advantages. There should not be any protective umbrella for the new entrants or any artificial bolstering of operations that could not succeed on their own merits.

1051 Washington Utilities and Transportation Commission v. FCC. 513 F 2d 1142 (1975).

On appeal, the court reviewed the Specialized Carrier Decision and held that the capability of existing carriers to provide specialized private or leased line communication services through microwave transmission facilities would not require rejection of applications from new carriers to provide the proposed services. Procedures and policies used to determine whether competition in the specialized communication field would further the public interest were proper. The public interest did not require the FCC to hold comparative hearings for the purpose of restricting new entry in a particular area to only one private line applicant. Finally, the Court held that the FCC acted within its statutory policy in adopting general policies in its rulemaking proceedings favoring entry of new carriers in the specialized communication field.

1052 MCI v. ATT. 369 F Supp. 1004 (1974).

MCI sought a preliminary mandatory injunction against AT&T requiring the latter to furnish interconnections between their communication systems and certain facilities of MCI so as to permit MCI to provide foreign exchange service (FX), transmitting facilities, to interconnect the local terminal facilities of one or more specialized common carriers, common control switching arrangements (CCSA) and interexchange connection to customers' premises located outside the local distribution area of the telephone companies serving those areas.

Court held that the injunction could be granted on the basis of violation of the Communications Act resulting in discrimination against MCI.

1053 In the Matter of Bell System Tariff Offerings of Local Distribution Facilities for Use of Other Common Carriers. 46 FCC 2d 413 (1974).

This hearing arose out of a controversy between AT&T and other telephone companies and specialized common carriers concerning the extent to which the latter or their

customers should be permitted to interconnect their facilities with those of the telephone companies.

The FCC found that AT&T engaged in conduct which resulted in the denial, or unreasonable delay, in establishing physical connections with MCI and other SCC's, that it pursued policies and practices which foreclosed the establishment of through routes, that AT&T unlawfully applied the tariff schedules of charges and regulations filed with state regulatory commissions for services and facilities provided to the SCC and used for the transmission of interstate and foreign communications. The Commission also stated that AT&T discriminated against the SCC's in favor of its own Long Lines Department, by denying to the SCC the interconnection privileges presently provided to the Long Lines Department in connection with authorized interstate services.

1054 Bell Telephone of Pennsylvania v. FCC. 503 F 2d 1250 (1974).

The Court held that previous FCC decision (Specialized Common Carrier) in which the Commission stated that established carriers should permit interconnection with specialized common carriers fixed the telephone company's responsibility to supply the interconnection facilities needed to permit the specialized common carriers to provide Foreign Exchange (FX) and Common Central Switching Arrangements (CCXA). Interconnection was to be provided even though the Court held that the Specialized Carrier Decision mentioned only private line services generally without reference to the components of such services and despite AT&T's contention that the prior decision only dealt with local looping.

1055 FCC Order Rejecting Execunet Tariff Proposed by MCI. 60 FCC 2d 62, Appendix B (1975).

Execunet Tariff was rejected by the FCC on the basis that Execunet was not a private line service and MCI had not received a prior authorization to offer any service other than a private line service.

Execunet and MTS shared the following characteristics:

- (1) intercity facilities used for Execunet were shared by all users of the service.
- (2) Execunet could be accessed directly from any push-button telephone (or from any telephone using a separate tone generator) in the calling city to call any telephone in any one of a number of distant cities.

- (3) The Execunet customer used common local exchange plants at both ends.
- (4) The Execunet customer was billed for each call, based upon time and distance and subject to a monthly minimum with no charge added at the distant city.

In addition, the Commission found that according to the policy set for in its Specialized Carrier Decision, MCI was authorized to offer only private line services and not MTS and that MCI's new tariff was unlawful on its face. Tariff was rejected and MCI was given 30 days in which to discontinue services.

1056 In the Matter of MCI Telecommunications Corporation (Execunet). 60 FCC 2d 25 (1976).

The FCC's order, issued in its July 2nd, 1976 letter, was remanded on appeal to the Commission for review. The Commission maintained that the Specialized Common Carrier decision specified that MCI and other specialized carriers could offer services in competition to AT&T and other established carriers only in the private line telecommunications field. Because the FCC considered Execunet to be similar to MTS, the Commission rejected the Execunet tariff and ordered that MCI had to cease offering the service after the release of this decision or removal of the stay by the court of appeals (561 F 2d 365 (1977)) whichever occurred last.

1057 MCI v FCC (Execunet). 561 F 2d 365 (1977).

On appeal, the Court decided that the FCC had no general authority to insist that carriers receive its approval before filing tariffs proposing new services or rates. Only if the FCC had determined that the public convenience and necessity might require that new services receive advance approval could it then reject a tariff as unauthorized.

The Specialized Carrier Decision did not grant AT&T a lawful monopoly over MTS and WATS service which would be undermined were MCI, a competing specialized common carrier, allowed to provide Execunet telephone service. The FCC had not so far determined that the public interest would be served by creating an AT&T monopoly in the interstate long distance message telephone field.

The Court stated that if the Commission wishes to continue these proceedings it could address the issue of whether the competition posed by Execunet was in the public interest.

The Court held that Commission erred in rejecting MCI's

Execunet tariff as unauthorized.

- 1058 In the Matter of Petition of AT&T for a Declaratory Ruling and Expedited Relief (Execunet). 42 R R 2d 789 (1978).

The FCC held in a declaratory order occasioned by a petition filed by AT&T that AT&T was under no obligation to provide the local physical interconnections necessary for MCI's Execunet service.

The FCC's Section 201 interconnection order, as interpreted by the court and the Commission, required interconnection for private line services which were similar to private line services offered by AT&T through interconnection between AT&T Long Lines and Bell System affiliates.

The Court said the Commission order, viewed in its entirety, operated to preclude AT&T from treating its long lines department and its affiliates differently than it treated the specialized common carriers. The FCC had to require AT&T to provide to the specialized carriers those (interconnection) elements of private line services which AT&T supplied to its affiliates and furnished to customers through its long lines department.

- 1059 Microwave Communications Inc. v. FCC and U.S. (Execunet) 42 R R 2d 1251 (1978).

The court held that nothing in the FCC's declaratory order established any legal basis for AT&T to deny MCI interconnection for its Execunet service. The court stated that its previous decision (561 F 2d 365 1977), granted MCI the right to provide Execunet and that the decision contemplated that AT&T was required to provide interconnections for Execunet. The FCC's decision in Specialized Carrier and Bell System Tariff Offerings imposed upon AT&T an obligation to provide interconnections for Execunet. FCC was ordered to comply with the mandate of the court upholding the authority of MCI to offer Execunet service by interconnection with AT&T facilities, pending further rule making by the Commission. The court's Execunet decision required AT&T to furnish interconnection for all "presently or hereafter authorized" services provided by the specialized carriers. The court's emphasis on tariff and rate making as the exclusive means for future limitations on the specialized carrier's development clearly contemplated that the carriers would be free to expand their service offerings and would be afforded the necessary interconnections until and unless it was found that the public interest demanded otherwise.

- 1060 In Re Application of United States Transmission Systems Inc. for Construction Permits in the Domestic Public Point-to-Point Radio Services for New Stations. 48 FCC 2d 859 (1974).

USTS submitted a proposal to provide specialized carrier service. The primary market projected was for the provision of private line analog channels to users having low volume requirements between two points; bulk and data services were contemplated as secondary offerings. The application was challenged by AT&T because USTS is a subsidiary of ITT and entry of USTS into the specialized carrier field would mean indirect entry by ITT. The Commission found that USTS service was in the public interest, held that it would not lessen competition and granted the application.

Computer and Communication Devices and Facilities

- 1061 In the Matter of Regulatory and Policy Problems Presented by the Interdependence of Computer and Communication Services and Facilities. 28 FCC 2d 291 (1970) (tentative decision) Final Decision 28 FCC 2d 267 (1971).

The Commission found that there was a close and intimate relationship between data processing and communication services. The dangers the FCC cited were related primarily to the alleged ability of common carriers to favor their own data processing activities by discriminatory services, cross subsidization, improper pricing of common carrier services and related uncompetitive practices and activities. The FCC's answer to the problem was based upon the concept of achieving a maximum separation of activities which were subject to regulation from non-regulated activities involving data processing. The Commission ruled that no common carrier subjected to the Communications Act would be able to furnish data processing services to others except through a separate corporate entity which must maintain its own books and accounts, have separate offices, employ separate operating personnel, and utilize separate computing equipment and facilities. All contracts, agreements and arrangements between the carrier and said separate corporation had to be filed with the Commission within 30 days. The carrier was further precluded from selling or promoting the data processing service of the separate corporation. Furthermore the carrier was prohibited from selling or leasing to any other entity any excess capacity or computer system component which the carrier uses in any way for the provision of its common carrier communication services.

- 1062 General Telephone and Electronic Service Corp. v. FCC.
474 F 2d 724 (1973).

Court affirmed FCC order to force common carriers to set up independent affiliates in data processing markets and have limited business dealings between the carriers and such affiliates. However, the FCC rule preventing common carriers from purchasing, leasing, or otherwise obtaining the data processing service or services from their separate corporation and prohibiting a carrier from permitting the separate corporation to employ in its name any words or symbols contained in the name of the carrier constituted an intrusion by the Commission into the data processing field.

- 1063 In the Matter of the Applicate of AT&T to Supplement Existing Facilities Between Boston, Mass., Chicago, New York and Philadelphia and DC by Establishing Digital Channel Groups Between the Above Cities on the Existing Microwave Radio Channels. 50 FCC 2d 501, 511-12 (1974).

The FCC determined that it was in the public interest that effective competition for data communication services not be eliminated through the institution by AT&T of rates and conditions which may be predatory and anti competitive. AT&T's digital channel system in which a digital bitstream would be transmitted in an otherwise unused portion of the microwave baseband was seen as a valuable service. The FCC decided however that its operation would be limited to only five cities for an interim period until the lawfulness of the tariff and its economic impact upon competition could be determined.

Satellite Communications

- 1064 In the Matter of the Establishment of Domestic Communications Satellite Facilities by Non Government Entities (Docket #16495 - Domsat Decision). First Order and Report, 22 FCC 2d 86 (1970). 2nd Order and Report, 35 FCC 2d 844 (1972).

FCC determined that it had the authority to authorize any non-Federal Government entity to construct communication satellite facilities for domestic use.

FCC extended its multiple entry policy for licensing of specialized common carriers utilizing microwave systems to the licensing of special common carriers seeking to utilize satellite systems. The Commission delayed AT&T's use of satellite for private line communication. It was felt that if AT&T were given unrestricted use of satellites for both monopoly and specialized services,

the presence of competition in the specialized common carrier field would be drastically reduced. AT&T's entry into satellite use was restricted only to monopoly services -- MTS and WATS so as to prevent the monopoly and competitive service combination to be carried over into satellite communication. Because of its size, AT&T could control satellite circuit costs by the extent to which it chose to load the high capacity satellite facilities with telephone traffic while the specialized field was being developed. Such a policy would deter or discourage others from attempting to penetrate the market for specialized services. As a result AT&T's dominance in the communication field would be extended rather than lessened in the domestic area.

- 1065 In the Matter of the Application of AT&T for Authorization to Construct and Operate Five Earth Stations to Provide Domestic Communications Satellite Services; and to Contract for the Use of Communications Satellites and Associated Services Pursuant to Section 214 of the Communications Act. 42 FCC 2d 654, 660 (1973).

The Commission found that AT&T was legally, technically, financially and otherwise qualified to undertake the construction and operation of its proposed domestic satellite system and that the facilities would not have an adverse impact on AT&T's existing earnings. This decision took into account Bell's adherence to the policy set forth in Docket 16495 that Bell's satellite use be restricted to its monopoly service. The Commission also stated that AT&T had to afford priorities on the installation, maintenance, restoration and repair of facilities furnished to satellite carriers at least as favorable as those priorities accorded other Bell companies or the customers of Bell companies in connection with the provision of private line services and facilities.

- 1066 In the Matter of Satellite Business Systems Applications for Authority Pursuant to Sections 308, 309 and 319 of the Communications Act of 1934 to construct three Domestic Communications Satellites. 39 R R 2d 1291 (1977).

Satellite Business Systems, a partnership, composed of wholly owned subsidiaries of Comsat, IBM and Aetna Casualty and Surety Company, is authorized to construct and operate facilities to provide specialized domestic satellite communications systems. There is no legal or public interest need to conduct a hearing and delay in SBS's entry into the field may, in fact, disserve the public interest. Conditions are imposed involving interconnection, business relations between SBS and

its partners and parents, and marketing. Even if arguments that SBS's entry may potentially lessen competition are accepted, the public interest benefits outweigh potential anticompetitive concerns.

Value Added Networks

- 1067 In the Matter of the Application of Packet Communication Inc. to Institute and Operate a Packet-Switching Communications Network in the Contiguous United States by Leasing Intex-exchange Line from Established Common Carriers. 43 FCC 2d 922 (1973).

Packet Communication Inc. proposed a value added service in that it proposed to take channels leased from other carriers and combine them with computer and software to transmit data more efficiently and with less error. Although the Commission recognized that the entry of value added carriers would have an impact on the structure of the market, it maintained that PCI would be offering a service not currently offered by existing common carriers and therefore would be given a license to operate. License was limited to terminal-computer and computer-computer by packet switching.

- 1068 In the Matter of the Application of Graphnet Systems Inc. to Establish a Network of Leased Common Carrier Facilities Devoted Exclusively to the Specialized Areas of Facsimile Communications Between Various Locations in the Contiguous U.S. and District of Columbia. 44 FCC 2d 800 (1974).

The FCC reiterated the open entry policy established in the PCI decision and gave Graphnet the authorization to initiate Phase I of its packet-switched network in which the applicant would be able to establish its nationwide computerized packet-switched store-and-forward facsimile communications systems. The Commission found that this service was not currently available to communication users. License was limited to terminal-computer and computer-computer communications by packet switching.

- 1069 In the Matter of the Application of Telenet Communication Corp. to Institute and Operate a Public Packet Switched Data Communications Network in the Contiguous U.S. and District of Columbia by Leasing Terrestrial and Satellite Communications Lines from Existing Carriers. 46 FCC 2d 680 (1974).

Telenet was given approval to establish central office facilities containing Interface Message Processors (IMP) or Terminal Interface Processors (TIP) or

Satellite IMPs (SIMP) to which customer's computers and terminals can be connected and to interconnect these facilities by means of high speed transmission facilities leased from existing carriers.

1070. In the Matter of Regulatory Policies Concerning Resale and Shared Use of Common Carriers (Docket 20097) 60 FCC 2d 261 (1976).

The Commission determined that restrictions on the subscriber's resale and sharing of communications services were unjust and unreasonable and found that unlimited sharing of private line facilities would serve the public interest. Entities which resell communications services would be considered common carriers and would be regulated under the Act. Resale entities would not have to make a special showing of public need for a particular service being proposed. Sharing arrangements would not be subject to common carrier regulation.

- 1071 In the Matter of American Telephone and Telegraph Co. Revisions to Tariff FCC Nos. 260 and 267 concerning Resale and Shared Use. 40 R R 2d 1350 (1977).

AT&T's revision to its private line tariff to allow a customer to talk to any station on the private line network and to allow a user to talk to any customer's station or any station of the same user but not to allow a user to talk to a station of a different user, was not rejected. The revision was not shown to be so patently unlawful or in conflict with the Commission's resale and shared use policies as to warrant summary rejection. Without some restriction on the use of switched-voice private line communication, the potential exists for a reseller or sharer to convert a private line service into an equivalent of MTS or WATS service. AT&T's Dataphone Digital Service and private line services tariffs which provided that the customer or user make known to AT&T the purposes for which the service was to be used prior to use was rejected. The language was far too broad. A carrier might seek only that information which is essential to insure that its services were being used in a lawful manner.

- 1072 AT&T Co. v. FCC and U.S. 42 R R 2d 253 (1978).

Commission decision prescribing unlimited resale and sharing of private line communications services and facilities was affirmed. Commission finding that unlimited resale and sharing would be just, fair and reasonable was supported by substantial evidence. The Commission was not required to accept AT&T's claims

of financial harm absent a study showing the contrary. Where carrier-initiated tariffs were found to be illegal, the FCC need not conduct exhaustive economic studies before taking action.

The FCC was not required to hold a trial-type evidentiary hearing prior to prescribing the unlimited resale and sharing of AT&T's private line services. The Administrative Procedure Act requires trial-type hearings only "when ruled [or adjudications] are required by statute to be made [or determined] on the record after an opportunity for an agency hearing." Commission finding that the resale of communications service was common carrier activity within the meaning of the Communications Act, and that those engaged in such resale were subject to the regulatory provisions of Title II of the Act, was affirmed. Nor did the Commission err in deciding that it lacked the discretion to refrain from regulation. Commission finding that sharing of private line services is not common carriage was affirmed.

Miscellaneous Inquiries

- 1073 In the Matter of AT&T Co. et al. Offer of Facilities for Use by Other Common Carriers (Docket 20099) 47 FCC 2d 660 (1974).

Bell and the OCC's agreed to establish a program to maintain the technical integrity of the telecommunications system. The OCC's are responsible for coordinating their total service, including testing and maintenance. In order to assure quality of service, Bell agreed to co-operate with the OCC's in testing and turn up of facilities.

- 1074 In the Matter of AT&T Charges Regulations, Classifications, Practices for Voice Grade--Private Line Service (High Density-Low Density) 58 FCC 2d 362, 366 (1976).

The Commission ruled that Bell's Hi-Lo Tariff was unlawful and gave Bell the opportunity to submit new tariffs which were in the public interest. The Hi-Lo tariff departed from nationwide average pricing traditionally used and replaced it with a three tiered rate structure based upon the facilities installed between and within the points served and the length of the routing. AT&T proposed separate rates for service in "high density," "low density" and "short haul" routes.

- 1075 In the Matter of Economic Implication and Inter-relationships Arising from Policies and Practices Relating to Customer Interconnection Jurisdictional Separation and Rate Structures (Docket 20003) 61 FCC 2d 766 (1976).

See number 506.

- 1076 In the Matter of American Telephone and Telegraph Company, Long Lines Department, Private Line Services (Docket 18128) Memorandum Opinion and Order. 61 FCC 2d 587

The inquiry into multi-schedule private line rates came as a result of the Hi-low tariffs being declared unlawful by the FCC. The attempt is being made to use a fully-distributed cost formula rather than a marginal cost one as a means of determining the private line rates of AT&T. Although the FCC has issued interim reports, final orders are still forthcoming. The Commission's decision is expected to be released by the spring of 1979.

- 1077 In the Matter of American Telephone and Telegraph Co. (Long Lines Department) Wide Area Telecommunications Service. 44 R R 2d 1275 (1978).

The Commission determined that AT&T's Long Distance Message Telecommunications Service and its Inward and Outward Wide Area Telecommunications Service (WATS) are like communications services within the meaning of Section 202 of the Act. In light of the discrimination in charges for those services under current tariffs, AT&T would be required to revise those tariffs in a manner which will result in either eliminating the discrimination or justifying the lawfulness of the discrimination by demonstrating the justness and reasonableness of the discrimination. FCC believed that the WATS and MTS services offered at a substantial discount to high volume subscribers under certain restrictions and under significant control of subscribers.

Anti-Trust and Monopoly

- 1078 United States v AT&T. 44 R R 2d 293 (1978).

Motion by AT&T to appeal the district court decision that the latter had jurisdiction to try an anti-trust case against AT&T. AT&T maintained that the FCC had primary jurisdiction in common carrier matters and that when a unreconcilable conflict existed between anti-trust laws and the regulatory scheme provided by statute, the anti-trust laws must give way.

The Appeals Court held that the district court had jurisdiction over a complaint by the United States that AT&T and others conspired to monopolize interstate trade and commerce in telecommunications equipment in violation of anti-trust laws. Nothing in the Communications Act, or in other statutes, or in the legislative history supported the conclusion that an anti-trust immunity was contemplated with respect to the conduct complained of. Contention that the AT&T enjoyed an immunity by implication resulting from an incompatibility between the anti-trust laws and the statutes which regulate the telecommunications industry was rejected. The activities here involved were not required or approved by the FCC, pursuant to explicit statutory authority, in a way that was incompatible with anti-trust enforcement. The activities were not being so pervasively regulated that an immunity from anti-trust action must be assumed. The court would refer appropriate issues to the FCC under the doctrine of primary jurisdiction.

1079 In the Matter of AT&T. (Docket 19129). 64 FCC 2d 1 (1977).

The FCC conducted an inquiry into the vertical integration of AT&T and Western Electric and concluded that the manner in which Western Electric and the operating companies functioned and interacted had resulted in many positive contributions to the efficiency and performance of both Western Electric and the Bell System. These improvements were reflected in the quality and cost of telephone service. The Commission concluded that divestment would deprive consumers of these benefits and was unwarranted. Bell was asked to submit a proposal to achieve optimal separation of its equipment procurement and manufacturing functions short of divestment.

SECTION III

INTERNATIONAL REFERENCES

(1100-1399)

- 1100 Economic References (various aspects relating to monopoly and competition such as market structure, pricing policies, barriers to entry, integration, concentration, etc.).
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| Books | 274 |
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- 1200 Regulatory References (various aspects relating to monopoly and competition such as regulations concerning rates, services, entry, interconnections, etc.).
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- 1300 Technological References (references concerning effect of technology on market structure and services and effect of market structure on technological development).
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- 1107 Contzen, J. P. "Broadcasting Satellites in Europe." Telecommunications, May 1975, pp. 31-32.

Addresses role of satellite communications in social, geographic and cultural issues, within European context.

- 1108 Egbe, Emmanuel. "Telecommunications in Cameroon." Telecommunication Journal, October 1974, pp. 596-607.

Describes the telecommunications development plan of Cameroon, with a look at telephone service, telegraph and telex service, broadcasting, and aeronautical telecommunications.

- 1109 "Europe Gets Its Lines Crossed." Vision, No. 52, March 1975, pp. 23-24.

Telecommunications manufacturers in Europe will be caught in helping competition to expand in the industry.

- 1110 "France: A Race for Top Spot in Phone Equipment." Business Week, No. 2380, May 12, 1975, p. 40.

Electronic telephone switching equipment marketing may cause struggle between two French companies.

- 1111 Gordon, Lorna. "The Jamaica Broadcasting Corporation Geared to Serve a Developing Nation." European Broadcasting Union Review, May 1972, pp. 25-27.

Reports on television broadcasting in Jamaica by the Jamaica Broadcasting Corp.: administration, transmission problems, development, satellite broadcasting, programming.

- 1112 Gross, K. W. "Competition Is Not a Dirty Word," Telecommunications, April 1976, 2 p.

Defends competition in international record carrier services. The carriers become more responsive to the needs of the customer and continually attempt to improve the quality of service.

- 1113 Guzzardi, Walter. "The Great World Telephone War," Fortune, Aug. 1977, pp. 142-154.

Competition is cut-throat for billion-dollar telecommunication contracts in the Third World.

- 1114 Hansen, Georges & Griffiths, Eric. "World-Wide Television." Journal of the Society of Motion Picture and Television Engineers, June 1971, pp. 459-464.

Reviews the development of international television and describes the methods used by the European Broadcasting Union for the organization of international television transmissions.

- 1115 "Is Ma Bell Studying at Berlitz." Forbes, Vol. 117, No. 6, Mar. 15, 1976, p. 21.

American Telephone & Telegraph Co. is looking toward foreign expansion, especially in the developing countries, to make up for U.S. reaching the near saturation point in number of telephones.

- 1116 Lewis, J. P. "Postwar Economic Growth & Productivity in the Soviet Communications Industry," Bell Journal of Economics, Autumn, 1975, pp. 430-450.

Describes nature, structure and growth of the industry in the USSR. Concludes that the technological backwardness of the industry, particularly in the telephone and telegraph networks, has made itself felt in both the limited quantity and poor quality of communication services.

- 1117 Lipinski, Andre J. "On the Mix of Satellites and Cables in the Global Network," IEEE Transactions on Communication Technology, April 1967, pp. 170-178.

Comparative economics of satellites and submarine cables were established by studying eight countries. For operational reasons - flexibility, reliability and avoidance of long time delay - a combination of satellite and cable connections is preferable and likely to continue.

- 1118 Peck, Merton J. "The Single-Entity Proposal for International Telecommunications." The American Economic Review, May 1970, pp. 199-203.

Analyzes the economical combination of cable and satellite investment, why the present (1970) organization of the industry and its regulation fall short of this economical combination, and in what ways the single-entity proposal would be an improvement.

- 1119 Rea, John D. and Sage, G. M. "Estimates of Demand Elasticities for International Telecommunications Services." The Journal of Industrial Economics, June 1978, pp. 363-381.

Continued growth and inflation in the American economy should generate substantial growth in the demand for telephone calls and the need for additional facilities. This follows from the high elasticities of demand with respect to telephone prices, telegram prices, and real household income.

- 1120 Ryland, A. W. C. "Post Office as a Business." Electron Power, v. 17, July 1971, pp. 274-6.

The British Post Office is now in its second year as a public corporation after 300 years as a Government department. Under the Post Office Act 1969, it continues its tradition as a monopoly organization providing letter, telephone and telegraph services. Yet, as the youngest corporation, it is also able to give full reign to its own newer and highly competitive services -- data processing and Giro -- and to the established and competitive parcels service.

- 1121 Smythe, Dallas W. "The 'Orbital Parking Slot' Syndrome and Radio-Frequency Management." Quarterly Review of Economics and Business, Summer 1972, pp. 7-17.

Gives a politico-economic analysis of the "orbital slot"

program for communications satellites and suggests that full prior consultation with nations on a hemispheric basis is necessary to avoid wasteful and inequitable use of "orbital slots" for such satellites in the interest of both more and less developed nations.

- 1122 "The Other Side of the (ITT) Coin." Forbes, June 15, 1974, pp. 27-28.

Gives an overview of ITT's telecommunications equipment sales in Western Europe and prospects for growth.

- 1123 Thompson, Geoffrey. "International Communications 'Management' is 'Coordination.'" Communications News, November 1975.

Examines international telecommunications management, coordinating function of ITU and its structure and regulatory structure within international telecommunication industry.

- 1124 Verguese, D. and Doret, P. "Across the Atlantic: Cables versus Satellites," transl. into English from Le Monde, Paris, France, December 1971, pp. 18-19 (avail. NTIS).

Examines comparative cost estimates and use forecasts of transcontinental communication by satellites versus cables.

- 1125 Wright, David. "Sharing the Invisible Isn't Easy." In Search, Spring 1978, 4 p.

Discusses the issues expected to be considered in telecommunications in the 154 nation conference in Geneva, Sept. 24, 1979.

GOVERNMENT DOCUMENTS; REPORTS; PAPERS

- 1126 Analysis of US Demand for International Telecommunications Services. Communications Satellite Corp., Regional Study No. 5, April 1969, 37 p.

Studies historical trends in telecommunications services, with chapters on general tariff structure, analysis of growth, and structure and growth of 10 main correspondents.

- 1127 Cole, J. E., Arnaud, G. W., Adams, L. H., and Fackelman, M. P., U.S. International Telecommunication Rate History, U.S. Department of Commerce, Office of Telecommunications, November 1975 (updated from December 1973), 196 p.

Gives a brief outline of major developments in U.S. international telecommunications and the establishment of rates, then presents rate history broken down into international telephone carrier rates, international record carrier rates, COMSAT rates, and INTELSAT rates.

- 1128 Dawidziuk, B. M. International Communications In South Asia and West Pacific, paper presented at STC Submarine Cable System - Symposium, Singapore, Feb. 18-20, 1974.

Explores international telecommunications environment in South East Asia and the West Pacific.

- 1129 Edelson, B. I.; Wood, H. W.; Reber, C. J. COST Effectiveness in Global Satellite Communications. Commun. Satell. Corp., Washington, D.C., Mar-Apr 1976, pp. 83-92.

An evaluation is made of satellite communication profitability. Global satellite communications, as the INTELSAT system has demonstrated, is a commercially successful business with over 10 years of operating experience. The system provides high-quality reliable communications over a large number of links in successful competition with other modes of communications. The cost effectiveness of the INTELSAT system has increased in the last decade as measured by the per-circuit-year cost of satellites in orbit, space segment charges, and earth station and total circuit costs. 7 refs.

- 1130 Garner, W. B. and Stamminger, R. "Future Communications Satellite - Definition of Three Basic Concepts," in International Conference on Communications, Seattle, Washington, June 11-13, 1973, Conference Record, Vol. 1, IEEE, N.Y., 1973, pp. 3-8 to 3-11.

Discusses cost effectiveness, market research, satellite networks, technological forecasting, channel capacity, international cooperation, microwave transmission, multichannel communication, radio relay systems.

- 1131 Report and Recommendations to the Senate and House Commerce Committees, Intergovernmental Committee on International Telecommunications, Govt. Printing Office, April 1966, 33 p.

Presents brief overview of international telecommunications, with sections of present industry structure, national policy, performance and trends, problems, performance under alternative structures, and recommendations.

- 1132 Study of International Telecommunications Policies, Technology, and Economics. Stanford Research Institute, Merlo Park, Calif., May 1966, 209 p.

This study consists of the main document, as well as supplements and appendices. Chapters in the main document cover summary and conclusions, policy considerations, description of the U.S. international telecommunications industry, survey of existing and planned facilities, revenue and financial history of the industry, summary of future progress of technology, economic forecasts, global communications network status, trends, analysis of key problems and assessment of organizational alternatives.

- 1133 Waverman, L. The Demand for Trunk and Telephone Services in Great Britain: The Significance of Quality Change. Toronto: Institute for the Quantitative Analysis of Social & Economic Policy, University of Toronto Press, 1972.

1200 REGULATORY REFERENCESARTICLES; JOURNALS

- 1201 "Connection of Private Equipment to the Public Switched Telephone Network," Teleteknik, Vol. 20, 1975, pp. 1-20.

The conditions under which Danish telephone subscribers obtain admission to procure and connect attachments to their subscriber installations as private equipment are outlined. Technical requirements, conditions of approval, and conditions of use are described. Equipment categories that may be approved at the present time as private equipment include alarm devices, telemetry and telecontrol devices, facsimile and phototelegraph machines, and automatic diallers.

- 1202 Ende, Asher H. "International Telecommunications: Dynamics of Regulation of a Rapidly Expanding Service." Law and Contemporary Problems, Spring 1969, pp. 389-416.

Gives a detailed historical analysis of U.S. regulation of the international telecommunication carriers. Topics include: 1) a profile of the regulatory mission, 2) development of the industry and regulatory policy, 3) moving into the satellite era, 4) earth station ownership, 5) competing cable applications, 6) authorized user inquiry, 7) rates, 8) merger of international carriers, 9) summary of commission policy.

- 1203 Stanley, Kenneth B. "International Telecommunications Industry: Interdependence of Market Structure and Performance Under Regulation," Land Economics, November 1973, pp. 391-403.

Studies the different aspects of the international telecommunications industry market structure, especially as it is affected by regulation. Examines investment behavior of Comsat and AT&T, pricing policies and market structure, and gives suggestions to improve industry performance.

- 1204 Washburn, Abbott. "The International Telecommunications Satellite Organization." Public Utilities Fortnightly, Oct. 28, 1971, pp. 27-33.

Discusses the regulatory mechanism of Intelsat, as well as its present and future structure. Also discusses the US role via Comsat, of technical and operating manager of Intelsat.

GOVERNMENT DOCUMENTS; REPORTS; PAPERS

- 1205 Bobroff, Sara A. United States Treaties and Other International Agreements Pertaining to Telecommunications. U.S. Department of Commerce, Office of Telecommunications, January 1974, 175 p.

This is an up-to-date reference source for all U.S. treaties and other international treaties which relate to telecommunications.

- 1206 Cole, Jack. "International Telecommunications: Policy, Planning and Regulation." Masters Thesis, George Washington University, 1971, 220 p.

This is a broad survey of international telecommunications, with chapters on background information, FCC cases involving international telecommunications, comparison of submarine cable and satellite system characteristics, economic analysis of international satellite and submarine cable systems, the need for U.S. policy and planning guidelines, and proposed resource decision-making process and planning guidelines.

- 1207 Cole, Jack E. et al. A Review of International Telecommunications: Industry Issues, Structure, and Regulatory Problems. U.S. Dept. of Commerce, Office of Telecommunications, June 1977, 142 p.

Reviews industrial and technological developments including overseas telephone and record carriers and the creation of the Communications Satellite Corporation; examines the current regulatory environment, current problems, and alternative industry arrangements.

- 1208 Congress. Subcommittee on Communications. International Telecommunications Policies. July 13, 1977, iii+227 p.

Committee Serial No. 95-54. Oversight hearing before the Subcom on Communications on U.S. policies for international telecommunications industry structure, facilities planning, and regulation.

Focuses on appropriate FCC planning and regulatory role regarding the competing economic interests of the commercial cable carrier industry and the Communications Satellite Corp. (COMSAT), a Government corporation which holds a monopoly over international communications satellite systems and sells services to retail carriers. The cable carrier industry alleges that Government regulation procedures have caused unnecessary and costly cable facility planning and implementation delays.

Includes submitted testimony statements and responses to subcom questions for witnesses who were unable to testify due to lack of time:

a. Wiley, Richard E. (Chm. FCC), review of FCC efforts and proposals to facilitate planning of cable and satellite communications, including exhibit report (p. 105-129) "Overview of International Telecommunications: Industry Structure and Communications Policies" reviewing industry history and major recent FCC actions, 1977 (pp. 129-190).

b. Thaler, William J. (Act. Dir. Office of Telecommunications Policy). Undesirability of present international telecommunications facility planning situation, with recommendations for alternative policies and procedures (pp. 191-206).

c. O'Neill, John J., Jr. (Dir. Office of Intl. Communications Policy, State Dept.), outline of U.S. preparations for 1979 World Administration Radio Conference (p. 206-208).

Also includes submitted statements (p. 208-227).
July 13, 1977, p. 2-103.

WITNESSES: Murphy, Eugene F., pres. RCA Global Communications; Knapp, George F., VP Group Exec Communications ops. group, ITT World Communications; Gallagher, Edward A., Pres. Chief Exec. Officer, Western Union Intl. (WUI); Charyk, Joseph V., pres. COMSAT; Hough, Richard R., Pres. long lines dept. AT&T.

STATEMENTS: Support for centralization in FCC of Government responsibility for international telecommunications policy planning; opposition to any significant altering of present industry structure, especially FCC proposal for ownership and operation of all international telecommunications facilities by a single entity; benefits to consumer of industry competition (p. 2-31). Viewed problems in industry international facilities planning due to excessive FCC intervention; proposals to resolve cable/satellite use controversy through establishment of an industry coordinating committee and economic incentives for satellite use to compensate for economic advantages of cable ownership (p. 32-56). Background and development of COMSAT since 1962 and its relationship to the International Telecommunications Satellite Organization (INTELSAT); need for early FCC planning review and/or telecommunications industry restructuring to resolve cable planning delays and uncertainties in an objective, expeditious manner (p. 57-78).

Inherent conflict between satellite and cable use; negative consequences of current delays incurred by FCC regulation processes; support for proposed revised regulatory criteria and long-range planning approach to facilitate new development (pp. 78-99).

DISCUSSION: Review of Issues (pp. 99-103).

INSERTION: Comments to FCC on delays in obtaining FCC approval of proposed WUI new trans-Atlantic cable, TAT-7, Robert E. Conn, exec. vp. WUI, Aug. 31, 1977 (p. 47-53).

- 1209 Congress. Subcommittee on Communications. Repeal of Section 222 of the Communications Act of 1934. April 15, July 21, 1977, iv+192.

Committee Serial No. 95-51. Hearings before the Subcom on Communications to consider the following bills to amend the Communications Act of 1934:

s. 1162 (text, p. 3), to repeal section 222, governing nonvoice telecommunication services provided by international record carriers (IRCs), and presently prohibiting Western Union Telegraph Co. from providing international service except in continental North America. Section 222 defines Hawaii as an international service point.

s. 1866 (text, p. 91), to amend section 222 to include Hawaii in the same category as other States for the purposes of telecommunication facilities, services, and rate-making.

Rep. Cecil L. Heftel (D-Hawaii) presents an opening statement (p. 3-5) and participates in questioning witnesses during April 15 hearing, held in Honolulu, Hawaii.

Includes submitted statements and correspondence (p. 5-6, 176-192).

April 15, 1977, p. 6-28.

WITNESS: Minami, Wayne, dir. Hawaii Dept. of Regulatory Agencies.

STATEMENT AND DISCUSSION: Adverse effects of section 222 on telecommunication service and rates in Hawaii; difficulties encountered in seeking integration of Hawaiian long distance telecommunications with mainland rate and service patterns (background, rate tables, p. 18-25).

April 15, 1977, p. 39-59.

WITNESS: Field, John D., vp Hawaiian Telephone Co.

STATEMENT AND DISCUSSION: Refutation of predicted rate and service advantages of section 222 repeal; review of specific telecommunication services available in Hawaii; disbelief in efficacy of telecommunication competition to reduce Hawaiian rates.

July 21, 1977, p. 91-104

WITNESS: Hinchman, Walter R., Chief, Common Carrier Bur., FCC.

STATEMENT AND DISCUSSION: Background of section 222 enactment; brief description of nonvoice telecommunication carriers industry structure; preference for s. 1162 over s. 1866.

July 21, 1977, p. 112-175.

WITNESSES: Hilburn, Earl D., pres. Western Union Telegraph Co.; bd. chm. Western Union of Hawaii; Murphy, Eugene F., pres. RCA Global Communications; Knapp, George F., pres. ITT World Communications; Gallagher, Edward A., pres. and chief exec. officer, Western Union Intl.

STATEMENTS: Support for s. 1866; conflicting views on advisability of section 222 repeal (related correspondence, p. 132-139); suggested s.1866 modification to permit continued Hawaiian service by existing IRC's; viewed anticompetitive aspects of Western Union Telegraph Co. expansion into international market (p. 112-147).

DISCUSSION: Differing views on possible s.1866 effect on telecommunication rates in Hawaii; detailed responses to subcom questions on legal and technical aspects of services to Hawaii (p. 147-175).

Additional April 15 Testimony

WITNESSES: Leopold, John, State Sen. Hawaii, p. 28-29; Flint, Rexford L., Vice chm. Western Union of Hawaii, p. 30-39; Doney, James, dir. govt. and community aff. KGMB-TV, Honolulu; also on behalf of: Weiner, Richard A., gen mgr KGMB-TV; vp Hawaiian Assn. of Broadcasters; Berger, Lawrence S., pres. KHVH; and Wilson, Robert S., owner and mgr. KKUA; pres. Hawaiian Assn. of Broadcasters, p. 59-62; Williams, Dallas C., Hawaii Telecommunications Assn. p. 62-77; Merrill, Theodore, pres. Statewide

Telephone Users Committee; also representing Council of Pres. and Sr. Citizens, Kokua Council, p. 77-80; Grimm, Richard T., vp and gen mgr KITV, Honolulu, p. 80-82; Kawakami, Dan, program dir. KHON-TV; on behalf of Hagar, George, pres. and gen. mgr. p. 83; Gabbert, James, pres. Natl. Radio Broadcasters Assn.; also representing KIOI, San Francisco, KIQI, San Francisco, KIKI, Honolulu, and KHUI, Honolulu, p. 83-88.

STATEMENTS AND DISCUSSION: Support for s. 1162; findings of KIKI survey indicating community concern about Hawaiian isolation (Gabbert).

INSERTION: "Comparison of Mainland Only and Mainland to Hawaii Charges for Selected Telecommunications Services," Hawaii Telecommunications Assn. with tables (p. 67-77).

1210 Congress. Subcommittee on Communications. International Communications Services, Mar. 15, 16, 22, 23, 1977, vi+550 p.

Committee Serial No. 95-56. Hearings before the Subcom on Communications to examine problems in international communications services and possible need for revisions in the Communications Act of 1934 to promote efficiency and encourage greater competition among U.S. international telecommunications carriers. Includes consideration of FCC regulatory role, including effects of 1966 "authorized user" decision confining Communications Satellite Corp. (COMSAT) to the leasing of satellite circuits to communications carriers thereby prohibiting direct services to users. Includes submitted statements and correspondence (p. 256-264, 366-369).

March 15, 1977, p. 3-29.

WITNESS: Hough, Richard R., vp. Amer. Telephone & Telegraph Co. (AT&T).

STATEMENT AND DISCUSSION: Explanation of AT&T telephone service agreements with foreign governments or companies; relative merits and costs of cable and satellite systems; criticism of FCC delays in approving additional cable systems; proposed participation by U.S. carriers in International Telecommunications Satellite Consortium (INTELSAT) planning of international facilities.

March 15, 1977, p. 66-89.

WITNESSES: Kubetzky, David H., pres. TRT Telecommunications Corp.; Cornell, Alvin R., Jr. consultant.

STATEMENTS AND DISCUSSION: Endorsement of FCC efforts to improve competition in international record carriers (IRC) industry; issues involved in TRT rate reductions for telex services and subsequent challenges by ITT World Communications, RCA Global Communications, and Western Union International.

March 15, 1977, p. 126-163.

WITNESS: O'Reilly, Thomas J., DC counsel, Hawaiian Telephone Co.

STATEMENT AND DISCUSSION: Description and repercussions on FCC delays in granting approval to a second undersea cable from Hawaii through Guam to Japan; explanation of issues involved in overseas dataphone case involving the question of whether IRC's or AT&T/Hawaiian Telephone should provide data transmission services from Hawaii to foreign points (related court docs. and FCC decisions, p. 134-163).

March 16, 1977, p. 213-221.

WITNESSES: McShane, Bendan A., consulting specialist, telecommunications policy and regulation, info services business div. Gen. Electric Co.; Isaacs, Lloyd R., mgr. telecommunications, Chrysler Corp.

STATEMENTS AND DISCUSSION: Need for Federal agencies to coordinate policies relating to international telecommunications; importance of promoting competition among carriers.

March 22, 1977, p. 266-276.

WITNESSES: Larsson, Torsten, Swedish Telecommunications Admin.; representing Liaison Committee for Transatlantic Telecommunications (CLTA), European Conf. of Postal and Telecommunications Admins. (CEPT); Brizzi, Enrico, chm. transatlantic systems group, CEPT.

STATEMENTS AND DISCUSSION: Need for European entitles to negotiate and activate telecommunication plans with U.S. carriers without FCC authorization.

March 22, 1977, p. 277-327.

WITNESS: Thaler, William J., Act. Dir. Office of Telecommunications Policy; ACC.BY: Fishman, William F., Asst. Dir. Intl. Telecommunications.

STATEMENT AND DISCUSSION: Need for integrated planning and free market competition in use of cable and

satellite systems; importance of consolidating all Federal decision making and legislation related to telecommunications; need for FCC to encourage competition among carriers and to facilitate entry of new carriers; recommended revisions in Communications Act.

Additional Carriers' Testimony.

WITNESSES: Knapp, George F., pres. ITT World Communications, p. 29-42; Murphy, Eugene F., pres. RCA Global Communications, p. 42-66; Gallagher, Edward A., pres. Western Union Intl., p. 99-126.

STATEMENTS AND DISCUSSION: Description of structure and functions of IRC industry; objection to FCC decisions granting AT&T and other companies access to international market while preventing IRCs from entering domestic market; suggested changes in FCC regulatory role, but request for retention of "authorized user" decision; need for IRC participation in INTELSAT planning decisions (Gallagher).

- 1211 Grad, Frank P., Goldfarb, Daniel C. Government Regulation of International Telecommunications. Columbia Univ., New York, Legislative Drafting Research Fund. Office of Telecommunications Policy, Washington, D.C. March 31, 1976, 177 p.

A study of the federal government's role in the sphere of international telecommunications, the role as it presently exists and as it might be restructured in the light of statutory, administrative, and policy considerations. Purpose was to define the appropriate functions to be allocated among the various branches and agencies of the federal government and the means of achieving a more appropriate allocation through legislation, administrative action, or a combination of the two.

- 1212 Naleszkiewicz, Wladimir. Proposed Guidelines for Improving the Efficiency of Present and Future Regulation of the US Overseas Common Carriers, prepared for the FCC, Common Carrier Bureau, 1970, 125 p.

Develops guidelines for studies "which would analyze present policies and practices of the Commission in its regulation of common carriers providing overseas telecommunication services and to indicate the manner in which such regulation may be improved through a more effective use of modern concepts and tools of economics."

1300 TECHNOLOGICAL REFERENCESBOOKS

- 1301 Corté, Arthur B. International Implications of Low Cost Data Communications. Cambridge: MIT Press, 1974.
- Examines existing public international data communication facilities, role of future low cost international communication networks in the flow of information, marketplace for future service, social and cultural implication of network planning, and policy issues involved in setting standards to implement and achieve low cost international data communications.
- 1302 Owen, Bruce M. The International Communication Industry, the TAT-6 Decision, and the Problem of Regulated Oligopoly, Center for Interdisciplinary Research, Stanford University, Stanford, Calif., 1973.
- Examines the problem of maintaining a balance between cable and satellite telecommunications, with particular regard to the TAT-6 decision.
- 1303 Nicholas, R. T. Submarine Telephone Cables and International Telecommunications. The Rand Corp., Santa Monica, Calif., 1963.
- Contents include: capacity and investment in submarine telephone cable systems, alternatives to submarine telephone cables (other than communications satellites), demand for submarine cable service, appendices on submarine telephone cable chronology, capacity of submarine telephone cables, and submarine telephone cable costs.
- 1304 Silverman, P. B. International Communications - An Overview, RCA Inc., Western Electric Show and Convention, New York, 1972.
- Examines the international communications business, fraught with operational, technical and political problems that must be solved if an international record carrier is to provide subscribers with a wide range of viable communication service offerings. Reviews the problems associated with the development of a typical international leased channel network, showing the magnitude of the typical problems encountered and the methodology employed to solve them.
- 1305 Tilton, John E. International Diffusion of Technology: The Case of Semiconductors. Brookings Institution, Washington, D.C. 1971, 176 p.

A study in economic regulation, the book looks at development of new technology, its high concentration in certain geographic areas, and other factors with impact on economic growth, per capita income, comparative advantage, and corporate subsidiaries abroad. Provides insight into the diffusion process by examining the dissemination of semiconductor technology in U.S., Great Britain, France, Germany and Japan.

ARTICLES; JOURNALS

- 1306 Caplan, B. "The Telephone Giants Look to Their Laurels." The Director, Vol. 28, No. 4, Oct. 1975, p. 90-92.

Rapid advancement in telecommunication is bound to take place in Great Britain and Europe during the next few years, with an estimate of ITT officials that Germany, France and the U.K. could spend up to 65,000,000 pounds along with other European countries. ITT has been successful in each country as it adopts a national name other than ITT.

- 1307 d'Arcy, Jean. "Challenge to Cooperation." Saturday Review, October 24, 1970, pp. 24+

Presents the problems of new satellite broadcasting technology to international relations and advocates international cooperation to maximize benefits and minimize conflicts resulting.

- 1308 Hartbaum, H. K. "The Applications Satellite Program - A Challenge to the European Communications Industry." A Journal of the British Interplanetary Society, March 1974, pp. 177-186.

Discusses Comsat program, European space programs, international cooperation, ESRO, policies, regulations, R&D.

- 1309 Haviland, R. P. "Why Space Broadcasting?" IEEE Spectrum. Vol. 7, 1970, pp. 86-91.

Looks at satellite applications to TV broadcasting for developed and developing areas, considering national and international telecommunications policies.

- 1310 Hume, C. R. "Communications Satellites and the International Communications Industry." Journal of the British Interplanetary Society, Feb. 1973, pp. 65-76.

Discusses government/industry relations, aircraft communication, communication cables, international cooperation, submarine cables, transoceanic communication.

- 1311 IEEE Transactions on Communications. Sept. 1974, pp. 1447-1498.

Contains several articles on telecommunications research and developments in Switzerland, Israel, Federal Republic of Germany, Greece, Italy, Finland, France, Romania and Sweden.

- 1312 Larsson, L. "Telecommunication in the Society of Tomorrow," Tele (Eng. Ed.) (Sweden), 1972, No. 2, pp. 68-80.

Discusses economic growth, cost development, degree of innovation, requirements and demands of customers, development of transmission network and terminals, society's need of telecommunications.

- 1313 "The Use of Computers and Telecommunications; Towards an International Policy." OECD Observer, February 1973, pp. 17-28.

Highlights of 3 OECD reports are summarized:

"Computers and Telecommunications: Economic, Technical and Organizational Issues," "Automated Information Management in Public Administration: Present Developments and Impact" and "Toward Central Government Computer Policies: Data Base Development and International Dimensions."

- 1314 Wallenstein, Gerd D. "The Internationalization of Telecommunications Systems Development," Telecommunication Journal, January 1974, pp. 33-38.

Explores different types of compatibility in telecommunication services, search for single, world-wide compatibility standards, and impact of those developments on national telecommunications industries.

GOVERNMENT DOCUMENTS; REPORTS; PAPERS

- 1315 Burchhardt, P. L. Prospectus for a European Company with Regard to the Operation of Regional Application Satellite Systems, paper presented at the 4th Eurospace US-European Conference, Venice, Italy, September 22-25, 1970, 9 p. (avail. NTIS).

Discusses European aerospace and electronic equipment, and industrial cooperation for air traffic control and communication satellites.

- 1316 Comsat - The First Ten Years; Report to the President and the Congress, 1973.

Review of the operations of the Communications Satellite Corporation (Comsat) in its first 10 years of existence.

- 1317 Congress, Subcommittee on International Operations. Role and Control of International Communications and Information. June 1977, x+90 p.

Compilation by Subcom on International Operations of three previously unpublished papers on international communications, printed preparatory to subcom June hearings. Contains:

a. Read, William H. (CRS). "U.S. Private Media Abroad" rpt on foreign activities and impact of U.S. newspapers, magazines, news agencies, and visual media, updated June 1977, with tables (p. 1-35).

b. Woldman, Joel M. (CRS). "View Ahead: Direct Satellite Broadcasting and International Communications" study on implications of new direct broadcast technology, updated June 1977 Ip. 36-54).

c. Little, Arthur C., Inc. "Alternatives to Intelsat: Competition in Global Satellite Telecommunications" scenario of potential developments, prepared for White House Office of Telecommunications Policy, June 1976 (p. 55-80).

Includes list of basic questions for subcom consideration (p. 81-89).

- 1318 Cutler, C. R. Harmonizing the Interests of Users and Administrations in a Time of Advancing Technology. Int. Conf. on Comput. Commun (ICCC), 2nd, Proc. Stockholm, Swed. Aug. 12-14, 1974, p. 377-382. Publ. by Intl Counc. of ICC. Stockholm, Sweden, 1974.

The demand for information has expanded the volume of international communications dramatically. Technology

is revolutionizing the means of its transfer and handling. These technological changes have highlighted the regulatory framework under which administrations permit communications to be transmitted over their facilities. In the view of the author, not all of the reactions of administrations to the new technology have been constructive. There has been a tendency, for example, to insert in international leased circuit tariffs restrictive provisions which are inconsistent with the needs of users and, in the author's opinion, inconsistent with the long range interests of administrations. This paper describes some of those tendencies in light of the respective interests of users and administrations, and urges a liberal approach in allowing the benefits of the new computer/telecommunications technology to be fully enjoyed. 15 refs.

- 1319 EASCON '75: IEEE Electronics and Aerospace Systems Convention, Record. IEEE Electron and Aerosp Syst Conv (EASCON '75), Washington, D.C., Sept. 29-Oct. 1, 1975.

The central theme of the 138 papers incorporated in this volume is technology for change. Areas dealt with include: mobile communications via satellite; competition and the regulatory process; communication satellite systems and technology; advances in digital voice technology; sonar signal processing for detection and measurement; new energy systems; modular spacecraft; multiple user satellite systems; propagation and background impact on sonar design; electronics in health care; domestic satellite systems; new and developing applications of acoustics; communications processing; high performance radar at low cost; earth resources monitoring; safety-related engineering and development activities at FAA; problems and opportunities with computer networking; advanced solid state devices; PSK modems for satellite communications; and software trends.

- 1320 Edstrom, N. H.; Backstrom, R. "Satellite System as an Integrated Telecommunications Switching Center." IEEE Trans. Commun. v. COM-21 n 4 Apr. 1973, p. 317-321.

This paper concerns itself with methods for economically applying satellite techniques to European conditions in competition with a finely meshed land-based relatively cheap coaxial cable system. Under these conditions every effort must be made to obtain the highest possible efficiency. The national gateways to the international telecommunication network are to see the satellite system as an equivalent traffic-carrying means capable of handling 30-70 percent of the total inter-European traffic. It is therefore necessary to regard the

satellite system, consisting of earth stations and satellite, as if it were a supranational switching center for international traffic. An essential ingredient in such a solution is a system global control. This global control is proposed to be implemented by computer means intercorrelated by means of common signaling channel methods. Principles and means of implementation of the principles are outlined.

- 1321 Edelson, Burton I. European Space Symposium (7th) bordeaux 22-24 May 1967. Office of Naval Research, London (England). August 1967, 21 p.

The symposium was held under sponsorship of four professional societies (sfa. bis. dgrr. and Air) and an industrial association (Eurosace). It was devoted to space telecommunications for Europe, a very timely subject in light of current interest in forming permanent international telecommunication satellite arrangements. Papers were presented on political and economic aspects of satellite communications, system and mission studies, launch vehicles, satellite technology, and earth stations. This report reviews the significant papers and gives the complete program. (author)

- 1322 Fackelman, Mary P.; Krekel, Kimberly A. International Telecommunications Bibliography. Office of Telecommunications, Washington, D.C. Analytical Support Div., March 1976, 173 p.

The bibliography is a reference guide that cites and annotates over 400 articles on various aspects of telecommunications. Articles are relevant to U.S. policy in communications, and range from specific technologies and systems worldwide, to economics and industry structures. Chapters highlight the U.S. communications industry, telecommunication programs outside the U.S., International telecommunication organization, international trade, financial and technical cooperation, and international law. Includes author index, subject index.

- 1323 Fraude, Axel. "Harmonization of European Telecommunications." Commun Journal, v. 30 n 3 March 1977, p. 208-211.

The opening of the European Community markets for technical equipment of public telecommunications networks and the development of effective competition on the basis of reciprocity require harmonization of telecommunication services and equipment. This work has been initiated by the CEPT. The views of the Commission

of the European Communities on this subject are explained. In German.

- 1324 Indian National Committee for Space Research (INCOSPAR), paper presented at the COSPAR 14th Plenary Meeting, Seattle, Wash., June 18-July 2, 1971.

Presents the Indian report to COSPAR on space activities, discussing organization, facilities, experiments, applications, international collaboration and future plans.

- 1325 Reed, William E. Cable Television, Volume 2 1975 April, 1977 (citations from the Engineering Index Data Base). National Technical Information Service, Springfield, Va. June 1977, 193 p.

These citations of worldwide research cover the design, equipment, operation, use, and feasibility of cable television. Most of the reports deal with design and engineering studies, including research on modulators, interference, billing, distortion, antennas, and lightning and surge protection. (This updated bibliography contains 186 abstracts, 67 of which are new entries to the previous edition.) See also NTIS/PS-76/0413, Cable Television, Vol. 1, 1970-1974.

- 1326 Technical Digests - Data Transmission. British Standards Institution, Hemel Hempstead (England). 1975 5 reports.

The Technical Help to Exporters (T.H.E.) is organized to provide comprehensive technical assistance to exporters. This information category contains information on the technical requirements of a number of countries which are applicable to telecommunication equipment utilizing fixed lines for data transmission and contains details of the organizations involved in the formulation and enforcement of requirements. Also included, where appropriate, are details of the availability of equipment approval, the procedure involved and general background notes on country practice. Requirements for the general electrical safety of equipment are contained in the complementary "Electrical" Information Category, which is related to domestic, commercial and industrial equipment. The following countries are represented: Finland, Norway, Sweden, Netherlands, West Germany.

