

# CHANNELS

OF COMMUNICATIONS

#3.95

## THE ESSENTIAL 1986 FIELD GUIDE TO THE ELECTRONIC ENVIRONMENT

### A Time of Merging and Converging

PERSPECTIVE	THE ETHER	THE WIRE	SPACE	THE CHIP	THE HEARTH	THE PLAYERS
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# ABOUT THE FIELD GUIDE

**O**ur use of the term "field guide" for this annual publication is only a shade metaphorical: We do live today in a rapidly expanding and quite mysterious electronic environment that will envelop us for the rest of our time on earth. In much the same way that naturalists write field guides to the flora and fauna of the physical environment, *Channels of Communications* has created its own guide to the largely invisible environment of airwaves, microwaves, laser beams, light-wave pulses, and microcomputer chips. This environment, too, had its origins in a Big Bang—the collision of four technologies: television, telephone, satellites, and computers. Amazing new devices continue to emerge from the blast, many of them well ahead of man's ability to discover their practical application.

So in one sense the *Channels Field Guide* is a kind of naturalists' baedeker, classifying the phenomena by family, genus, and species. In a more literal sense, it is a practical guide to the field—the field of communications industries—charting how each of the businesses is faring in relation to the others. In our society most technolo-

gies exist only in theory until they become businesses; it is when they succeed as businesses that they make an impact on our lives. Indeed, their impact is usually in direct proportion to their financial success.

This year's *Field Guide*, in a departure from previous editions, organizes the communications landscape by the orthodox meaning of a *medium*, "the substance through which a force acts"—television's medium being ether, cable's, of course, being wire. Thus the products of technology are classified here according to the media in which they exist: ether, space, wire, and microcomputer chip. We've stretched the definition somewhat to include another classification, the hearth—not a medium in the strict sense but the site of the VCR and other appliances of home video.

As the annual report on the entire field of electronic media, the *Channels Field Guide* is the only publication of its kind. We produce one every year because that incredible invisible landscape never stops growing, or changing.

L.B.

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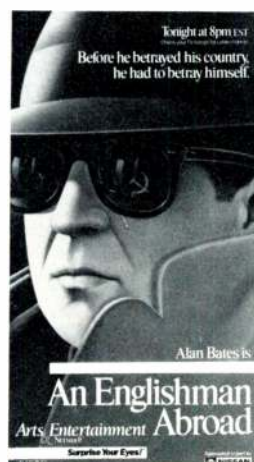
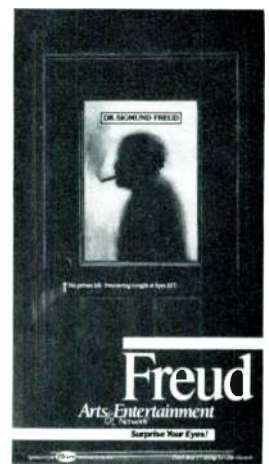
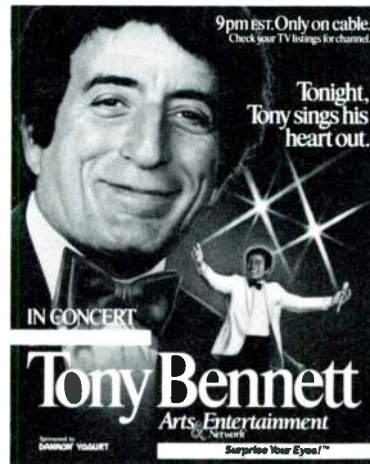
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**A Basic Ingredient to Cable Success**

World Radio History

## INTRODUCTION:

# WHEN BUSINESS AND TECHNOLOGY CONVERGE

Americans so readily adopt the new technologies and their products that we scarcely notice how rapidly they are changing our world. It is hard to imagine today how we ever managed without on-the-street banking, personal computers, video recorders, video rental shops, MTV and ESPN, the Walkman, and cellular telephones. Yet only a decade ago, imagining these things as mass-market phenomena would have seemed wildly futuristic.

To look back is to see that we live quite differently in the '80s than we did in the '70s and that the media business has changed about as radically as the quality of life. We have dozens of networks where once there were three, access to movies as never before, national newspapers by satellite, and entire reference libraries at our fingertips.

Still, most people have the sense that nothing more important has happened than the appearance of a few electronic toys. Wasn't cable supposed to have destroyed the television networks by now? But it hasn't.

In fact, cable, which had symbolized the revolution a mere four years ago, went into a tailspin soon afterward and came out of it a kind of second-string television medium, leaving the broadcast networks still in command of viewing. Seeing that cable has failed thus far to deliver on its great promise to be something wholly new in video communications, some consider the vaunted Second Age of Television a bust.

Far from it. Everything cable was supposed to provide is with us today—courtesy of other technologies. The cornucopia of TV programming that was cable's chief promise—a hundred or more channels—is available through the backyard dish. Anyone who wonders why the unsightly dish has become so popular should try sweeping the

Far from petering out, the media revolution rages on, though not on its predicted course.

skies; it would take all three hours of prime time to sample briefly each channel available in this hemisphere.

Cable's putative hallmark, narrowcasting—television directed at limited, specialized audiences—is now the purview of the VCR. Interactive television, once cable's most dazzling coming attraction, survives with the videodisc. Videotex and transactional services are developing through the modem-equipped personal computer; new educational channels have come via ITFS; home security services are being realized via telephone technology. The cable dream of the late 1970s is alive and well, no thanks to cable itself.

As for cable, which perhaps misguidedly has elected to compete head-to-head for audience with broadcast television, it could be minutes (or years) away from a resurgence, depending on what it may find to offer next. Showtime, MTV, CNN, ESPN, and C-SPAN are cable originals with no exact counterparts in broadcast television; the next new programming invention, or the intersection with pay-per-view technology, could ignite cable the way HBO did a decade ago.

In any case, cable's short-term prospects have improved with the Cable Communications Policy Act of 1984 and with the elimination by a federal court of the so-called "must carry" rule, liberating cable operators from the obligation of carrying all significant local television signals. Yet no matter how cable may develop, it is a virtual certainty

that the media landscape will change even more in the next five years than it has in the last 10.

What is clear at this point is that technology is meaningless by itself; everything must work as a business or wind up on hold, along with Picturephones, 3-D movies, and the ancient facsimile. Qube, Warner's wonderful two-way cable system, proved itself as a technology but not as a business, and so is virtually in mothballs.

On the other hand, it may be premature to give up on any of the new technologies. Teletext may have foundered in the United States, but it has turned into a profitable business in the United Kingdom. The original concept of direct-broadcast satellites seems a dead issue at the moment in America, but the idea is about to be tested in Europe, where the effect could be explosive. Stereophonic television, just getting hot here, is an old story in Japan and West Germany. We may find ourselves importing the proper applications for technologies.

This is a time of sobriety in the American communications revolution. The large media corporations that a few years ago were shooting off in all directions have begun to get their strategies together. CBS, partly out of shell shock from take-over attempts, is getting out of new media ventures just when NBC is aching to jump in. Many other companies have lined up behind particular technologies and withdrawn from experimentation. Group W and the Tribune Company, for example, are getting out of cable-sys-

tem ownership to concentrate on broadcasting and programming, while big cable companies such as Viacom, ATC, TCI, and Comcast are strengthening their commitments to television-by-wire. For better or worse, more cable systems will be owned by fewer companies.

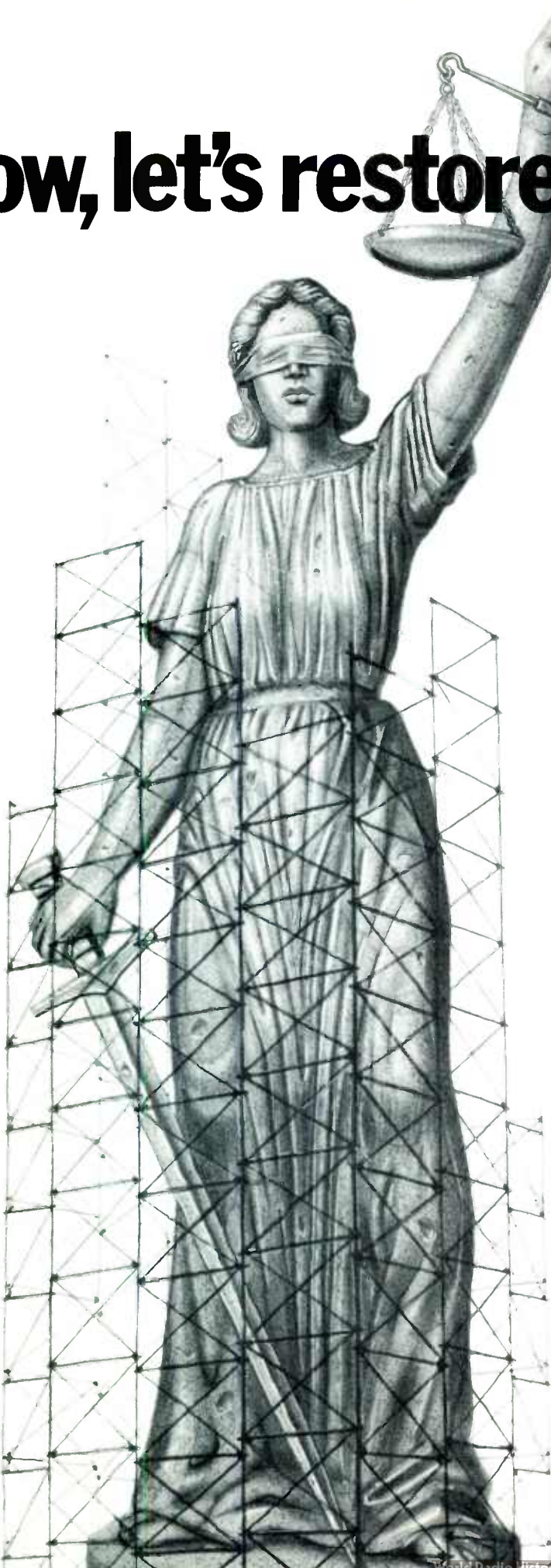
The idea that the revolution was a false alarm is belied by the drastic changes in the fraternity of players. ABC is not the company it was in the '70s; nor is Warner Communications, nor Columbia, Embassy, Lorimar, Group W, Apple, nor, of course, AT&T. Rupert Murdoch is in the picture today, and Ted Turner is casting a longer shadow. Independent stations, massing into armies, are beginning to challenge the networks' hegemony as cable never did. Meanwhile, as blasé consumers, we have hardly noticed that television, which was once beamed out wholesale, may now also be purchased retail. Coupled with deregulation, the new electronic toys are shaking the foundations of the media establishment.

It is probably true that none of the new technologies has yet begun to fulfill its potential. Five or six years is hardly a sufficient trial period, considering how long it took for television and the telephone to penetrate every home, for color television to spread, and for FM to become the dominant audio medium. If technology depends on business, business depends on software. RCA created NBC long ago expressly to help sell radio sets, and today's video boom would sputter without a flow of programming.

In the end the revolution may not be technological in nature but cultural. The lag is classic: The delivery systems have arrived well ahead of the product. And in the long run the art of communication, rather than any of the technological miracles, may shape the electronic landscape.

LES BROWN

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# READ ANY GOOD IDEAS LATELY?

If you've been keeping up with Channels, you've read a wealth of them. Ideas are our most important product. Every issue of Channels brings you some of the best thinkers on the media. Here are a few of them:

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**CHANNELS**  
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*Always something to think about*





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Says AVP partner Garry Russell, who handled most of the camera work for the production: "The Eastman tape performed flawlessly through the rigors of the two-week event, in temperatures ranging from -30°F to 40°F. In dazzling sunlight, blowing snow, and after dark."

Adds producer Alex Epstein: "The pictures we brought back were some of the finest we've ever seen of this beautiful part of the world."

Altogether, AVP shot nearly 17 hours of tape during the race. This was edited into a 30-minute production that was seen throughout Alaska via satellite, in the Pacific Northwest on McCaw Cablesystems, and in parts of Canada on CBC-North TV.

Recording "The Challenge of the North" proved to be another challenge overcome by EASTMAN Professional Video Cassettes. If you'd like to tell us how EASTMAN Professional Video Cassettes have helped you, write to Eastman Kodak Company, Dept A-3063, 343 State Street, Rochester, NY 14650.

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## TECHNOLOGICAL CONVERGENCE:

## TOWARD A UNITED STATE OF MEDIA

Seldom has a word become so inadequate for its duty: "Information," according to today's technologists, means not only airline schedules, basketball scores, and pork-belly prices, but also piano concertos, and images of Julia Child slathering mustard over game hens or John Travolta dancing in his white suit. These varieties of information are a single commodity to the electronic media, and travel as readily over the air as through wires or on tapes or discs.

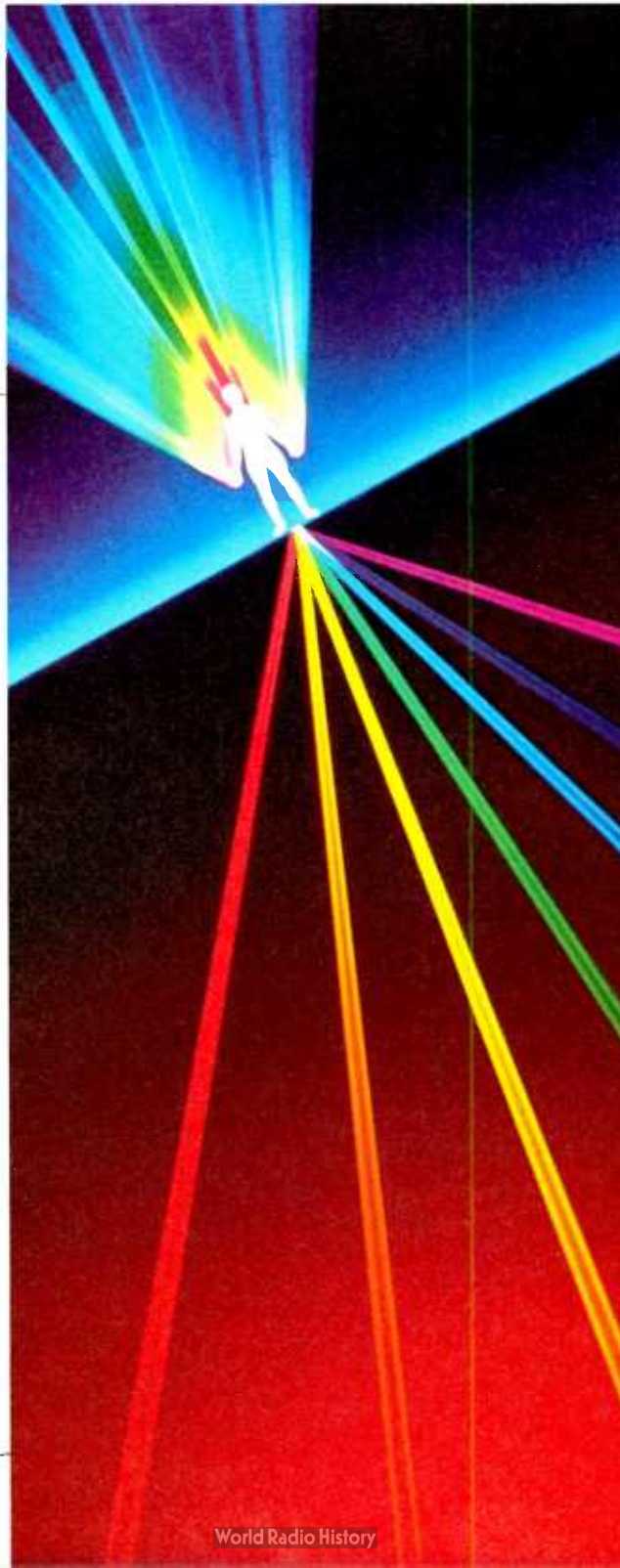
With all of these media and kinds of information coming together in the 1980s, devotees of buzzwords seized upon the term "convergence," originally applied to the phenomenon by the late Ithiel de Sola Pool of the Massachusetts Institute of Technology. "The one-to-one relationship that used to exist between a medium and its use is eroding," he wrote in 1983. "For the first three quarters of the 20th century, the major means of communications were partitioned from each other, both by technology and by use. Phones were used for conversation, print for mass distribution of text, movies for dramatic entertainment, radio for news and music, and phonograph records for music. No law of nature said it had to be that

way." It's not that way anymore. The reason, Pool said, is the advance of electronics.

When combined with a computer, a system can manipulate as well as transmit or record information. The computer becomes the catalyst, coordinator, and intersection of the technologies. It's at the center, for example, of several recent innovative combinations:

- *Optical disc plus personal computer.* As of early 1986, students will be able to consult the Grolier encyclopedia by popping a shiny plastic disc into a computer drive. This compact disc (CD) is the same kind that carries music recorded in digital stereo. Grolier's disc encyclopedia sells for \$199, compared to \$450 or more for the ink-and-paper version, but then the disc lacks pictures. Future books published on optical discs, however, will probably be "illustrated" with sounds (such as word pronunciations) as well as pictures.

- *Satellite plus FM radio plus computer.* Investors are now able to check their stock prices on PCs receiving 20,000 listings constantly updated from the major securities exchanges. The PCs are equipped to pick up data transmitted through a hookup of satellite relays and broadcasts on the subcarriers of local FM radio sta-



tions. One such system, Lotus Signal, inserts the latest stock prices into a spreadsheet program, letting the user calculate the value of a possible trade.

● **Telephone plus computer.** Business people whose office switchboards have "voice mail" features can receive or send phone calls while they're absent, even dispatching their recorded voices to a number of different people. And, unlike other kinds of electronic mail, voice mail requires neither typing nor a screen and keyboard. This answering-and-calling machine is directed by a computer, which stores incoming voices digitally in each recipient's "mailbox."

● **Television plus telephone plus computer.** People who install General Electric's HomeMinder system can monitor their electrical appliances via their TV screens and control them by punching code numbers into a wireless keypad or, when they're away from home, into any telephone keypad. The system's brain, hidden in a simple box on the TV set, has as much memory as a typical home computer (64 kilobytes), but GE executive Chuck Levine would rather not admit there's any computer involved. Even claiming that the product is "user-friendly," he says, would make some consumers suspect complexity.

Pool and other media historians have said convergence is blurring the distinctions between technologies. But it's also allowing entrepreneurs to exploit each medium's sharply defined aptitudes, in combinations such as FM-radio-plus-computer. By choosing radio from the media toolbox, the entrepreneur can send computer data to hundreds of subscribers without leasing hundreds of phone lines. Still, there's more than one way to do each job. The Grolier encyclopedia, for example, is also available through several videotex services.

The media are not only increasingly "substitutable," as MIT's Russell Neuman points out, but also increasingly interconnected. The information and entertainment industries, for example, are moving toward a single, multi-purpose electronic grid—actually, a huge pattern of interconnected grids, according to Pool. Whether it's a little-known movie or an obscure judicial decision, if the information exists, computers with their tireless indexing and

mon language: the digital code used in computers. Audio is going digital, and video is following suit. The world's telephone companies are gradually refitting their equipment to operate within a technical framework called the "integrated services digital network" (ISDN), which will use a technique called "packet switching" to accommodate a number of computer and human conversations in digital form on a single line. The present analog phone

respect. Today, computers need a modem to use the phone lines. When the lines are converted to ISDN, *people* will need an adapter to talk on the phone. Paul Polishuk, president of IGI Consulting, expects that each customer will get an adapter box: "The directions will say, 'Your phone plugs in here, your PC plugs in there.'"

Britain started the first limited commercial ISDN service in 1985; some American businesses will



**Computers are the catalyst, coordinator, and intersection of the converging media. A set-top computer links television, telephone, and home appliances in the GE HomeMinder system (above).**

**A common language—digital code—brings together the personal computer and the optical disc (right). One five-inch disc contains a 21-volume Grolier encyclopedia.**



sorting abilities are ideal for finding it. Information, traveling at computer speeds, will become infinitely more fluid than it is today—and not just in the case of business data. The information grid will be our school, movie house, library, postal system, and phone company, as well as marketplace.

The grid is possible because the media are converging on a com-

system, designed to carry voices, is unsuited for the intermittent, rapid-fire bursts of computer talk. Computers use only a fraction of a line's capacity but typically tie up a line 10 times as long as a human conversation. Our present phone system, increasingly busy with computer talk, is headed for gridlock if it doesn't go digital.

ISDN will turn the tables in one

get ISDN lines by 1990, but it won't reach every U.S. phone for a decade or more. And even when all Americans get access to ISDN lines, there will still be many smaller networks for special purposes. "Like a road system," Pool said, "the communications network will always have its superhighways, feeder roads, and private driveways. But they will all make an interconnected sys-

The media are moving toward a single electronic grid—actually, a huge pattern of interconnected grids—that will be our school, movie house, library, postal system, phone company, and marketplace.

tem." Before this convergence is complete, however, one obstacle must be overcome. The copper wire in the phone network, which can carry voice and data is ISDN service, cannot handle television signals, because video requires 1,500 times the digital capacity used by voice. But this impediment may soon be removed, as fiber optics are already replacing copper. Fiber's immense capacity will finally bring television into the electronic grid.

That will transform the media once again. With the videocassette's triumph in the 1980s, television became a publishing medium—a viewer consumes it when he chooses, the way he reads a paperback, and if the show's good, he passes it on to a friend. Since its alliance with videodiscs and computers, television has been an interactive medium. And when fiber optics' capacity comes into the home, consumers will be able to order,

and nearly instantly receive, their own copies of videocassettes or books—any bulk of information. Publishing would then become a fully electronic medium.

The many variations made possible by convergence seem to entail enormous complexity. "Even so, I think we will be moving toward simplicity," says Ken Noble, an analyst at Paine Webber. Convergence is already bringing greater ease, flexibility, and power to communications.

According to Paul Levinson of Fairleigh Dickinson University, the media are "anthropotropic"—becoming more like human beings. People are the original multipurpose media machines; they talk, hear, see, read, and write, Levinson explains. Only the primitive media were single-purpose. Now they're becoming what Marshall McLuhan predicted: protean extensions of man.

STEVE BEHRENS

**Look beneath the year's media mergers and there's a strong flow of technological convergence pushing them along and helping to sweep government restrictions out of the way.**

With convergence, a number of companies that grew up in the movie, book, and television industries have expanded into other delivery media, proclaiming that they're now in "the information business." This long-term trend—"horizontal integration"—results in print publishers owning eight of the top 20 television station groups and four of the top 10 cable operations.

Even more fashionable during the past year have been media corporations' moves toward "vertical integration"—giving them control over the production, processing, and delivery of a particular medium. IBM, the king of information processing, and AT&T, the queen of delivery, invaded each other's turf during the last two years—although with limited success so far. Content and delivery were combined twice again when Rupert Murdoch and Ted Turner, each owners of video delivery media, bought two of Hollywood's major production houses (and film libraries), Twentieth Century Fox and MGM. Also in 1985, RCA, owner of the NBC network, courted MCA (Universal Studios), whose dowry includes an archive of some 3,000

## INTEGRATION NOW! PRODUCTION AND DELIVERY CONVERGE

movies and 12,000 television shows.

Media companies don't enjoy being dependent on suppliers or distributors; they've always had the urge to stretch vertically. What's new is that the government increasingly lets them do so, explaining that technology has changed the circumstances that formerly justified regulation.

The government is not likely to stop the production studios from combining with Murdoch's and Turner's television delivery companies, for example. Things have changed since 1948, when government trustbusters forced the movie studios to divest themselves of what were then their means of delivery, the theater chains. Until then movies had been available largely through those theaters. Now, in the television business, the delivery media have converged on the commodity; viewers can get video via cable, cassette, and satellite, as well as by broadcast—undercutting the rationale for restrictions on vertical buy-ups.

Convergence of the telephone and the computer has also frustrated the government's attempts to restrain vertical integration in the data business. Seeking to keep telephone monopolies from controlling information content as well, the FCC is trying for a third time to draw a line between information-processing (content) and delivery. The problem, of course, is that both services involve telephone lines and computers; any company involved in one could handle the other.

Such dilemmas are more consequential than they might appear because the First Amendment is involved. On one hand, the new electronic equivalents of newspapers need First Amendment protection. "Speech will not be free if these are not also free," Pool said. On the other hand, most communications attorneys agree that delivery companies with geographic monopolies, such as phone companies, must be regulated.

What happens when a delivery company with a local monop-

oly—a cable-TV system operator—claims to be a content company and therefore deserving of full First Amendment protection? That's the issue in a cable company's suit, *Preferred Communications v. Los Angeles*, now in the federal courts. If this or a similar suit is won, it would not only extend the First Amendment, but also restrict the regulation of delivery monopolies. If that happens, according to Robert Pepper of the Annenberg Schools of Communications, the government could find it harder to keep monopolistic phone companies out of the content business. The fear is that they'd control information as tightly as they control the wires that deliver it. "Watch out for that guy who owns the delivery system!" warns Paine Webber analyst Ken Noble. In the case of AT&T, the court divestiture order even now allows the company to enter electronic publishing in 1990.

Coincidentally, that's the year the lid comes off vertical integration for three other big delivery companies, the television networks. Under terms of a 1980 federal court consent decree, ABC, CBS, and NBC will be able to produce as much of their own entertainment programming as they wish after 1990. (They're now limited to producing three-and-a-half hours a week, plus news and sports programs.) S.B.

**As the technologies converge, many media titans buy into additional media, while others, such as Ted Turner, move toward controlling both production and delivery in their own media.**

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## M E R G E R S

DEALS, NEAR DEALS, AND  
MEGA-DEALS

**F**or years conventional wisdom held that the communications industry would remain immune to the waves of take-over and merger activity that rolled through the rest of American business. The media companies were too sleepy, their sense of calling was too high-flown for them to enter the battlefield of buying and selling—or so the experts thought.

It's obvious by now that the experts were wrong. Over the past year the communications industry has experienced the sort of merger fever that businesses such as oil and finance endured earlier. Among the more striking examples:

- For the first time in 30 years, a television network was sold—ABC to Capital Cities Communications.

- Two major family-owned

media companies—the Des Moines Register and the Detroit Evening News Association—were sold after outsiders made hostile bids.

- The upstart Ted Turner did the unthinkable by maneuvering to buy CBS, which to preserve its independence was forced to recapitalize at great expense.

- Multimedia, a family-dominated but public company, tried to go private but was compelled by unwelcome investors to settle for merely restructuring.

Surrounding these prominent deals and near-deals have been an extraordinary number of other transactions (see chart) involving entire companies or single properties as well as unprecedented prices. Last spring, for example, the Tribune Company paid \$510 million for KTLA, an independent station in Los Angeles.

Why this sudden outpouring of activity in an industry heretofore virtually ignored by the dealmakers? It was probably inevitable. Despite a few highly publicized problems—those of big-city newspapers being the most obvious—virtually no other industry has been able to match the recent financial performance of the communications companies. The industry's earnings increased by an annual average of more than 16 percent between 1979 and 1984. This run of good fortune has created enormous value for owners and shareholders interested in selling, and has also helped companies raise the capital needed to buy.

Many smaller companies, especially, seeing the rising value of their newspaper or television station, concluded that potential sale prices were just too high to

resist. Other mergers occurred when potential buyers took aim at media companies whose managements were not thought competent or energetic enough to manage the increasingly valuable assets they controlled. Many close observers of ABC, for example, felt that Leonard Goldenson's domination of the company over two decades forestalled the development of a highly capable team—a recognition that led to Cap Cities' purchase. The attack on Storer Communications, which resulted in Storer accepting a bid from a leveraged-buyout group, was motivated by a similar widespread impression.

Many family-owned companies face the prospect of being sold when they pass into the hands of a new generation of owners. The media business in

TEN MONTHS  
THAT SHOOK THE MEDIA

**1985, the Time of the  
Take-over:**

## A Chronology

## JANUARY

- Gannett, the largest daily newspaper publisher in the U.S. and owner of 22 TV and radio stations, buys the *Des Moines Register* and three smaller papers for some \$200 million.

## FEBRUARY

- Gulf Broadcasting agrees to sell Taft Broadcasting six TV stations and eight radio stations for \$755 million. ■ The management of family-owned broadcast TV company Multimedia announces plans

to go private in a leveraged buy-out. ■ CBS hires public relations and Wall Street advisory firms to brace itself for take-over attempts being made by the Jesse Helms-led conservative group, Fairness in Media. ■ Lawyers for Ted Turner consult with the FCC about Turner's plans to take over CBS.

- CBS acquires 12 consumer magazines from the Ziff-Davis Publishing Company for \$362.5 million.

## MARCH

- In the largest U.S. merger outside the oil industry, Capital Cities Communications purchases ABC for \$3.5 billion. ■ Ted Turner meets with Fairness in Media officials to discuss ways to combine CBS take-over efforts. ■ An investors' group owning 5 percent

of Storer Communications threatens to take control of the company and sell its cable systems and seven TV stations, valued at more than \$2 billion. ■ Rupert Murdoch's News Corporation pays \$162 million for 50 percent ownership of 20th Century Fox Film Corporation. ■ Stock market arbitrager Ivan F. Boesky spends \$247 million in rounding up an 8.7 percent interest in CBS. ■ Investment company Wesray, headed by former Treasury Secretary William E. Simon, offers to buy Multimedia for \$1 billion.

## APRIL

- Ted Turner files an offer with the Securities and Exchange Commission to buy two thirds of CBS—not with cash, but with high-interest bonds and stock in his company, Turner Broadcasting System. ■ Lorimar counters Wesray proposal to Multimedia with \$61-a-share offer, totaling slightly more than \$1 billion. ■ The investment firm Kohlberg Kravis Roberts & Company

RICHARD BARBIERI WITH  
CATHERINE S. MINOT

America has always been dominated by individual entrepreneurs. The older of these family-operated companies are now run by the second, third, or fourth generation of heirs; some, though, have passed to a wide assortment of cousins. These distant relatives often have less interest in the company than in turning their stock (which generally pays no dividends and cannot be freely traded) into cash. That provides a powerful impetus to sell, as the examples of the Des Moines Register and the Detroit Evening News Association recently demonstrated.

The buyers have, if anything, been even more eager than the sellers. Most of them are other

media companies, practicing the hard-learned lesson of sticking to their knitting. A decade ago, when many of these big buyers feared for the future of their core broadcasting and publishing businesses—unnecessarily, it turns out—they decided to diversify. The results were not very happy. Taft Broadcasting, for example, went into and then out of the amusement park business.

The Federal Communications Commission has played an important role in this narrowing of focus among buyers of radio and television stations. In 1985 the FCC raised the number of media properties a single company could own from seven television, AM, and FM stations each

to 12 each. The inevitable consequences were not long in appearing: Even before the rule went into effect, Taft purchased five more television stations, bringing its total to 12. Others, such as Cap Cities, have subsequently expanded.

Finally, buyers have been stimulated by the remarkable availability of capital. "Junk" bonds have been used to finance a number of highly visible take-overs in other industries, but they have also been used for friendly transactions in the communications field. Storer will be taken private with \$1.2 billion in junk bonds, a deal that could not possibly have been arranged two years ago. Price Communications, a com-

pany that did not even exist three years ago, has used this novel financing method to raise more than \$100 million to purchase 15 radio stations, three television stations, and an assortment of other properties.

Little of this trading activity among media firms is likely to affect the content of television (or newspapers). One very important exception is Rupert Murdoch's acquisition of Metromedia and Twentieth Century Fox. Murdoch poses the most serious threat yet to the dominance of the three networks. Even if he cannot compete effectively with the wealthier and more established networks, he will be first among equals in the community of program-oriented station groups, such as Tribune and Taft.

Will the current pace of activity in the communications industry continue? It's hard to imagine an ABC or a Storer being sold every year. But it appears equally clear that the industry's somnolent days—at least from a business perspective—are over.

STEVEN RATTNER

## After five years of fabulous profits, media firms are ripe for take-overs: They're trading hands as never before.

(KKR) offers to buy Storer Communications for \$1.8 billion.

### MAY

■ 20th Century Fox co-owners Rupert Murdoch and Marvin Davis purchase the seven TV stations of Metromedia, the nation's fifth-largest station group, for \$2 billion. ■ Murdoch sells former Metromedia station WCVB to the Hearst Corporation for \$450 million. ■ The Tribune Company pays a record \$510 million for Los Angeles independent station KTLA, making it the nation's largest non-network station group. ■ Tele-Communications and Time Inc.'s ATC, the two largest cable MSOs, offer to purchase Warner Amex Cable Communications for \$1.3 billion. ■ In preparation for their merger, ABC and Capital Cities each sell one TV station to Scripps Howard Broadcasting, for a total of \$246 million.

### JULY

■ KKR buys Storer for \$2 billion,

surpassing offer made by Pennsylvania MSO Comcast Corporation.

■ Columbia Pictures parent Coca-Cola Company purchases Embassy Communications and Tandem Productions from Norman Lear and A. Jerrold Perenchio for \$485 million. ■ Investor Ivan Boesky announces that he owns almost 10 percent of Storer's publicly held stock. ■ Jack Kent Cooke, owner of the Washington Redskins football team, is the third person to make a failed run on the 16.7 million outstanding shares of Multimedia

### AUGUST

■ Ted Turner abandons his plans to acquire CBS. ■ Gannett buys the Evening News Association—nine newspapers, two radio stations, and five TV stations, including the CBS affiliate in Washington, D.C.—for \$717 million. ■ Viacom becomes the largest cable programmer when it buys out American Express's share of Showtime/The Movie Channel and MTV Networks Inc. (the last

comprising MTV, VH-1, and Nickelodeon) for \$690 million.

■ Capital Cities sells its 53 cable systems to the Washington Post Company for \$350 million. ■ Ted Turner acquires film studio MGM/UA Entertainment for \$1.5 billion. Rainbow Programming Service files suit to protect a prior agreement giving it the cable-TV rights to MGM films. ■ Murdoch agrees to buy Metromedia Producers, which owns the rights to 3,000 hours of syndicated TV programs, for about \$40 million. ■ To help finance its \$955 million antitakeover stock buy-back, CBS Publishing puts three book companies up for sale.

### SEPTEMBER

■ Times Mirror Co. sells three TV stations to private investors for \$84 million. ■ Murdoch buys out partner Marvin Davis for \$325 million and takes full ownership of 20th Century Fox. ■ Coca-Cola sells Embassy Pictures to movie producer Dino De Laurentiis for an undisclosed amount.

■ CBS offers for sale its \$55 million share of film studio Tri-Star Pictures.

### OCTOBER

■ As further protection against an unfriendly take-over, CBS asks Laurence A. Tisch, owner of Loews Corporation, to increase his firm's share of CBS stock from 12 percent to 25 percent. ■ Telepictures, the foremost producer and distributor of syndicated programming, and Lorimar, a major producer of network programming, merge in a \$300 million stock swap. ■ Group W puts its entire cable system holdings, valued at \$2 billion, up for sale. Among bidders are the two largest MSOs, Tele-Communications and ATC. ■ Turner agrees to pay the Rainbow Programming Service, which is half-owned by CBS, \$50 million to drop its suit holding up his purchase of film studio MGM/UA Entertainment. ■ CBS makes unprecedented sale of its St. Louis affiliate KMOX, said to be worth as much as \$200 million.



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INTERNATIONAL ROUNDUP:

# THE GLOBAL PICTURE

## MONDO VIDEO

More than 90 percent of the homes in developed countries can receive broadcast television, and growing numbers have cable or videocassette recorders. Following are estimates of media penetration in 11 major countries.

	Broadcast TV	Cable TV	VCRs
United States	99%	46%	30%
Canada	98%	61%	13%
Japan	99%	#	35%
United Kingdom	98%	5%	38%
France	93%	2%	7%
West Germany	97%	4%	21%
Belgium/Luxembourg	97%	83%	11%
Sweden	97%	5%	20%*
Switzerland	96%	48%	7%**
Ireland	90%	29%	7%**
Italy	90%	0%	7%**

\* Average in Scandinavia  
 \*\* Average in selected European countries  
 # Currently, only Japanese hotels have cable TV.

Chart compiled by Jane Lusaka. Sources: For Europe, 1985, CIT Research; for Canada, 1984, Canadian Bureau of Statistics; for U.S., 1985, Motion Picture Association of America; for Japan, 1985, Japan Broadcasting Corporation (NHK) and Sony Corporation.

America's balance-of-payments deficit may be huge, but at least in one field the United States has demonstrated a genius for export. This involves not a set of products but a cluster of new technologies, dubbed Television II, that are remaking the medium worldwide.

These new media, along with the growing realization that they need not, indeed cannot, be tightly controlled by monopoly broadcasting organizations, are transforming the global information system. In the new arrangement, the traditional gatekeeper's power is eroding, and the viewer's power is becoming supreme.

None of this is new in America, where it has been clear since the late '70s that the hegemony of traditional broadcasters is ending. What is new is the evidence that the new American television revolution is becoming a global phenomenon:

- In Estonia, the Soviet territory across the Baltic from Finland, enterprising residents hook up elaborate antennas to receive American television shows transmitted from Helsinki. In Moscow, there's a thriving market in *samizdat* videocassettes.

- In Hong Kong, the Communist-run Chinese Friendship Stores do a roaring business in

videocassettes, and sell video recorders that can play them back in any of the world's three color television formats.

- In Jamaica, more than 15,000 backyard earth stations have been installed to pluck American cable programs from the sky. The Jamaican Broadcasting Corporation fears it will be unable to recover from the inevitable loss of viewers.

The new age of television thrives where viewers enjoy political and economic freedom. Nowhere on the planet is television so free as in America, where a

relaxed Federal Communications Commission allows almost anything. Yet even in countries that lack America's democratic traditions, video is escaping control.

Throughout the world, the technology that appears most resistant to control is the videocassette recorder. Increasingly portable and inexpensive, the VCR on its own is a formidable technology. Just as Xerox machines permitted printed information to be distributed widely and inexpensively in private networks, video recorders allow viewers to share programs

that have never received the imprimatur of governments.

Two kinds of campaigns are being waged by governments still under the illusion that they can control television. In authoritarian and totalitarian countries, the efforts are undisguised.

In the Soviet Union, the press wages a coordinated campaign to persuade viewers of the evils of Western television. The government backs its propaganda with more forceful measures. Estonia has stopped the sale of materials that can be used to make television antennas, and has forced viewers to hook up to a cable network that carries only officially sanctioned programs.

In Western Europe, efforts to control television are more subtle. The French have used import duties and quotas in efforts to stem the flow of VCRs from Japan. (The project has been a failure—French viewers smuggle the machines from Belgium.) In Italy, the government tried for years to maintain the fiction that only the state broadcasting organization was entitled to operate a national television network. The anarchist Italians ignored the injunction. Hundreds of local television stations have started grouping together into networks in open defiance of the bureaucrats in Rome.

**Governments cannot control video technologies: Moscow has a lively market in "samizdat" cassettes.**

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World Radio History

Efforts by Western European governments to introduce new television distribution systems on a planned basis have been futile. For almost five years, every major government in Western Europe has been attempting to introduce cable television. In Britain, government policy permits cable construction by private entrepreneurs; in France and Germany, responsibility for cable has for the most part been seen as a governmental function. Neither form has shown signs of working. Despite some widely publicized experiments, the continent is being cabled only very slowly—in Britain because the government has promulgated regulations that make cable an unattractive investment; in France and Germany because the authorities haven't financed it adequately.

Europe is often seen as the place where direct broadcasting from satellites is likely to make a big splash. Here, too, there are reasons to be skeptical. The high-power satellites that the Europeans want to use have been plagued with technical and economic

problems, and are years behind schedule.

The French and Germans plan to launch their first TV satellite in 1986, but they still have to work out who will get to put programs on them. Also, because the satellites will be able to transmit only a handful of channels, viewers may not be prepared to pay for the dishes necessary to receive those channels, especially when a similar investment will buy access, through a VCR, to thousands of available cassettes.

In Britain, the direct broadcasting plan has collapsed altogether. (The government insisted that the system be placed in the control of the existing broadcasting organizations, which proved incapable of agreeing on what to do with it.)

Several other satellite plans in Europe appear equally problematic. Ireland wants to launch one, but its partner in the project, America's Hughes Aircraft Company, acknowledges that the financial and organizational obstacles are formidable. Luxembourg's effort to launch a direct-

broadcast satellite has collapsed; Italy's plan looks for the moment like a nonstarter.

The Europeans may now be learning that using high-power satellites dedicated to direct broadcasting is a less effective approach than the American scheme, which relies on the use of far more economical general-purpose satellites. Swedish, Luxembourgish, and British groups are now trying to raise money to launch these American-style satellites, which will offer Europeans a larger selection of channels than the official direct-broadcasting satellites.

The new distribution patterns for television programs are commercially attractive but, given the prevailing anarchy in the marketplace, hard to exploit. Increasing numbers of studios and other copyright holders are losing control of their products. There are widespread fears that the uncontrollable nature of many of the new video techniques will lead to an erosion of program standards. In Britain, especially, this topic has engaged the attention of

broadcasters and editorial writers. The argument goes that an environment of abundant video will foment the bad and drive out the good. BBC executives, sounding much like their American counterparts a few years ago, claim that support of "public service" broadcasting will wither away when viewers are distracted by the choices presented in the new age of television.

But for the most part, the new video environment appears to be an improvement over what preceded it. Television, which began its life as a power-centralizing medium, is in its maturity dispersing that power, democratizing society by putting the control of images into the hands of viewers. As such, TV around the world is becoming analogous to print. As viewers equip themselves with VCRs, satellite dishes, video cameras, and the other accessories of the new television, a new generation of viewers are coming to look upon television not as a mystery, but as something over which they have mastery.

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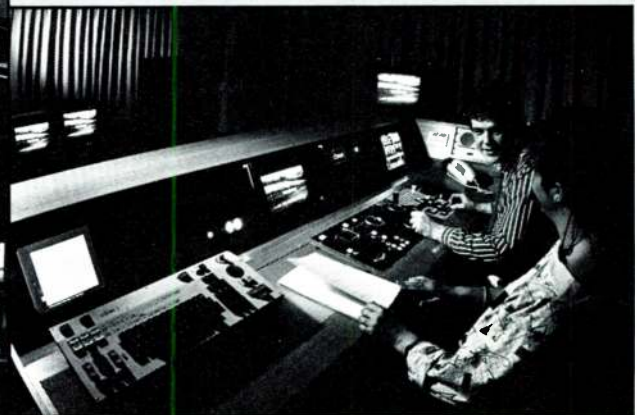
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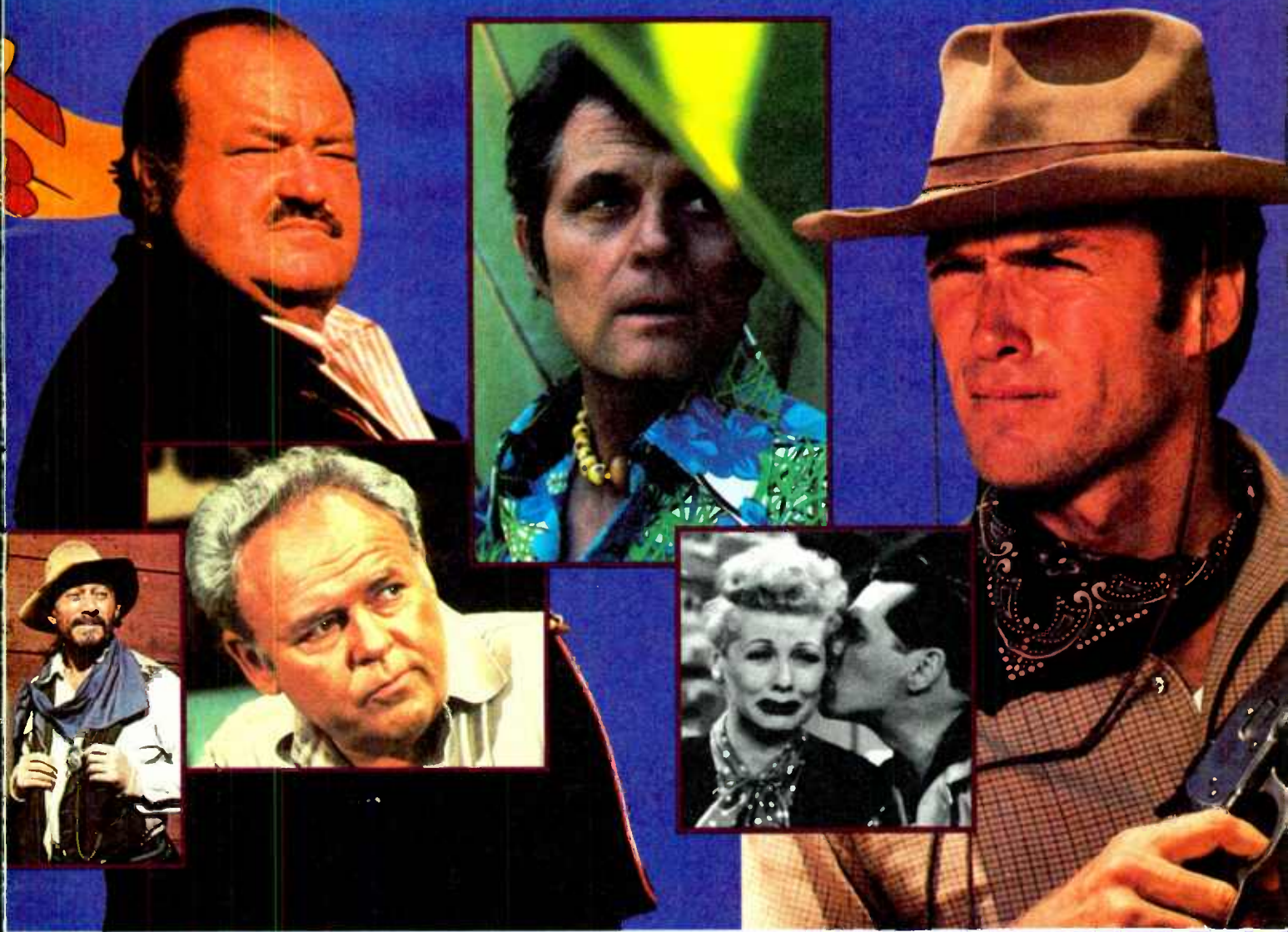


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Have Gun Will Travel  
The Millionaire  
The Phil Silvers Show  
Trackdown  
The Dick Van Dyke Show  
Marshal Dillon  
The Rookies  
The Andy Griffith Show

Gomer Pyle—USMC  
December Bride  
Perry Mason  
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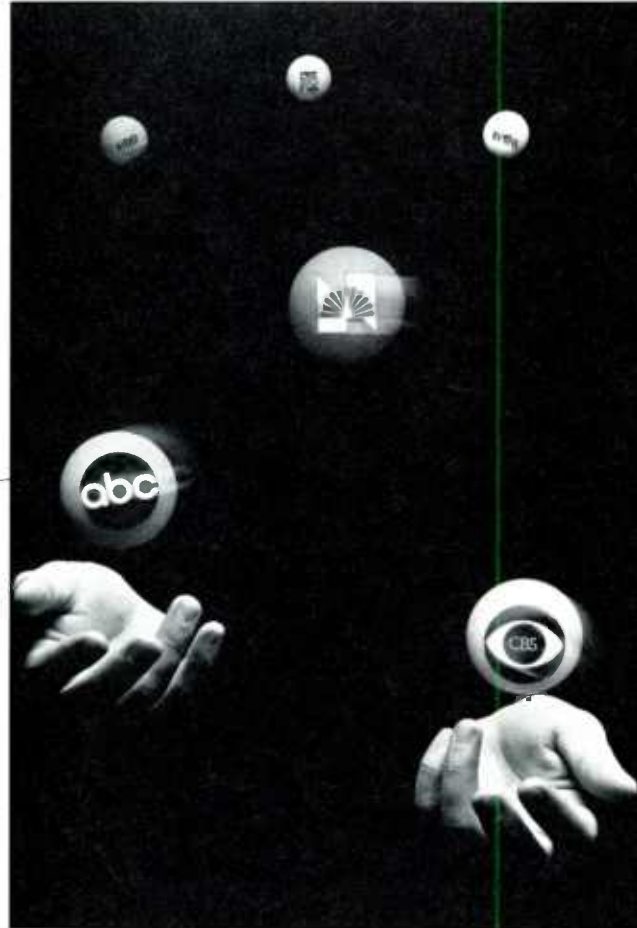
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## NETWORK TELEVISION:

## BRACING FOR THE AFTERSHOCK

In the face of all the new technology, and after the dire forecasts of their imminent decline three or four years ago, the networks remain the principal source of news and entertainment for most Americans. All told, their audience share in prime time has dropped some 13 percent in this decade, which is substantial but hardly surprising considering the competition they face today—competition that scarcely existed in the '70s. Nothing testifies better to the networks' mastery of the popular than their continuing ability to withstand the challenges from the growing armies of independent TV stations and cable networks, as well as from the legions of video rental shops.

Yet this mastery is tinged with irony, because in dictating what programs will be made, the networks ultimately supply their chief competitors with the material to challenge their dominance. Independent stations, whose numbers have doubled over the last six years, owe most of their success to the syndicated libraries of sitcoms and action-adventure



reruns that became hits through network exposure. Advertising-supported cable channels also feed, in large part, on vintage network fare, and a chief reason for the proliferation of home video recorders (which lead inevitably to video rentals) is their ability to time-shift regular network broadcasts.

So the people who are watching less of ABC, CBS, and NBC today may actually be spending more time watching the network fare of yesteryear. Clearly, network television—that is, the pro-

grams worthy of airing on the Big Three—is the television of choice in America. The problem, however, is that production costs are rising at the very time network audiences are declining. And advertisers, ever in search of a better cost-per-thousand deal, have started to balk at the steadily escalating network rates and are studying the new options.

On top of this come the corporate retrenchments necessitated by a friendly take-over in the case of ABC and the costly defense against a hostile takeover at CBS.

Meanwhile, RCA, NBC's parent company, has also been involved in merger talks. Network officials contend that the cutbacks in staff make for leaner and meaner competitors, but the likelihood is that the greater drive for profits—and the tight-ship mentality it fosters—will cause programmers to play the game ever more timidly, minimizing the financial risks and favoring a cheaper product. If so, the networks may face affiliate defections at certain time periods, as well as accelerated viewer desertions to competing media.

Even now, the 600-plus affiliated stations are being tempted out of the fold—at least for an occasional hour—by ad hoc satellite networks. Satellite technology makes it possible for stations to present all sorts of regional sports and special events outside the network supply, and to make deals with advertisers for attractive barter programming, which comes free in exchange for a set number of commercial spots pre-sold by the syndicator. Usually this tots up to more than a network pays for a station's air-time, so the practice is growing.

The Big Three will take home \$1 billion in 1985, but they can't gloat: Merger activity is forcing costly cutbacks. The tight-ship mentality may harm programming, risking the loyalty of viewers and affiliates.



# GENEVA

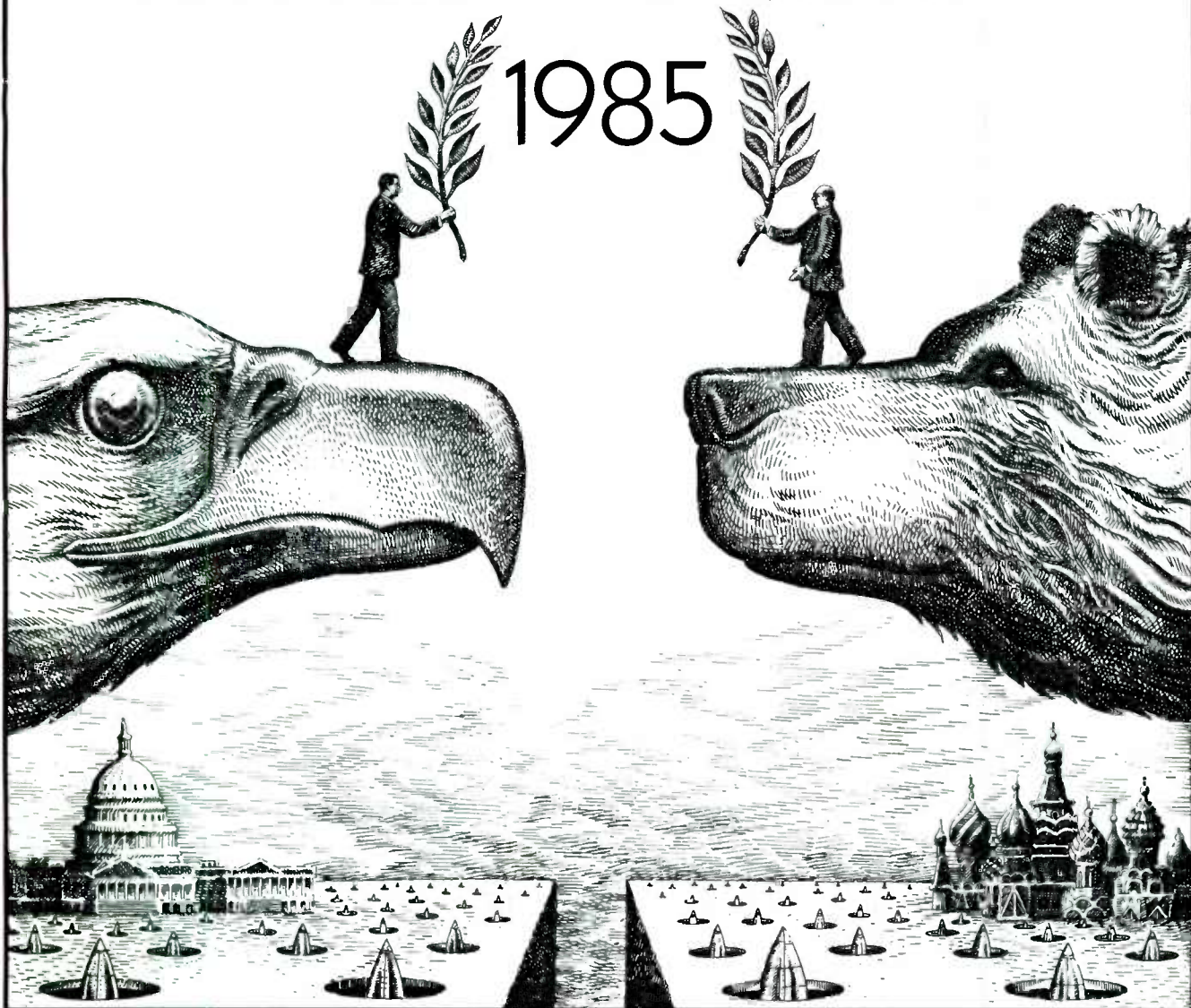
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Some affiliates also penalize networks for taking programming risks, either with controversial subject matter or chancy scheduling. Some NBC affiliates, for instance, have frustrated the network by preempting its early-Sunday-evening comedies *Silver Spoons* and *Punky Brewster*, and replacing them with more profitable syndicated programming. Ironically, their favorite Sunday substitute is *Fame*, the musical melodrama NBC canceled in 1983.

Still, no serious industry-watcher is writing epitaphs for the networks. In the summer of 1985, NBC racked up a record \$1 billion in advance advertising sales for the next TV season. Among them, the three networks had estimated 1985 revenues of around \$9 billion and profits exceeding \$1 billion. American audiences still spend three quarters of their television time with the networks.

**MARKETPLACE:** While the networks can still deliver the largest audiences for the advertiser, buying patterns are beginning to change. And most of those changes favor the competition.

Competing ratings services have been offering "people meter" reports, which track viewing by specific demographic groups, coincident with the emergence of "qualitative ratings," which measure the emotional and intellectual impact of programming. Advertisers are increasingly concerned with the composition of audiences and the attentiveness of viewers, and less with the raw numbers. They have taken to experimenting with the new, low-cost alternatives to network television. Meanwhile, viewing habits aren't as stable as they once were. All those wires going into the set—from cable, microwave services, satellite dishes, VCRs, and disc machines—promise to disrupt old viewing patterns, which are essentially *network* viewing patterns.

The networks argue that the

loss of share points is offset by increases in viewing overall. They contend that since the number of homes with TV is increasing faster than competing services can siphon off audiences, the actual viewing of network channels is growing. The expanding-pie argument justifies continued increases in the prices for network commercials. But the pie can't grow forever.

**REGULATION:** The Federal Communications Commission's deregulation initiatives are not calculated to help the networks, but rather the local broadcast stations. Most Washington policymakers seem eager to break the three-network dominance over television. The FCC's decision to raise by 70 percent the number of broadcast outlets that a single entity can own was at least partly intended to provide greater expansion possibilities to media companies competing with the networks. When the FCC *did* propose to unshackle the networks by allowing them to own the programs they air, the initiative was stifled by a lobbying campaign mounted by the Hollywood production community.

The Fairness and Equal Time rules, which respectively oblige broadcasters to air both sides of controversies and provide time to competing politicians in a campaign, seem to come up for possible elimination every year. FCC chairman Mark Fowler has crusaded for the abolition, and the networks have eagerly taken up this cause. But politicians like the rules, and some civil libertarians treasure them as precious safeguards of free speech; so the twin doctrines seem safe for now. The regulatory burden does not sit quite so heavily on the networks' shoulders as they like to claim; the Big Three have the power to ward off any truly onerous set of rules. If anyone threatens their long record of prodigious profit, it probably won't be Washington.

BEN BROWN

VCRs, cable, and independents have cut into network viewing, and advertisers, in search of a better deal, are growing restive.

## INDEPENDENT STATIONS:

# THE POWERS THAT MAY BE

Commercial broadcast television is no longer the private reserve of three giant companies. The dominance of the networks has been eroded by the popularity of cable, pay cable, and the VCR; but perhaps the principal agent of change today is the emergence of the independent, or unaffiliated, television station.

The number of independent stations has grown with incredible speed—from 73 in 1972 to 230 in 1985. And, owing to profound changes in marketing and programming, even the long-established independents have experienced increases in ratings. In 35 large markets surveyed by Nielsen, the independents' share of the 24-hour viewing audience has increased from 17 to 22 percent since 1972, while the network share has dropped from 75 to 63 percent. (The networks do not lose as many viewers in smaller markets, where independents are fewer and weaker.)

The independents have made their headway in the face of an extreme economic mismatch. Networks have the wealth to underwrite programs that will attract the largest audience, and they pay their affiliates for airing their programs. Independents have to shop for every program and then shell out money for the rights. Network affiliates have "availabilities"—commercial slots—that are presold to advertisers through an avalanche of network hype. Independents must go out and hustle to fill their accounts. And the 85 percent who broadcast on the weaker UHF frequencies suffer the additional disadvantage of lesser audience reach.

**MARKETPLACE:** Given these problems, how did the independents manage, by 1985, to rack up as much combined audience share as a Big Three network? Part of the answer is a marketing tactic: They specialize.

John Douglas and John Rohrbach started Channel 48, KSTS-

TV, in 1981. The station was licensed to San José, the largest city in the sprawling San Francisco/Oakland/San José "Area of Dominant Influence." The market was already teeming, with seven independents and three affiliates.

"We hoped to get a network affiliation," Rohrbach recalls. "No luck. Then we were running subscriptions in the evening with the STAR network. It failed. But we were getting good response from a local business-news program in the morning. We just sort of evolved into a business-news station." Now KSTS schedules Financial News Network all day until 6:30 P.M., with a stock market ticker running across the bottom of the screen. In the evenings KSTS offers syndicated or local business programs, computer shows, and ask-the-expert "info-commercials."

One of its competitors, Channel 20, KTZO San Francisco, lavishes a small fortune on *Dynasty* and the like, and seems to be a conventional big-city independent. But the station's owner-manager, Jim Gabbert, speaks the language of specialization. "We are shooting for a demographic—adults 18 to 49." Gabbert argues that advertisers are now as concerned with specific demographics as with gross ratings. And KTZO has tailored itself to its target audience. The station has no newscast and no pro-sports package; what it does have is the area's first stereo broadcasts, as well as a strong identity secured by giveaways, bumper stickers, and even station IDs starring viewers' dogs.

Many independents with specialized formats have something else as well—local flavor. Especially in small markets, they emphasize local news and concerns. Even a music-video station on the outskirts of Boston, WJVV-TV, works to give a neighborhood impression by offering sports scores, news, and weather. Meanwhile, independents are

**Communication takes many shapes.**



**Communication shaped by excellence.**



WESTINGHOUSE BROADCASTING AND CABLE, INC.

Group W Cable • Group W Radio • Group W Television • Group W Productions •  
Group W Satellite Communications • Filmation Associates • Muzak • TVSC

relying less and less on off-network reruns and movies. Cheap satellite transmission offers an unprecedented variety of material, while serious and costly efforts to create original programming have won over advertisers as well as viewers. Solid programming delivered to a large body of independents via satellite can create the sort of national network that advertisers demand.

Ninety-five independents, whose signals reach 85 percent of American television households, have purchased a two-hour block of information-oriented programs, including a news show and a *Lifestyles of the Rich and Famous* clone. The \$25 million effort, called Inday, is a co-venture of some very big players—I.B.S. Communications, Tribune Broadcasting, and Columbia Pictures Television. In the fall of 1986, a group of stations covering at least 65 percent of households will begin airing the animated series *Ghostbusters*.

Few of these arrangements challenge the Big Three in prime time. Rather, they nibble away at time blocks—weekend, late night, “early fringe,” or “the prime time access” period—in which the networks earn relatively weak ratings or leave the programs for local affiliates to arrange. Nielsen estimates that independents increased their share of daytime viewers 58 percent from 1972 to 1985.

Emergence from the ranks of independents of a full fourth network—or a fifth, or a sixth—has long been a favorite subject of industry talk. Developments of the past year have caused the chatter to turn more serious. In 1985, KTLA, Channel 5 in Los Angeles, was sold for \$510 million, the largest sum ever paid for an independent station. The buyer, Tribune Broadcasting, already owned two of the strongest VHF independents of all, WGN (Chicago), and WPIX (New York), as well as the syndi-

## THE POWERS OF TELEVISION

The FCC set off a wave of television station acquisitions with a new rule allowing a single company to own as many as 12 stations providing they reach no more than 25 percent of American television households. These are the major group owners, the percentage they reach, and the numbers of stations:

1. Capital Cities/ABC	24.4%	7 VHF, 1 UHF
2. CBS	20.6%	5 VHF
3. NBC	19.8%	5 VHF
4. Tribune	18.6%	4 VHF, 2 UHF
5. Fox Inc.*	18.1%	4 VHF, 2 UHF
6. KKR (Storer)	13.7%	7 VHF, 3 UHF
7. RKO	13.5	3 VHF
8. Taft	11.1%	8 VHF, 4 UHF
9. Chris Craft Industries	10.4%	5 VHF, 2 UHF
10. Group W	10.1%	5 VHF
11. Gannett	9.2%	5 VHF, 1 UHF
12. Cox	8.1%	5 VHF, 2 UHF
13. SIN (Spanish International Network)	7.6%	5 UHF
14. Gaylord	7.1%	4 VHF, 3 UHF
15. Hearst	6.9%	6 VHF
16. Belo Broadcasting	5.7%	5 VHF
17. Scripps Howard	5.0%	5 VHF, 2 UHF
18. Outlet/Rockefeller	5.0%	5 VHF, 2 UHF
19. Post-Newsweek	4.7%	4 VHF
20. Times Mirror	4.7%	5 VHF, 2 UHF

\* Formerly owned by Metromedia, now owned by Rupert Murdoch.  
 Chart compiled by Rebecca Turner • Source: *Broadcasting*, May 27, 1985

cated INN news service from WPIX. And when Rupert Murdoch bought Metromedia for \$1.5 billion (and then, for another \$325 million, the half of Twentieth Century Fox that he didn't have already), he suddenly owned the second-largest non-network group (after Tribune), plus a powerful producer.

**REGULATION:** In increasing the number of TV stations a single operator is allowed to own from seven to 12 (so long as they don't reach more than 25 percent of the TV households), the FCC may have altered the landscape of independent television. Tribune and Murdoch may have been the last major consolidations; or they may be the first, as other corporate giants jockey for networking possibilities.

Also in 1985, the U.S. Court of Appeals tossed out the FCC's “must-carry” rules, which obliged cable systems to carry their local broadcast stations. For Preston Padden, president of the Association of Independent Television Stations, a feisty trade group, the court's decision is a disaster. “If you believe that handing a competitor control over access to your market can do any good,” he says, “that just strikes me as naïve.” But at least some independents, particularly those with secure cable connections, are saying that the demise of “must-carry” may give them more room, if duplicated network affiliates are bumped off.

The independents' boom can't last forever. Even the trade group predicts that their share of spot-ad revenues will remain fixed at 23 percent between 1985 and 1990. And the growth of cable presents a challenge that cannot be ignored. Ted Turner, who was among the litigants opposing “must carry,” created a network reaching 35 million viewers—WTBS—without benefit of the broadcast system. It may be that the most serious challenges to network hegemony will arise from combines like Turner's WTBS and MGM/United Artists, or even from a hybrid—for example, a cable production with independent distribution. The game, in any case, is wide open.

MICHAEL COUZENS

With canny marketing, stronger shows, and financial muscle, indies are making a run for the numbers.

# TELEVISION SPEAKS FOR ITSELF - AND LISTENS

And viewers are paying attention.

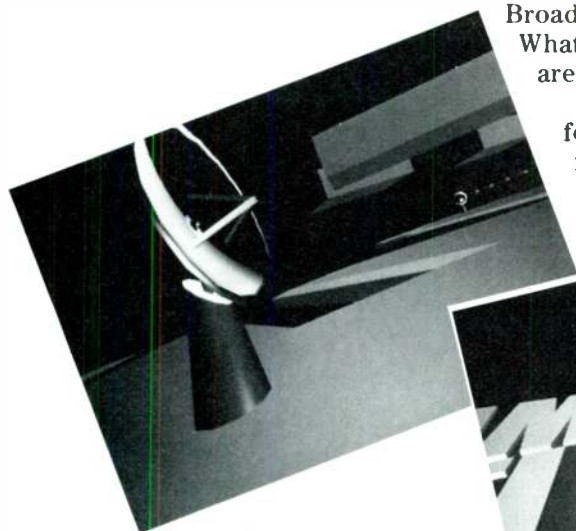
Response to "American Television and You" has been excellent. An independent survey by R. H. Bruskin showed nearly 20 percent of those people aware of the informational program said they now felt more positive toward American television.

"American Television and You" includes on-air television spots, print advertisements on op-ed pages in major newspapers and meetings with viewers in visits across the country. It's part of a coordinated effort at ABC to make television a two-way street. Sometimes we agree; sometimes we disagree. But we are listening *and* responding. We've stepped out from behind the camera to talk about television.

On October 7, we began the second phase of "American Television and You." In a series of related messages, Jim Duffy, President, Communications/ABC

Broadcast Group, will discuss the network system. What it is. How it works. What its responsibilities are to the public.

We'd like to thank our fellow broadcasters for joining in this important dialogue. It's time for television to finally speak for itself. And listen.



AMERICAN BROADCASTING COMPANIES INC.,  
P.O. Box 1330, Radio City Station, New York, N.Y. 10101

## LPTV:

## QUEUING UP FOR A LONG SHOT

**F**ive years after its debut, low-power television is up and crawling. As of September 1, 1985, only 109 stations had been licensed in the continental U.S. (and 211 more in Alaska), though niches exist for perhaps 4,000 such stations. Virtually everyone who has ever been—or never been—in the broadcast business seems to be clamoring for a license—40,000 applications have been filed to date, with perhaps as many more to come. But the FCC has plodded through the grants process as if there were no need to hurry.

Low-power came into being in 1980 to provide service within a relatively small radius on channels where regular full-power TV stations would not or could not be established. (Such vacant channels are common because full-service stations are separated by prescribed differences to avoid interfering with one another.) The idea caught the public imagination, and the FCC was quickly buried beneath 5,000 license applications. Not until September 1983 did the commission hold its first lottery for the licenses; the backlog of applications has reached as high as 28,000.

The LPTV stations now in operation "are not cutting a fat hog financially," says Ellis Feinstein, a major antenna supplier. "People don't realize how hard it is to get a [low-power] signal into the home." Byron St. Clair, who manufactures transmitters, agrees that low-power broadcasters are now beset with problems, but takes a sanguine view of the future. "This is a specialty business," he remarks. "You have to elbow your way in and change people's viewing habits."

Low-cost LPTV is an art in

itself. Harlan Jacobsen started a station in Sioux Falls, South Dakota, in the same building in which he runs a retail video store. "People ask me how many employees I have. The answer is, 'None.' Nobody even has a key to the transmitter." Jacobsen takes a 24-hour music service from a satellite and runs it unattended. Jacobsen says his costs run to \$135 a month, while the ads he runs for his video store increase sales by \$2,000 a month.

Most LPTV operators are unable or unwilling to treat their service as casually as Jacobsen does. It has turned out to be an arduous if often exhilarating business, demanding large expenditures of time and money to attract not only viewers but advertisers and investors. One company, Low Power Technology Inc. of Austin, Texas, raised more than \$2 million through an over-the-counter stock offering, and found that the sum sufficed only to activate two substantial LPTV stations, in Anchorage, Alaska and Lawrence, Kansas. The stations have local studios, and employ local hosts to play music videos. Each maintains production facilities for local spots and a sales force to sell advertising.

Most low-power operators, like broadcasters generally, can expect mounting losses for the first two or three years. The prospect of hardship, as well as of entanglement in a bureaucratic thicket, has already discouraged a generation of would-be operators. But a new generation, remarkably enough, is emerging in its stead. As many as 1,000 stations are likely to have blossomed by the end of the decade.

MICHAEL COUZENS

The stations "are not cutting a fat hog financially." Yet the FCC has received 40,000 applications.

## CELLULAR RADIO:

## YES, WE HAVE NO BONANZA

### SOPHISTICATED CELLS

The cellular method of mobile telephony became possible with the development of highly sophisticated and affordable computer-switching technology. This allowed the parceling out of mobile telephone traffic in a given area to a series of districts, or "cells," served by transmitting/receiving towers. When a caller passes from one cell to another his call is automatically handed off to the next tower, which in turn patches it into the local or national phone network. Thus, in a city with 20 cells, 20 calls can be made over the same radio frequency. The FCC added the final element in 1981, not by only adopting the cellular approach, but by significantly increasing the spectrum space available to it. In the bad old days an entire mobile system could handle 12 calls at once; now a single cell can accommodate 300.

**I**f mobile telephony has fallen short of some expectations, maybe too much was expected of it. By year's end both the number of cellular systems—more than 70—and the number of subscribers—157,000, by one estimate—should have roughly doubled from the year before. But persistently high construction costs and consumer skepticism about the need for the service have chastened the industry. "Most companies now perceive that cellular is going to be a nice business," says market analyst Glenn Pafumi of Dean Witter, "but it's going to be tangential to their main business."

Cellular franchises are awarded by the FCC, which hands out two per city—one to a "wireline," or telephone, company (generally the local telco), one to a non-wireline. In those cities where both are operating (Washington, for example), competition has been fierce, with bitter advertising campaigns and price-cutting wars. Because most states do not regulate cellular service, rates can be moved up and down as the market demands. But the price remains prohibitive for many: Only a light user would spend under \$100 a month. (Pages cost roughly \$20 a month.)

Both the size and the cost of cellular equipment have diminished substantially. Some mobile phones fit comfortably into a

briefcase, and one model is small enough to nestle in a suit pocket. Phones now cost an average of about \$1,000—still a deterrent to many consumers. But the principal obstacle to further cellular expansion has been the licensing process at the FCC. The FCC originally promised to grant licenses for 150 cities and several more non-metropolitan areas by September 1982, but it is still wading through more than 5,000 applications for the 91st through 120th largest markets, and has yet to accept applications for markets 121 through 150. The wireline companies have received their franchises with relative speed, while the often weaker and less well-organized non-wirelines have fallen farther and farther behind as the licensing process has dragged on. One major communications firm, MCI, became so fed up with the delay that it sold its cellular interests, and experts expect more non-wireline franchises to change hands in the near future. In some cities the wireline's head start may make competition a Herculean challenge.

Still, few people doubt that cellular has a long-term potential, and legions of salesmen, truck drivers, and executives already swear by it. For a growing number of people, the mobile phone is a convenience that seems bound to become a necessity.

ART BRODSKY

# BOB LOBEL

## For The Record

"A lot of people feel that sports is reserved only for those in the know. I just don't think that's true.

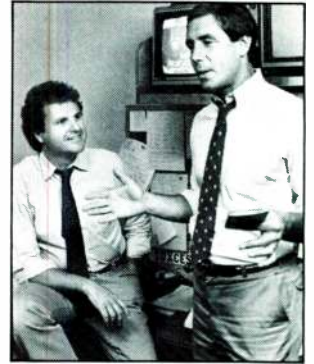
Sports can be fun for everybody. That's one of the reasons I do **Sports Spotlight**. I want viewers to feel that they can sit down, relax and let me do the work. When people watch a story I've brought them, I want them to feel that they really saw the best moments of the sport."



"There's no day I look forward to more than Marathon day. It's probably the greatest single event that I've ever been involved with. I ran it in '78. It's the total essence of sports in Boston - total community involvement, psychologically and physically. Everybody's there and in it and that's what makes it such a great event."

"Working at Channel 4 is great. The team is focused on the same goals. It's one for all and all for one. Whatever we put on the air is reflective of all of us. On the news set... well, I just don't know

where you'll ever find the kind of chemistry - between Jack, Liz, Bruce and myself - anywhere else. It's natural, unrehearsed. The more we work together, the better it gets. Because the flow is so natural, it makes doing your own job easier."



"I've stayed here because New England makes me happy. My soul is here and so is my heart. After spending 14 years here - in Vermont,



New Hampshire, and now Massachusetts - I've really become New England oriented. That's important. To be successful here as a sportscaster, you've got to put your roots down here. New Englanders will put you through every kind of test imaginable, but, in the end, you'll come out their friend. And that's terrific."



# EYEWITNESS NEWS

# WBZ-TV BOSTON

# 4

The Station New England Turns To.

## RADIO:

## PLAYING THE QUICK-CHANGE GAME

**R**adio, like other ancient species, survives and thrives by adaptation. Thirty years ago it responded to the threat of television by adopting narrow program formats. Now it adjusts to the most minute changes in public taste by throwing out one format and trying another.

The current scene in radio is one of almost crazed format-switching. "Contemporary hit radio" (CHR) continues to dominate the airwaves, but an older format, "album-oriented rock" (AOR), is making a comeback. "Personalities" are in; heavy metal is out. Formats are fragmenting into ever tinier pieces. CHR has spawned a sub-genre known as "adult CHR"; several AOR stations have shifted to "eclectic-oriented rock" (EOR). An entire roster of new formats has been developed to prop up faltering AM stations.

The whole process suggests profusion and variety, yet the standardization of formats and the increasing use of satellite programming have in fact homogenized the sound of many stations.

**MARKETPLACE:** There are some 8,400 commercial radio stations in America, with still more on the way (the Federal Communications Commission issued some 588 construction permits in 1985 and authorized the licensing of 700 new FM outlets). Yet because of radio's profitability, demand for frequencies still so greatly exceeds supply that stations are selling for eye-popping sums. A Los Angeles AM/FM combo—KTNQ-AM and KLVE-FM—went for more than \$40 million in 1985, and brokers predict that, for the foreseeable future, prices will continue rising faster than the inflation rate. And radio advertising revenues are growing at the annual rate of 14.5 percent during the first half of 1985. Unfortunately, listeners rarely if ever profit from escalating station prices; programmers and

**Format Wars**

Who's listening and what they're listening to in the 100 largest U.S. radio markets (AM and FM)

**Percentage of listeners**

Adult Contemporary	19.0%
Rock/Contemporary Hit	17.0%
Album-Oriented	10.5%
Easy Listening	10.4%
Country	9.7%
News/Talk	6.6%
Urban Contemporary	4.9%
Middle-of-the-Road/Nostalgia	4.8%
Black/R&B	3.9%
All-News	3.5%
Spanish	2.2%
Golden Oldies	2.1%
Religious	1.6%
Classical	1.5%
Soft Contemporary	1.2%
Variety	0.6%

Source: Radio Information Center's analysis of Arbitron's spring 1985 ratings in the top 100 markets.

general managers have become notably more conservative in an effort to keep the cash flowing.

Numerous stations adopted CHR after consultant Mike Jacobs used it to revive the CBS-owned FM stations group in recent years. As of mid-1985 almost 900 stations—or 10 percent of all commercial radio stations—played CHR, according to Maurie Webster, president of the Radio Information Center in New York, a major source of radio statistics. The highly disciplined format offers a list of top songs shorter than was typical in the late '70s—often accompanied by humorous deejay banter.

Other trends in the 1982-85 period indicate radio's growing effort to recruit the Yuppie listener. The "golden oldies" format, which appeals to children of the '60s, was up, while the '50s-rock format, now known as "nostalgia" radio, dropped 45 percent, according to Webster. Other observers note that rock sounds aimed at younger listeners

are fading from the radio airwaves; while the older listeners' enchantment with clever and sardonic chatter has made stars of such radio personalities as Don Imus at WNBC-AM in New York. MTV and other music-video services are now the place to hear tomorrow's hits today, especially for the teenagers radio is disenfranchising.

FM remains the band preferred for music by listeners under 40. AM stations outnumber FM stations but attract only 29 percent of listeners; they continue to drop music for talk, and to try out such novel programming ideas as the Children's Radio Network, which aims at young children and their mothers. More and more of the talk shows are syndicated or network-originated, because they are cheaper than programs produced in-house. Indeed, 83 percent of stations, both AM and FM, are using syndicated, satellite-delivered music and talk programming.

**TECHNOLOGY:** Smaller

portable stereo radios, some the size of a credit card, have made the medium more pervasive than ever (more than 12 million walk-around sets are in circulation). Stations are using compact-disc players in their studios, but the consequent great improvement in sound is barely noticeable to the listener due to garden-variety FM noise. Help should arrive soon in the form of an improved noise-reduction system from CBS Laboratories.

AM stereo continues to have problems. The number of stereo-equipped AM stations has increased from 300 to 400 in the past year, and more than 1.5 million AM-stereo radios are now on the market. Yet consumer resistance is still high, perhaps prompted by the dearth of good music programming on the AM band. Incompatibility among competing transmission systems remains a hindrance, although the field has recently narrowed from the original five systems to the two offered by Motorola and Kahn Communications.

**REGULATION:** In 1985 the FCC lifted the rules that prohibited the purchase and rapid resale of broadcast properties, opening the market wide for speculators and investors. Formerly, almost all station owners had broadcasting backgrounds, but the field is now crowded with venture capitalists and big-money interests looking for tried-and-true formats and low operating costs.

Deregulation, which started in a big way in 1981, will continue as the FCC attempts to clear away what it calls the "regulatory underbrush" of niggling rules (for example, stations couldn't broadcast the sound of sirens until this year). Broadcasters, however, aren't relaxing: They are currently fighting efforts to ban beer and wine advertising on the air, as well as attempts to outlaw sexually explicit, violent, and profane rock lyrics.

**ERIC ZORN**





**Cristal Radio**



**Katz Radio**



**Republic Radio**

**Katz Radio Group. The best.**

## AUXILIARY CHANNELS:

# PIGGYBACKING ON THE SIGNAL

The main business of broadcasters is reaching the many; increasingly, though, they're making a sideline of reaching the few. Forty-two percent of FM stations in the 30 largest markets are now leasing out time on their subcarriers (a surplus part of their frequency), according to Dennis Waters, editor of the *SCA: Radio Subcarrier Report*.

Both the FM subcarrier and television's seldom-used vertical blanking interval (VBI) transmit data or other material to special receivers without disturbing the normal programs on the same channels. In 1983, the FCC gave broadcasters permission to use both these auxiliary channels for data transmission.

**FM SUBCARRIER:** For years, subcarriers have transmitted background music services such as Muzak to subscribers. But in the last two years data transmission has become the hottest ticket in the subcarrier business, accounting for about one quarter of all leases in 1985, according to Waters. Several national satellite networks started relaying data to subscribers via FM stations during the year. Among them were Multicomm, which transmits information to more than 60 stations, and Indesys, an electronic-mail service backed by ABC and Epson, the computer printer manufacturer.

The subcarriers can relay this data directly to personal computers equipped with a combination modem/radio—one company calls it a "Modio." Lotus, the computer software publisher, offers current data from 18 securities exchanges through its Signal

service, which debuted in 1985.

Entrepreneurs are carefully choosing their market niches for these new services, says Alan Reiter, editor of *Subcarrier Communications*. That's a switch from 1984 subcarrier schemes, many of which flopped, he says. One of the slow starters, paging services, is now being offered locally by several dozen stations and nationally by a California company named DiversiCom.

Other major users of subcarriers include the Physicians Radio Network, foreign-language programs, and radio reading services. In this last instance, readings are carried on 90 or more stations, reaching about 150,000 sight-impaired listeners with special receivers. But advocates for the blind say that reading-service expansion has slowed since data transmission was permitted on subcarriers. With the growth of commercial opportunities for subcarriers, even public radio stations have raised the fees for leasing subcarriers.

**VBI:** Television's surplus capacity is much greater than FM's, though less used. It is contained in the VBI—an ordinarily unseen 21-line portion of the picture's 525 lines. The FCC permits broadcasters to use one line to carry closed captioning for the deaf. Its 1983 decision allocated six lines for commercial or other purposes. Four more lines will open up in 1988.

These lines were expected to become the corridor for teletext information services aimed at the general public. (Teletext lets a viewer select and freeze on the screen one of a number of text pages that are transmitted in

rapid cycles.) CBS and NBC added teletext to their TV networks in 1983, but NBC pulled back after less than a year. The FCC refused to set a technical standard for decoder compatibility, and low-cost decoders never became available. CBS continues broadcasting its teletext "magazine" even though only a few thousand decoders in the country can receive it. Teletext has been a greater success in Britain, where one fifth of homes with TV sets have decoders.

Teletext is developing more rapidly in America as a medium for specialized audiences (as is its cousin videotex, which offers access by wire to databanks). Merrill Lynch and IBM plan to start their IMNET stock-market data service in 1986, using the VBIs of most PBS stations to reach brokers' and investors' computers.

The VBI's most widespread use has been closed captioning for the hearing-impaired. More than 100,000 viewers have decoders that pick up captions from the VBI in broadcasts, cable, or video-cassettes and superimpose the words across the bottom of the picture. The nonprofit National Captioning Institute prepares captions for 100 hours of programs a week, including live ABC newscasts. NCI hopes more hearing-impaired viewers will buy decoders when a cheaper (\$200) model goes on sale in 1986.

Two dozen PBS stations also use the closed captioning system to send agricultural market prices to farmers—a limited example of the service teletext had been expected to provide.

STEVE BEHRENS

More and more FM stations are pumping out stock quotes on their subcarriers, while most telecasters use their VBIs only for captions.

## STV:

# R.I.P.

Subscription television (STV) has just about called it quits. In 1985 Chicago, Cincinnati, and Miami lost outlets, leaving New York, Los Angeles, and Washington as the only big cities with STV service. Los Angeles's once mighty ON TV, up to its antenna in red ink, merged with competitor SelecTV, and the resulting STV company maintains a faint pulse. Even STV's trade association has closed its doors. "STV came, burned very brightly, and will soon disappear entirely,"

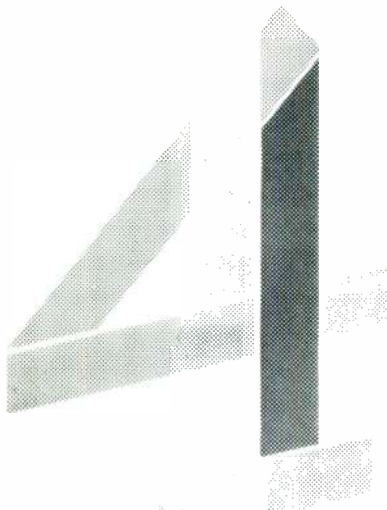
STV has lost the pay-TV battle to cable, which has more to offer.

says one industry analyst who followed the medium during its heyday in the early '80s, when some one-and-a-half million Americans subscribed.

The oldest of the new technologies, STV is, simply, pay television transmitted over the air, usually by a local UHF station. Its demise can be attributed to the rising prospects for UHF stations as advertising-supported media, and to cable's ability to provide a good deal more than a single channel.

In the '70s STV was in a race with cable for the delivery of pay-TV fare. But cable now reaches almost half of all TV-equipped homes. As for STV, its nationwide subscribership—currently below 300,000—is plummeting: The count dropped 100,000 during a single three-month period in 1985.

RICHARD BARBIERI



# THE DIFFERENCE IS CLEARLY VISIBLE

**CHANNEL FOUR TELEVISION**

**DRAMA/FICTION  
FEATURE FILMS  
LIGHT ENTERTAINMENT  
ARTS AND PERFORMANCE  
DOCUMENTARIES  
CHILDREN  
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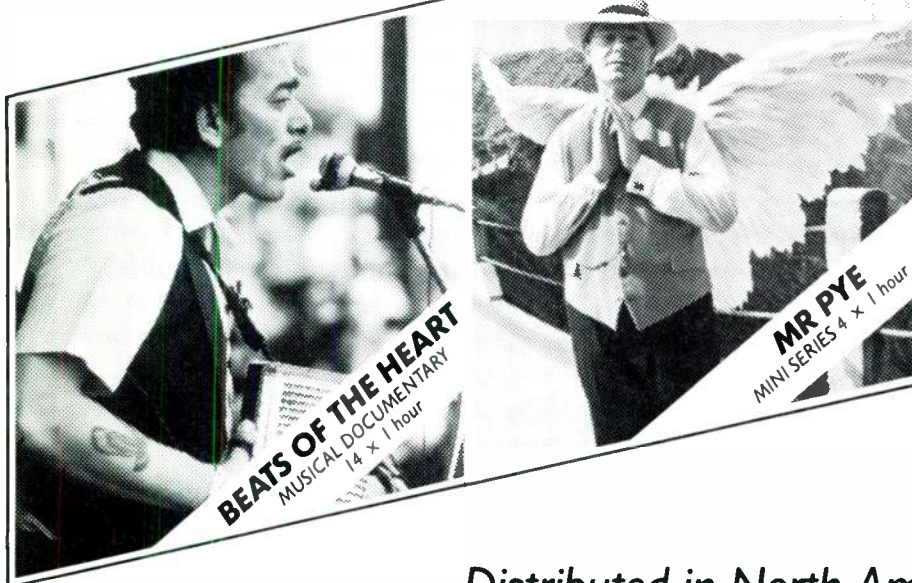
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## MULTICHANNEL MDS:

## THE START OF SOMETHING SMALL

**W**ireless cable finally made it to the airwaves in 1985, and did so with an uncharacteristic lack of hype. In fact, the new medium's proponents—no longer spoiling for a battle with the cable industry—are now trying to temper the heightened expectations they helped produce. "We are not trying to destroy what cable means to do," says Mark Foster, chairman of Microband, the leading MDS carrier. Nevertheless, Foster believes 1986 will be the year when wireless cable, or MMDS, finally "finds its proper place in the media mix."

**REGULATION:** The May 1983 FCC decision that allocated eight microwave channels per market for outright commercial use set off a feeding frenzy that generated more than 16,000 applications for MMDS licenses. This rush resoundingly confirmed the new medium's potential as a means of providing pay-TV services to millions of uncabled households. At the same time, it prompted the FCC to schedule lotteries to determine who would get the approximately 1,000 available licenses. In September, it awarded 18 permits for four channel services in nine major markets.

That lottery—delayed by a two-year dispute over the FCC's refusal to give women the advantage of a "minority preference" in the drawing—took place despite a continuing legal challenge by a female applicant.

Meanwhile, savvy entrepreneurs have found a way of cobbling together wireless-cable services that circumvent the lottery entirely. Taking advantage of the second half of the FCC's May

## MOVIES BY MICROWAVE

The oxymoronic phrase "wireless cable" is a salesman's term for a newly invigorated television distribution system known in FCC officialese as multichannel multipoint distribution service (MMDS).

The new service is technically the same as the decade-old single-channel MDS service, except that it groups four or more channels under a single operator. Schools and other educational institutions in many cities have long operated a variant called ITFS (instructional television fixed service), using a band of microwave channels reserved for education. MDS operators who lease these channels for commercial use are required by the FCC to provide a minimum of 20 hours a week per channel of educational programming.

A wireless-cable subscriber is provided with a special rooftop antenna, a descrambler, and a downconverter to convert the microwave signals to lower frequencies that are piped into the television set. These signals, which typically travel some 25 miles, are degraded by buildings, hills, even dense foliage. There usually must be an unbroken line of sight between sending and receiving antennas.

1983 decision, which allowed educational institutions to lease excess time on their ITFS channels for commercial use, these pioneers are turning single-channel MDS services into multichannel packages by adding to them as many as 12 channels leased from educational institutions. Such services are already on the air in the District of Columbia, San Francisco, and Las Vegas; others will appear during 1986 in Milwaukee, Cleveland, New York, and several other cities.

As might be expected, not every company in the cable industry has welcomed its wireless counterpart with open arms. Warner Amex is suing to block a Milwaukee wireless-cable firm from leasing unused time on the Wisconsin Educational Communications Board's ITFS channels, claiming the state charter dictates that the channels be used only for educational purposes.

Similar actions by inhospitable local cable companies may occur in other cities where wireless cable intends to expand.

**MARKETPLACE:** Securing the use of ITFS channels, moreover, can be child's play compared to getting programming for them. Though HBO and other pay networks are willing to deal with the new microwave operators, some program suppliers, such as the Arts and Entertainment Network, MTV, and the Disney Channel, will sell their programming only to franchised cable operators. "These well-entrenched operators are putting pressure on the networks so they won't do business with us," says Susan Legare, a partner in Boudreau & Associates, a program and product development firm that is underwriting new wireless-cable businesses. "From our perspective, this practice almost borders on restraint of trade."

In fact, cable's continuing resistance almost smacks of paranoia, especially as MMDS proponents seem serious in their contention that the new medium is not intended to compete directly with cable. Says Jack Capuzela, president of Premier Communications, a five-channel microwave service based in San Francisco: "Cable will always beat us if we go head-to-head, since it offers many more channels at roughly the same price." Instead, MMDS and ITFS will serve the seven million or so households that may never be wired, where cable's relatively expensive start-up costs make microwave the natural, cost-effective alternative.

MMDS's wranglings with the cable industry recall the rocky relations the medium had at first with public television and other ITFS license holders. PBS fiercely opposed opening ITFS channels to commercial use, fearing disruption of its plans for a national ITFS adult-education network.

But PBS, as it finalizes plans to test its National Narrowcast Service in 19 cities in 1986, has come to see wireless cable as an ally rather than an antagonist. One reason is that many PBS stations plan to finance their ITFS operations by leasing out large blocks of time to wireless-cable operators. "The fight against commercialization of these channels is water under the bridge now," says PBS vice president Bill Reed. "The entry of MMDS into the marketplace will, we believe, serve to create more interest in what we're doing."

MMDS enthusiasts hope their new medium will establish a symbiotic relationship with the cable industry as well. "We're an entirely complementary technology," says Premier Communications' Capuzela. "In the long run, cable will be better off because we exist—and so will the consumer."

JEFFREY L. WOLF

The proponents of MMDS now concede that their medium can never go head-to-head with cable; its niche is among the several million homes cable won't reach.

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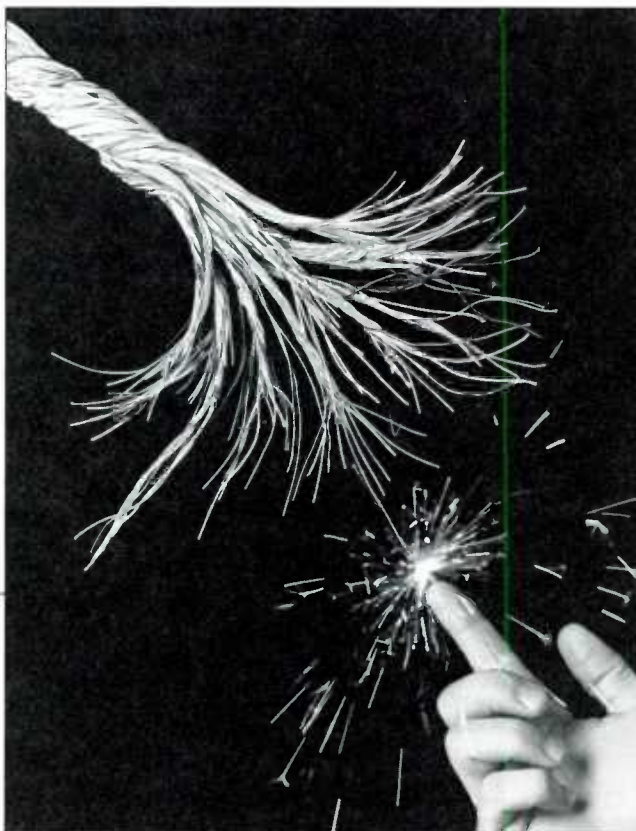
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## CABLE:

## BANKING ON A WINDFALL



**H**appy days appeared to be here again for cable operators at the National Cable Television Association's convention in June 1985: An Arthur D. Little study the NCTA commissioned was predicting glorious times for their industry. Assessing deregulation's effects, the report foresaw enormous increases in cable's revenue, net income, and subscribership over the next five years. What's more, these increases were expected to give the industry the impetus and wherewithal to complete the operators' dream of a wired nation.

But the exhilaration occasioned by the study belied some harsh present realities: Though cable has penetrated nearly 46 percent of the 86 million U.S. television homes, its own programming has never caught fire in the ratings, its customer service is often notoriously bad, its disconnection rate is high, and overall it has lost the glamour and promise that distinguished it only a few years ago. For an industry that the Little study claimed was entering its "second maturity," cable seemed rather lost in the insecurities usually associated with post-adolescence.

**REGULATION:** Cable operators are nevertheless looking toward the future with a new-

found confidence, thanks to two major federal deregulatory actions. The first, a provision of the 1984 Cable Communications Policy Act, allows operators to raise the price of their minimum service—the basic rate—by 5 percent annually, until it is fully deregulated in December 1986.

As a result, the Little report predicts that cable revenue, which was \$8.4 billion in 1984, will nearly double, to \$16.5 billion, by 1990—and \$800 million of that increase will be directly attributable to the effects of deregulation. The study also predicts a doubling of cash flow for cable systems, which will turn the industry for the first time into a net producer rather than user of cash.

This turnaround has again

made cable properties a hot investment. At present, most of the buyers are medium-sized MSOs (multiple-system operators), which are snapping up small cable systems for about \$1,000 per subscriber. But waiting in the wings are MSO colossi such as Time, TCI, and Viacom, which are expected to accelerate the industry's consolidation.

"I think the medium-sized MSOs will sell out in five years," says John Waller, president of Waller Capital Corporation. "That's when the larger companies will begin buying again after they've finished wiring the big cities and there isn't such a drain on their earnings." If that occurs, the top 10 cable companies, which collectively have 41 percent of all cable subscribers, should

substantially increase their control over the industry.

However, in the view of Anthony Hoffman, a New York media consultant, this deregulation-fueled consolidation bodes ill for the cable subscriber. "The giant monoliths will only make the localized problems with customer service worse," he says. "The more systems a company runs, the less it can focus on their individual shortcomings." Moreover, Hoffman believes that the financial windfall predicted by the Little study will not be used to improve cable service. Rather, he says, "the money will show up in the financial statements of cable companies, which need it to retire their debt and shore up their less-than-spectacular profits."

In the year's second major deregulatory action, in August, a federal court overturned the "must-carry" rule, which required operators to carry all local broadcast signals within a 35-mile radius. The FCC had established the rule in 1962 as a way of protecting broadcast stations from being displaced on cable by pay television channels. But cable operators complained that the rule in many cases required them to put nearby TV stations on all 12 of their channels, or sometimes forced them to carry more than one affiliate of

**Freed from price controls, owners expect big profits. But cable is still in search of an audience.**

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the same network, and thus run carbon-copy programming.

Many operators are waiting before acting on their newfound freedom, however, since broadcasters have asked the U.S. Supreme Court to uphold the must-carry rule. But if it is finally struck down, most cable systems will probably remove their less popular and duplicate broadcast signals, and replace them with cable networks. Critics of the must-carry decision further believe that it will allow cable operators to demand fees for carrying some broadcast channels.

**MARKETING:** The advent of deregulation by no means guarantees prosperity for the cable industry. Among the insiders who foresee difficulties is Charlie Townsend, president of Colony Communications, a medium-sized MSO. "In a way, we've been protected by the regulatory authorities," he says. "Now I think there are things lurking in the wilderness that will make the market more competitive."

Foremost among these threats is the burgeoning popularity of VCRs, which are no longer the exclusive province of the videophile; today, even infrequent cable viewers are renting videocassettes, and according to Townsend cable is far more vulnerable to this type of competition.

Some cable operators have been fighting back by marketing cable as the ally of the VCR, rather than its antagonist. Cox Cable recently developed an ad campaign designed to inform consumers how to hook up their VCRs to cable. Jones Intercable has begun selling VCRs along with cable service. And some operators are planning to market a new signal-splitting box that will let viewers watch one cable program while recording another—thereby redressing a major VCR-cable incompatibility.

On another front, satellite dishes—no longer found only in areas outside cable's reach—are challenging cable even within its own franchise areas. But operators believe that they will gain the competitive edge over satellite dishes once the cable program networks begin scrambling their transmissions and dish owners

can no longer purloin clear pictures from the sky.

Theft by dish owners, however, is a minor problem compared to the estimated \$500 million worth of programming stolen each year by non-paying customers who illegally obtain or tamper with equipment. Operators feel sufficiently threatened to have sued many cable thieves and launched a major public-relations campaign warning others that they, too, may be prosecuted for filching cable service.

Operators are also engaging in badly needed regional campaigns to burnish their industry's image. Says Nimrod Kovacs, vice president at United Cable Television, "We were conquering virgin territory before. Now America is wired and growth must come from internally generated elements. The game has changed."

Indeed, where subscribers once chased cable trucks so they could be the first on their blocks with service, new customers now must be courted and cajoled to sign on. And where cable operators' businesses once grew chiefly on the strength of their pay services, now sales of these services have fallen off. As a result, operators have had to put more emphasis on marketing the basic networks, those three dozen or so programming services that are advertiser-supported and less expensive to the consumer.

Some cable companies are even seeking to boost their image and subscribership with pay-per-view, a pay-only-for-what-you-watch service. But pay-per-view has been tried many times over the past three decades and has yet to prove itself viable.

Hindrances and farfetched schemes aside, the cable industry should experience another spurt of growth once the cities are wired. Systems in most of the remaining major urban areas are

under construction or about to be built: Cleveland, the last of the top 25 markets to award franchises, selected its cable systems in late summer; Chicago's first subscriber was hooked up last fall; construction has started in Philadelphia and one outer borough of New York City, Queens.

The main impediment in these cities and others had been the pie-in-the-sky promises made by cable operators in order to win city franchises—including 104-channel, dual-trunk systems they usually could not afford to build. But, after years of bargaining, the cities have abandoned some terms of their agreements with operators, allowing construction to proceed. (Systems with 30 to 55 channels have proven most feasible to operate, and older 12-channel systems are currently being upgraded to this range.)

Another of the cable operators' big promises has proven harder to keep: the creation of institutional networks—separate cable systems that would carry data as well as closed-circuit video for major businesses, schools, and other local institutions. Installation costs for the few operators who have built these systems have ranged between \$1 million and \$20 million; consequently, most

of the remaining operators have asked for and received permission to delay installation of the so-called I-nets until they prove economically viable.

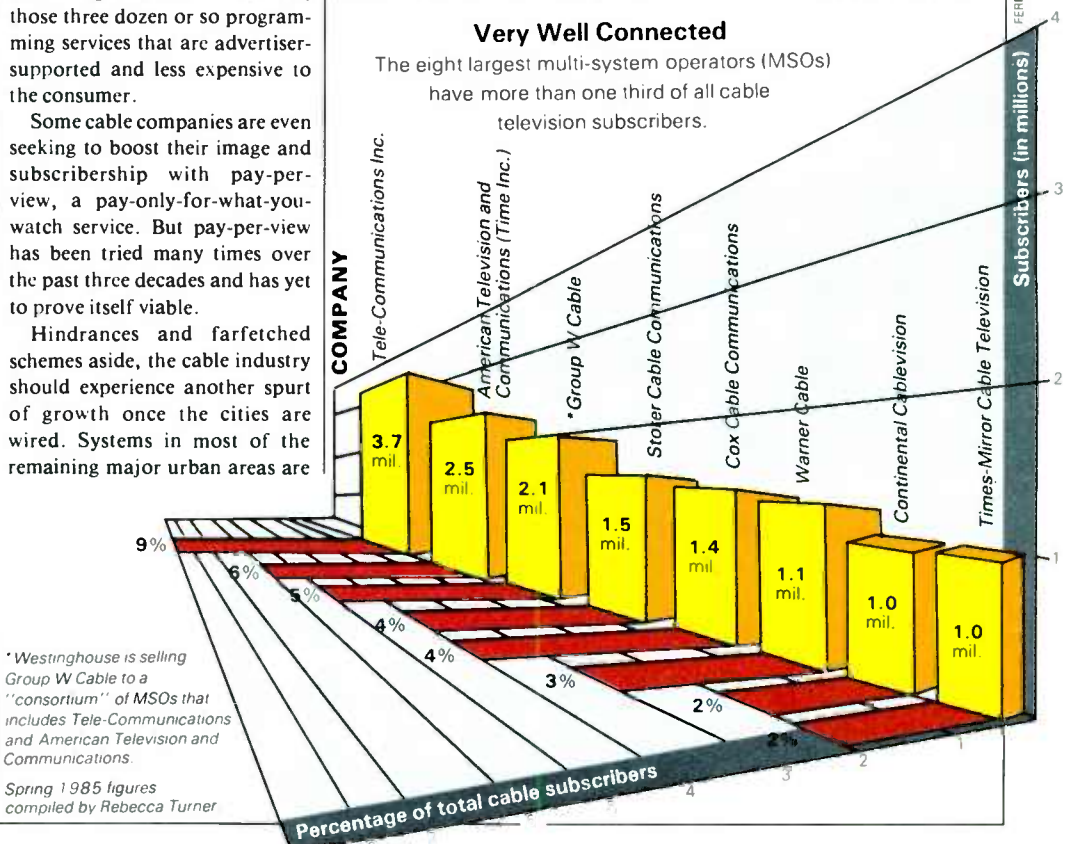
There has also been controversy over who will control the I-nets. In a key decision, the FCC recently gave Cox Cable permission to build an I-net in Omaha, rejecting a challenge by Nebraska's public utilities commission to Cox's right to control the system. The decision could put cable operators in direct competition with local telephone companies for installation of the I-nets.

The remaining question is whether deregulation will make the cable industry more or less likely to fulfill its promise as something greater than a medium that merely presents television shows. To Anthony Hoffman, the answer is simple—and bleak: "Since their industry is now an unregulated monopoly, cable operators will really be free to ignore their systems' promises and problems. In the short term, deregulation may help the industry financially, but in the long term, it is a very negative development for consumers—and, ultimately, for cable itself."

Theresa Izzillo and Jeffrey L. Wolf

Very Well Connected

The eight largest multi-system operators (MSOs) have more than one third of all cable television subscribers.



\* Westinghouse is selling Group W Cable to a "consortium" of MSOs that includes Tele-Communications and American Television and Communications.

Spring 1985 figures compiled by Rebecca Turner



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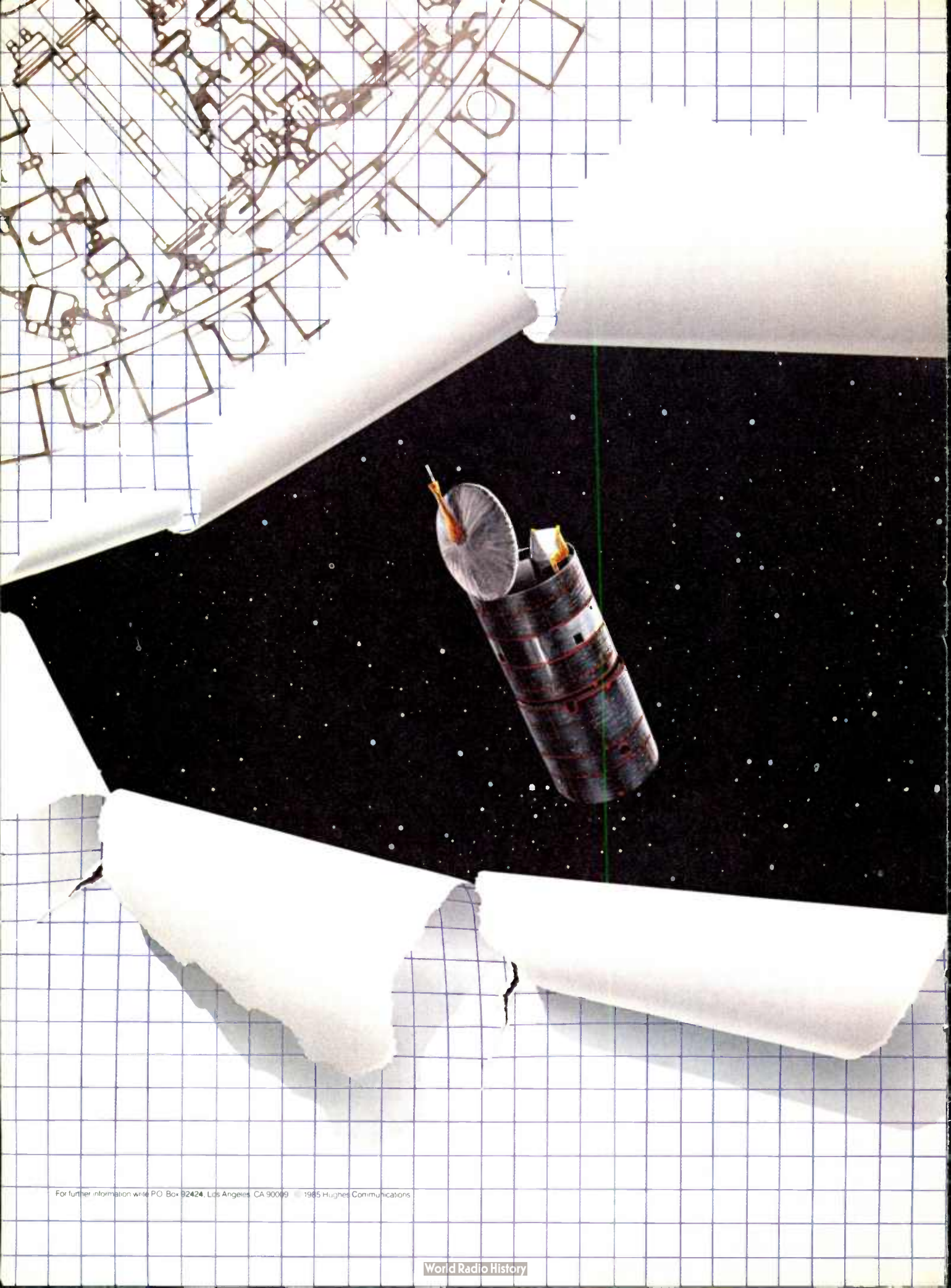
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PPV:

## COMING ATTRACTION

**I**mpерiled by the exploding popularity of the videocassette, the cable television industry is turning for rescue to a technique that, like the VCR, lets viewers pay only for what they want to see. Cable's improbable savior is a shopworn technology that has failed to win big audiences for 35 years: pay-per-view (PPV).

**TECHNOLOGY:** A kind of "electronic cassette rental system," PPV enables the cable subscriber to select and see specific programs by means of an addressable decoder attached to his TV (see box). PPV's progress has, until now, been slow because so few of these set-top boxes have been installed. But this problem may be diminishing: While only

## TV FOR THE IMPULSE BUYER

"Addressability," which can be built not only into cable systems but into multichannel MDS and direct-broadcast satellite systems as well, is the key to pay-per-view technology. It enables a viewer to place an order for a scheduled film, sports event, or concert by simply phoning the local cable office or pushing a button on an interactive system; a computer in the office then activates the addressable decoder box on the viewer's set, which receives and unscrambles the program signal on his pay-per-view channel. The extra charge shows up on the viewer's monthly cable bill.

More than 50 other systems are experimenting with PPV locally.

Equally significant, technological improvements promise to simplify the troublesome task of order-taking. New computerized systems using 800 numbers can

the services competitive with the low rental rates for videocassettes, according to Richard Kulis, president of The Choice Channel. "Movies come out on cassette at the same time as they appear on pay-per-view," says Kulis. "Therefore, we can't be a \$5-a-movie business. We must be a \$1- or \$2-a-movie business."

But, the question looms, can a \$1- or \$2-a-movie business make a profit, especially given the cost of upgrading a conventional cable system (about \$125 per addressable unit, plus nearly \$100,000 for the cable operator's central transmission equipment)? An even greater obstacle to cable profitability may prove to be the planned 50-50 revenue splits with the movie studios. After distribution and marketing expenses are subtracted from the operator's 50 percent share, only slim profits may remain. (The studios may not be similarly burdened: A movie-distribution service called The Exchange plans to obviate this problem by eliminating the middleman and preserving the studios' full share of the split.)

The greatest unknown, however, is the programming itself. PPV's lifeblood will be the hit film, most agree, and there sim-

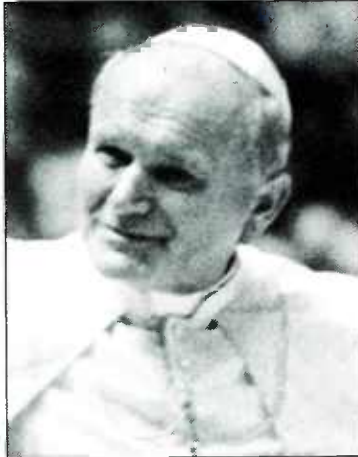
ply aren't enough of these high-profile movies to go around. Big-draw sporting events will also be crucial, but their promoters usually demand huge guarantees, the kind that no PPV operator can afford at present. And programming created especially for pay-per-view channels is very risky: Choice Channel's first major attempt in this area, *Fabian's Good Time Rock 'n' Roll Revival*, offered in August 1985, drew fewer than half the viewers the company had hoped for.

All of PPV's past failures and present uncertainties suggest that cable industry leaders, in their newfound zeal for pay-per-view, may be overlooking the option of creating more cost-effective and less complicated systems. John Sie, senior vice president of the largest cable operator, Telecommunications Inc., sees a cable resurgence stemming not necessarily from PPV but from an arrangement with the movie studios that would enable pay services to present major films *before* they reach the video store. This "early window" would, according to Sie, "enable movie studios to earn more money per film, make consumers happy, and give us a better return on our investment than would pay-per-view."

Meanwhile, hedging its bets, Sie's firm has begun experimenting with pay-per-view, too.

But for most other cable operators, PPV is less an alternative technology than a sort of manifest destiny. And, fittingly, their dreams for it are large-scale. Kulis's Choice Channel has even begun discussions with the Vatican about having Pope John Paul II star in a kind of papal-per-view special during Easter, with proceeds going to charity. Such an event could bring PPV the national attention it needs in order to gain real momentum: After all, the Pontiff has a lot more followers than Fabian does.

JEFFREY L. WOLF



**Choice Channel flopped with its pay-per-view special starring Fabian (l.), but hopes the Pope (r.) will be a PPV hit.**

some seven million of the nation's 39 million cable households presently have the units, cable operators expect an increase of almost 50 percent in the next year, as they replace aging conventional converter boxes with addressable ones.

Overoptimistic or not, this expectation has emboldened such program services as Showtime/The Movie Channel and The Playboy Channel—and such new PPV services as The Choice Channel—to inaugurate satellite-delivered pay-per-view services.

eliminate the telephone overload that has often made ordering a PPV movie an exercise in exasperation.

**MARKETPLACE:** The new systems should enable operators to reduce PPV's average \$4.50-per-movie price, thereby making

**If operators can't turn a profit selling movies for \$5, how will they manage at \$1 or \$2?**

SMATV:

## FIGHTING CABLE WITH CABLE

### PRIVATE CABLE AT EASE

SMATV represents a merger of the satellite dish and the master-antenna television system, which enables residents of apartment complexes to receive television. A dish atop a building receives the programming, and the master-antenna system distributes it to residents. Because SMATV systems are confined within private property they are not subject to most federal, state, and local regulations.

The theme of the 1985 convention in the satellite master-antenna television (SMATV) industry artfully blended modesty with triumph—"Private Cable: Here to Stay." Mere endurance may seem a flimsy excuse for celebration, but the morbidity rate among the other challengers to cable hegemony—MDS, DBS, and STV, among others—has been rather sobering.

The survival of SMATV, also known as private cable, was actually assured in 1984, when Showtime/The Movie Channel became the first pay service to buck the objections of its cable affiliates and sell to SMATV operators. Now SMATV entrepreneurs can scare up enough programs to fill a 12-channel system, though few of them can offer anything more. Home Box Office, the gaudiest arrow in cable's programming quiver, agreed in February 1985 to permit its cable affiliates to market the service to local SMATV operators, which is something like allowing CBS to open negotiations with Ted Turner. "It's not what you'd call a very active approach," complains Bob Vogelsang, head of the National Satellite Programming Cooperative, a program-buying organization. "You call most of these cable operators, they act like they didn't even know they could sell [to private cable]."

Most cable operators would be very happy to squelch SMATV, whose operators often build within a cable system's suppos-

edly exclusive franchise area. The cable industry has persuaded legislatures in 11 states (up from nine a year ago) to keep SMATV operators from striking exclusive agreements with managers of so-called multidwelling-unit complexes. The private cable industry has fought such laws "tooth and nail," according to the industry's one-person lobbying office, Marne Shapiro.

In order to thrive, SMATV may need some of the corporate and financial sophistication that cable now has. The industry still has roughly 500,000 subscribers, the same figure it was citing in 1983. But recently such relatively large organizations as Florida Power & Light have invested in private cable and amassed as many as 20,000 subscribers—still a pretty modest figure.

In late 1984, prominent New York bankers Eli Jacobs and Peter Peterson joined with a private cable expert to form PJH Cable Ventures. The company boldly promised to shatter all industry records for size within a year. Nine months later, according to executive vice president Robert Simon, it had collected a grand total of 6,000 subscribers. But PJH still dreams in Technicolor: It plans to break out of the private cable mold to become what Simon calls a "multidwelling-unit telecommunications company," offering interactive services through a variety of media. If PJH is here to stay it may blaze a new trail for the private cable industry.

JAMES TRAUB

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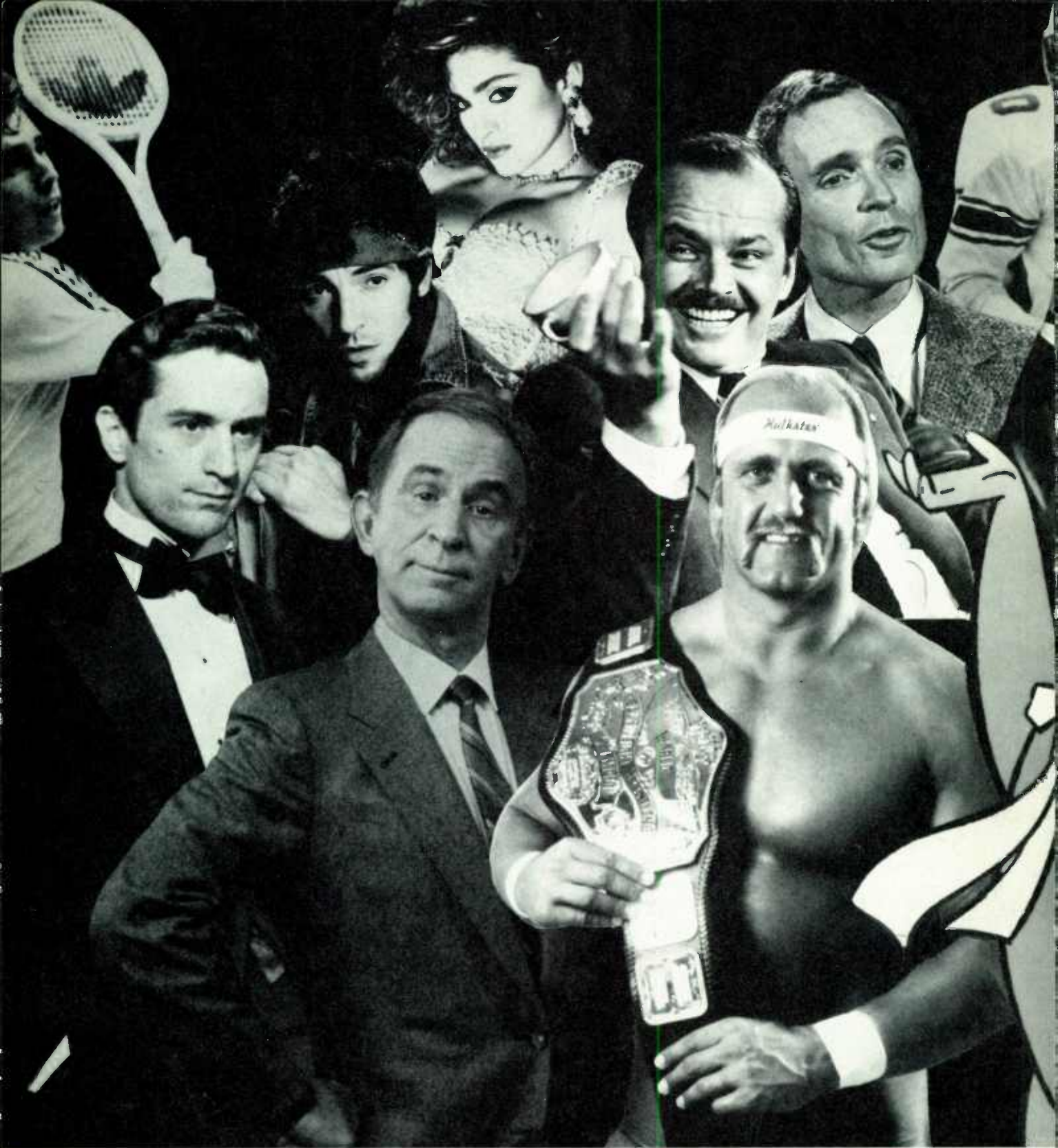
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## FIBER OPTICS:

## CHARGE OF THE LIGHT BRIGADE

The warm glow of euphoria that seems to light first on one new medium, then another, has settled, perhaps for some time to come, on fiber optics. Last fall AT&T announced that it would lay down 21,000 miles of this powerful light-wave communications system by 1990, creating the world's largest fiber-optic network. But United Telecommunications had already declared that by 1987 it would put down 23,000 miles, at a cost between \$2 billion and \$4 billion. MCI said it would weigh in with 18,000 miles; and so on. Giant forces seem to be at work: The nation is being linked and crisscrossed with a vigor that has not been seen since the heyday of railroad construction more than a century ago.

Fiber optics is the real thing, the undoubted successor to the copper wire, which has heretofore dominated the transmission of phone conversations and data. Fiber optics has far greater capacity, or bandwidth, than copper; can carry signals further without amplification; is far less susceptible to tapping, and is invulnerable to electrical interference. In fact, with its enormous bandwidth, fiber optics can be what copper never could—an electronic "superhighway" for the entire information revolution. To its advocates fiber optics is nothing less than a potent symbol of the future. As telecommunications entrepreneur Irving Kahn puts it, "What are you gonna do with a horse and buggy when you got a jet in the barn?"

**TECHNOLOGY:** Industrial laboratories are increasing the capacities of optical fiber at a swift pace. Every week, it seems, researchers announce a new "world record." The high cost of regenerating equipment has made competition especially fierce in efforts to transmit signals over greater lengths without regeneration. Researchers at Corning, for example, recently sent a signal

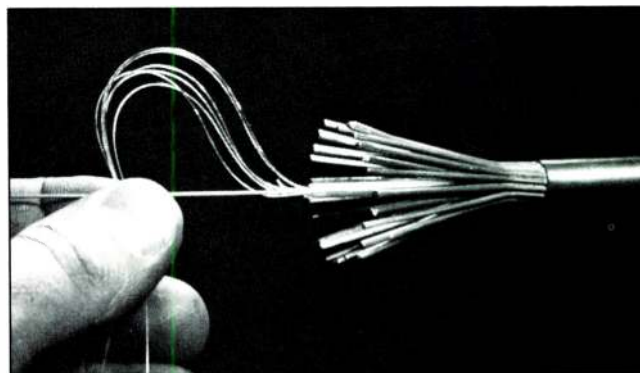
## THROUGH A GLASS BRIGHTLY

Fiber-optic technology is based on the principle of internal reflection, which asserts that light waves are reflected by highly transparent surfaces, rather than passing through. A glass strand far more transparent than a window will thus retain and conduct a light-wave signal with far less loss than can a copper wire carrying an electromagnetic signal.

Fiber-optic communication requires both a light-carrying medium—hair-thin strands of super-transparent optical fiber—and a light-generating source. This source is the light-emitting diode (LED) or the semi-conductor laser, a tiny crystal that resembles the computer's silicon chip in size and structure. The laser sends information down the glass tube in the form of bursts of light; modern lasers can send 565 million such bursts in a single second. With the addition of multiplexers that can splice together several signals, this figure can be increased by a factor of four or more.

136 miles without regeneration. In search of the truly repeaterless system, equipment manufacturers have developed new varieties of "mono-mode" fibers, which conduct only a single frequency.

Laser technology, like computer technology, has grown in quantum leaps. (Fiber-optic systems depend on lasers for their light source.) Lasers used in the average fiber-optic system installed in 1984 transmitted between 40 million and 90 million bits of information per second; by the end of 1985 the figure had jumped to 565 million. The price of lasers has fallen no less drastically, but it must drop even further to hasten the commercial feasibility of technology that requires thousands of lasers, such as are used in satellite-to-satellite communication. The key to lower prices is in the exacting art of growing laser crystals, a process now being revolutionized by a technique known as "chemical vapor deposition." And researchers around the world are racing to build the first optoelec-



tronic integrated circuit, the light-wave version of the computer's integrated circuit.

**MARKETPLACE:** The great question in the fiber-optics business is not if, but when: When will the rest of the nation's communications networks go light wave? Copper wire is already a thing of the past in the long-distance telephone market. But long-haul lines constitute only about 6 percent of the phone network's mileage, and the fiber-optics business will clearly have to look elsewhere for its future growth.

Glass technology is routinely used to interconnect computers and telephones within buildings, in systems known as local area networks, or LANs. In Japan, and to a lesser extent here, "smart" office buildings are going up with built-in fiber-optic systems. Harvard, Brown, and MIT recently announced that they would construct a fiber-optic link to a supercomputer being built at Princeton. Indeed, the essential vision of the communications revolution—of superabundant information passing instantly through a vast network—ultimately requires the bandwidth of fiber optics.

And if that revolution is to

come home to the individual user, it will probably be through fiber optics. Fiber may succeed, as the cable industry has not, in providing useful and affordable home-information services.

Fiber expert Jack Kessler admits that "people wonder, 'What are we going to do with all this bandwidth?'" The answer, he says, is that revolutionary technologies alter people's habits in unexpected ways. Kessler predicts that the day of the fiber-optic superhighway into the home is not far off. Though no cable franchisee has yet offered to run optical fiber into private homes, Kessler expects that telephone companies will be promising to do just that before the end of 1986.

JAMES TRAUB

Fiber is taking over the long-distance phone market—data will be next, then home services.



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World Radio History

## TELEPHONY:

## THE SQUABBLING HEIRS OF MA BELL

**N**ow that Ma Bell is dead, Americans want her back. Two years after the Bell System was dismantled, people are saying that the old telephone company, like the old Coca-Cola, should be brought back.

The public reaction grows out of the confusions and adjustments and complexities that now face phone users: higher local rates (and lower long-distance rates), a mysterious \$1-a-month subscriber line charge, two or three bills instead of one, and the new demand that every customer choose a long-distance company.

**MARKETPLACE:** As required by the court overseeing the Bell System breakup, the local systems formerly owned by AT&T are converting their exchanges to give all long-distance carriers "equal access" to local customers. Once this happens, a local subscriber can dial calls on his choice of long-distance services as easily as he did on AT&T—simply by dialing "1" before the number.

As many as eight or nine companies are deluging local subscribers with calls and ads, trying to get their business. On television, Cliff Robertson urges people to stick with AT&T, "the right choice." Joan Rivers plugs MCI's lower rates. And a seductive female model touts the advantages of GTE Sprint.

AT&T still pulls in about 90 percent of long-distance revenues, by most accounts. And most of its competitors are in financial trouble. The largest, MCI, is making minimal profits. (Recently it got a cash infusion from IBM, which bought 16 percent of the company, merging it with its own SBS long-distance subsidiary.) GTE Sprint may lose \$200 million in 1985. Many smaller long-distance firms, which lease their transmission lines from bigger carriers, are dropping out.

AT&T's continued dominance

of long-distance service isn't matched by the performance of its equipment divisions, which once had the Bell System as their captive market. Most home phones now come from Asia, and competitors such as Rolm, ITT, and Northern Telecom are horn-ing in on AT&T's sales to businesses and phone companies.

There's no more telling indicator of AT&T's painful transition than its laying off 24,000 of

market and in profits. Their major worry is that big businesses will build their own systems interconnecting local offices, and will tie in directly to the long-distance networks, particularly AT&T's. Both schemes would bypass the local phone system and siphon off revenues.

**REGULATION:** AT&T's challengers in the long-distance business also feel the deck is stacked against them. They're



Cliff Robertson urges viewers to ignore AT&T's imitators. So far, few long-distance customers have strayed.

117,000 equipment-operations workers. The Communications Workers of America—already hurt by layoffs and the growth of the largely non-union long-distance carriers—is likely to take a tough position on job security in 1986, when it opens its first national negotiations with AT&T.

When the local phone companies were cut off from AT&T two years ago they were thought by many to be unexciting castoffs, but they have outperformed the mother company in the stock

complaining to Congress and the Federal Communications Commission that their connections to local phone systems are technically inferior to AT&T's even though they must begin paying local companies "access charges" equal to those paid by AT&T. (Before equal access, they paid only 55 percent of AT&T's rate.)

The FCC rule with perhaps the widest effect in 1985 required most local phone companies to designate customers' long-distance carriers when they failed to

do so themselves. Until late in the year, the policy in most places dictated that AT&T continue to handle a customer's long-distance calls if he hadn't "presubscribed" (designated a carrier). The fact that so few customers did—as few as 20 percent in some areas—prompted the FCC to order local companies to choose for the remaining subscribers. The carriers will gain customers in proportion to their current share of the market.

AT&T was happier with the commission's October 1985 decision allowing it to reunite its long-distance and equipment divisions. The two had been forced to operate separately within AT&T to prevent unfair subsidy of its equipment business by the long-distance division. (The FCC determined that accounting guidelines imposed on AT&T would let it adequately monitor the company's activities.) Now people who still lease AT&T phones will again be billed for them in the same bills they get from the AT&T long-distance service.

AT&T must still keep separate its "enhanced" services, generally involving some computing power. In a 1980 proceeding known as Computer II, the FCC ruled that those services would not be regulated. But in the Computer III proceeding in the summer of 1985, the commission found that technology had eroded the distinction between "basic" (regulated) services and "enhanced" (unregulated) services. The FCC proposed a new criterion: It will deregulate fields in which it determines that competition exists.

Some states have already stopped regulating rates in service categories where there is competition. Nearly a dozen, mostly in the West, have loosened regulation of intrastate communications, adding to the turmoil left behind by the demise of Ma Bell.

ART BRODSKY

Though they have outperformed AT&T in profits, local phone companies worry that ways may be found to bypass them.



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The application deadline is March 3. Fellows will be notified by June 2. The 1986-87 Program begins September 22, 1986.

To receive a brochure and application form, mail this coupon to: Director, William Benton Fellowships, The University of Chicago, 5737 University Ave., Chicago, IL 60637.

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TOTAL YEARS OF PROFESSIONAL EXPERIENCE

TITLE

STATION/NETWORK

ADDRESS

TELEPHONE



# LIEBERTHAL



*"For visual scope, the look demands film."*

*Gary Lieberthal is president of Embassy Telecommunications. He is also a former member of the Board of Directors of the National Association of Television Program Executives and is a founder of the Association of Program Distributors.*

"Syndication has changed dramatically over the years. Its evolution directly correlated to the decline of usable product from the network. Historically, half-hour comedy has been the backbone of our business, with as many as five series available each season for off-network play. The probability of any series surviving on the network long enough to have a syndication afterlife has decreased so enormously that, today, if two comedies a year can be offered to the stations, it's considered a bumper crop. The residual effect of this trend is that prices for comedies have escalated exponentially, turning a good business into a sensational business—if you have comedies to offer. Fortunately, we currently have seven in syndication.

"First-run syndication is also in a transitional period. The success rate is not great. Talk and game show strips are still the mainstay of first-run because viewers can turn them on anytime without thinking they've missed something. But, there is a strong movement afoot to try to re-create the

results brought about by our introduction of *Mary Hartman, Mary Hartman* into the marketplace. *MH, MH*, hailed as true 'breakthrough programming,' not only proved that entertainment could survive in first-run, but also helped create the viability of UHF television. These stations had never done better than a 2 or 3 rating anywhere in their schedule, and suddenly they were doing a 12 at 10:30 p.m. *MH, MH* did for UHF what *Happy Days* and *Laverne & Shirley* did for ABC. No one has been able to duplicate the success in this genre in first-run syndication since, but the industry is looking to change all that.

"Theatrical motion pictures have also affected the syndication business. Independent stations have successfully used films to counter-program the networks. A 12 rating in early fringe and an 8 in prime time is not uncommon. Stations are taking advantage of the viewer acceptability mind-set being created by pay television and are being more creative and more aggressive than the networks in promoting films. To attain this success, they are looking to distributors for 'fresh' movie packages such as our *Embassy Night at the Movies*.

"Comedies recorded on video tape have been an Embassy hallmark, but as the public's thirst for diversification becomes more and more insatiable, we look to broaden our horizons. We are now producers of mini-series, dramatic series, movies for television and feature films—all of which are, or will be, done on film. Film has a whole different

look and feel to it. It lends the work a sense of scope, a more intense depth perception and a feeling of texture that just isn't found on tape. Our motion picture company is currently shooting *A Chorus Line* on Eastman color high-speed negative film 5294 because it allows more range in lighting the set. Director Richard Attenborough is looking to maintain the feeling of a Broadway theatre without sacrificing the all-important dance numbers to lights that are too hot or to shadows that are too deep. For visual scope, the look demands film."

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**Eastman film:  
Images from  
Innovation.**

## SATELLITES:

## GOLD RUSH IN THE SKY

The satellite-launching base in Kourou, French Guiana, on the northeast corner of South America, is one of the more curious places on earth. Rain forest, interspersed with banana trees and sugar-cane fields, surrounds the twin rocket-launching towers. In the vehicle assembly area, technicians working inside a temperature-controlled and dust-free canopy perform final checks on a pair of shiny communications satellites mounted atop a sleek Ariane rocket. The satellites, owned by the Arab League and the government of Brazil, will provide modern communications to areas that now have none.

In a few days, technicians in a bunker a few hundred feet away, guarded by Foreign Legionnaires, will send the rocket into space. The flight will be toasted with local rum and imported champagne. A few hours later a chartered Concorde will lift off from the dusty airport in nearby Cayenne, returning the engineers and invited guests to Paris and leaving Guiana in peace until the next mission.

Welcome to the satellite business, where the transforming power of technology is linking the farthest corners of the globe.

All over the world new satellite systems are being planned, built,

and launched to exploit the unique property of the geostationary orbit first identified in 1945 by the British science-fiction writer Arthur C. Clarke. Satellites in that orbit remain stationary relative to the rotating earth, allowing each one to relay information over one third of the planet's surface.

Twenty-three years after AT&T's Telstar first demonstrated the technology's feasibility, the worldwide boom in satellite communications shows no sign of abating. In America the Federal Communications Commission recently authorized the launch of two dozen more satellites for domestic service, and a dozen more for international service. Australia, Brazil, and Mexico have just sent up their first satellites; others are being launched by the Soviets, Europeans, Chinese, Japanese, and Indians.

The satellites now being put into space are a far cry from the tiny Telstar: Bristling with antennas and packed with electronics, each weighs a ton or more and

typically costs \$100 million to build, launch, and insure. Some of them relay telephone conversations to ships and planes; others transmit television to compact earth stations; still others provide telecommunications services to remote areas.

**MARKETPLACE:** The United States still holds the lead in making and launching satellites, although the French success in capturing half of the satellite-launching market from the Space Shuttle suggests that this may not remain true. There are already two dozen purely domestic American satellites in service, relaying cable-television programs as well as digital data and voice traffic to more than a million earth stations.

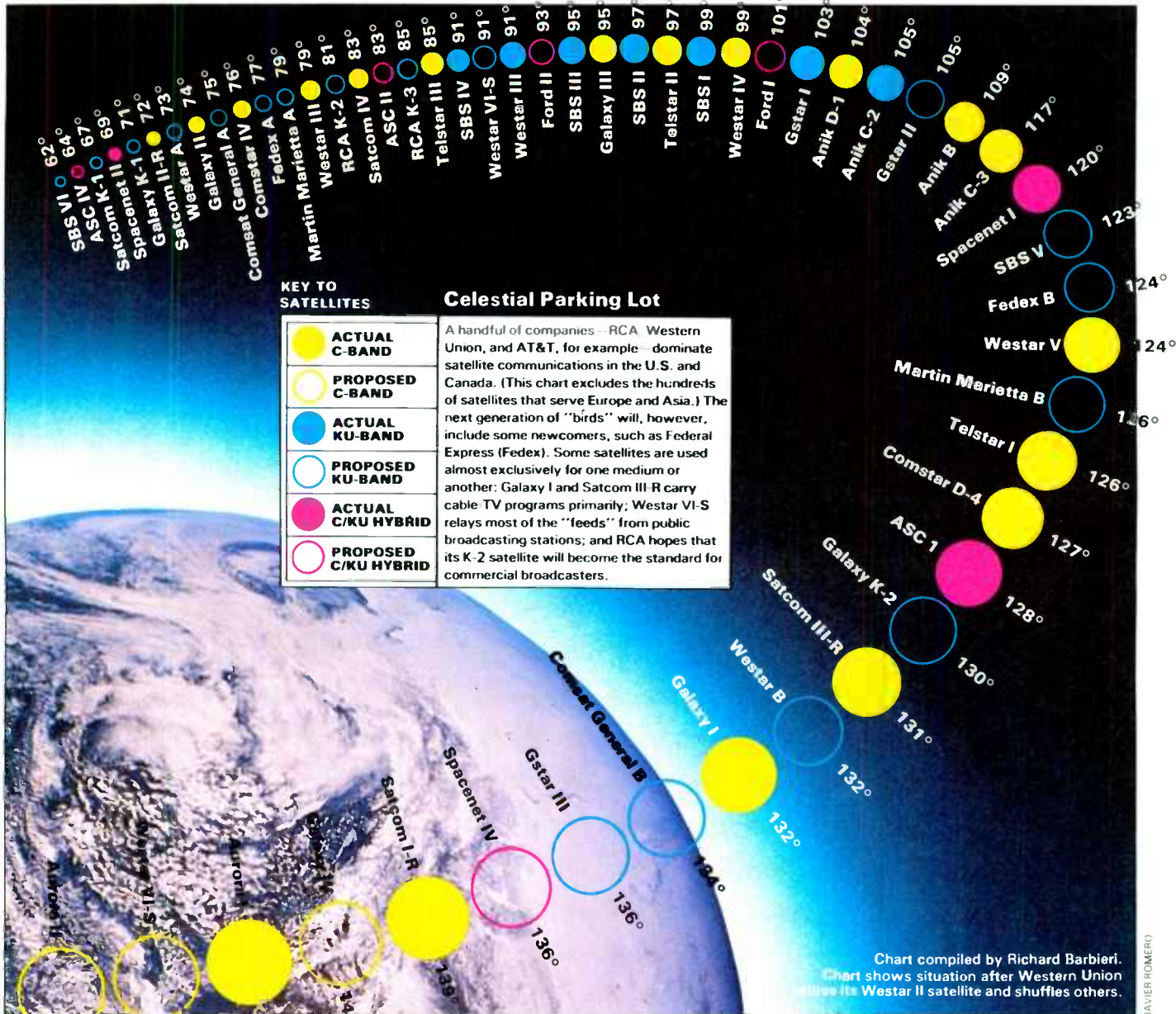
The first of a new generation of American satellites will be blasted into space in 1986. These are the medium-power satellites that promise to expand the market for satellite television services further by permitting the use of even smaller and less expensive earth stations. At much the same time, the French and Germans plan to

launch the first of the even more powerful direct-broadcast satellites, which will transmit television to viewers equipped with earth-station antennas less than two feet in diameter.

New applications are constantly being found for satellite technology. More than 20 local television stations in the United States have equipped themselves with satellite-transmitting dishes mounted on trucks, with which they relay remote news feeds to their studios. NBC is buying 50 for regional newsgathering. Almost every U.S. station already has a dish for picking up network and syndicated programs. Even the U.S. Government has gone satellite. Charles Wick, director of the United States Information Agency, has established a global satellite network called Worldnet which conveys the Reagan Administration viewpoint to opinion leaders and journalists abroad.

Thousands of compact dishes are appearing on the rooftops of newspapers and stock brokerage houses, replacing leased telephone lines as the delivery medium for wire services and securities quotations. Safeway stores are sporting dishes that capture background music specially programmed for the grocery chain and sent from Oak-

Space is no longer U.S. property.  
The French now launch satellites  
for Brazil and the Arab League.



land, California. And the FCC is currently preparing to grant licenses for the launch of entirely new satellites that exploit UHF frequencies for mobile-telephone services and electronic mail.

At the global level satellites have become the subject of bitter contention. Delegates from the member nations of the International Telecommunications Union met in the summer of 1985 to consider future international regulation for satellites. The group made no final decisions, but the forum was as acrimonious as expected, with developing countries loudly protesting what they perceive as America's gob-

bling up of the limited number of satellite parking spaces in the geostationary orbit. They demanded that large portions of the orbit be set aside for their future use. Another conference, in 1988, will take up the matter.

**TECHNOLOGY:** Recent technical advances have produced less expensive earth stations and new kinds of terminals, and have made available higher-frequency bands that are free from earthly electronic interference. Most of the satellites launched so far have operated in the frequency range of 4 billion to 6 billion cycles per second (4-6 gigaHertz), known as the C-band. C-band dishes must be 10 feet wide or larger, to capture more of the faint satellite

signals so they can overcome interference from terrestrial microwave transmissions also using the band. The dishes' size makes them more expensive than those used to receive satellite signals in the less exploited Ku-band (between 11 billion and 14 billion cycles per second). The earth stations required for Ku-band reception are typically half the size of those needed for C-band satellites.

Ka-band satellites, using frequencies between 20 billion and 30 billion cycles per second and requiring even smaller earth stations, should appear in a few years. Because the channels are almost completely unused on earth, interference will be negli-

gible. And there will be no scarcity of these channels for the foreseeable future, as the available frequency in the Ka-band is immense.

The satellite industry does have its problems, however. Fiberoptic transmission is cutting into satellites' share of the long-distance telephone market. And a series of embarrassing failures during launch and in orbit, with losses totaling \$600 million in 1984 and 1985, have pushed up the cost of satellite insurance. But for many applications, especially the simultaneous transmissions to thousands or millions of locations, satellites show no signs of losing their importance.

JONATHAN MILLER

## BACKYARD DISHES:

## DBS BY ANY OTHER NAME

The do-it-yourself TV reception movement is inadvertently making the promise of direct-broadcast satellite television (DBS) come true. Although DBS has flopped commercially so far—the only operating DBS company went bankrupt in 1985—a new kind of DBS has taken form, beamed by satellite to some one-and-a-half million backyard dishes, almost a third of which appeared in 1985.

The movement began in 1976, one year after Home Box Office started sending its movies to cable-TV operators by satellite. Taylor Howard, a Stanford University electronics professor, assembled surplus military parts into the first viewer-owned satellite dish in America, and though the 30-foot-wide antenna didn't allow him to talk with distant galaxies, as neighbors thought it could, it did let him watch HBO for free.

Howard wrote to company officials offering to pay for the privilege, but HBO never wrote back. In those first years, in fact, nobody paid much attention to Howard and the few dozen other satellite-TV pioneers. But by 1981 there were 20,000 antennas dotting the country, and the cable industry, led by HBO, finally pushed for federal laws against them.

Congress didn't ban the dishes. Instead, in 1984, it laid down a new law making it illegal for dish owners to receive satellite-delivered programs that were scrambled or offered by the local cable operator; all others were there for the taking. HBO now scrambles its satellite transmissions, and only those dish owners who pay a monthly fee and purchase a \$395 decoder can receive them.

**MARKETPLACE:** Complete home receiving systems, which once sold for as much as \$36,000, now cost as little as \$800. Since the beginning of 1985 their number has been increasing by at least

## HOME PLATES

A satellite-receiving dish with an unobstructed view of the southern sky can receive more than 100 TV channels and 40 FM radio stations. The dish collects the satellite's faint microwave signal and amplifies it between 500,000 and a million times. A cable carries the signal indoors to a "down-converter," which changes the frequency to one that can be received by an ordinary TV set. A remote-control device lets the viewer redirect the motorized dish from one satellite to another.

"C-band" satellites send and receive signals in the electromagnetic spectrum's C-band—four million to six million cycles per second (gigaHertz). The more recently developed Ku-band satellites use a higher frequency (12 to 14 GHz) and a narrowly directed transmission. Each satellite typically relays 24 channels between points on earth.

40,000 a month.

By scrambling their transmissions, the cable networks will be depriving these dish-equipped viewers of their programming, unless they buy it directly from the networks themselves or through cable operators and backyard-dish dealers. A number

of large cable operators, including the largest, Tele-Communications Inc., are already planning to sell DBS services to unwired communities at prices that will compete with cable—\$6 to \$20 a month.

While this new market is being tapped, "pure" DBS, which uses

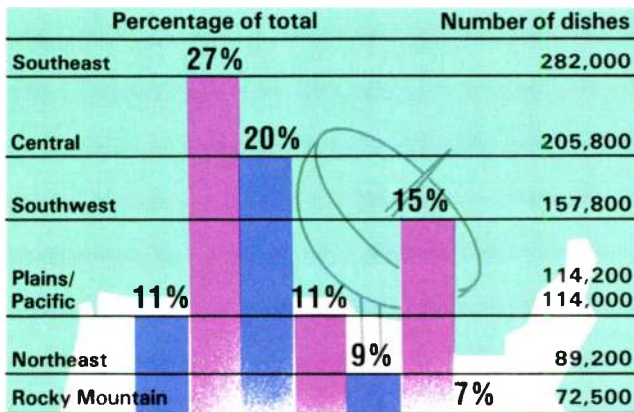
higher-powered satellites and smaller dishes, is still viable despite an unsuccessful initiation: United Satellite Communications Inc. (USCI), which used Canadian satellites, signed up its first customers in November 1983 and folded 17 months later, leaving a \$53 million debt. (Many believe that the five-channel service failed—garnering fewer than 15,000 subscribers—because of mismanagement.)

Undaunted, some companies plan to launch their own high-powered DBS services shortly. Further proof that the technology lives: Only three of the 28 satellites scheduled for launch within the next decade will use lower-powered transmissions.

**TECHNOLOGY:** It's not yet clear whose decoding equipment will become the standard—if there is to be one—for the new DBS industry. The manufacturers with the early edge are M/A-Com, which has sold more than 35,000 decoders so far to leading pay services and multiple-system cable operators, and Scientific-Atlanta, which like M/A-Com is a top satellite equipment maker. While the cable industry is pressing programmers to choose between the two systems, SPACE, a satellite-TV trade association, warns that the current technology is too expensive and that choosing either as the standard could leave tens of thousands of consumers holding incompatible or obsolete decoders.

**REGULATION:** While the 1984 cable act finally settled many legal questions relating to backyard dishes, it did not address the question of local zoning restrictions. Laws in hundreds of towns and cities discourage or in some cases ban them. The Federal Communications Commission ordered a study of these restrictions in 1985 and is expected to consider preempting local laws.

RICHARD BARBIERI



## Television of the Heartland

Nearly half of backyard dishes are in the 17 Southern and Midwestern states.

Southeast: AL, AR, FL, GA, LA, MS, NC, SC, TN, & VA Central: IL, IN, KY, MI, OH, WV, & WI Southwest: AZ, NM, OK, & TX Plains: IA, KS, MN, MO, NE, ND, & SD Pacific: AK, CA, HI, NV, OR, & WA Northeast: CT, DE, DC, ME, MD, MA, NH, NJ, NY, PA, RI, & VT Rocky Mountain: CO, ID, MT, UT, & WY

Source: The First Communications Group, *The Home Satellite Newsletter*, August 30, 1985



## PROGRAM SERVICES

# PUTTING A PREMIUM ON THE BASICS

In 1985 the two largest pay-TV program services, Home Box Office and Showtime, experienced a six-month period when more subscribers canceled than signed up. That had never happened before. The signal was clear: The old approach of "throwing programs at customers and expecting a lot of them to stick" was no longer working, according to Larry Gerbrandt, an analyst with Paul Kagan Associates. But while the market for HBO and other subscription services was losing momentum, some of the advertising-supported program services were making their first profits.

**PREMIUM SERVICES:** In 1985, subscribership to the 12 national premium services increased by only a million, pushing the national count to 31.6 million. Just two years ago the annual gain totaled 6.3 million.

A 1985 study of the pay-television industry conducted jointly by Browne, Bortz & Coddington and the A.C. Nielsen Company found grim evidence of customer discontent: Less than one third of all basic cable subscribers were willing to pay for *any* pay service in 1985, a small but significant decrease from the previous year. The decrease "points to an entire rejection of the pay product," the study said, and was "not simply a result of subscribers downgrading from four pay services to two, or three services to one."

In the midst of this decline, however, there is one anomaly. The Disney Channel has carved out an additional 5 percent of the "pay" market in just two years—giving it a total of about 7 percent. Disney's one million new subscribers in 1984 amounted to one third of the combined growth of 10 other premium services that year.

The rise of VCRs (now in some 30 percent of American homes, quickly gaining on cable) and video rental stores has surely cut into pay cable's appeal as pro-

vider of recently released movies. But that's just one reason why customers are discontinuing service. The era of cable's great suburban expansion is ending, limiting its potential subscriber growth, at least until more major cities get cable. Basic cable fees, nonetheless, are expected to continue rising—from an average of \$9 today to almost \$14 by 1990—making the added expense of pre-

video, HBO and Showtime have pinned their hopes on made-for-cable productions. (Showtime devotes 30 percent of its schedule to original programming.)

Cable operators are also experimenting with new schemes, such as offering subscribers the option of purchasing one or two pay channels as part of the monthly fee—in the belief that pay "tiers" should be marketed in clusters.



mium services even less palatable to consumers. In response, most pay programmers plan to restructure their services—offering premium services in the basic package, for example—and lower their prices.

Not surprisingly, viewers are being wooed with new marketing schemes, original programming, and blockbuster pay-per-view events. HBO's nearly \$15 million 1985 advertising budget was five times the previous year's, and Showtime spent \$4.8 million on its first television ad campaign.

To counter the growth of home

Already one pay service, American Movie Classics, has offered itself to cable operators as a basic service. And, in a marketing test by cable consultants Daniels & Associates in 1985, subscribers responded positively to an offer of four premium services for \$16 a month, in addition to the price of basic.

**BASIC SERVICES:** Because of the premium services' hard times, advertising-supported basic programmers have become cable's brightest stars. Nationwide subscribership increased 8 percent in 1985, to 39 million

homes, or 43.7 percent of those with TV sets. The basic services have succeeded by imitating broadcasters. The basic cable networks earned more than \$750 million in 1985 from advertising sales, a one-third increase over the previous year. "Ratings are the only factor," Larry Gerbrandt says. "The basic cable business is really no different from the rest of broadcasting."

To court advertisers the top basic cable services have developed broader audiences, and programming to match. Lifetime (which is already programmed somewhat like an independent TV station) and the USA Network have added movies to their lineups. In 1985 Nickelodeon, previously only a daytime children's service, added evening programs aimed at adults.

While there are still more than 50 programming services available on basic cable, only about a dozen have large enough audiences to be rated by Nielsen, and therefore have a chance of supporting themselves with advertising revenues. As a rule, a programmer must reach 25 million homes and receive a .5 average rating over the full day to be successful. So far, the Christian Broadcasting Network, the Financial News Network, and Nickelodeon, among others, have attained profitability.

Basic services stand to benefit from the 1985 federal court decision overturning the FCC's "must carry" rules, which had required cable operators to offer most local broadcast stations to subscribers—often to the exclusion of cable services. Superstation WTBS expects its subscribership to increase 5 percent, to some 37 million people, because of the ruling. Manhattan Cable Television's decision in October 1985 to drop a New Jersey public TV station in favor of expanded coverage of C-SPAN may presage a nationwide trend.

RICHARD BARBIERI

A Nielsen study found "an entire rejection of the pay product." Can viewers be wooed with new programs?

# BRUCE SCHWOEGLER

## For The Record

"I've been at WBZ-TV since 1968, the longest running weather anchor in Boston. I love it. This is a very dynamic area. New England's climate is very exciting. Because of the ocean and the mountains we get many changes within a small area. That's why I do a complete weather story. We have access to the most sophisticated analysis computer in the country. I use it, along with weather maps, satellite pictures, radar scopes and other computer information to put together forecasts. That's especially important when the weather is changing - when a heavy storm system is coming in. By doing my own forecasting I can be on the air as things are breaking."



"It's important for me to be a communicator as well as a scientist. I enjoy teaching. That's why I do the **Weatherwise And Otherwhys** family lecture series at the Museum of Science, why I'm the environmental correspondent for UPI, and why I've written a reference book on renewable energy. I like helping people discover something new."



"In New England the weather can often be the



most important news of the day. When a major weather story breaks, everyone here at Eyewitness News pitches in. There's a lot of camaraderie at the station between the people on the air and the people behind the scenes. We work as a

"Because New England is so vast - Cape Cod to Vermont - it's difficult to report exactly where every weather front is. That's why education is so important. I present New Englanders with information that helps them understand why things happen ... how the weather effects not only their plans to go shopping downtown, but their health and the rest of their environment."

team, especially in a time of crisis. Making it all come together ... that's exciting."



# EYEWITNESS NEWS

WBZ-TV  
BOSTON

# 4


The Station New England Turns To.

## A GUIDE:

## SATELLITE CHANNELS

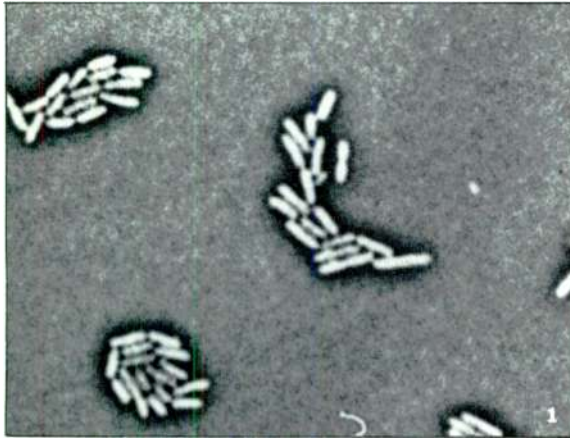


## BASIC CHANNELS

NAME	OWNER	MEANS OF SUPPORT	HOMES REACHED (MILLIONS)	TARGET AUDIENCE	CONTENT
	<b>Entertainment &amp; Sports Programming Network (ESPN)</b> ABC Video Enterprises; Nabisco Sept. 1979	System pays 19¢ per subscriber; advertising	36.5	General (esp. male)	 NHL hockey, college football and basketball, auto racing, boxing, golf, and tennis. Sports updates several times daily. Business news
	<b>Cable News Network (CNN)</b> Turner Broadcasting June 1980	System pays 15¢-22¢ per subscriber; advertising	33.1	Upscale general	Continuous hard news reporting; live coverage of breaking stories; interviews; documentaries; special features
	<b>USA Network</b> Time Inc.; Paramount Pictures; MCA Inc. Sept. 1977	System pays 7¢-10¢ per subscriber; advertising	30.6	Upscale general, all ages	Broad-based entertainment: prime-time sports, <i>Night Flight</i> (video art and music), news magazines, children's health and comedy shows, syndicated programming, movies, USA-produced programming
	<b>CBN Cable Network</b> Christian Broadcasting Network April 1977	Advertising	29.7	Families	Family programming including classic films, comedies, westerns, children's shows, game shows, inspirational shows
	<b>Music Television (MTV)</b> MTV Networks Inc. Aug. 1981	System pays 10¢-15¢ per subscriber; advertising	27.3	12-34-year-olds	 On-air vee jays, rock videos, concerts, interviews, music news (Pay for exclusive rights to some premiere videos)
	<b>Nickelodeon</b> MTV Networks Inc. April 1979	System pays 10¢-15¢ per subscriber; advertising	25.7	Children, adolescents	 Children's programming: variety and adventure shows; cartoons, pre-schoolers' programming, comedy series. Classic movies shown nightly
	<b>Nashville Network</b> Opryland Inc. March 1983	Advertising	25	General	Country-oriented entertainment including sitcoms, music videos, and game shows. Grand Ole Opry concerts
	<b>Lifetime</b> Hearst; ABC; Viacom Feb. 1984	Advertising	23.8	General (esp. female)	"Programming devoted to health, science, and better living": nutrition shows, shows on fitness, preventive medicine, sex, parenting, weekday movies
	<b>Cable Satellite Public Affairs Network (C-SPAN)</b> Nonprofit corp. of cable companies March 1979	System pays 3¢ per subscriber	21.5	Adults interested in public affairs and news	 Live coverage of U.S. House of Representatives debates, congressional hearings; national call-in shows; profiles of public figures and current issues

	NAME OWNER LAUNCH DATE	MEANS OF SUPPORT	HOMES REACHED (MILLIONS)	TARGET AUDIENCE	CONTENT
	<b>Financial News Network (FNN)</b> Financial News Network Nov. 1981	Advertising	19	Upscale professionals	National business and financial news, stock market reports, talk shows, continuous stock ticker. 6 A.M.-8 P.M. daily
	<b>The Weather Channel</b> Landmark Communications May 1982	System pays 5¢-7¢ per subscriber; advertising	19	General	Local, regional, and national forecasts; seasonal outlooks. Special forecasts for sports, aviation, travel, and school
	<b>Arts and Entertainment Network (A&amp;E)</b> Hearst Corp.; ABC Video Enterprises; RCA Cable Feb. 1984	System pays 5¢-7¢ per subscriber; advertising	17.3	Upscale families	 Dramatic and adventure series; comedy; Broadway plays; films; documentaries; variety specials; music, dance and opera. 8 A.M.-4 A.M. daily
	<b>CNN Headline News</b> Turner Broadcasting Jan. 1982	No charge if CNN is carried; otherwise 20¢-22¢ per subscriber; advertising	17	General	 Major headlines and hard news in 30-minute cycles. (Also carried on more than 100 broadcast stations)
	<b>The Inspirational Network (PTL)</b> Heritage Village Church and Missionary Fellowship April 1978	Viewer donations	12	Christian families, general	Inspirational programming, talk shows, music, news, specials. (Also carried on a number of LPTV and SMATV systems)
	<b>Satellite Program Network (SPN)</b> Satellite Syndicated Systems Inc. Jan. 1979	Advertising	11.8	Upscale general	Regular series on hobbies, business, finance, personal money-management; entertainment and health care programs; how-to shows; classic movies; international programming; sports
	<b>SCORE</b> Financial News Network May 1985	Advertising	11	Sports fans	Live sports news, syndicated sports events, sports ticker
	<b>Modern Satellite Network (MSN)</b> Modern Talking Picture Service Inc. Jan. 1979	Program producers pay for air-time; advertising	10.4	General	Consumer information; product demonstrations; <i>BizNet News Today</i> , <i>Consumer Inquiry</i> . 10 A.M.-1 P.M. Mon.-Fri.
	<b>Black Entertainment Television (BET)</b> Telecommunications Inc.; Taft Broadcasting; HBO; Robert L. Johnson Jan. 1980	System pays 3¢ per subscriber; advertising	10	Black community	 Black-oriented entertainment: college sports; musical events; political discussions; phone-in shows; talk, variety, public, and cultural affairs shows; movies; jazz and soul videos; gospel*
	<b>Home Shopping Network</b> N.A. July 1985	From merchandise sold over the air	7	Cable viewers	Live discount shop-at-home television service
	<b>Video Hits 1 (VH-1)</b> MTV Networks Inc. Jan. 1985	No charge if MTV is carried; otherwise 10¢-15¢ per subscriber; advertising	7	25 to 54 year-olds	 On-air veejays, soft rock, R&B, country music, and Top-40 music videos
	<b>The Silent Network</b> Sheldon Altfeld Jan. 1984	Advertising	6.8	Deaf and hearing-impaired	 Entertainment and instructional programming in sign language, normal sound, and open captions

# We've declared total war...



*Bacteria in lab dish (1) elongate after addition of piperacillin, a new antibiotic (2); the cell wall of the microorganism weakens (3), then ruptures and dies (4).*

## ...on infectious diseases.

Infectious diseases are the enemy—ranking fifth among the leading causes of death in the United States. More than two million people require hospital treatment each year for a wide variety of infections, adding an extra \$1.5 billion in hospitalization costs alone to our country's already staggering health-care bill.



















Not only do these disease-causing invaders strike swiftly and severely when the body's defenses are weak, but over the years new strains of many bacteria have appeared—strains that are resistant to many existing medications.

Fortunately, research scientists have developed a new generation of antibiotics, including a semi-synthetic penicillin (whose bacterial action is pictured above), to battle against a broad spectrum of life-threatening microorganisms. These rapid-acting antibiotics provide physicians with powerful new weapons for their medical arsenals.

But the war against infectious diseases continues and our search for even newer, more effective medications goes on.



For more information about Lederle's antibiotics research and general background material, call or write:  
Public Affairs Department, Lederle Laboratories,  
Wayne New Jersey 07470, 201/831-4684.

	NAME OWNER LAUNCH DATE	MEANS OF SUPPORT	HOMES REACHED (MILLIONS)	TARGET AUDIENCE	CONTENT
	<b>The Learning Channel (TLC)</b> Appalachian Community Service Network Oct. 1980	System pays 3¢-5¢ per subscriber	6	Adults	Lifelong learning for adults including information and public affairs; how-to programs; small-business management; resume-writing; career development; parenting. 6 A.M.-4 P.M. daily
	<b>Country Music Television</b> Telestar; Music Village USA March 1983	Advertising	5.5	18-54- year-olds	 Country-music videos; live concerts
	<b>Electronic Program Guide</b> United Video Inc March 1982	Advertising	4.8	Cable viewers	Program guide for local and national cable stations
	<b>Trinity Broadcasting (TBN)</b> Paul F. Crouch May 1978	Donations	4.5	Families	Christian-oriented fare: talk shows, variety shows, musicals, Bible studies, children's shows
	<b>AP Newsable</b> Associated Press June 1965	System pays according to no. of subscribers	4.2	General	Text news service: national, state, sports, and financial news
	<b>Reuters News View</b> Reuters April 1971	System pays according to no. of subscribers	4.2	Upscale professionals	Text news service: general and financial news; sports
	<b>Spanish International Network (SIN)</b> Televisa S.A.; Rene Anselmo Sept. 1979	Advertising	4.1	Spanish- speaking community	 Programs in Spanish: news, soap operas, sports, musicals, novellas, movies, and mini-series
	<b>Update</b> Telecrafter; TCI Nov. 1983	System pays according to no. of subscribers	4	General	Text news service: general and financial news; sports
	<b>Eternal Word Television Network (EWTN)</b> Mother M. Angelica Aug. 1981	Donations	3.8	Catholic community	Catholic religious programming; family entertainment. 8 P.M.-midnight nightly
	<b>ACTS Satellite Network</b> Southern Baptist Convention May 1984	Advertising	3.5	General	 "Wholesome" Christian family entertainment
	<b>National Jewish Television</b> Joel Levitch May 1981	Advertising	3	Jewish community	Public affairs panels; educational shows; Jewish magazine; programs on Israel. 1-4 P.M.
	<b>Dow Jones Cable News</b> Dow Jones Co. April 1981	System pays 1¢ per subscriber	2.8	Upscale professionals	Text news service: general and financial news; sports
	<b>Odyssey</b> Nova Communications Network Feb. 1986	Advertising	2.7	18-49-year- olds	 Music videos and entertainment (Also carried on 127 broadcast stations)
	<b>National Christian Network (NCN)</b> Ray Kassir June 1980	Fees from program producers	1.35	All-denom- inational	Religious films; talk shows; children's shows



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# WTTW/Chicago Sweeps 15 Emmys

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**Chicago Tonight**

John Callaway  
Jim Trengrove  
Bruce DuMont

**You Can Make It**

Bob Lorentzen

**Kup's Show**

Irv Kupcinet  
Todd Whitman

**Time Out**

Tom Weinberg

**Arctic Window**

Dugan Rosalini

**Cinematography**

Bob Seaman  
*Arctic Window*

**On Camera Talent**

Suzanne Farrell  
*The Chicago City Ballet*

**Set Design**

Mary Margaret Bartley  
*The Frugal Gourmet*

**Cinematography**

Jerry Pantzer  
*Arctic Window*

**Director**

Tim Ward  
WTTW Productions

**Lighting**

Dan Rozkuszka  
*Passport: Pullman*

**Graphic Artist**

Sharon Hoogstraten  
*Chicago Tonight*

**Independent Producer**

Stephen Roszell  
*Image Union*

**Cinematography**

Charlie Lieberman  
*Arctic Window*

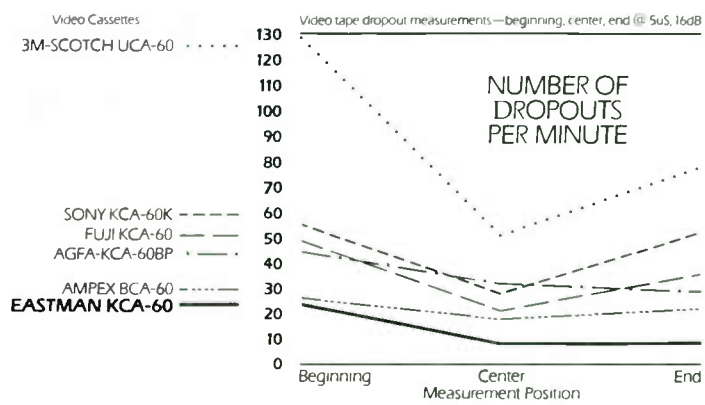
**Lighting**

Jim Gedwellas  
WTTW Productions

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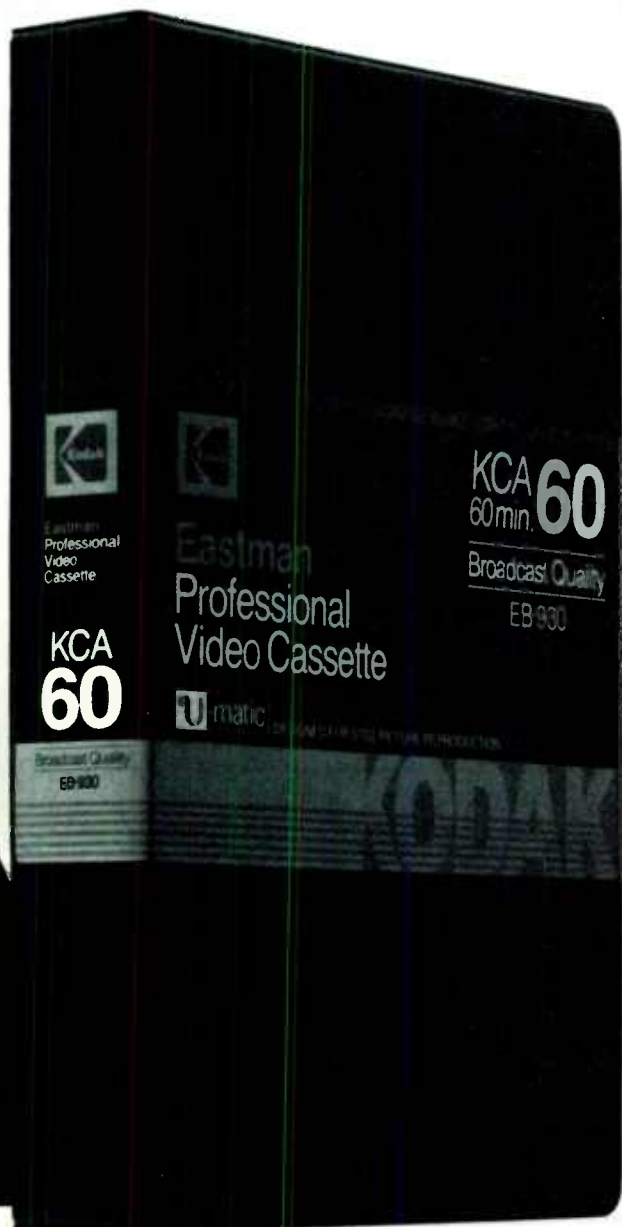
WTTW would like to thank our viewers and the Chicago Chapter of the National Academy of Television Arts and Sciences for their recognition.

11










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	NAME OWNER LAUNCH DATE	MEANS OF SUPPORT	HOMES REACHED (MILLIONS)	TARGET AUDIENCE	CONTENT
	<b>AP News Plus</b> Associated Press; Tribune Media Service Jan. 1985	System pays according to no. of subscribers	700,000	General	Graphics-enhanced automated news service: weather, sports, business
	<b>Genesis Cable Storytime</b> Genesis Research Corp. Oct. 1983	6¢ per subscriber	650,000	Families; children	Video picture storybooks
	<b>Boresight</b> Shawn Kenny Oct. 1984	Advertising	100,000	Home satellite owners, dealers and manufacturers	News and technical information
	<b>American Exstasy</b> Paul Klein Jan. 1985	Advertising	50,000	Adults	Soft-core adult movies (Also available to backyard dish owners and licensed SMATV systems)
	<b>The Discovery Channel</b> Cable Education Network June 1985	Advertising	N/A	Upscale adults	Nonfiction documentary programming: nature, science, technology, human adventure, history 3 P.M.-3 A.M.

\* Black Entertainment Television airs a 12-hour block of programs twice a day.

## SUPERSTATIONS

	NAME OWNER LAUNCH DATE	MEANS OF SUPPORT	HOMES REACHED (MILLIONS)	TARGET AUDIENCE	CONTENT
	<b>WTBS</b> Turner Broadcasting System, Atlanta Dec. 1976	System pays 10¢ per subscriber, advertising Carrier: Southern Satellite Systems	34.8	General	 Network reruns, sports, movies, news, women's shows, music videos, documentaries
	<b>WGN</b> The Tribune Company, Chicago. Oct. 1978	System pays 10¢ per subscriber; advertising. Carrier: United Video	16.1	General	Network reruns, sports, movies, news
	<b>WOR</b> RKO General Television New York April 1978	System pays 10¢ per subscriber; advertising Carrier: Eastern Microwave	5.4	General	 Network reruns, sports, movies, news
	<b>KTVT</b> Gaylord Broadcasting Dallas July 1984	System pays 10¢ per subscriber; advertising. Carrier: United Video	1.3	Regional Southwest	Movies, sports, news, specials
	<b>WPIX</b> The Tribune Company New York June 1984	System pays 10¢ per subscriber, advertising Carrier: United Video	1	General	Network reruns, sports, movies, <i>Independent News Network</i>

## PAY SERVICES




NAME	OWNER	DELIVERY SYSTEMS	NUMBER OF SUBSCRIBERS	CONTENT
	<b>Home Box Office</b> Time Inc. Sept. 1975	Cable, MDS	14.5 million	 Movies, sports, family shows, made-for-pay movies, mini-series, specials
	<b>Showtime*</b> Viacom July 1976	Cable, MDS, SMATV	5.4 million	 Movies; Broadway productions, music specials, made-for-pay movies, comedy and dramatic series, mini-series, family programming
	<b>Cinemax</b> HBO Inc., a subsidiary of Time Inc. Aug. 1980	Cable, MDS	3.3 million	Feature movies, comedy and music specials
	<b>The Movie Channel*</b> Viacom Jan. 1980	Cable, MDS, SMATV	3.1 million	Feature films, film festivals, movie marathons
	<b>The Disney Channel</b> Walt Disney Productions April 1983	Cable	2.1 million	 Family-oriented programming including made-for-pay and Disney movies; classic cartoons. 6 A.M.-1 A.M.
	<b>The Playboy Channel</b> Playboy Enterprises Dec. 1980	Cable, STV, SMATV, video-cassettes, DBS	740,000	Soft-core adult programming. 8 P.M.-6 A.M.
	<b>Bravo</b> Cablevision; CBS Dec. 1980	Cable	350,000	American and foreign films, performing arts specials. 7:30 P.M.-6 A.M. Mon-Fri; 5 P.M.-6 A.M. Sat., Sun.
	<b>The Nostalgia Channel</b> N.A. May 1985	Cable	350,000	Classic movies and vintage television shows, original programming
	<b>Home Theater Network (HTN)</b> Group W Satellite Communications Sept. 1978	Cable, SMATV	300,000	Non-"R" rated entertainment, foreign and classic movies, travel, music
	<b>American Movie Classics**</b> Cablevision; CBS Oct. 1984	Cable	270,000	Classic Hollywood films. 7 P.M.-6 A.M. Mon-Fri; 1 P.M.-6 A.M. Sat., Sun.
	<b>GalaVision</b> Spanish International Network (SIN) Oct. 1979	Cable, SMATV, MDS	125,000	 Spanish-language films; weekly dramatic series; sports; musical and comedy specials in Spanish. 3:45 P.M.-4 A.M. Mon-Fri, 11 A.M.-3 A.M. Sat.
	<b>The F.U.N. Channel</b> Fantasy Unrestricted Network Oct. 1983	Backyard dishes (Decoders), MSO, Cable	50,000	First-run adult features
	<b>SelecTV*</b> Clarion Oct. 1985	STV, LPTV, SMATV, MDS	N/A	Movies, classics, adult films, sports, children's shows, pay-per-view events

\* Showtime and The Movie Channel merged in 1983 but continue to operate separately.

\*\* American Movie Classics can be marketed by individual cable systems as a basic service, a stand-alone pay service, or in conjunction with Bravo as "The Rainbow Service."

\* SelecTV and ON Satellite TV have merged to form Clarion SelecTV. A combined subscriber count was not available at press time.

## PAY-PER-VIEW CHANNELS

	NAME OWNER	LAUNCH DATE	PRICE	TIMES	AVERAGE NO. OF SUBSCRIBERS/ NUMBER OF CABLE SYSTEMS*	CONTENT
	<b>Video Techniques Inc.</b>	<b>Video Techniques</b> Video Techniques Inc. March 1984	\$12 on the average	Twice per month	3 million; 150 cable systems	Sports and entertainment events
	<b>EventTeleVision</b>	EventTeleVision July 1983	\$20 per sporting event; \$5 per movie	3-4 yearly, varies according to availability <sup>#</sup>	2 million; 60-180 cable systems	First-run movies, championship fights, concerts, Broadway shows
	<b>Choice Channel</b>	Bob Block/Rick Kulis Oct. 1984	\$7.50-\$20 per event; \$3-\$5 per movie	6 times a year per event; 10 times a month per movie	1.9 million; 73 cable systems	Movies, concerts, sporting events. 9 A.M.-3 A.M. daily.
<b>SHOWTIME</b>	<b>Showtime Pay Per View</b>	Showtime June 1985	\$3.95-\$20 per event; \$3.95-\$4.95 per movie	Varies according to availability	350,000; 7 cable systems	Movies, sports events, promotions for upcoming features
	<b>The Pay-Per View Channel</b>	Personal Preference Video June 1985	\$3-\$15; \$145 for a year's worth of "pay-per-view weekends"	At least twice monthly	350; cable systems N/A	Sports, specials, movies, variety shows, hard-core adult features
<b>THE EXCHANGE</b>	<b>The Exchange</b>	Reiss Media Enterprises Winter 1985	Varies	Continuous showings on a 20-hour daily feed	N/A	Movies
	<b>Playboy's Private Ticket</b>	Playboy Video Corp. July 1985	Determined by individual cable systems; ranges from \$3.50-\$5	Programs are transmitted by satellite twice weekly for cable systems to tape and rebroadcast	N/A; 4 cable systems	60 minutes of nightly Playboy Channel programs followed by adult films 

\*The number of subscribers on pay-per-view channels varies with each event. These are typical subscriber counts reported by programmers.  
<sup>#</sup>Event TeleVision will offer a nightly movie service beginning in February 1986.  
 Program services charts compiled by Jane Lusaka



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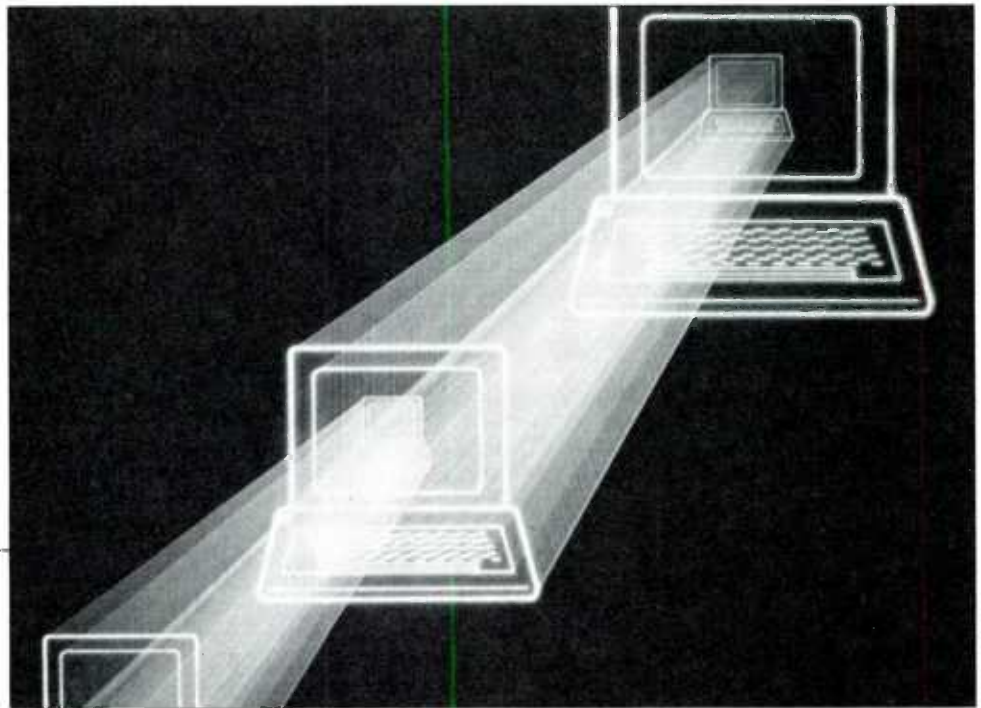
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## PERSONAL COMPUTERS:

## HOW THE GLITCH STOLE CHRISTMAS



**I**t had to happen sometime, and on May 24, 1985, it did: The personal-computer industry left its blissful youth behind and entered the hard, cold world.

On that day, now known as "Black Friday" in certain Silicon Valley circles, the Apple Computer Inc. board of directors agreed to the most stunning lay-off in the history of its industry. Apple had already closed three plants that spring, eliminating several thousand jobs. On May 24, with computer sales and corporate morale in a nosedive, the directors voted to lay off one more engineer: Steven Jobs, the visionary young patriarch of the microcomputer revolution, and company founder. There was no longer a place for Jobs at the company he had founded. That brought home quite vividly the basic truth that hit the entire personal-computer industry in 1985: The honeymoon was over.

After eight glorious years of prodigious sales growth and seemingly endless technological advance, the personal computer business went into an across-the-board slump in 1985. The market for home computers, which had contracted markedly in 1984, remained tepid—so much so that even mighty IBM finally stopped production of its innovative

entry, the PCjr. More serious was the lukewarm growth of the business market. With many offices already computerized, and with no striking breakthroughs to attract business customers, microcomputer salesmen found their job tougher than ever.

It's important to note here that the personal computer "slump" of 1985 is a relative thing. Executives of many major industries—energy, apparel, and steel, to name a representative sample—would be thrilled with the sales growth the personal computer industry experienced during 1985.

**MARKETPLACE:** Analysts at Infocorp, a market research firm just down the street from Apple headquarters in Cupertino, California, estimated that personal-computer sales reached \$39.1 billion in 1985, an increase of 23 percent over the year

before. Few industries would express alarm over a 23 percent sales increase, but in the microcomputer business this was indeed alarming. Personal-computer sales have been increasing at a rate greater than 40 percent every year since 1977, when Steven Jobs's first Apple I hit the market. In 1984, even with the sharply disappointing collapse of the home-computer market, sales climbed 56 percent, according to Infocorp.

In 1985, the industry came up against the business cycle. "This is the first year of the maturation of the personal-computer business," observed Richard Matlack, who heads Infocorp. "Now they realize that personal computers are subject to the same economic variables as the rest of the computer industry."

At the start of 1985, collective industry wisdom held that

another banner year was in store. Predictions of another 50 percent sales increase were common, and some of the most sagacious industrial giants on earth, including AT&T and ITT, were preparing for a major assault on the microcomputer business market.

The almost giddy optimism was reflected nicely in Apple's annual marketing extravaganza, its one-broadcast-only TV ad, which runs throughout the Super Bowl. The 1985 ad consisted of a frontal assault on Fortress IBM. The spot depicted executives who buy IBM's PCs as a flock of lemmings marching toward the sea; the farsighted business customer, the ad said, would turn away and choose an Apple.

It was a terrific advertisement but a terribly off-base prediction. If anything, 1985 saw IBM increase its dominance of the business-computer market. A late-summer poll by the trade journal *Computer and Software News* showed that almost three out of four business people planning to buy computers within six months would choose an IBM. The nearest challengers to "Big

Steve Jobs fell from grace, and so did the industry. Both are likely to come roaring back soon.

Blue" were Compaq and Zenith, both of which have based their marketing on a promise of complete compatibility with IBM models.

The last major holdout against the IBM-PC standard was the Apple Macintosh, a small, easy-to-use model designed to contrast to the severely businesslike IBM and its complicated software. The Macintosh, though, is slower and less powerful than the IBM, and accordingly has been labeled fun to play with but frustrating for serious work.

One key reason for the industry's 1985 slump was that computer makers offered little in the way of new technology during the year. The "new" models most manufacturers came out with turned out to be modestly improved versions of the IBM "AT" computer, which first appeared in 1984. The AT and its various clones, which use a powerful microprocessor known as "80286," run twice as fast as the standard IBM PC and permit quick access to a considerably larger memory bank. But they still represent more of the same.

In these circumstances, it occurred to some industry leaders that the next great success in the personal-computer business would combine the business power of the austere IBM with the fun and glamour of the Macintosh. Two computers designed to fill this niche were unveiled with enormous hoopla at the end of the year: the Commodore Amiga and the Atari ST. Both offer breathtaking color graphics—text and pictures as sharp and clear as the finest color-television image—and both seem easy and enjoyable to use. A central question in 1986 will be whether these entrants in a crowded market can live up to their promise.

**TECHNOLOGY:** One of the unchanging rules of the computer business has been, "There's no such thing as too much memory." In 1985 the demand for memory—the part of the computer that stores data and instructions for later retrieval—continued to boom. At the start of the year, the standard business computer came with enough memory to store 256 kilobytes—256,000

separate numbers or letters, or roughly 40 printed pages of information. By the end of 1985, a standard configuration included twice as much memory, and Intel Corporation, a Silicon Valley microchip-maker, was reporting strong sales for a new device that increased memory to more than two million letters or numbers. Thanks to the chip-maker's amazing productivity gains, that two-million-digit memory costs about what 16,000-digit memories did in the late 1970s.

Despite disappointing financial results, American firms continued to dominate both domestic and foreign personal computer markets. Japanese microcomputers, even when repackaged under American labels, gained only a sliver of the U.S. and European markets, while IBM continued to lead the personal-computer pack in Japan and the rest of the world. The Japanese did move faster than the Americans to adopt a standard software system that would run on almost any make of computer; but this "MSX" system—developed for the Japanese by an American company, Microsoft—has yet to make a dent in any market outside the home islands.

Beating the Japanese economically would build the confidence of any U.S. industry. As the American personal-computer industry looks ahead to the second half of the decade, the relatively unhappy results of 1985 are already being forgotten.

"I think Henry Ford probably had a few bad quarters in the 1920s," an industry leader said near the end of the year. "In another 10 years personal computers will be the largest industry on earth."

Who came up with this outrageous optimism? None other than Steven Jobs. The 30-year-old tycoon came roaring back from his unceremonious firing at Apple and announced plans to start a brand-new personal-computer company, tentatively called Next Inc. "We're going to build a great company," Jobs said happily. "We're going to do some great stuff."

T. R. REID

## COMPUTER SOFTWARE:

## THE ONLY HITS ARE RERUNS

**H**ow can an industry keep its sales accelerating when its market isn't growing as before and it has no spectacular new product to sell? That's the challenge confronting computer software publishers, who had counted on fast-rising sales to cover their high development and marketing costs.

The growth rate of the key personal computer market started declining in 1985, even though PCs continue to sell well—a projected seven million in 1986, according to Andy Bose, a market analyst for Link Resources. And even though software publishers increased their 1985 sales 41 percent, to \$2.4 billion for business software alone, they're worried.

They've already exploited the major PC uses, particularly in business—word-processing, spread-sheet, and database programs abound. And software innovations haven't provided the desired stimulus to sales. The best sellers of 1985 were largely the best sellers of 1984, sometimes in updated versions or at lower prices.

"Integrated software," the buzzword of '84, wasn't quite the rage it was expected to be. Lotus's "1-2-3" continued to lead among software packages combining spread sheet, database, and graphics capabilities in one program. But other publishers found it hard to persuade consumers of the value of integrating these functions, especially since separate programs often perform these tasks better.

From a user's standpoint, the most interesting software developments of 1985 have been the ongoing refinements of best-sellers, including "1-2-3." Lotus marketed a souped-up version known as "Symphony," which added intercomputer communications to its talents and enlarged the spreadsheets and databases it can create. But "Symphony" and Ashton-Tate's competitive

"Framework" were hard to learn and use. Late in 1985 Lotus backtracked, introducing an improved "1-2-3" which to some observers seemed likely to replace "Symphony" altogether. Similarly, MicroPro released a new (and more expensive) version of its best-selling word-processing program, "WordStar."

But, as with other refinements, this hasn't spurred business, so publishers are working on two old problems they believe are limiting sales. One, the unauthorized copying of software discs, amounts to theft under the copyright laws. Software firms estimate that two or more copies are made illegally for every copy bought, and Lotus in particular has frightened some would-be pirates with a series of successful prosecutions.

Most publishers encode their software to keep it from being copied, and some are even using a device that identifies a user by fingerprint before letting him use the software.

The other problem, software publishers believe, is that large corporations are not buying costly bulk copies of each program for their thousands of PC-using employees. These big customers want to get a quantity discount direct from the publisher, rather than pay full price to retail dealers, who have so far been their predominant source. But publishers have feared alienating retailers by selling directly to users.

A number of software companies are now planning to sell directly, through a plan called site-licensing. Under this arrangement, a major customer buys a bulk quantity of program discs or pays a license fee to make a specified number of legal copies.

Software publishers are hoping the new licensing plan will ease the PC slump's impact on them. But the plan will also make it all the harder for marginal retailers.

IRA MAYER

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## THE CHIP

### ELECTRONIC MAIL:

# THE MESSAGE ON THE MONITOR

This nascent industry lost \$80 million in 1984 and foresees more red ink at least through 1987, yet its potential is so enormous that it continues to lure new firms.

Electronic mail now transmits between 250 million and one billion messages a year, according to estimates by experts. They predict that volume will grow immensely as more offices and homes get computers and modems (devices used to transmit data over phone lines)—some expect levels of nearly 20 billion messages per year by 1990 and 60 billion by the end of the century.

E-mail functions primarily in the office, where it replaces memos, order forms, price lists, and letters, as well as many kinds of phone calls. About 80 percent of e-mail today goes back and forth within the same company, but specialized networks are taking shape in various industries: Publicists dispatch e-mail news releases to key reporters; attorneys swap information and send depositions over ABA/Net; and doctors receive medical information over AMA/Net.

In the home, e-mail ranks among computer owners' favorite uses of videotex systems. They regularly post messages on electronic bulletin boards, looking for everything from love to arcane textbooks, and their computer conversations have become a 1980s version of chatting at the country store.

**TECHNOLOGY:** E-mail can be sent or received using virtually any personal computer or word processor with a modem. Incoming messages are stored for later retrieval in the recipient's "mailbox," located in the e-mail company's central computer. Customers

without computers and modems can use hybrid e-mail services, which send messages electronically between cities but carry them by hand at one or both ends of the trip.

**MARKETPLACE:** Competition is hot among the dozen or more e-mail services—including MCI Mail, GTE Telemail, ITT Dialcom, Western Union EasyLink, and General Electric's QuickCom—and some are adding special features. MCI, for example, plans to let subscribers pay bills and check their bank balances for about 20 cents per transaction—less than the cost of a stamp. And Western Union's



subscribers can order office supplies or flowers using EasyLink.

But, in a way, the competition may be inhibiting e-mail's development. Would-be users are discouraged to find that one e-mail service can't hook them up with subscribers to another. And no universal subscriber directory exists.

E-mail prices vary widely: Late-night users of GTE Telemail's PC Pursuit pay a flat \$25 per month for virtually unlimited time on-line. MCI Mail will transmit a five-page letter from one subscriber's computer to another's for \$1. And Federal Express's hybrid ZapMail will transmit a 10-page letter for \$35, including courier service.

GARY ARLEN

E-mail's potential is enormous.  
 By the year 2000, 60 billion pieces may be sent annually.



## VIDEOTEX:

## INFORMATION À LA MODEM

Videotex has come a long way from what it started out to be—information sent on request through a cheap specialized terminal attached to the home TV set and telephone.

The few videotex companies that started that way still use phone lines, but now transmit directly to customers' personal computers instead. Some major publishers, banks, and electronics firms plan to start national videotex services in 1986, largely using the same approach.

At present, the largest subscriberships belong to such online database services as CompuServe—services that don't look like the original videotex but perform many of its functions.

Videotex strategists generally agree that the first place most Americans will use videotex-type services will be outside the home—in offices or public areas, such as hotel lobbies, shopping malls, and airports.

### TAPPING THE LINE

All videotex services use a central computer, a transmission medium, and a receiving device. Beyond that, "videotex" means many things.

Typically, videotex information travels over phone lines to a personal computer equipped with special software and a modem, but some systems use cable television lines and a TV set with a specialized terminal instead.

Videotex is basically a simplified version of computer time-sharing. By tapping a keyboard, the subscriber can reach databases in a distant computer and call up news bulletins, sports scores, stock prices, or airline schedules. In some systems, he can also order merchandise from electronic catalogues, check his bank accounts, and instruct his bank to pay bills electronically.

point in classic videotex, are not attractive to most customers. Therefore, graphics are absent from many videotex systems today, although major labs are developing new imaging systems that will permit transmission of finer video "still" pictures.

**MARKETPLACE:** At least 1,500 kiosks in public places now offer what the industry calls "public access videotex" (no relation to the similarly named cable television service). As many as 100,000 units may be running by decade's end.

These units display information about shopping, entertainment, or sightseeing in response to user inquiries entered on a keypad or "touchscreen." Most have advertisers—restaurants, for example—that pay to have their

messages shown. In some systems the user can push a button to be connected by phone to the restaurant's reservations desk.

Some 200 private videotex systems are now serving users in agribusiness, engineering, retailing, financial services, and government, as well as individual companies.

Videotex is taking various routes into the home. Three popular online database systems—Reader's Digest's The Source, H&R Block's CompuServe, and Dow Jones News/Retrieval—together have more than 500,000 subscribers, who typically pay \$10 a month or more for access to packages of news, entertainment, and electronic mail, as well as shopping and financial services.

Three of the original "classic" videotex systems—Knight-Ridder's Viewtron, Times-Mirror's Gateway, and Centel's Keyfax—have largely turned from supplying general news via specialized terminals. Now they're emphasizing specialty information, and home banking and shopping services, delivered to their customers' own PCs. The systems

bill on the basis of usage (about \$3 to \$5 an hour, nights and weekends) instead of charging monthly fees.

Bigger things are planned by some of America's corporate giants involved in joint videotex ventures. Trintex—a partnership of CBS, IBM, and Sears—is expected to announce a videotex service by early 1987. Bank of America and Chemical Bank, each of which runs a sizable home banking service, have teamed up with AT&T and Time Inc. to develop the Covidea service, due to start during 1986. Covidea subscribers will use either their own PCs or an AT&T terminal, expected to sell for about \$100.

Other telephone companies, notably Nynex, BellSouth, and Pacific Telesis, are involved in videotex-like projects. Such information services may now be off limits to them under terms of the Bell System breakup, but after a series of legal challenges and waivers, they are likely to go ahead.

Some major firms are opting to provide information to videotex systems rather than operate their own. For example, Gannett sells its USA Today Update business-information service through a number of on-line networks. Chase Manhattan and six other banks offer VideoFinancial Services through several videotex operators.

**INTERNATIONAL:** Videotex—or "viewdata," as it's sometimes called overseas—was born a decade ago in Britain and France, and has spread to nearly four dozen countries. Britain's Prestel, the best-known system, has some 50,000 users. In France, several "telematics" projects are enjoying success, fueled by a giveaway of about a million inexpensive terminals. The Japanese telephone ministry's Captain service, in operation since late 1984, uses vivid graphics capable of reproducing the complex ideograms of the language.

GARY ARLEN

**Corporate giants such as IBM are lining up to provide data services for personal computers.**



An open and closed case: the Covidea terminal.

**TECHNOLOGY:** Home users can buy software discs that turn IBM, Apple, Commodore, or other home computers into videotex terminals. The software sells for less than \$100—as little as \$5, if subsidized by the operator—much less than the \$600-to-\$900 price of such specialized terminals as AT&T's poorly selling Sceptre.

Strategists have found that the colorful, cartoon-like computer graphics, deemed a big selling

## OPTICAL DISCS:

## ADVENT OF THE FIVE-INCH LIBRARY

**F**or most of its century in publishing, Grolier has been putting out reference works made with paper and ink, but in the fall of 1985 the publisher issued its *Academic American Encyclopedia* on a single 4.7-inch optical disc. Even with the equivalent of 21 volumes on the disc, four fifths of its capacity remain unused, and the publisher plans to add both a dictionary and a thesaurus to a later edition.

The gleaming plastic disc, playable through a personal computer, is the technological descendant of the discs that carry video and digital audio. The next generation will play back video, audio, and data, and record them as well. Eventually the discs will rival and perhaps supersede both the videocassette and the computer's floppy disc as an inexpensive electronic storage medium.

The encyclopedia is among the first volumes being published on CD-ROM (compact disc, read-only memory), a cousin of the familiar CD now beloved by audiophiles. In their own way, the data discs are just as entrancing to librarians, who expect to use them instead of microfilm in many archives. Each little CD-ROM holds 550 million characters (550 megabytes), the equivalent of 100,000 typewritten pages.

**MARKETPLACE:** Computer drives that read CD-ROMs will go on sale in 1986, and some will be integral parts of PCs. The drives will carry what is, for a new high-tech product, a low price tag, because they are similar to the players used for the thunderously successful digital audio CDs, according to Steven Sieck, a market analyst at Link Resources.

Some 600,000 CD audio players sold in 1985—about four times as many as the VCR sold in its third year. Thanks to volume production, the cheapest players are now selling for less than \$200—again, much sooner than

## THE LASER'S EDGE

In 1978, the 12-inch optical videodisc began spinning out recorded television of peerless technical quality. In 1983, its little sister, the 4.7-inch compact disc (CD), brought digital sound recordings to the mass market. Now some CDs are carrying vast quantities of computerized data.

The disc's advantages are many: Since its surface is never touched by a needle, it's immune to scratches and wear.

Moreover, disc players pick up none of the extraneous noise that bedevils records and tapes. And optical discs have a special symbiosis with the computer. Being a radial medium, like computers' floppy discs, they carry information laid out on their fast-spinning surface, within easy reach for random access. The data version of the compact disc, the CD-ROM, can contain as many as 600 megabytes (600 million characters) of data—1,000 times as much as a floppy disc.

Unlike the floppy disc, the optical disc doesn't store its information magnetically. Instead, information is physically pressed into the plastic disc in microscopic pits, covered by a transparent protective layer. A low-power laser beam reflects onto those pits as the disc whirls, and the circuitry interprets the beam, yielding pictures, sound, or data. The videodisc carries this material in analog form, the CD and CD-ROM in digital.

New kinds of optical discs will enable the user to record information as well as play it back. One type will be erasable, another will permit only a single recording. In recording either type, the laser beam makes microscopic changes in the disc's surface appearance. On playback, a lower-power beam reads the result.

VCRs reached that price. Worldwide, record companies pressed about 45 million CDs in 1985, and some seers expect them to overtake the old-tech vinyl LP record. Some 3,000 musical titles are available on CD in the U.S.

The videodisc, by comparison, is limping along. More than 500 movies and other entertainment programs are released each year, but, according to industry analyst Rockley Miller, Americans have purchased only 300,000 players

for optical videodiscs and approximately 600,000 for RCA's defunct videodisc, which uses a stylus instead of a laser beam. To boost sales, Pioneer and Magnavox halved the prices of their full-feature players to about \$300.

Most videodiscs offer entertainment programs, largely ignoring the disc's interactive capability—a sterling asset in training, education, and marketing. Stuart Pharmaceuticals, for example, uses videodiscs to teach obstetricians about new techniques. In carpet stores, the fiber maker Monsanto has installed computer-equipped kiosks, where consumers input their carpet needs and price range, and then see on screen an appropriate selection of rugs.

**TECHNOLOGY:** The development most likely to revive the consumer videodisc mar-

ket is the Pioneer 900 player, which plays both videodiscs and CDs. It brings out, for the first time, the digital soundtrack recorded on recent videodiscs.

But real wizardry is evident in the recordable discs now being perfected by several companies. They will first be used to store information in offices, but the technology could later record both sound and image. Unfortunately, each developer has a different technical approach, which it wants adopted as the international standard. In contrast, Philips and Sony insured the rapid rise of CDs and CD-ROMs by agreeing to a standard before introducing the discs.

The incompatibility of the optical videodisc and RCA's discontinued videodisc stunted the growth of both several years ago.

LINDA HELGERSON



The videodisc-computer lets you touch 'n' buy.

The new CD is a 4.7-inch library:  
It stores 100,000 pages of data  
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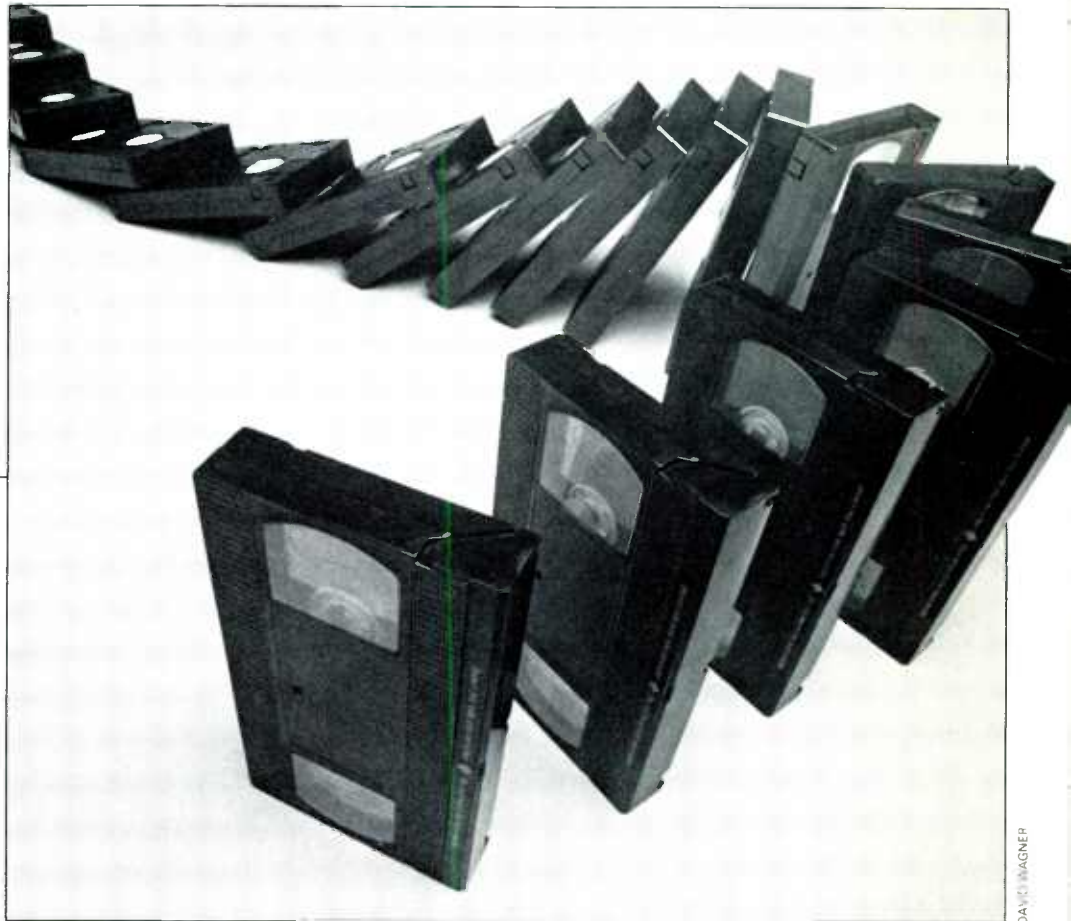
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## VCRs:

## FROM GIZMO TO HOUSEHOLD WORD



DAVID MAGNER

**T**he initials "VCR" are becoming almost as universally recognized as "TV." Indeed, the climb in videocassette-recorder sales continues to rival the takeoff of television itself in the 1950s.

At the end of 1985, some 25 million homes—nearly 30 percent of those with TV sets—were equipped with VCRs. In spite of a sluggish economy, Americans bought at least 11 million machines during the year, compared with 7.6 million the previous year and 3.3 million in 1983. According to one estimate, 8 percent of U.S. homes now have two VCRs.

Though the growth in VCR sales shows no sign of leveling off in America, observers note that sales in Britain, Germany, and Japan began to slide when penetration reached 30 percent. If that holds true here, VCR sales may peak in 1986. Yet the machines will continue selling. By conservative estimate, 55 percent of U.S. homes will have VCRs by the end of 1990.

The machine is the cornerstone

of a \$3.3 billion home-video industry, according to Vestron Video chairman Austin O. Furst Jr. "That makes us bigger than the bookstore end of the book business, about the same size as pay television, and gaining very quickly on the record business and the theatrical motion picture business," Furst said at a video retailers' convention. "Some of those businesses look to me like grapes turning into raisins. Our business looks to me like a grape turning into champagne."

Like the other major new media, the VCR appeals by offering a wider choice of programs compared to broadcast TV, but unlike the others it lets viewers choose their date and curtain time. It's also the only one that puts up with interruptions—phone calls, naps, meals—without penalizing the viewer.

The machine's viewer-friendliness has played a large part in its popularity, and that success has fueled even greater success. Volume manufacturing continues to

bring down VCR prices while the competition's prices—cable subscription fees, for example—continue to rise. Wholesale prices dropped about \$100 in two years, making possible a typical retail price of \$250 in many cities.

Success beget success in video software as well. VCR buyers' principal motive in the past has been to time-shift programs recorded from broadcasts or cable, according to surveys. But, as cassette rental outlets proliferate, buyers are attracted increas-

The home-video industry is bigger than the bookstore end of the book business, and about the same size as cable. Now it's gaining on records and movies.

## VIDEO CAMERAS:

TAKING VIDEO  
IN HAND

ingly by the VCR's ability to play back prerecorded shows.

The rapid decline in VCR prices has been a boon to consumers and to the home-video business at large, but has turned into a nightmare for equipment suppliers. By one count, 70 brands are competing in the VCR market. A company needs no particular technical acumen to enter the VCR business—it only needs to line up a manufacturer, since all VCRs are imported.

When VCR sales soured in Europe and leveled off in Japan, manufacturers found themselves with excess machines and only one major growing market—the United States. The result was a surplus of imported VCRs here: They were selling at a rate 50 percent greater than a year before but were being imported at a rate 120 percent greater. Prices declined almost on a weekly basis, until VCRs were widely advertised at prices as low as \$199.

Virtually all VCRs sold in the United States come from Japan. Korean-made units appeared in 1985 and will make a bigger impression at the low-priced end of the market in 1986, when the Koreans take off their gloves. U.S.-assembled units will follow; reacting to the U.S.-Japan trade friction, Matsushita, which makes nearly half of the VCRs sold here, announced last summer it would build a U.S. plant in 1986. Other Japanese makers are expected to open U.S. factories as well.

The major battle among VCR makers has been won: Machines using cassettes in the VHS format now outsell those using Beta cassettes by at least four to one, thanks largely to astute marketing by companies in the VHS camp. Not surprisingly, the Beta camp, led by Beta inventor Sony, has taken the offensive, pushing for a new format, 8mm video.

Using a cassette barely larger than a standard audio cassette

and a new formulation of metal-coated tape, the 8mm VCRs can record for as long as four hours. Advanced models will have digital soundtracks. The first models introduced were portable camcorders, and home decks are beginning to appear.

No matter how devoted it is to 8mm, however, Sony must continue to pledge fealty to its Beta format to avoid giving the impression that its recent offspring will soon be orphans. Sony has continued to improve its Beta equipment in the last two years, introducing Beta Hi-Fi, with its astoundingly good stereo sound, and SuperBeta, for which it claims a 20 percent greater picture resolution.

Companies selling VHS machines, including RCA and Matsushita, followed Beta Hi-Fi with their own version (VHS Hi-Fi, what else?), and also developed a system capable of better pictures. Known as VHS High Quality, the system uses different technology to improve the picture, including various filtering and edge-sharpening techniques, and is completely compatible with earlier VHS machines. VHS proponents claim that SuperBeta is not 100 percent compatible with standard Beta machines, a claim disputed by Sony and other Beta supporters.

All of the manufacturers, meanwhile, are keeping informed about the new 8mm system, whether or not they publicly espouse it. "There are 70 million VHS recorders now in use worldwide," says a Matsushita official. "Adding 8mm would cause confusion . . . but in the end the decision is made on the basis of consumer need." The manufacturers also have their needs, of course. Some have seen no need so far to unleash 8mm, but if VHS and Beta sales soften, the new miniaturized format will spread rapidly.

DAVID LACHENBRUCH

It's only an educated guess, but 1985 may have been the year when one million Americans equipped themselves to shoot their own home videos. Sales of home-video cameras and combination camera-recorders may very well rival peak-year sales totals for home-movie cameras during the 1970s heyday of 8mm film.

Yet video recording as a substitute for film photography remains only a minor use of the VCR, primarily because of the steep initiation fee and awkward equipment—the portable VCR and camera generally weigh about five pounds each and together cost \$1,500 to \$2,000. Consumers purchase only one camera for every 10 VCRs (one in five of the VCRs is a portable).

To open up the market two years ago, manufacturers began bringing out camcorders, which combine camera and miniaturized VCR in a single handheld unit list-priced above \$1,000 (up to \$1,800, in fact). Some record on the same VHS or Beta videocassettes used in stay-at-home VCRs, and one camcorder design uses the little "VHS-C" cassette that can be played in a home machine with an adapter. These models weigh between five-and-a-half and eight pounds.

Further miniaturization required smaller tape: In 1982, major VCR and tape manufacturers agreed on the 8mm video format. Kodak, GE, and Polaroid introduced 8mm camcorders in 1984; Sony, Canon, and others in 1985. Smallest was Sony's 2.2-pound model, which can record but not play back.

It will be a while before the camcorder's success in the marketplace can be assessed, because



With the smallest of the camcorders, (Sony's 2.2-pound model, top, with its player), making home movies is nearly as easy as taking snapshots.

the Customs Service and the Electronics Industries Association don't keep separate statistics for camcorder imports.

Whether the camcorder will ever win over the American public to electronic home movies is an open question (home movies on 8mm film never became a true best seller). Electronic home movies have their advantages— instant playback, no darkening the room or setting up projector or screen. But they have a big disadvantage as well: Because the tape is cheap and long-playing, Baby's First Birthday can easily become a full-length feature.

DAVID LACHENBRUCH

Smaller and lighter than ever,  
home video cameras may soon  
outsell movie cameras.

## VIDEOCASSETTES:

## 24,000 SHOPS ON MAIN STREET

Videocassette rental shops seem ubiquitous today, as gas stations were in the 1960s, when there were pumps on three corners of many major intersections. "Now you have only one gas station at that intersection," says Len White, president of CBS/Fox, the leading cassette publisher, "and it's no less convenient to get gas." The same, he believes, will be true of video shops after the present surplus shakes out.

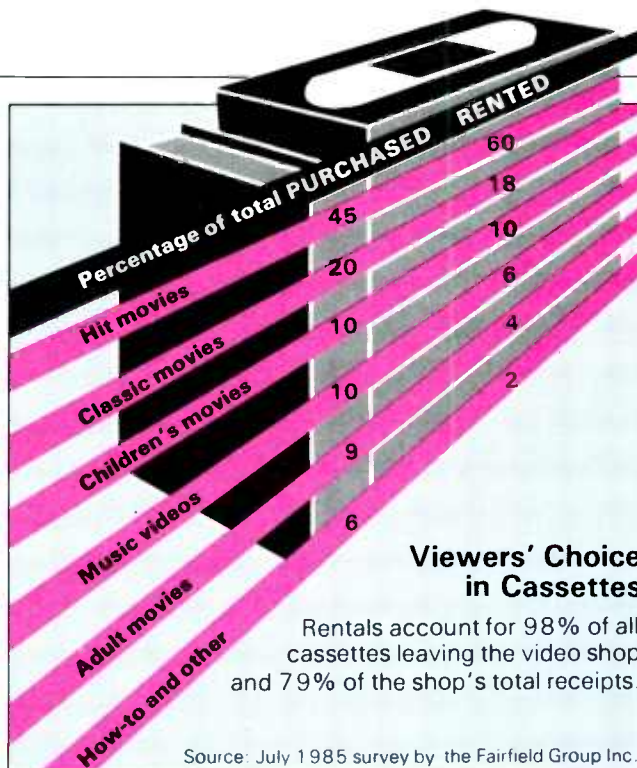
Jeff and Nancy Gerlach hope that the remaining video shop at their intersection will be theirs. Three video shops now occupy the Gerlachs' intersection in Albuquerque, New Mexico. Their wish for 1986: "To lose some of our competition."

The Gerlachs have an almost prototypical video dealership, a husband-and-wife operation with about 2,800 cassettes in each of their two stores. Nationally, the typical store has about 3,300 cassettes, including 1,900 different titles. During the past two years, while publishers have showered the country with 4,500 new titles, the average shop has doubled its stock and increased its supply of titles by 65 percent.

The number of video stores has grown even more dramatically, to an estimated 24,000 in 1985—double the number of a year ago. Industry observers predict that by 1987 there will be 30,000 shops, not counting the drugstores and others that earn less than half their revenues from prerecorded tapes.

Ninety-eight percent of the cassettes that leave the average video shop are rentals, accounting for 79 percent of the shop's receipts. It takes a dealer 18 rentals to recover the wholesale cost of a copy of *Amadeus*, *Ghostbusters*, or *The Killing Fields*, and perhaps another three to five rentals to cover overhead.

But the economics don't guarantee success to every shop.



Industry wisdom maintains that a store needs at least 1,000 or so "active" renters—those who rent at least one tape a month—to be profitable. By the end of 1985, approximately 27.7 million American households will have VCRs. Nielsen estimates that about two thirds (18.5 million) of those VCR owners are active renters. According to the rule of thumb, those renters can sustain 18,000 rental shops. But with 24,000 video stores and countless other outlets in business, rental price wars, two-for-one deals, and shop closings are facts of life.

Despite the crowded market, and despite the investment of at least \$200,000 needed to start a video shop (twice what it was two years ago), the number of shops is expected to continue growing, to about 30,000—paralleling the increase in home VCRs, whose

number may approach 40 million in 1986 and 50 million the next year.

Observers foresee enormous changes in the ways cassettes enter this competitive market. Until recently, most tapes were distributed through a two-step process: The publishers—mostly movie studios—sold to wholesalers, who in turn sold to retail shops. Now the studios more often deal directly with such mass merchants as 7-Eleven and K Mart, which had previously shied away from video because they did not want to be involved in a rental business. By limiting their lines to children's fare, classic films, music, and even educational tapes, all priced at \$19.95 or less, these merchants are attempting to make good in a selling business. By purchasing directly from program suppliers, they're also cut-

ting costs.

Previously the major attempts to shift the market from rentals to sales had been made by Paramount, the sixth-ranked video publisher, which has been releasing hit titles at \$29.95 and \$39.95. But most studios price movies at \$79.95, remaining unconvinced that lower prices will boost volume enough to yield higher revenues. They re-release cassettes at lower prices only after most dealers have bought the title for their rental inventories.

Yet Paramount has made it clear that its blockbuster *Beverly Hills Cop* must sell much better at \$29.95 than it would have at \$79.95 if the studio is to stick with low pricing for hits. Executives hope and expect *Cop* to be the first cassette to sell a million copies or more.

Paramount has been fortunate in having such blockbusters as *Raiders of the Lost Ark* and *Flashdance* for its low-price promotions. Most films haven't done well enough in theaters to suggest they could move the 750,000 copies that *Raiders* sold or the 350,000 sales chalked up by *Flashdance*. A movie reasonably successful at the box office can be expected to sell at least 50,000 copies, studio executives agree. Only about 100 films reached the 100,000 mark as of September 1985.

With sales as limited as that, most studios won't gamble by putting low prices on movies. Prices for hit titles are expected to stabilize at \$79.95 on initial release, but as the films are shown on cable and broadcast television, publishers often drop list prices to \$39.95 and eventually to \$19.95, while many retailers sell used tapes at even lower prices after renters' interest subsides. If that sounds familiar, it should: It follows one tried-and-true principle of traditional American retailing—markdowns expand the market.

IRA MAYER AND PAUL SWEETING

**Ironically, as VCR sales boom one out of four video shops is closing its doors.**

## HDTV:

## PICTURE PERFECT

While stereo sound became a part of American television in 1985, improvements in the TV picture lagged behind. The year brought us 12 months closer to some kind of enhanced or high-definition television (HDTV)—but that's all that can be safely said.

The first step toward adopting an international technical standard for HDTV—selecting a videotape-production system for TV and movie studios—became heavily politicized before the fall 1985 meeting of the International Radio Consultative Committee (CCIR) in Geneva. (The meeting was held after the *Field Guide's* press date.)

America's industry-wide Advanced Television Systems Committee has backed the Japanese-developed HDTV standard that would provide finer wide-screen pictures, more than doubling the number of scanning lines used in U.S. broadcasts. But the Europeans and the Soviets were expected to oppose the standard because it would be hard to adapt for use in their countries, where electrical power operates at 50 Hz (cycles per second), compared with 60 Hz in North America and Japan.

The U.S. State Department got into the act before the Geneva meeting, urging American delegates not to dissent from the official U.S. position. "We were contacted and told what our position is," said one committee member.

Although the standard at issue would be applied at first only in the production of shows, some observers expect it would pave the way for a somewhat similar standard for sending and receiving HDTV as well. CBS has proposed a method of sending

## HOW HI THE FI?

The fuzzy TV image we watch today consists of 525 lines of information; by raising that figure to 1,125 and widening the TV screen, HDTV will dramatically sharpen television's clarity and color resolution.

Stereo broadcasting uses a transmission system similar to FM stereo's. But stereo TV has better sound quality than its FM counterpart, thanks to an ingenious noise-reduction system: The TV signal is compressed by the broadcaster, then expanded by decoding circuitry in the home set, which presents it nearly interference-free.



HDTV pictures without making existing TV sets obsolete.

In an action that may be equally significant, an American satellite network has adopted a transmission system that improves the sharpness and color of the picture without increasing the number of scanning lines. TV sets require a special adapter to receive broadcasts using this B-MAC system, which was adapted from the British-developed MAC system by Scientific-Atlanta and Dolby Labs. The Private Satellite Network was able to take the step alone because it transmits teleconferences to a limited number of receivers and does not have to worry about equipping a mass audience with adapters. Australia also selected B-MAC for future DBS broadcasts.

Not everybody wants a new standard. RCA, joined by HBO and M/A-Com, opened a campaign to keep the current technical standard for American broadcasting, cable, and DBS, and argued that many visual improvements are possible without abandoning it.

DAVID LACHENBRUCH

## STEREOPHONIC TV:

## THE SONIC BOOM

by the fact that the network, like PBS, distributes all its programs by satellite, which can carry multiple audio tracks. The big stereo push at NBC is at least partly motivated by a desire to generate business for its parent company, RCA—one of the first companies to sell stereo TVs and VCRs.

ABC has no such overriding motive, yet it is slowly turning its corporate dreadnought toward stereo, too, and plans to phase in a full slate of programs over the next few years.

Only CBS remains unconvinced that stereo can enhance its programming. "The jokes on *The Tonight Show* aren't any funnier in stereo," says CBS spokesperson Pamela Haslam, who adds that the network does not plan to begin producing stereo shows until the end of the decade. Some observers believe that CBS's lack of interest stems directly from budget cuts brought on by its costly defense against Ted Turner's take-over bid, which may have left the network unwilling to spend up to \$15,000 extra to produce an hour-long show in stereo.

The rising stereo tide is also expected to benefit a related service: second audio program (SAP), the extra channel that stereo stations can use for bilingual and other supplementary audio tracks. Only three stations were using the channel as of September 1985, primarily because of temporary shortages of SAP generating equipment.

Stereo television represents the first significant change in TV transmission since the introduction of color in the late 1950s. Now, as viewers listen to bullets whiz from speaker to speaker on *Miami Vice*, enjoy two-track two-steppin' on PBS's *Austin City Limits*, and become part of the roaring crowd at an NFL football game, they'll be doing so through a medium that—once again—will never be the same.

JEFFREY L. WOLF

In 1985, stereo television got what George Bush once called the "Big Mo": unmistakable and unstoppable momentum. From nearly a standing start at the beginning of the year, multichannel-TV sound has gone on-air at more than 115 stereo stations in half of the nation's top 100 markets—reaching nearly 60 million households as of last September. The number of stereo stations is expected to top 200 in 1986, far exceeding even the most sanguine predictions.

The number of stereo TV sets has also been growing steadily, and industry insiders believe that forthcoming sales figures will show the equipment fast reaching the "critical mass" needed to encourage even more broadcasters to take the stereo plunge.

Stereo and television are hardly strangers. Even before the FCC approved stereo telecasting in 1984, PBS was providing radio stations with stereo simulcasts of shows such as *Live from Lincoln Center*, and commercial stations occasionally made similar simulcast arrangements with FM outlets for rock concerts. But what really heralds the Stereo Era is the fact that two commercial TV networks are gearing up for it in earnest. NBC scheduled 16 hours of stereo programming per week for the fall season, a move facilitated

Global politics have stalled improvements in the TV picture; but stereo's time has suddenly come.

# POWERS THAT BE

**A**lthough hundreds of companies are actively involved with the new communications technologies, most of the major prospecting is being done by a relative handful—the familiar media conglomerates in broadcasting, publishing, and motion pictures. With their huge financial resources and mass-media expertise, these companies range all over the field, many of them involved with the ownership of delivery systems as well as with programming. The companies listed here are the players dominating that field.

‡ **ABC/Capital Cities:** The two will begin operating as one company on January 1, 1986. ABC's 1984 broadcast and cable revenues were \$3.7 billion, 79.2% of total revenues. Capital Cities' 1984 broadcast and cable revenues were \$348.1 million, 37% of total revenues. **Westinghouse:** The sale of Group W Cable to a consortium of cable MSOs has yet to be finalized. **Storer:** Merged in 1985 with SCI Holdings Inc., a subsidiary of Kohlberg Kravis Roberts & Co. **Rupert Murdoch:** Metromedia's 1984 broadcasting revenue was \$417 million. Murdoch's News Corporation did not own any broadcast or cable properties in 1984. **Tribune Company:** Tribune Cable Communications will be sold in 1986.

\* Joint ventures. **Arts & Entertainment:** Hearst, ABC, RCA. **Lifetime:** Viacom, ABC, Hearst. **USA:** Paramount, Time, RCA. **Black Entertainment Television:** Robert L. Johnson, TCI, Taft, HBO. **Nashville Network:** Owned by Gaylord Broadcasting, marketed by Group W. **Trintex:** CBS, IBM, Sears. **RCA Home Information Services:** RCA, Citicorp. **Indesys:** Epson, ABC. **Videotex America:** Times Mirror, Infomart. **X-Press Information Service:** TCI, McGraw-Hill, Telecrafter. **AP News Plus:** Tribune, Associated Press. **Bravo and American Movie Classics:** CBS, Cablevision, Washington Post. **ESPN:** ABC, Nabisco.

\*\* Total revenues in millions. Source: Advertising Age.

Compiled by Catherine S. Minot

	‡Capital Cities/ABC	CBS	RCA	Time Inc.	‡Westinghouse	Cox Enterprises	‡Storer Communications
<b>TV NETWORKS</b>	ABC	CBS	NBC				
<b>BASIC CABLE SERVICES</b>	* ESPN, * Lifetime, * Arts & Entertainment		* Arts & Entertainment	* USA Network	* Nashville Network		
<b>PAY-TV SERVICES</b>		* Bravo, * American Movie Classics		Home Box Office, Cinemax	Home Theater Network		
<b>TV-FILM PROGRAM PRODUCTION</b>	ABC-TV, ABC Motion Pictures, Capital Cities Television Productions	CBS-TV, CBS Productions	NBC-TV, NBC Productions	* Tri-Star	Group W Productions	TeleRep	Storer Communications
<b>VIDEO CASSETTE DISTRIBUTION</b>	ABC Video Enterprises	* CBS/Fox Home Video, CBS Music Video Enterprises	NBC International, RCA/Columbia Pictures International Video	Time-Life Video			
<b>INTERACTIVE CABLE</b>							
<b>VIDEOTEX/INFORMATION SERVICES</b>	* Indesys	* Trintex, Extra-vision	* RCA Information Services	* Covidea			
<b>PROGRAM SYNDICATION</b>		CBS International	NBC Enterprises		Television Syndication Center		
<b>RADIO NETWORKS</b>	7 ABC Networks,	CBS Radio, Networks, RADIO-RADIO	NBC Radio, The Source Talknet				
<b>TV STATION OWNERSHIP</b>	7 VHF 1 UHF	5 VHF	5 VHF		5 VHF	6 VHF, 2 UHF	5 VHF 2 UHF
<b>CABLE SYSTEM OWNERSHIP</b>	Cap Cities Cable (.374)			American Television and Communication Co. (2.5)	Group W Cable (2.1)	Cox Cable (1.4)	Storer Cable (1.5)
<b>SATELLITE TRANSPONDERS</b>			Satcom I-R, II-R, RCA K-2		Galaxy 1 Satcom 3R	Westar 4,5 Telstar 301	Satcom 3-R Galaxy 1
<b>RADIO STATIONS</b>	11 AM 12 FM	7 AM 11 FM	3 AM, 6 FM		6 AM 6 FM		

\*\* BROADCAST & CABLE REVENUE FOR 1984

% OF REVENUE FROM BROADCAST & CABLE



‡Rupert Murdoch News Corp.	Tele-Communications Inc.	Times Mirror	‡Tribune Co.	Viacom Inc.	Turner Broadcasting	Warner Communications	Gannett Co.	Hearst Corp.	Multi-media Inc.	Taft Broadcasting Co.
Sky Channel (Europe)	*Black Entertainment Television		WGN, WPIX, *AP News Plus	*Lifetime, MTV, Nickelodeon	CNN, CNN Headline News, WTBS			*Arts & Entertainment, *Lifetime		*Black Entertainment, Television
				Showtime The Movie Channel						
20th Century Fox Television, Metro-media Producers Corp.	TCI/Taft Programs		Tribune Entertainment, Independent News Network	Viacom Productions	MGM/UA, Turner Program Services	Warner Television, Warner Brothers Pictures	Gannett Productions, MacNeil-Lehrer-Gannett Productions	Hearst Broadcasting Productions, King Features Entertainment	Multimedia Entertainment	Taft Entertainment Co. TCI/Taft Programs
				Viacom Enterprises		Warner Home Video				Worldvision Enterprises
				Viacom Worldwide		Warner Cable Corp.				
	*X-Press Information Service	Gateway, *Video-text America	In Touch, *AP News Plus							Electra Teletext
Metromedia Producers Corp.			Tribune Entertainment	Viacom Enterprises	Turner Program Services	Warner Television				
					CNN Radio Network					
3 VHF 3 UHF 2 (Australia)		5 VHF 2 UHF	3 VHF 2 UHF	3 VHF 1 UHF	1 UHF	5 VHF 1 UHF	5 VHF, 1 UHF	6 VHF	4 VHF 1 UHF	10 VHF 2 UHF
	TCI Cable (3.7)	Times Mirror Cable (1.0)	Tribune Cable Communications Co. (.185)	Viacom Cable (.810)		Warner Cable Corp. (1.1)		Hearst Cable (.030)	Multimedia Cablevision (.268)	*TCI/Taft Cablevision Associates (.165)
	Westar 5			Galaxy 1 Satcom 3R	Galaxy 1 Westar 3, 4	Satcom 3R, 4				Westar 5
			3 AM 2 FM	3 AM 5 FM			7 AM 7 FM	4 AM 3 FM	3 AM 3 FM	8 AM 12 FM
N/A	\$449,400	\$376.2	\$322.1	\$267.3	\$265.7	\$236.5	\$232.8	\$210.0	\$201.4	\$171.5
N/A	100%	13.4%	18.0%	83.4%	89.0%	100%	12.0%	N/A	66.2%	38.0%

PROGRAMMING AND INFORMATION SERVICES

DISTRIBUTION SYSTEMS

# GLOSSARY OF TECHNICAL TERMS & INITIALS

**Addressability:** the ability of a cable system or STV broadcaster to turn an individual subscriber's service on and off by remote control, thus facilitating pay-per-view programs.

**Alphanumeric:** referring to letters and numerals on a TV screen, as in teletext and videotex.

**Analog/digital:** two basic types of electronic communications signals. An analog signal is continuously varied in quantity, such as voltage, to represent variations in another quantity, such as loudness of a voice or brightness of a picture. The signal is, therefore, "analogous" to the information it carries. Most broadcasts and recordings today are analog, but increasingly they use the digital language of computers. In digital techniques, pictures, sound, or computer data are represented by a binary code of "on" and "off" signals. Since this system ignores everything but those two signals, it is more precise and less susceptible to interference than analog.

**Aspect ratio:** the ratio of a picture tube's, or movie screen's, width to its height. Wide-screen movies, with ratios of about 5:3, suffer when broadcast at television's 4:3 ratio. Most plans for high-definition TV would use a 5:3 ratio.

**Basic cable:** the minimum cable service subscribers receive for a monthly fee.

**Baud:** a measure of a computer

modem's transmission speed, equal to bits per second.

**Beta:** one of two incompatible videocassette recorder (VCR) formats using half-inch tape. The other, more popular, format is called VHS.

**Bit/byte:** bit is short for "binary digit," the smallest unit of information in a computer ("0" or "1"). A byte is a group of bits, usually eight, handled as a unit, that stores a piece of information such as a character. Computer memory is measured in bytes: "64K" means a computer has 64 kilobytes, or 64,000 bytes.

**Blue sky:** a pejorative term for overly optimistic or unrealistic expectations or promises.

**Broadband:** referring to a great bandwidth of frequencies, adequate for TV transmission or multiple audio circuits. A coaxial cable has broadband capacity; a telephone line does not.

**C-band:** the range of frequencies, from 4 to 6 gigahertz, on which most communications satellites receive and transmit signals.

**Churn:** industry jargon for the disturbing rate at which subscribers cancel a service, such as basic or pay cable.

**Common carrier:** a communications form that offers its services to the public, and is regulated by the FCC. Ownership of the

medium is divorced from control of the messages carried. Telephone is a common carrier, broadcast television is not.

**CRT:** Cathode Ray Tube, used for display of television pictures or computer information.

**Cycles per second:** the number of complete performances of a vibration, electrical oscillation, current alternation, or periodic process. The measure used by radio frequencies. See "Hertz."

**Dedicated:** characteristic of a machine or system used only for one function; for example, a computer that serves as a dedicated word-processing system.

**Digital:** (See "Analog/digital.")

**Dish:** colloquial for "earth station," an umbrella-shaped antenna that sends or receives satellite transmissions.

**Downlink/uplink:** jargon for a satellite earth station for receiving (downlink) or sending (uplink) satellite signals. (If it cannot also uplink, the antenna is a TVRO—Television Receive Only.) Also used as a verb.

**Downloading:** process of transmitting data, computer software, or even a movie, for recording at the other end of the line. Downloading is often scheduled at the convenience of the sender, but the recording can be played back at the convenience of the recipient. ABC's defunct Tele-

First pay-TV service downloaded movies to subscribers' VCRs using scrambled broadcasting at night.

**Downstream/upstream:** industry jargon indicating whether a signal is traveling from the distribution center to the subscriber (downstream) or in the opposite direction.

**Footprint:** the geographic area in which a given satellite transponder's signal can be received. Different transponders on a satellite often have different footprints.

**Geostationary orbit:** satellite path 22,300 miles above the equator, where a satellite's position relative to the earth remains constant because its speed matches the earth's rotation.

**Hardwired:** equipment with a permanently installed program to direct its functioning—for example, a computer with software built into its circuits.

**Headend:** a cable television system's control center where incoming signals are received, processed, and put on outgoing channels.

**Hertz (Hz):** cycles per second; a measure of electromagnetic frequency that represents one cycle, or complete wave, per second. One kilohertz (kHz) is 1,000 cycles per second, one megahertz (MHz), one million; and one gigahertz (GHz), one billion.

**Interactive:** referring to those technologies that permit user participation, such as two-way cable, videotex, and certain optical video discs.

**ITFS:** Instructional Television Fixed Service—a group of TV channels in the ultra-high-frequency range, set aside for educational use. ITFS is technically identical to Multipoint Distribution Service (MDS).

**Ku-band:** the range of frequencies, from 11 to 14 gigahertz, on which the next generation of communications satellites—including direct-broadcast satellites—will receive and transmit signals.

**Laser:** acronym for Light Amplification by Stimulated Emission of Radiation—a device that emits an extremely narrow beam of light, used in fiber optics and optical video discs.

**Leased access:** the use of cable channels for leasing to independent commercial programmers.

**Microprocessor:** the heart of a computer, a silicon chip that processes data and controls a computer's components, including the memory, keyboard, display, and disc drives.

**Modem:** a contraction of "modulator-demodulator," a device that lets computers and other digital devices communicate over analog media such as telephone lines.

**Mouse:** a palm-sized computer input device that when moved on a tabletop causes corresponding movements of the computer's cursor on the screen. It can supplement or even replace the keyboard for some functions.

**Must-Carry Rule:** an FCC requirement that a cable system transmit to subscribers all full-powered TV stations in its area.

**Narrowcasting:** aiming programs at a specific audience.

**MSO:** Multiple System Operator, a cable company that owns more than one system.

**Multiplexing:** various means of squeezing a number of TV programs or other transmissions into a single broadcast channel, cable, or other electronic path.

**NTSC:** National Television System Committee, the group that devised the technical standard for color television adopted in the U.S. in 1953, and later in Canada, Japan, and several other nations. (PAL and SECAM, developed in Europe, are two other major standards.)

**Penetration:** in a given population, percentage of households using a product or service.

**Public access:** the use of cable channels by members of the community at no charge.

**RFP:** request for proposals—in cable franchising, a government

invitation for bids to operate a local system.

**SCA/subcarrier:** Subsidiary Communications Authorization—FCC permission granted to a radio station to use subcarriers in the FM channel to piggyback material, often computer data, readings for the blind, or background music services. Stations frequently lease subcarriers to other companies. The initials are also used to mean the subcarrier itself, part of the FM signal that cannot be received by an ordinary radio.

**Scrambling:** altering a TV picture or other transmission so it can't be properly received without a decoder.

**Smart:** as in a "smart terminal"—having built-in data-processing ability. A "smart building" is wired to provide computer and communications services to tenants. Without such features, it is "dumb."

**Superstation:** a local TV station whose signal is available by satellite relay to cable systems across the country. WTBS, Atlanta, is the original.

**Teleport:** a cluster of satellite antennas built as an electronic gateway or "port" for a region.

**Tier:** an optional cable channel or set of channels for which the subscriber pays an extra fee.

**Translator:** a low-power transmitter that retransmits the signal of a distant TV or radio station in an area with poor reception.

**Transparent:** referring to a communications device or network that (1) does not degrade a signal that passes through it, or that (2) is extremely unobtrusive and easy to use.

**VBI:** Vertical Blanking Interval—21 lines in the TV signal that aren't used to carry pictures. When a TV picture rolls, the VBI appears as a heavy black line. Tiny blips of moving light along some of those lines indicate the encoded presence of teletext or closed-captions for the hearing-impaired.

**VHS:** Video Home System, the more popular of the two video-cassette formats using half-inch tape. The other is Beta.

**Window:** (1) computer term for subdivision of the screen to display and give access to the workings of different functions at the same time, made possible by advanced software; (2) marketing term for the period of greatest opportunity for a new service or product; (3) programming term for the period during which a network or other distributor has rights to show a program. A movie may have a pay-cable window of several months.

*Compiled with the assistance of Link Resources.*

F. Scott Fitzgerald's

# TENDER IS THE NIGHT



Showtime presents the exclusive premiere of a new 6-hour mini-series.  
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