

Consumers and the New Communication:
An Examination of the
Future of IBN Markets

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CONSUMERS AND
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THE FUTURE IBN MARKETS

by

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There is a view abroad, widely shared, loudly proclaimed, that the future is being invented in the form of threads of glass down which are projected beams of light. A kind of glass-cased Prometheus. It is an attractive image, clean and pure with the promise of harnessing technology to solve our problems and enhance our lives. But, against that, we know what happened to Prometheus.

In the spirit of Greek mythology let me begin with a couple of more contemporary sagas. Some years back a pioneer of post-war Japanese industrial development, a silver-haired captain of industry and head of a colossal organization called together his senior officials. He told them of an idea he had had. Now Japanese organizations, like the society in which they are ensconced, are nothing if not deferential. The officials listened with said deference but with a growing feeling which said, in Japanese, "the old man's crazy." At the end of his piece they tried to tell him that his idea was, to say the least, a non-starter. No one would want it. Impossible to market. Wouldn't work. In short, bad news. Do it anyway, he said, and they did, and the rest is, as the cliché goes, history. The silver-haired captain of industry was Mrs. Morita's boy, Akio, who had started the Tokyo Telecommunications Company in 1958 with \$500.00, a venture which is more contemporaneously known as Sony. His idea was the personal stereo.

Meanwhile, at roughly the same time that Morita was building Sony, another innovator on the other side of the globe was having somewhat of a more difficult time. Arthur Paul Pedrick is credited with being the most unsuccessful inventor in history. His bicycle with amphibious capacity got nowhere, nor did his spectacles that improved vision in poor visibility carve out a market niche, nor his device to allow one to drive a car from the back seat, nor any of his golf inventions including a golf ball which could be steered in flight (that one was barred from the market on the illiberal grounds that it contravened the rules of the game). Perhaps his most spectacular failure to create a market for his technological marvels was that that no one would buy his idea to irrigate deserts of the world by sending a constant supply of snowballs from the Polar regions through a network of giant peashooters.

And so to IBN. When one leafs through the many pages of claims for this new technology are we playing with the Morita or the Pedrick model of marketable technology. Of course, it will be said by many, it's Morita. IBN will revolutionize communications into the home, into the office, between homes and offices. New markets will be established, new tastes created, new needs identified and satisfied. I must say, however, that from quite early on in my inquiries into this field I concluded that we may in fact be dealing with images of the steerable golf ball.

I have long believed that a healthy scepticism towards extravagant claims for the future -- especially by those who seek to create new realities which will serve their acquisition of wealth -- can be useful. Certainly there can be no doubt that

with IBN one is dealing with a meshing of extravagance, dreaming, wealth, power and touching desire to ignore social and cultural conditions that suggest reality is out of step with "the dream."

I see that in Cerritos, California, GTE Corporation, a Stamford, Connecticut telco, is wiring part of the community with an optical-fiber cable TV system. The upper-middle class members of Cerritos will no longer "have to settle for Out of Africa because Policy Academy is out of stock at the local video rental store. Instead, they will be able to have the movie of their choice transmitted right into their TV sets. They also will be able to set up video cameras to monitor a sleeping infant from a neighbor's house. And within a few years, they will be able to video-shop from a Sears Roebuck and Co. catalog (report in the Wall St. Journal, Dec. 25, 1988).

The experiment is for GTE to try "to understand what ordinary Americans do when confronted with such a choice, to figure out which series are the most popular and which will bring it the most money." The answer to this question is being sought by many other companies in various countries where experimental field systems have been established. The issue was put most prosaically by a GTE engineer, who is quoted as asking "What do you really want when you sit in front of the TV?" The initial assumption is that ready access to movies, at any time, will be an important part of any such service. The exotica, however, of the new optic fiber systems lie with more personal services. For example, in the Cerritos experiment it is suggested that since "the video signals can be sent from a video camera in one home to a TV set

in another, users can create their own picture telephones. This would allow a grandmother on one side of town to watch a grandchild's birthday party on the other" (ibid). My immediate reaction when I read that was to ask, well why wasn't granny invited to the party. But, I suppose one can see what they mean. That the use of optical fiber systems has the potentiality to recreate the way in which we use communications and thus to transform the character of social life.

At the heart of the vision of IBN has to lie an expectation about the citizen-as-audience, about social beings and the way in which they are evolving. We are told that IBN will be able to deliver video-on-demand, pay-per-view events, video educational services, interactive video games, personal video communications, concurrent transmission of NTSC and HDTV signals, specialized movie services, full motion video shop-at-home video marketing, (of restaurants, theaters and the like), high speed/high resolution facsimile, work at home applications using computer graphics, advanced work stations, computer-aided design, video conferencing, picture telephones, high fidelity telephones, pictographic videotext, and ready access to data bases.

More specifically, one can see an alloy of such ideas embedded in the coinage of contemporary debates about the future of audio-visual culture. Cablevision Systems chairman and CEO, Charles Dolan, told an audience at the Western Cable Show that within 10 years "basic (cable) will be gone from the cable vocabulary" and subscribers will no longer have to invest in one "monolithic package" to obtain cable. Technological advances, he suggested, will instead make it feasible for subscribers to

select programming they want to view and be billed only for the usage, using a fee structure much like those currently utilized by telephone systems. [Quoted in Multichannel News, December 12, 1988.] Julius Barnathan, president of broadcast operations and engineering for Capital Cities/ABC Inc., recently predicted by the year 2000 TVs with flat tubes or solid state wall screens; smaller receivers with digital and multiple pictures; widely available fiber optic, 35 mm movies distributed electronically via satellite; DBS and HDTV; VCR and HDTV. [Quoted in Multichannel News, November 28, 1988.] And a recent edition of Business Week argued that "the blending of photographic-quality images, digital audio, and personal computers will foster what Frederick C. Davis, editor of MacUser magazine, calls 'desktop MTV.' Personal computer users will be able to create animation, dub sound effects, edit music as easily as words, and merge home-video shots with scenes from, say, a travel film. 'We are moving toward the marriage of computers and television' says James A. R. Johnson, Director of Government Affairs for Apple Computer Inc." [Business Week, January 30, 1989.] Accompanying this breathless prose was a picture-diagram which I have reproduced here, with unfortunately less-than-perfect fidelity:

[Figure 1 - about here]

Even more academic accounts tend to exhibit the same kind of excited, occasionally extreme, anticipation. Dr. Tasusada Kitahara, the father of the Japanese Information Network system, believes that the whole of life, work as well as leisure, will be

in the home. He recently wrote of the future of telecommunications: "An era will dawn where not only governmental and industrial activities are dispersed, but many business activities will be performed at home... There are two conceivable forms for future work-at-home systems. In the first a person would need to go out to a neighborhood center, where he would connect with his office. In the other, more sophisticated configuration, he would not have to leave home. Several benefits could be expected from either approach. It would be possible to live, or set up office liaison centers in areas where the land prices are lower. Heavy rush hour commuting jams could be alleviated, and would contribute to energy saving. It would also be possible for people to conduct all daily people to conduct all daily activities, including their jobs, in a pleasant environment, thus contributing to their mental and physical well-being." Dr. Kitahara obviously doesn't have three young kids at home otherwise he might grapple a little more with the impact they just might have on the home as working environment. Unbowed, Kitahara speaks in glowing terms of the powerful humanistic benefits to flow from the information society: "Telecommunications will provide a way for individuals to use their time more effectively...leisure will be increased, and the ability of people to use their free time for cultural purposes will be enhanced."

This next example is a real beaut. It is taken from Stewart Brand's The Media Lab:

"When Nicholas Negroponte and I originally discussed what this book might be about, he suggested, 'It's about quality of life in an electronic age.' A few months later he added, 'It's a primer for a new life-style.' Later still he mentioned, 'I was still in my pajamas at ten-thirty in

the morning after I had been doing Lab work, through e-mail on my computer, for several hours. Maybe what we're talking about is 'The right to stay in your pajamas.'

"Run that image as a film clip -- the director of the Media Lab rising from the dark-finished thirteenth-century canopy bed that he and his wife, Elaine, found in the south of France for a few hundred dollars, mumbling good morning to their touchy bulldog, Piccadilly, flipping on a Macintosh computer on the way to the shower, rotating in the hot water blasted from the five shower heads while listening to a shower speaker rinse him with the morning news, strolling back by the Macintosh to see if any e-mail is particularly urgent, then heading for tea in the kitchen that Elaine's faux work has made a place of rich marble and trompe l'oeil non-doors, then back to the computer for a few hours of pajama-clad work" (Stewart Brand, The Media Lab).

In an academic paper one should be polite and serious, but I must say that when I read pretentious, unreal, masturbatory nonsense such as this I do get just a bat's squeak of desire to let loose. And yet so much of the debate about what we can generically call IBN is of this kind. Its either unreal or dishonest, and in either case, can only serve to obscure both the character of the experience of communication as lived by most people out of their pajamas, and the kind of choices which would need to be faced if there is to be a marriage of technological and human potential. X

You will have gathered then that even at this early stage in my paper, I simply do not buy all this hype. This is not because one does not admire something of the technological wizardry involved. Its just that the vision of what one could do with broadband networks and digital communications simply does not square with my own sense of the nature of the social reality within which we live and will continue to live for the foreseeable future. That social reality is defined by the dynamics of social organization, experienced through the class system, forms of work, levels of education, literacy and numeracy, the charac-

ter of leisure, the deconstruction of the family, and vitally, the social organization of popular taste. That latter, in particular, is the jail within which are locked our technological desires.

I need here to tease out what seem to me to be a dichotomy within the arguments for the pursuit and creation of IBN systems. The first element within the dichotomy relates to the character of the technological developments which I listed above and with which everyone is very familiar. With the exception of optic fiber cable, all those technologies are simply better, more effective and efficient ways of doing what we already do now: better telephones, better sound, clearer TV pictures, and so on. The use of optic fibers, if it is to be something other than just one of the mechanisms by which we do these things, has to open up to us the possibility of the new, the possibility of interactivity, and through that the making available of a gateway to experiences and information from which we were previously excluded because we were technologically undernourished.

The report from the NTIA published in November of last year touches on the point, though cradling it in passionate enthusiasm. It speaks of the "dazzling array" of media that will be available by the end of the century that will allow "viewers to watch precisely what they want to watch, when they want to watch it." More clearly and specifically, the CTIS note which led to the convening of this conference states that the very act of integrating, through IBN, voice, video and data text "leads to individualized program choices (e.g. view-on-demand) from video

libraries. Broadcast TV and cable on the other hand provide simultaneous services for mass audiences."

Implicit within this thesis is the belief that such individualization amplifies to an enormous degree the process of the fragmentation of the mass audience which is said to be gathering pace; and that the aggregation of individualized choices will not be another way of saying "mass audience." In short, that there is implicit within the organization of new markets for new media the dissolution of the "mass." I do not believe this.

There is, however, another implication which constitutes the second element within the dichotomy. This is the heavy but hidden assumption that human beings, as social beings, are proactive beings who will utilize the opportunity presented by IBN to interact, to search, to inquire, to construct their own culture, to make individual choices which will be different from those of other human beings making their own choices. In short, that they will grasp and utilize the inherent logic and potentiality of the technology. The difficulty is that in order to realize such ambitions -- however laudable they might be -- one would in all probability have to reinvent the social organization of the popular mind. And social orders are not reinvented, they are constructed from the inside out, not from the outside in. Even at the most prosaic levels the failure to grasp this is why the landscape of recent times is littered with the corpses of technological predictions which simply expired. The big three networks, radio, movie theatres, the record industry have not died. Videotape has not replaced 35 mm film; everyone isn't working at home using computers, videodiscs did not become the

movie-rental standard. Yet a decade ago all these and more were predicted, by pundits and futurologists with a kind of flip certainty that remained blissfully unburdened by anything which smacked of decent evidence. It seems to me that unless one is able to indulge that hunch-cum genius of an Akio Morita, one can only suggest (not predict) the future by fully grasping the rhythms of the moment from which the future is being born.

To paraphrase, then, that question which the GTE engineer posed: What do people now seem to want when they sit in front of that machine which we shall call for the sake of argument, a television set? And from within that evidence, what can we say of what they might want in the future?

The idea of the contemporary "fragmentation of the audience" is where I want to begin. And so the next section will be largely descriptive of where we seem to be in the United States in so far as the national imagination expresses itself in its use of those elements which would constitute IBN: audio-visual media and domestic data transmission systems.

Tables 1 through 15 present some of the most basic facts about the current structure of the national television audience.

Table 1 details the growth of cable in the past decade, when the medium grew from almost 12-1/2 million homes to its present level of almost 49 million homes. Table 2 shows this remarkable growth as a percentage.

[Table 1 - about here]

[Table 2 - about here]

Table 3 presents the current cable penetration as a function of the distribution of age groups within the population.

[Table 3 - about here]

And Table 4 shows the distribution of channels among cable subscribers.

[Table 4 - about here]

These show that whereas in 1964 only something like 8% of homes had more than 9 channels, by 1972, the figure was 31%, and 86% by 1987.

Table 5 gives a detailed picture of the number of subscribers to individual basic and pay cable services.

[Table 5 - about here]

There is then no argument that the increase in the growth of cable has been little short of explosive. The more important questions from the standpoint of this discussion are: what has this growth meant for the patterns of usage of television; if there has been an erosion of the network domination of the audience, where has that departing audience gone; does that audience erosion amount to a "fragmentation" on the grounds that those who constitute the new audiences watch programming manifestly different from that offered by terrestrial systems; is that audience different from the rest of the television audience; do its internal characteristics and behavior allow us to say anything about what would happen if the horse and trap technology of coaxial cable were replaced by optic fiber cable.

Table 6 shows the share of viewing in all TV homes; in cabled households; and in non-cabled households. There are two

[Table 6 - about here]

striking characteristics about these figures: (1) The strength of the independents. This is something which receives less attention than the development of cable, though is perhaps something which will receive more attention in the future. Alan Wurtzel, senior vice-president of marketing and research services for the ABC Television Network Group, told the Television Critics Association recently that "as far as ABC is concerned, independent broadcasters pose the largest threat to network dominance." [Quoted in Multichannel News, January 23, 1989.] (2) The fact that even in cable households -- which are after all paying through the nose for the privilege of having cable services -- non-cabled services consume 82% of viewing (in what are multi-set households). The question which therefore springs to my mind is not why is cable so successful, rather, why isn't it more successful in terms of viewership than it appears to be. X

So it is true that network share has declined -- as shown in Table 7. It is, however, less than a truism that this indicates total slippage towards the multiple choices of cable.

[Table 7 - about here]

In my mind, that poses at least a question mark against a significant element of IBN, to wit its ability to do what coaxial cable has done in the past decade only more so. The point is

amplified when one looks at just what is being watched on cable. A kind of barely visible vein of argument about IBN, for example offered by the telecommunications companies when they put the case to be allowed into cable in their own areas, is that through their development of optical systems they will be in a position to massively embellish the emergent needs of consumers for the new services. They, the telcos, look at the cable industry with hungry eyes, and maybe they really do believe in the potential for new services. But, is the evidence really there from what cable television achieves now? To my eye at least, Tables 8 and 9 would suggest not.

[Table 8 - about here]

[Table 9 - about here]

The dynamics of audience preference which I see being exhibited here are for traditional forms of popular entertainment. ESPN, TBS and USA stand out here, even though collectively they amount to a relatively small share of the TV audience.

In particular, however, I am struck by the marginal importance of some of the other program services. If non-terrestrially broadcast television is to make a difference to create new niches in the public imagination and in its use of the audiovisual media, it is surely in the kind of programming offered by A&E, FNN, CNN.

The point is, for me at least, amplified when one takes a closer look at what the audience actually watches within these

various channels. Table 10 describes the top programs on basic cable for the 3rd Quarter of 1988.

[Table 10 - about here]

Table 11 looks at top series and programs on cable and the kind of audiences which they attracted during 1988.

[Table 11 - about here]

And Table 12 is drawn from a 1985 study of the content of broadcast and cable programming in one reasonably normal community. I use these particular figures with a certain

[Table 12 - about here]

trepidation since the cable hours figures include, without specifying, imported broadcast signals. Clearly there are some important differences in kind, and certainly in quantity. But there are also some obvious parallels and overlaps in program content, as if the cable operator and the station manager in the heartland of their activity were doing the same thing. And I get this feeling even more so when I look at Table 13, which lists the most popular network programs in a sample week, and then consider the cable listings. Of course, there are some differences especially if one factored in the more original series on network, and the more recent movies on pay-cable. And of course one could get into abstract debates about "quality" and which was the "better" set of programming.

[Table 13 - about here]

But would one be way off base if one squinted at the different lists and saw not the detail but the shape, and in doing so saw the same thing -- testimony to the pervasiveness of popular culture which will in all probability persist whatever fancy technology is employed, but for which presumably there is a finite desire. And if not desire, then at least finite time in which to indulge.

One other area of the contemporary experience of communications to which one might look for evidence to answer the question, "wither IBN," is pay-per-view. Table 14 are figures produced recently for a seminar at the Gannett Center in New York by Tom Neville of Showtime.

[Table 14 - about here]

In this he predicts a major growth in the amount of pay-per-view penetration of U.S. homes by 1997. I should add in parenthesis here that despite such bullish statements in November of last year, Viacom, owner of Showtime, sold its PPV service, Viewer's Choice. The service had been losing \$7 million a year, principally because 90% of revenues were divided between those offering movies or an event and cable operators, leaving the middleman with all the overhead and no margin.

Nevertheless, conceptually an examination of PPV might prove one way of understanding IBN. They share, in particular, a level of interactivity even if current PPV systems are poor cousins to the potential technological wealth of IBN. In less than three years, revenues for one such service went from \$10 M in 1986 for

two events, to \$60 M for 17 events in 1988. [Viewer's Choice,
Affiliate Newsletter: Winter 1988.]

One intriguing feature of PPV is that an important part of revenue comes not from that mainstay of other pay services, movies, but from special events which "can attract new or infrequent customers into pay-per-view usage. Half the average households who buy events have not bought PPV movies in the past three months (48% of Wrestlemania IV, 61% of Tyson vs. Spinks, 33% of Tate vs. Nunn, and 51% of Spark Plug 500 purchases have not bought PPV movies in the three months before each event)" (ibid). ✓

TV Guide commented: "The standard fare is a recent motion picture priced at about \$5.00 and shown at about the same time as it is released on home video. The movies and such events as the recent Mike Tyson-Michael Spinks boxing match, rock-concerts and "Wrestlemania" have proved so lucrative that PPV is spreading rapidly. [TV Guide, August 20, 1988.]

In point of fact there is a good deal of variability in the "buyrate," i.e. the percentage of homes purchasing a particular PPV offering. In 1988, the average buyrate for the top five movie titles was 5.1%, up one percent from the previous year; in the top five systems the rate was 15.1% up from 11.6% in 1987 [Viewer's Choice, Affiliate Newsletter, Winter 1988]. More specifically, the World Wrestling Federation's Survivor Series on Thanksgiving got a 7.0% buyrate, whereas Graft PPV's Dirty Dancing -- Live in Concert on November 18 last year got a buyrate of 0.5% - 1% -- which leads me to suspect that that particular morsel will not be on the menu again.

When I look at all those various figures, in my attempt to peer into the present in order to comprehend the future, I see on balance not evidence of urgent new needs and tastes teased out by cable. I see new variations on some old themes, in both cable and terrestrial television, of what Theodore Adams called the "congealed results of public preference." So if some claim the orchestra of the new media is playing a brilliant and innovative composition, I for one cannot hear the tune. What cable and the independents have done is not so much fragment the audience as to reorganize popular culture. And in that context it really does lead me to ask what on earth those who would operate IBN systems could offer in the way of the new, the bold, the innovative, the defined. Precious little as far as I can tell, and for one very good reason: the geology of popular culture defines the topography of technological apparati and not the other way round.

I would add one caveat here allowing for the possible emergent fragmentation of the experience of television programs. The villain of the piece is the remote control. The penetration of remote control in TV homes grew from 16% in 1981 to 67% last year. My own pet theory is that this parallels improvements in the comfort of domestic furniture, particularly the comfy couch, enhanced by a subconscious rejection of jogging -- the couch potato as social statement. There is an interesting piece of research [Carrie Heeter, Dave D'Allesio, Bradley Greenberg and D. Stevens McVoy: "Cable and Viewing Styles" in Greenberg and Heeter, eds, Cableviewing, Ablex (in press)] which offers some remarkable observations about how people watch television.

The researchers defined three habits of viewing:

- (a) strings: where no channel was watched for more than four minutes;
- (b) ministretches: where a channel was watched between 5 - 14 minutes; and
- (c) stretches: where a channel was watched for 15 minutes, plus.

Seventy-five percent of viewing was in (c), with the average stretch = 51 minutes, which still leaves 25% in (a) and (b). The average pay movie, by the way, was viewed for 60 minutes, which seems to indicate...well, actually, I'm not sure what it means, except possibly that we are moving toward a position where no one ever again watches a program beginning to the end.

As a challenge to my own emergent conclusions about the likely inefficiency of IBN, I deliberately looked, if not for a thousand points of light, for evidence from other realms.

One possible direction in which we might examine the development potential of IBN is not that of audio-visual media, rather access to information. It seems to me that an assumption is that the "sinews of the information society" argument is the desire of the domestic household for ever greater access to information, or access to the means to communicate and receive such information.

For almost a decade now the electronic retrieval of information has been touted as a dynamic, quick and easy way, using telephone lines and personal computers, to access a wide range of information: magazine and newspaper articles, industrial surveys, financial statistics both old and new, information about corporations and so on. One recent survey commented: "Today the

leading on-line publishers -- Dialog, Mead's, Nexis, Compuserve and News/Retrieval -- share a mere 500,000 active subscribers. That's out of a target group of 73 million so-called knowledge workers in the US using 17 million personal computers. The industry's combined search and retrieval revenues are about \$600 million, a far cry from the \$5 billion marketplace projected by some analysts nearly a decade ago." [Business Week, January 16, 1989.]

[Figure 2 - about here]

Murmuring away in the background are the implications of, for example, US West being given the decision to develop gateway services in October 1989 in an experiment in Omaha, Nebraska. In this it would provide access to a variety of databases and information services. This followed a court decision by Judge Harold Greene which lifted restrictions on their carrying such services. While there was still a prohibition on them determining the content, this move has clearly been seen as something which is possibly the thin end of a wedge.

But again, I have to conclude that when I look at this evidence -- which I accept is far less extensive than that in relation to television -- I do not see proof of the emergence of homo interactus communicatas. And so once more, one has to place a question mark against IBN, which begins to look more and more like a technology in search of a purpose.

Another possible set of clues lie within the available information about "working from home." Two examples of the thinking here.

Table 15 offers some recent figures about home workers:

Table 15

Numbers Working from Home

1987:	total work force	116.5 (Million)
	home workers	23.3
1988:	total work force	119.2
	home workers	24.9
1992:	total work force	127.3
	home workers	30.8

The demographics of those who work from home:

49% men; 51% women
78.1% are married
55.2% have children under 18
38.6% years = average age
\$42.1 K = annual income
19.8 hours = average hrs per week worked

Home workers are described as: "entrepreneurs, consultants and otherwise independent types."

Source: Link Resources Corp.; quoted in Denver Post, 20 November, 1988]

What remains unclear -- apart from the question of the numbers who might be described as "entrepreneurs, etc." -- is the potential relationship between the structural basis to home-working and IBN. For example, to what extent does the decision to work from home flow from necessity or choice, and how socially prevalent are such necessities and choices.

But we also know that there is now a lot of technology inside the home. The question is: how much; how is it used; and what clues does it provide for this inquiry into future markets that might be served by IBN.

Some insight was provided by a recent Gallup survey of high tech leisure in the home:

High Tech Leisure in the Home
% Homes

TV -	99%	
VCR -	65%	[78% of households with children; 40% of single adult households; 70% of 18-29 years old; 83% of 30-39 years old; 72% of 40-49 years old]
/stereos	48%	
personal stereos	40%	
telephone answering machine	24%	
home computers	18%	
compact disc	14%	
camcorder	8%	
portable compact disc	6%	

The Most Used

telephone answering machines	36 hrs/wk
audiospeaker/	13 hrs/wk
home computers	13 hrs/wk
VCR's	11 hrs/wk
CD player	9 hrs/wk
portable CD player	8 hrs/wk
headphone stereo	7 hrs/wk

Source: Gallup, Daily Camera, September 5, 1988

One is irresistably led to two possible conclusions. That through the process of "fragmentation" one is actually witnessing the redistributative reallocation of mass taste. The implicit assumption here is that insofar as one can conceive of television programming there is little that is new under the sun. In fact

the only service which has developed which, in terms of its content could be described as unique, are the home-shopping channels. Everything else -- popular drama, children's prog, news, public affairs, comment, sport, documentary, has been done before. The new factor is that individual channels now do much more of each genre. The conclusion one has to arrive at here is that IBN will simply continue this trend. The only major difference which it might make is to enhance certain trends which are already there. I am thinking here in particular of the phenomenon of pay-per-view. The difference, however, will lie in the mechanism, not the intent. In a recent interview, John Malone of TCI said as much: "Cable can bring enormous expansion based on adding things, not substituting things (Multichannel News, January 9, 1989).

The other, very different conclusion is that IBN will tap into, or even establish, very new tastes. The only things that it could offer in the way of new content would ^{like} like in the realm of the greater availability and use of information. The problems with this conclusion are enormous. The possible evidence which we could employ to support it remain extremely thin on the ground. It also would necessarily presuppose a form of social and intellectual activity, which, except at the margins remain scarce within contemporary society. We seem, therefore, to have an instance in which the potentiality of a technology is running ahead of social development. The creation of IBN looked at from the domestic standpoint looks awfully like creating the Space Shuttle and then only using it for pleasure rides from Disneyland

X?

-- something so pointless as to be rejected even by Arthur Paul
Pedrick.

FIGURE ONE

AT YOUR FINGERTIPS

1 CONTROL PANEL

Printed-circuit boards plug in to add features to home-entertainment system. Signal-editing allows images and music to be edited as easily as words. Facsimile module sends and receives photos and handwritten notes. Security card monitors intrusion and smoke alarms, unlocks doors after identifying a person's face or voice. Home-automation control adjusts room and water temperatures, turns on appliances. Modem transmits electronic mail and retrieves books, movies, and music from remote data bases

2 LASER PRINTER/COPIER

Prints facsimiles, teletext news, and book pages; also makes photocopies

3 LASER TURNTABLE

Records and plays videodisks, compact disks, and optical-storage disks of all sizes

4 TAPE DECK

Plays and records digital-video and digital-audio cassettes

5 BOOK BINDER

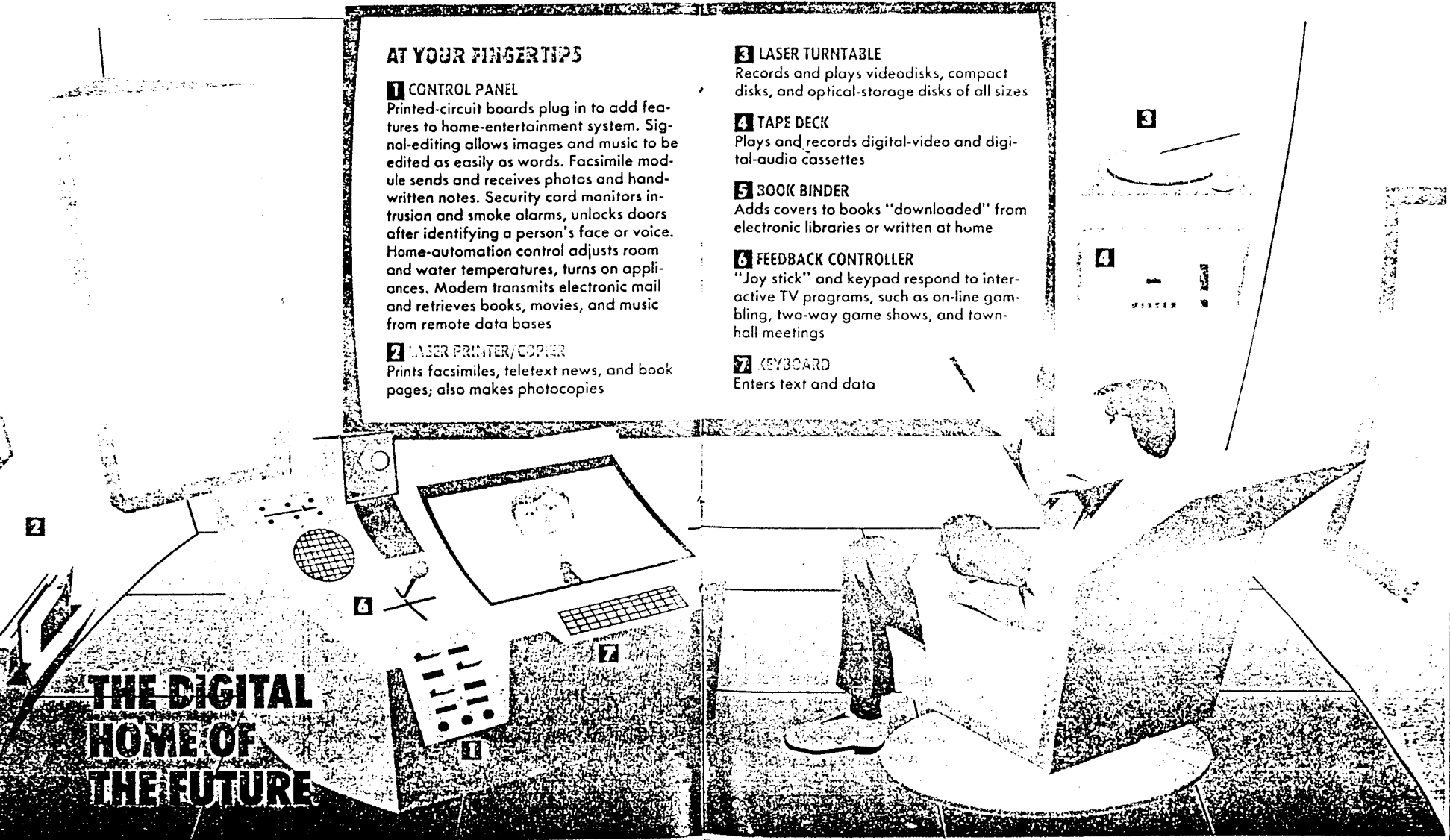
Adds covers to books "downloaded" from electronic libraries or written at home

6 FEEDBACK CONTROLLER

"Joy stick" and keypad respond to interactive TV programs, such as on-line gambling, two-way game shows, and town-hall meetings

7 KEYBOARD

Enters text and data



**THE DIGITAL
HOME OF
THE FUTURE**

100 Business Week Jan 30 1985

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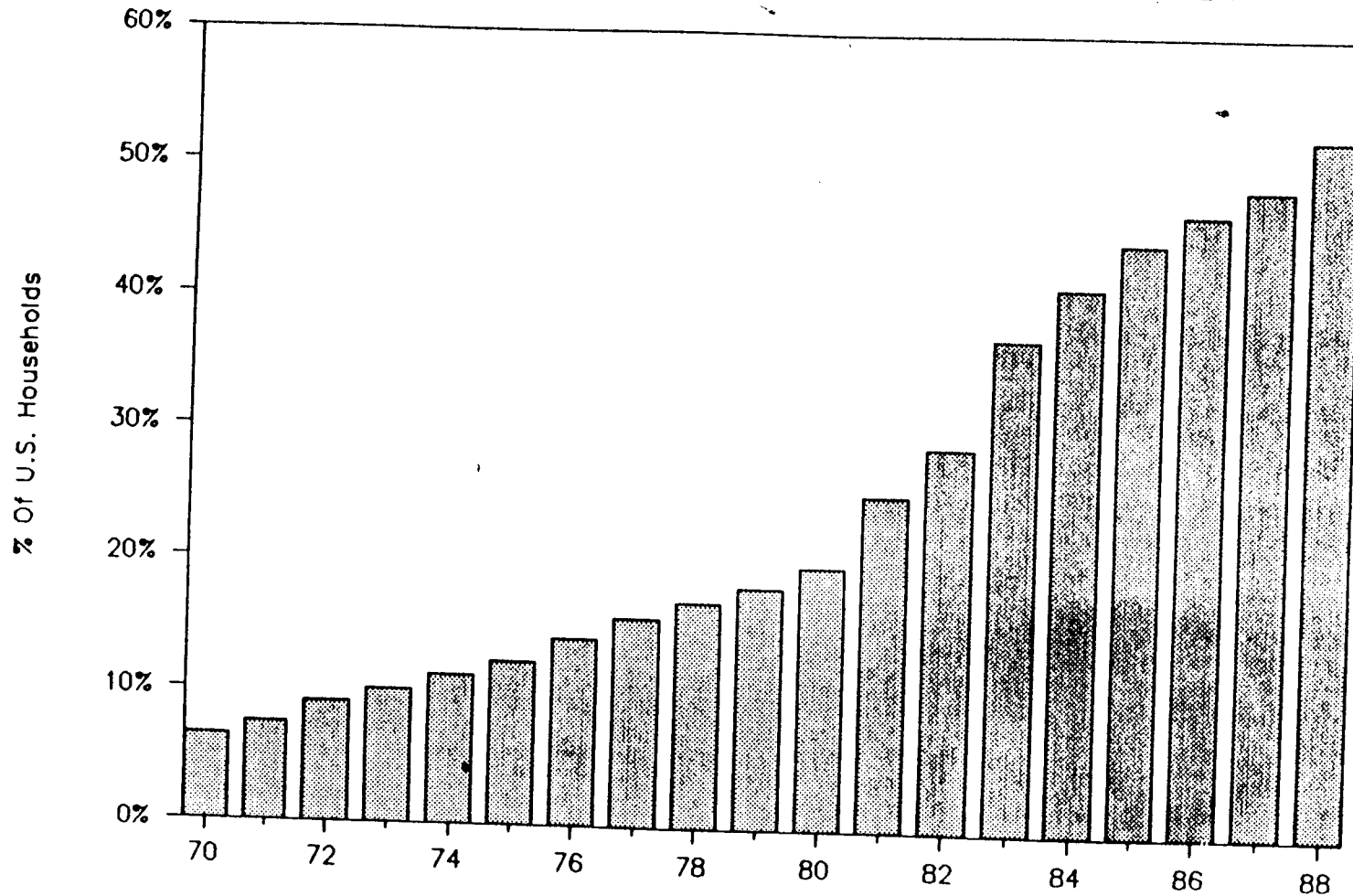
Measurement Period	Total U.S. Cable* Household Estimate	Total U.S. % Cable Penetration
February 1978	12,489,330	17.1
May 1978	12,705,960	17.4
July 1978	12,817,190	17.5
November 1978	13,391,910	17.9
February 1979	13,581,050	18.2
May 1979	14,087,500	18.8
July 1979	14,426,540	19.3
November 1979	14,814,380	19.4
February 1980	15,198,470	19.8
May 1980	16,159,940	21.1
July 1980	16,613,350	21.7
November 1980	17,617,490	22.6
February 1981	19,727,290	25.3
May 1981	21,294,730	26.5
July 1981	21,930,490	27.3
November 1981	23,219,200	28.3
February 1982	23,726,220	29.0
May 1982	27,362,000	33.4
July 1982	27,884,000	34.0
November 1982	29,340,570	35.0
February 1983	31,124,450	37.2
May 1983	31,766,500	37.9
July 1983	32,930,140	39.3
November 1983	34,113,790	40.5
February 1984	34,740,330	41.2
May 1984	35,783,000	42.5
July 1984	36,105,500	42.9
November 1984	37,290,870	43.7
February 1985	38,018,100	44.6
May 1985	38,673,270	45.3
July 1985	38,955,150	45.7
November 1985	39,872,520	46.2
February 1986	40,389,760	46.8
May 1986	40,921,970	47.4
July 1986	41,248,380	47.8
November 1986	42,237,140	48.1
February 1987	42,820,700	48.7
May 1987	43,279,980	49.2
July 1987	43,490,700	49.5
November 1987	44,970,880	50.5
February 1988	45,480,100	51.1
May 1988	46,296,110	52.0
July 1988	47,042,470	52.8
November 1988	48,636,520	53.8

*Total U.S. cable universe estimates include Hawaii. Alaska was excluded until the addition of Fairbanks and Alaska markets starting in November 1981. SOURCE: A.C. NIELSEN CO.

in: Multichannel News Jan 11 1989.

TABLE TWO.

GROWTH IN CABLE PENETRATION



[from: Norman Neville, Vice President, Research and Planning, Shaw-Walker
Networks Inc. 1988.]

Table Three

CABLE PENETRATION BY AGE: INDEXED

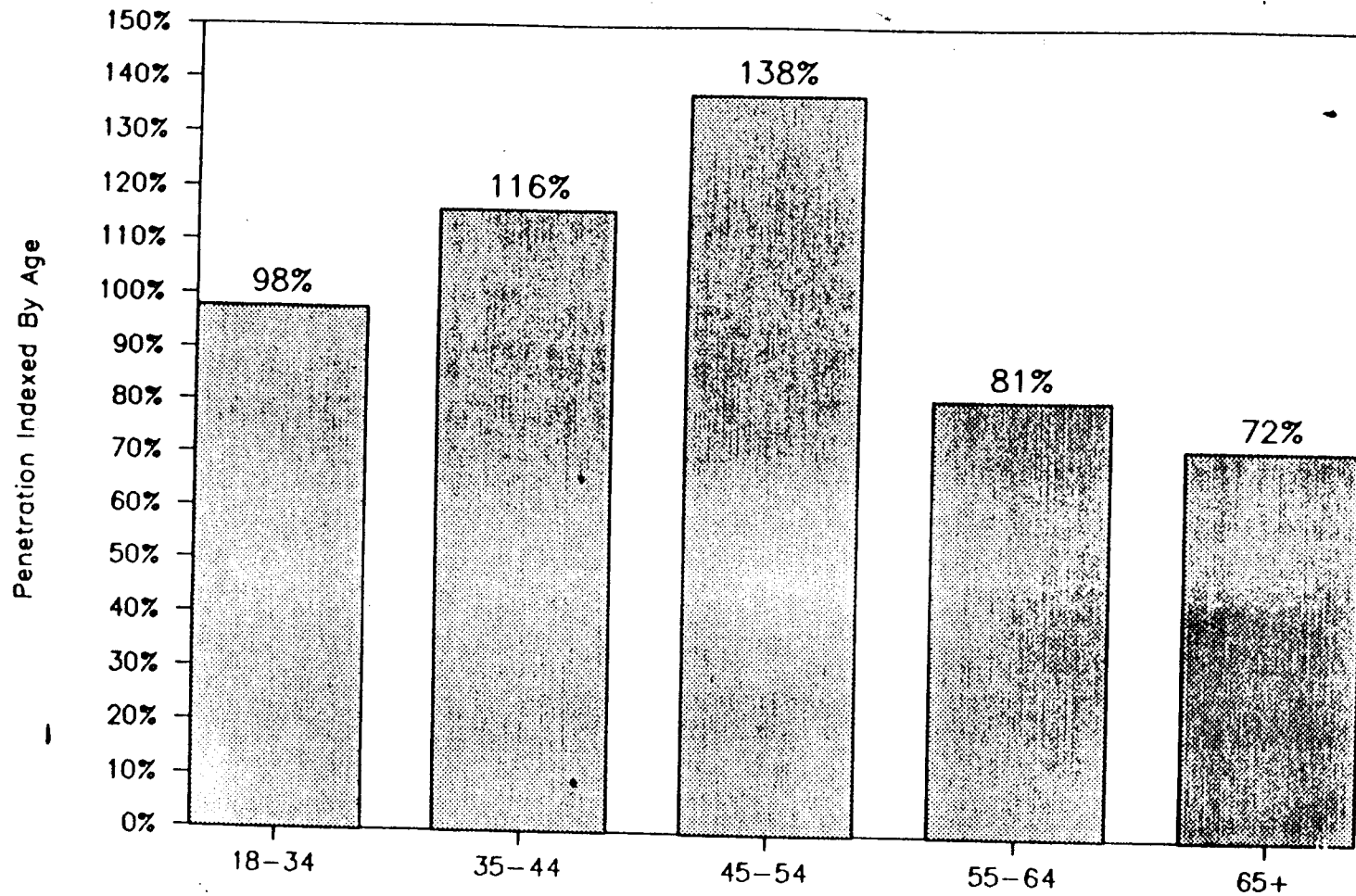
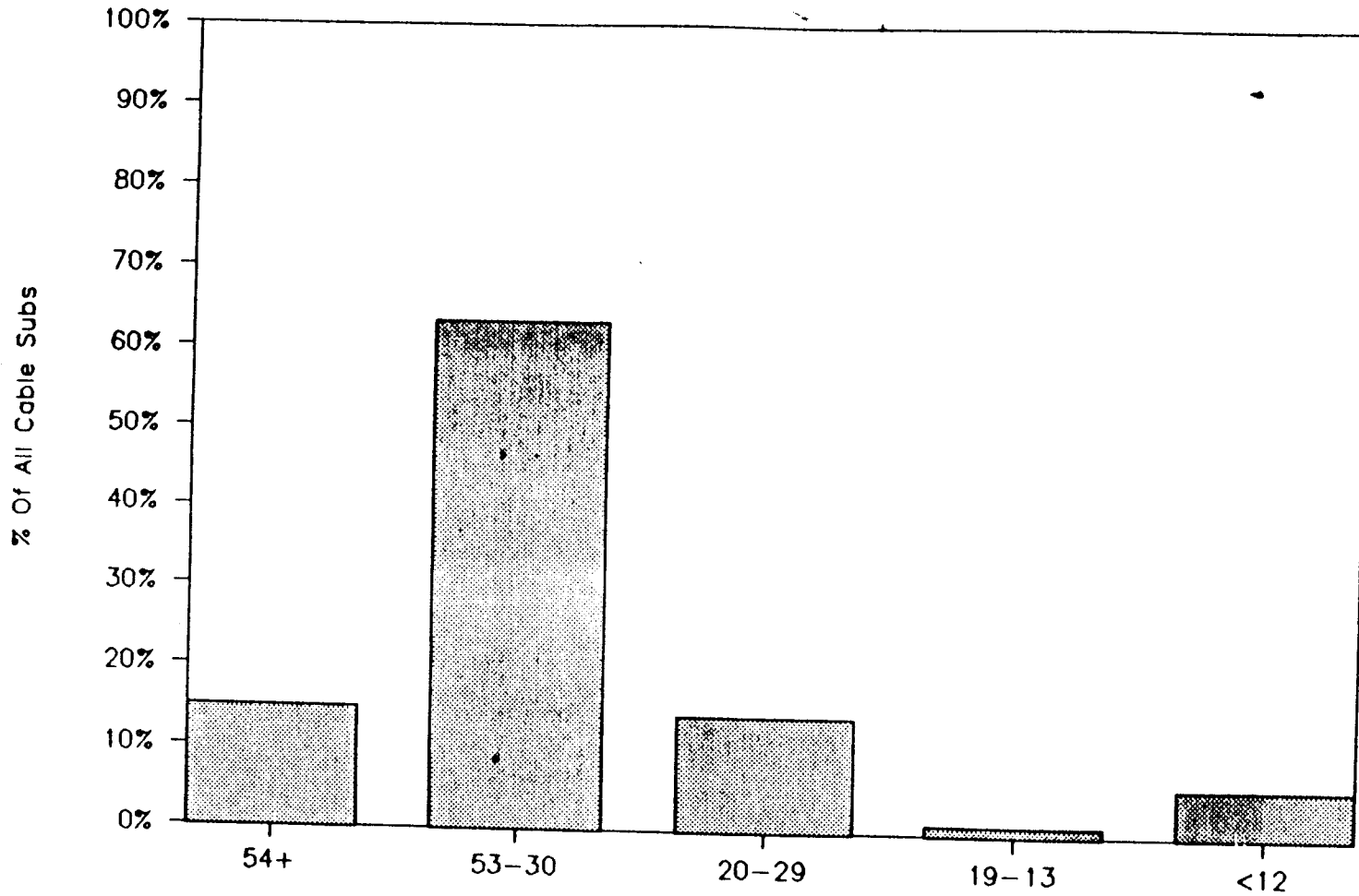


TABLE FOUR

US CABLE SUBS BY CHANNEL CAPACITY 1987



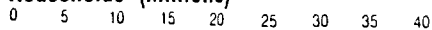
[From: Thomas Neville, Vice President, Research and Planning,
Showtime Networks Inc. 1988]

TABLE FIVE

National Services Subscriber Counts

BASIC SERVICES

Households (Millions)



ACTS (12/88) 9,000,000
387 systems, Galaxy III, 7
(includes broadcast and low power stations)

American Movie Classics (12/88)
14,500,000
1,500 systems, Satcom III-R, 12
(can be offered as bonus to basic, or pay)

Axis & Entertainment (12/88)
37,000,000
2,800 systems, Galaxy I, 12

Black Entertainment Television (12/88) 21,000,000
1,800 systems, Satcom III-R, 20

Bravo (12/88) 1,500,000
230 systems, Satcom III-R, 4
(can be offered as bonus to basic, or pay)

Cable Value Network (12/88)
21,000,000
1,851 systems, Galaxy III-R, 9

CBN Family Channel (12/88)
43,700,000
8,303 systems, Galaxy I, 2

CNN (12/88) 48,000,000
8,626 systems, Galaxy I, 7

Country Music Television (12/88)
8,500,000
920 systems, Galaxy I, 13

C-SPAN (12/88) 41,500,000
3,100 systems, Galaxy III-R, 24

C-SPAN II (12/88) 16,500,000
575 systems, Galaxy III, 14

The Discovery Channel (11/88)
37,600,000
4,603 systems, Galaxy I, 22

ECC (Galavision) (11/88)
1,000,000
300 systems, Galaxy I, 20
(offered as pay on some systems)

ESPN (12/88) 49,900,000
19,900 systems, Galaxy I, 9,
Satcom III-R, 7
(blackout & west coast feed)

E-W TV Network (12/88)
10,800,000
490 systems, Galaxy III, 10

FamilyNet (12/88) 1,200,000
54 systems, Galaxy III, 23

Fashion Channel (3/88) 10,000,000
650 systems, Satcom III-R, 1

FNN (11/88) 32,000,000
2,250 systems, Satcom III-R, 11

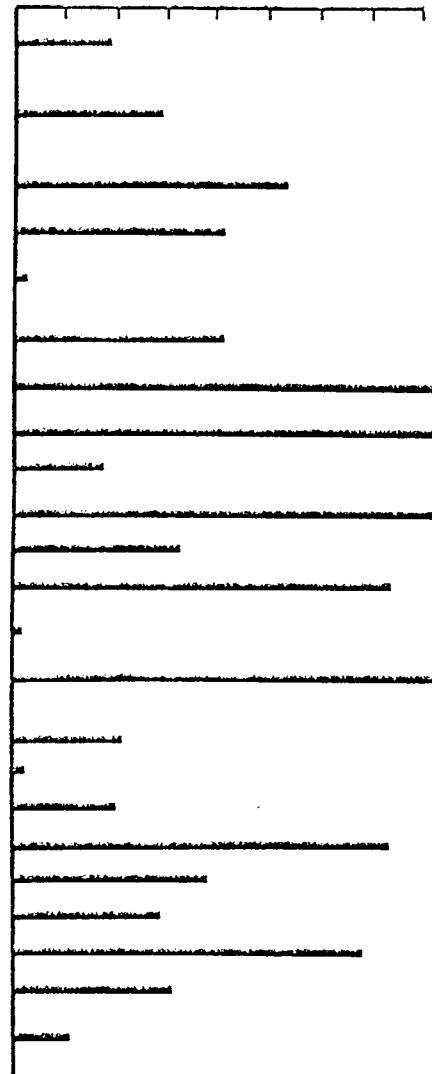
FNN SCORE (11/88) 19,500,000
1,600 systems, Satcom III-R, 11

FNN TailShop (11/88) 14,800,000
1,350 systems, Satcom III-R, 11

Headline News (12/88) 34,000,000
3,410 systems, Galaxy I, 8

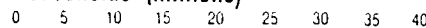
Home Shopping Network 1 (11/88)
16,000,000
1,413 systems, Galaxy III, 8

Home Shopping Network 2 (11/88)
5,700,000
321 systems, Satcom III, 22



BASIC SERVICES

Households (Millions)



The Inspirational Network (12/88)
10,000,000
920 systems, Galaxy I, 17

KTLA (superstation) (10/88)
4,900,000
182 systems, Spacenet 3, 8

KTVT (superstation) (10/88)
3,600,000
417 systems, Spacenet 3, 3

The Learning Channel (12/88)
14,600,000
935 systems, Satcom III-R, 2

Lifetime (12/88) 41,000,000
3,800 systems,
Satcom III-R, 17,
Galaxy III, 20

MTV (10/88) 44,200,000
5,220 systems, Galaxy III, 17

Movietime (1/89) 11,500,000
342 systems, Satcom IV, 17

TNN (12/88) 43,100,000
7,741 systems, Galaxy I, 2

Nick at Nite (10/88) 39,600,000
3,395 systems, Galaxy III, 19 & 22

Nickelodeon (10/88) 43,300,000
6,485 systems, Galaxy III, 19 & 22

Nostalgia Channel (12/88)
4,000,000
305 systems, Satcom IV, 21

QVC Network (12/88) 13,700,000
1,035 systems, Satcom III-R, 8

The Silent Network (12/88)
12,300,000
404 systems, Satcom IV, 23

SuperStation TBS (12/88)
47,900,000
9,426 systems, Galaxy I

Tempo Television (12/88)
12,400,000
827 systems, Satcom III, 6

The Travel Channel (12/88)
11,000,000
400 systems, Satcom III-R, 16

Trinity Broadcasting (11/88)
8,500,000
760 systems, Satcom III, 3

TNT (1/89) 23,000,000
1,512 systems, Satcom III-R, 18

USA Network (12/88) 46,400,000
10,100 systems,
Galaxy I,
21, Satcom III-R, 10

Vision Interlath Satellite Network
4,500,000
215 systems, Satcom III-R, 4

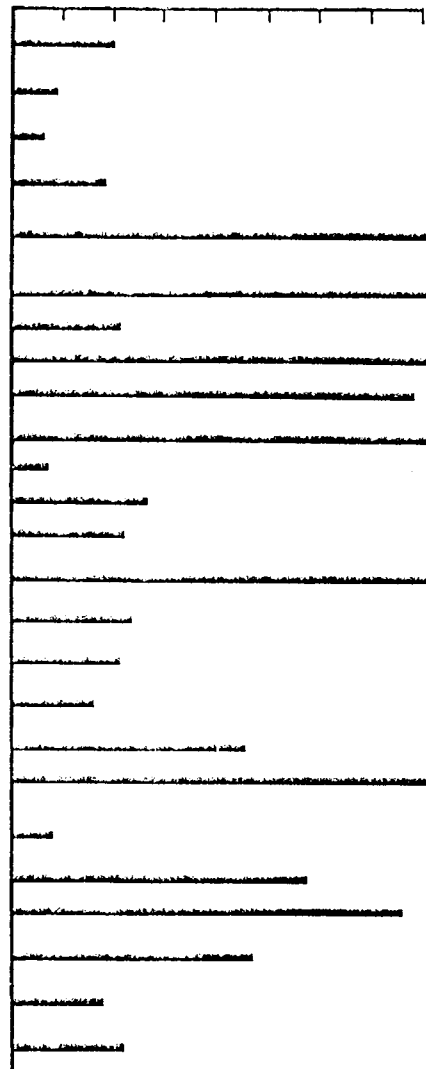
VH-1 (10/88) 29,600,000
2,300 systems, Galaxy III, 15

The Weather Channel (12/88)
37,000,000
3,400 systems, Galaxy III, 13

WGTX (superstation) (10/88)
24,800,000
11,415 systems, Galaxy I, 3

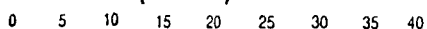
WPXI (superstation) (10/88)
9,700,000
858 systems, Spacenet 3, 5

WWOR (superstation) 12/88
12,400,000
2,575 systems, Galaxy I, 15



PAY SERVICES

Subscribers (Millions)



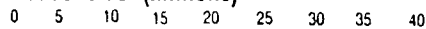
Cinemax (1/88) 5,100,000
4,200 systems,
Satcom III-R, 23,
Galaxy I, 19,
Satcom K1, 13

The Disney Channel (12/88) 4,000,000
5,000 systems,
Galaxy I, 24 & 4



PAY SERVICES

Households (Millions)



Home Box Office (1/88) 15,900,000
7,400 systems,
Satcom III-R, 13,
Galaxy I, 1 & 23,
Satcom K1, 8 & 3

The Playboy Channel (12/88) 470,000
526 systems, Satcom IV, 24

Showtime/The Movie Channel (12/88) 9,300,000
9,300 systems,
Galaxy I, 10, 14, 5 & 16 (includes SMATV, motels & hotels)

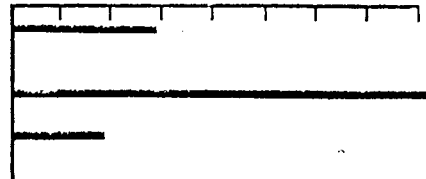
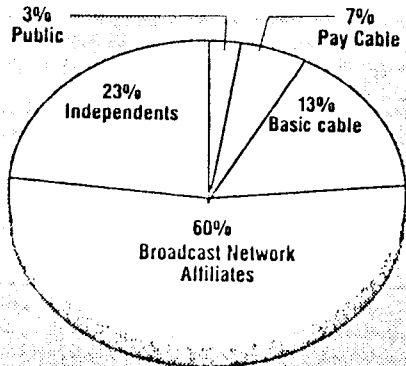


TABLE SIX

VIEWING SHARES BY PROGRAM SOURCES

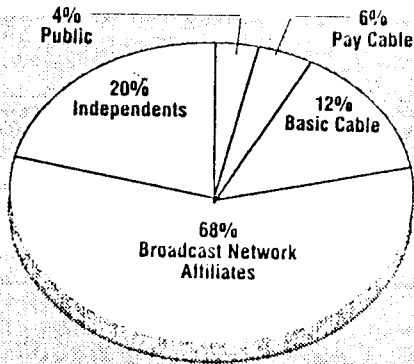
NOVEMBER 1988

TOTAL DAY



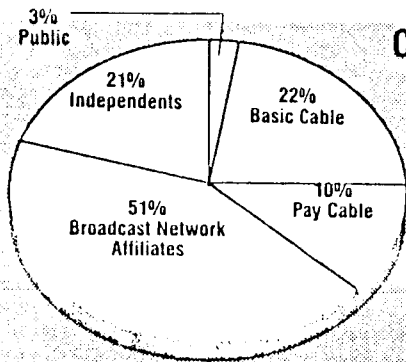
Share=106%

PRIMETIME (8-11 PM)



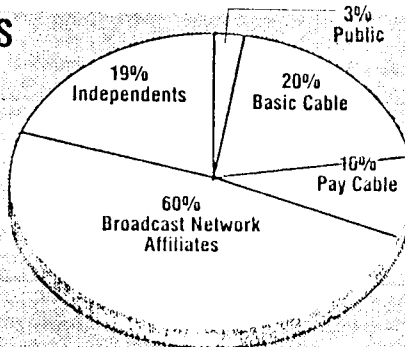
Share=110%

TOTAL TV HOUSEHOLDS



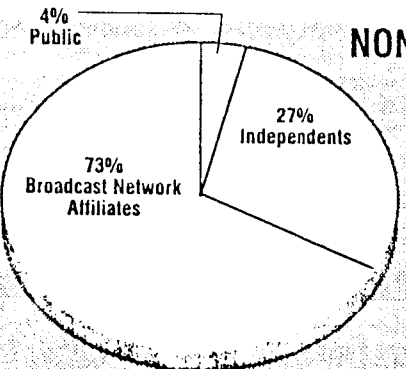
Share=107%

CABLE HOUSEHOLDS

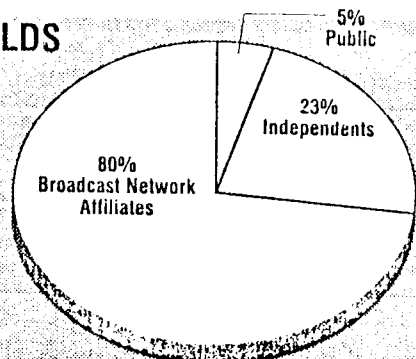


Share=112%

NON-CABLE HOUSEHOLDS



Share=104%

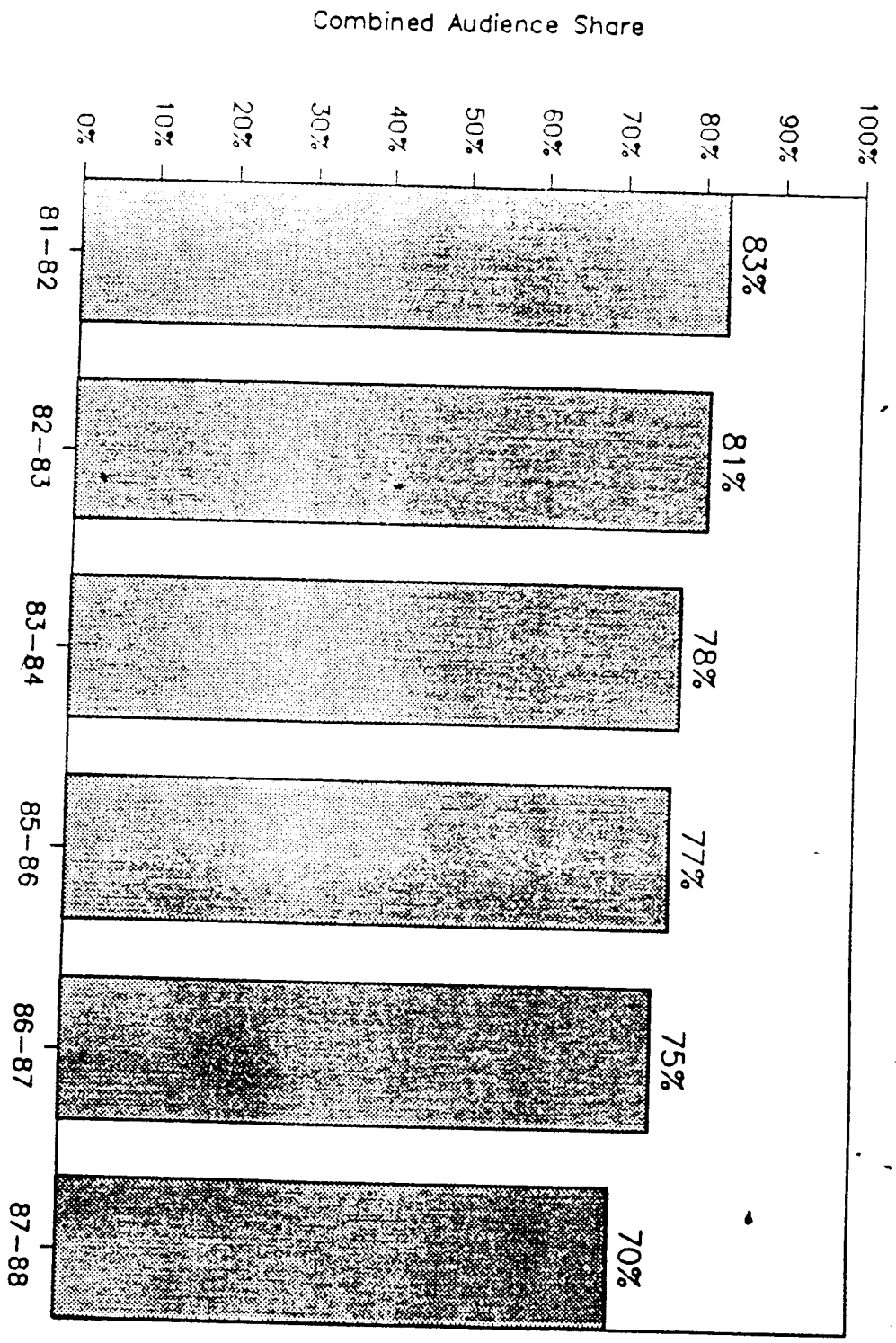


Share=108%

Source: Nielsen Media Research, November 1988 Cable Status Report, People Meter Data Audience shares exceed 100% due to Multi-set households.

Table Seven

THREE NETWORK PRIME TIME SHARE



[From Neville, 1988]

Table Eight

ARBITRON 14-MARKET WEIGHTED AVERAGE CABLE RATINGS

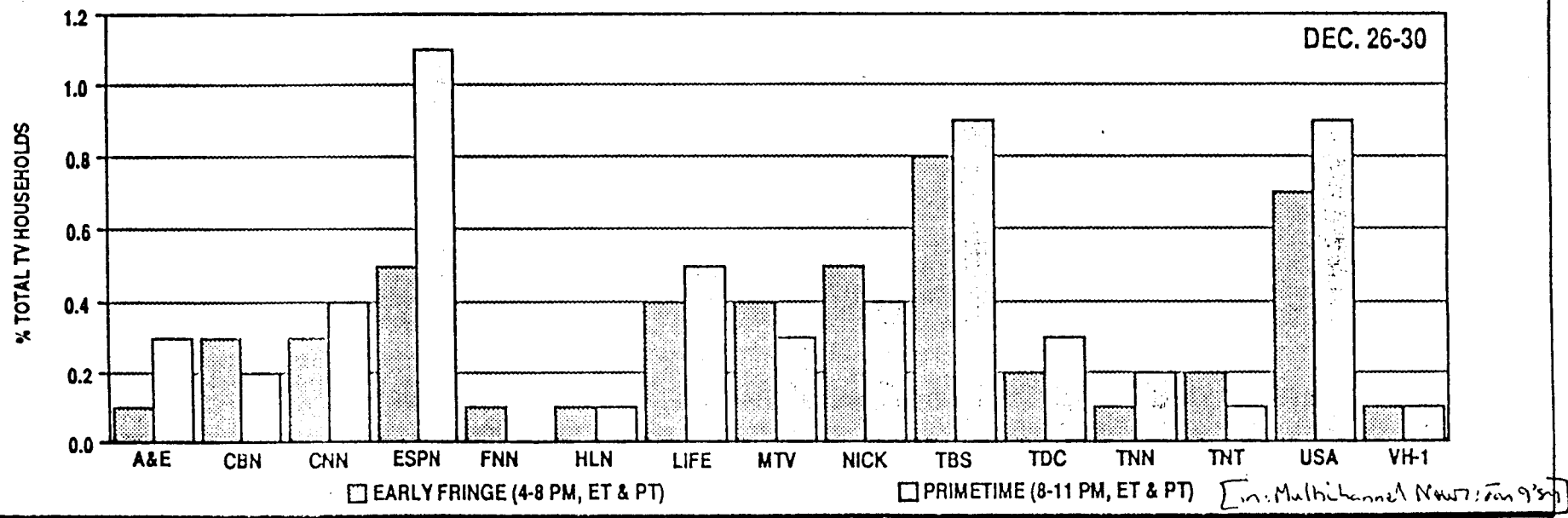


TABLE NINE

NETWORKS	TOTAL DAY				PRIMETIME			
	RATING		AVERAGE HOMES DELIVERED (000s)		RATING		AVERAGE HOMES DELIVERED (000s)	
	88	87	88	87	88	87	88	87
A&E	0.3	0.3	101.4	70.4	0.5	0.5	187	146
CBN*	0.9	0.6	375	238	1.2	0.6	508	216
CNN	0.6	0.6	292	273	1.0	1.0	503	426
ESPN	0.9	0.8	432	316	2.5	2.5	1,241	1,130
FNN	0.2	0.2	75	47	N/A	N/A	N/A	N/A
HLN	0.4	0.4	137	111	0.3	0.4	114	111
LIFE°	0.6	0.4	243	155	1.0	0.7	433	249
MTV	0.6	0.6	270	218	0.8	0.7	344	284
NAN	0.6	0.3	222	109	0.9	0.7	367	208
NICK	1.0	0.9	431	326	N/A	N/A	N/A	N/A
TBS	1.6	1.6	770	666	2.6	2.6	1,224	1,079
TDC	0.4	0.4	149	107	0.7	0.7	253	177
TNN	0.5	0.6	204	213	1.0	1.3	453	470
TNT●	0.7	N/A	130	N/A	1.1	N/A	204	N/A
USA	1.0	0.9	457	362	2.0	1.6	918	633
VH-1	0.2	0.3	67	65	0.3	0.4	80	101

Source: A.C. Nielsen, the cable networks and MULTICHANNEL NEWS research.
 *CBN Primetime and Total Day includes ad-supported programming only.
 °Lifetime Total Day does not include program-length commercials or medical programming.
 ●Turner Network Television ratings are from Oct. 31-Dec. 25 and have not been confirmed by Nielsen.

BASIC CABLE PROGRAMS RANKED BY RATING 3RD QUARTER 1988

Rank	Show
1	NFL Pre-Season: Indianapolis vs. Denver
2	NFL Pre-Season: New Orleans vs. Minnesota
3	NFL Pre-Season: Minnesota vs. Phoenix
4	Clash of the Champions III: The Fall Brawl
5	Movie: "Death of a Centerfold"
6	Movie: "Good Guys Wear Black"
7	NFL Pre-Season: Philadelphia vs. Pittsburgh
8	CFA Football: "Tennessee vs. Georgia"
8	Movie: "Porky's"
10	Movie: "Porky's II"
11	Movie: "The Sacketts"
12	US Open Quarterfinals
12	Movie: "Gargoyles"
12	Movie: "Porky's Revenge"
15	Movie: "The Sons of Katie Elder"
15	Movie: "The Final Countdown"
15	Movie: "Deathwish"
18	Movie: "To Hell and Back"
18	Movie: "Cheyenne Autumn"
18	Braves vs. Pittsburgh Pirates
18	Prime Time Wrestling
18	1988 Video Music Awards
23	Best of the Munsters
24	Movie: "The Legend of the Lost"
24	Movie: "The Klansman"
24	Movie: "Village of the Damned"
24	Movie: "Planet of the Apes"
24	Beverly Hillbillies
29	Movie: "Earthquake"
29	Movie: "Cimarron"
29	Brady Bunch
29	Movie: "Destry"
29	Prime Time Wrestling
34	Movie: "Secret of the Sword"
34	Three Stooges
34	Leave it to Beaver
34	Andy Griffith
34	Movie: "Forced Vengeance"
34	Movie: "Clash of the Titans"
34	Movie: "Firecreek"
41	Brady Bunch
41	Movie: "Band of Angels"
41	Movie: "Charley Varrick"
41	Movie: "Donovan's Reef"
41	Brady Bunch
41	Braves vs. St. Louis Cardinals
41	Prime Time Wrestling
41	Prime Time Wrestling
49	Andy Griffith's Silver Anniversary Special

49	Movie: "Bridges at Toko Ri"
49	Beverly Hillbillies
49	All American Wrestling
49	Alfred Hitchcock Presents
49	Andy Griffith
49	Bonanza

Source: TBS, Based on Nielsen TV Index and Nielsen Homevideo
Index Overnight Ratings

FACTS & FIGURES

NETWORK	TOP FIVE SERIES	RATING	TOP FIVE PROGRAMS	RATING
	<ul style="list-style-type: none"> Video Soul (M-F 9 p.m.).....0.8 Midnight Love.....0.7 Video Vibrations.....0.7 Bobby Jones Gospel Show.....0.7 Roll-Out.....0.7 		<ul style="list-style-type: none"> In Their Own Words (12/21).....1.4 	
	<ul style="list-style-type: none"> Gunsmoke.....2.4 Bonanza.....2.1 Wagon Train.....2.1 Rin Tin Tin K-9 Cop.....2.0 Our House.....1.8 		<ul style="list-style-type: none"> Bonanza (10/23).....3.3 Rifleman (10/29).....3.2 Bonanza (10/22).....3.1 Gunsmoke (10/29).....3.0 Big Valley (11/19).....3.0 	
	<ul style="list-style-type: none"> Larry King Live.....1.4 Healthweek (Sat. 9:10 a.m.).....1.2 Sci & Tech Week (Sat. 11:10 a.m.).....1.2 Crossfire.....1.2 News Update (Sat. 9 a.m.).....1.2 		<ul style="list-style-type: none"> V.P. Post-Debate (10/5).....3.9 Larry King Live (12/6).....3.0 Live: Kennedy Space Center (9/29).....3.0 Live: Shuttle (10/3).....2.6 Larry King Live (10/31).....2.6 	
	<ul style="list-style-type: none"> NFL Football.....9.3 CFA Football.....3.5 NFL Primetime.....3.0 NFL Gameday.....2.5 Top Rank Boxing.....1.9 		<ul style="list-style-type: none"> NFL: Giants at New Orleans (11/27).....10.6 NFL: Rams at San Francisco (12/18).....10.1 NFL: Pittsburg at Houston (12/4).....10.0 NFL: Washington at Houston (10/30).....9.3 NFL: Detroit at Seattle (12/11).....8.8 	
	<ul style="list-style-type: none"> Market Wrap.....0.4 Wall St. Countdown.....0.3 Midday Market Report.....0.3 		<ul style="list-style-type: none"> Market Wrap (10/20).....0.6 Market Wrap (12/15).....0.6 Market Wrap (11/1).....0.6 Midday Market Report (10/19).....0.6 Market Wrap (10/11).....0.6 	
	<ul style="list-style-type: none"> MacGruder & Loud (Sat.).....1.5 Movie (Sat. 5 p.m.).....1.3 Movie (Sat. 7 p.m.).....1.2 Easy Street (Sat.).....1.2 Cagney & Lacey (Sat. 3 p.m.).....1.1 		<ul style="list-style-type: none"> Evening Movie (11/8).....2.8 Cagney & Lacey (11/7 8 p.m.).....2.7 Movie (10/13).....2.3 Movie (10/22 5 p.m.).....2.0 Movie (10/22 7 p.m.).....1.9 	
	<ul style="list-style-type: none"> Awards Theater.....3.4 Andy Griffith (Sun.).....2.9 Prime Movie I.....2.8 Sunday Afternoon Movies.....2.7 Championship Sports (Sat. 6:05 p.m.).....2.6 		<ul style="list-style-type: none"> 'The Undeclared' (10/13).....4.7 'The Beastmaster' (11/17).....4.6 Clash of the Champions IV (12/7).....4.5 'Patton' (11/27).....4.3 'High Plains Drifter' (10/19).....4.3 	
	<ul style="list-style-type: none"> Safari.....1.0 Beyond 2000.....1.0 Natural World.....0.9 Profiles of Nature.....0.9 New Animal World.....0.8 		<ul style="list-style-type: none"> Man-Eating Tigers (11/27).....1.6 Great Whites of Dangerous Reef (10/2).....1.5 Dead on Target (10/2).....1.1 Red Sea Special (10/30).....1.0 Stranded (11/27).....1.0 	
	<ul style="list-style-type: none"> Grand Ole Opry Live (Sat. 8:30 p.m.).....1.5 Nashville Now Live (M-F 8 p.m.).....1.4 The Tommy Hunter Show (Sat. 9 p.m.).....1.4 Backstage at the Opry (Sat. 8 p.m.).....1.1 New Country (M-F 9:30 p.m.).....1.0 		<ul style="list-style-type: none"> Gen. Jackson Christmas (12/14 9:30 p.m.).....2.2 New Country (12/13 9:30 p.m.).....2.0 Nashville Now (10/31 8 p.m.).....1.9 Opry 63rd Birthday (10/15 8 p.m.).....1.7 Evening with Willie Nelson (11/12 9 p.m.).....1.6 	
	<ul style="list-style-type: none"> WWF Wrestling (Sun. 12 p.m.).....2.7 WWF Primetime Wrestling.....2.7 Murder, She Wrote.....2.7 She'ra (Sun. 11:30 a.m.).....2.5 Miami Vice (M-F 7 p.m.).....2.5 		<ul style="list-style-type: none"> Murder, She Wrote (11/7).....4.8 Snow White Christmas (12/7).....3.9 Murder, She Wrote (12/8).....3.7 WWF Primetime Wrestling (11/8).....3.6 Murder, She Wrote (10/4).....3.6 	

SOURCE: A.C. Nielsen ratings as provided by the cable network

TABLE TWELVE

Content of 34 Cable Channels (with Broadcasting) and 6 Channels
of Broadcast Programming in the 8 p.m. Time Period for One Week; 1985

Program Type	Cable Hours	Broadcast Hours
Music	20	2
News	15	1
Discussion shows	8	6
Comedy	17	8
Westerns	3	0
Highlights/previews	1	0
Drama	28	15
Religion	3	2
Fantasy	1	0
Science	2	2
Game shows	5	0
Magazine	6	0
Documentary	3	1
Health	1	0
Movies	42	1
Weather	14	0
Outdoors	2	1
Public affairs	7	0
Sex news	2	0
Opera	1	0
Local government	4	0
Local education	3	0
Information	7	0
Community programs	5	0
Program guide	7	0
Sports	16	3
Miscellaneous fillers	15	0
Totals	238	42

[in T. Baldwin and P. McVoy *Cable Communication*
Annex 1988]

TABLE 13

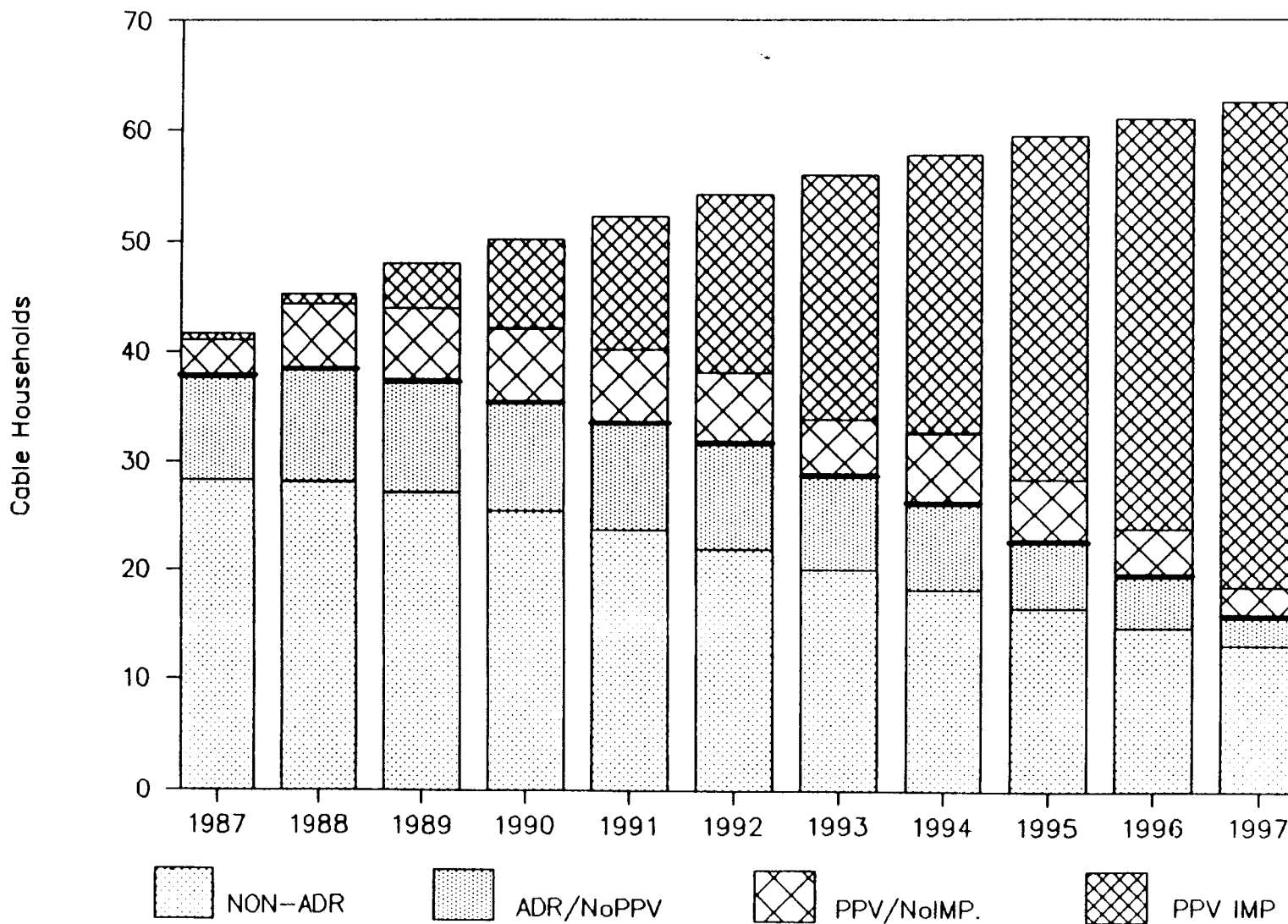
Nielsen	□	Net	□	Show	Nielsen	□	Net	□	Show
1.	28.6/43	N		Cosby Show	39	14.8/22	A		Rose Bowl
2.	25.6/38	C		60 Minutes	40.	14.5/22	A		Wonder Years
3.	25.1/35	C		Murder, She Wrote	41.	14.3/21	N		NBC Sunday Movie
4.	25.1/37	N		Cheers	42	14.0/20	N		Day by Day
5.	25.0/37	N		Different World	43	13.9/23	A		China Beach
6.	24.2/35	A		Roseanne	44.	13.5/20	C		48 Hours
7.	23.5/37	N		Golden Girls	45.	13.4/22	N		Midnight Caller
8.	22.6/37	N		Empty Nest	46.	13.3/20	A		Hooperman
9.	21.7/32	A		Who's the Boss?	47.	12.9/22	C		Falcon Crest
10.	20.8/31	N		Dear John	48	12.8/21	N		Orange Bowl Game
11.	20.3/31	A		Growing Pains	49	12.7/21	A		Heartbeat Special
12.	20.2/31	C		Designing Women	50.	12.2/18	C		Paradise
13.	19.5/32	N		L.A. Law	51.	12.1/19	C		Beauty and the Beast
14.	19.2/29	A		Head of the Class	52.	11.3/16	C		Tour of Duty
15.	19.1/28	C		Murphy Brown	53.	11.2/18	C		CBS Saturday Movie Special
16.	19.0/33	N		Hunter	54.	11.1/19	N		Miami Vice
17.	18.6/29	C		CBS Sunday Movie	55	10.8/16	A		Dynasty
18.	18.4/28	N		Unsolved Mysteries	56.	10.7/16	N		Baby Boom
19.	18.2/30	N		Amen	57.	10.3/14	F		Married...With Children
20.	18.0/26	N		Matlock	58.	10.2/15	A		Incredible Sunday
21.	17.8/28	A		Full House	59	10.0/15	N		Magical World of Disney
22.	17.4/26	A		ABC Sunday Movie	60	9.5/16	A		ABC Saturday Movie
23.	17.2/26	N		In the Heat of the Night	61	9.4/15	N		NBC Friday Movie
24.	16.9/26	C		CBS Tuesday Movie	62	9.2/13	F		America's Most Wanted
25.	16.8/27	A		Perfect Strangers	63.	8.5/12	A		Mission Impossible
26.	16.7/25	A		thirtysomething	64	8.1/14	A		Sugar Bowl
27.	16.5/28	N		227	65	7.9/14	C		West 57th
28.	16.4/27	C		Knots Landing	66	7.5/13	N		Tattinger's
29.	16.2/23	N		Family Ties	67	7.1/11	C		TV 101
30.	16.1/25	A		Mr. Belvedere	68	6.7/11	A		Heartbeat
31.	15.9/24	N		Night Court	69	6.6/11	C		Dirty Dancing
32.	15.8/27	C		Almost Grown	70	6.2/9	A		Knightwatch
33.	15.8/25	C		CBS Wednesday Movie Special	71.	6.1/9	F		21 Jump Street
34.	15.7/25	C		Dallas	72	5.5/8	F		Garry Shandling Show
35.	15.7/23	C		TV 101 Special	73	4.9/7	F		Tracey Ullman Show
36.	15.4/26	A		20/20	74	3.7/6	F		Duet
37.	15.1/23	N		Fiesta Bowl	75	3.3/6	F		Reporters
38.	14.9/24	A		Just the Ten of Us	76	1.9/3	F		Beyond Tomorrow

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* Indicates premiere episode

TABLE FOURTEEN

CABLE UNIVERSE 1987-1997



THE LEADERS IN ON-LINE

FIG. 2

Excluding providers of stock quotes and other trading information

Company	Product	Subscribers*	Revenues* Millions of dollars
LEXIS, NEXIS, MEDIS MEAD CORP.	Abstracts and full text of articles on legal, financial, medical, and general- interest topics	400,000	\$231.0
DOW JONES NEWS/ RETRIEVAL SERVICE DOW JONES & CO.	Historical stock quotes, corporate information, business articles	285,000	200.0
DIALOG INFORMATION SERVICE INC. KNIGHT-RIDDER INC.	340 data bases with abstracts and full-text articles on the sciences, technology, business, and medicine	91,000	98.1
COMPUSERVE INFORMATION SERVICE CO. H&R BLOCK INC.	Abstracts and text of business and general articles, historical stock quotes, on-line shopping, dozens of user bulletin boards	400,000	36.5

*As of Dec. 31, 1987

DATA: BW, DIGITAL INFORMATION GROUP

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