

# MEMORANDUM

TO: Clay Whitehead  
FROM: Scott Tobey  
SUBJECT:

DATE: 11 <sup>?</sup>Nov 76

Am a 'temp' hired for a few days. Have been a student of cable technology. Followed the public battle leading up to OTP's cable report and see that you are now with AEI. Don't know if you are still involved with cable but decided to bring the attached to your attention. Am originally a New Englander, directly familiar with the town meeting as a political model, and the idea behind MINERVA has been a fascinating one.

A more technically-oriented and equally brief report on this model is found in the Bulletin of the Atomic Scientists, Nov. 1971, 27, No. 9, pp. 4- 12 (as footnoted in attached).

Am not in any <sup>way</sup> connected with this project. Am following development of the concept, however, and wonder if, in time, it will be put into practice; in what form; for dealing with what public issues.

SCOTT TOBEY  
P.O. Box 11006  
WASH, D.C. 20008



# Minerva: An Electronic Town Hall\*

AMITAI ETZIONI

Center for Policy Research, Inc., 475 Riverside Dr., Suite 7221, New York, New York 10072

---

## ABSTRACT

This paper presents the specifications for an electronic technology that will allow masses of citizens to have discussions with each other, and which will enable them to reach group decisions without leaving their homes. Specifications of the components needed are enumerated and a concrete system suggested. Possible variations and other uses of the system are explored.

---

## Preface

This paper presents the specifications for an electronic technology that will allow masses of citizens to have discussions with each other, and which will enable them to reach group decisions without leaving their homes or crowding into a giant hall. First, the specifications of the components needed for such a participatory system are enumerated; they are deliberately separated from a description of a concrete system, as different concrete systems may provide the same basic components. Next, a concrete, and as far as can be projected, workable system is suggested. (It would not be available in full before 1985 and then only if it is "accepted"; hence the system must be considered before there is a complete prototype.)

Once the basic model has been described, possible variations are explored. The paper closes with a discussion of uses other than participatory that the system may be put to. Such additional uses will, of course, affect the cost of any single use, including that of the desired participatory technology.

## I. The Rationale for Seeking Minerva

The system suggested in this paper seeks to correct a loss brought about by modern mass society and heretofore considered beyond retrieve. It is widely believed that it would be impossible for millions of people to have the kind of participatory democracy available to the members of small communities such as the Greek *polis*, New England

---

\* This study, supported by the National Science Foundation, project # GI-29940, is being carried out under the auspices of the Center for Policy Research. Dr. Stephen H. Unger is co-principal investigator with the author. Papers by Dr. Unger and other team members are available from Center for Policy Research, 475 Riverside Drive, New York, New York.



towns, and Israeli *Kibbutzim*. In contemporary modern societies, there are no effective means by which large groups of citizens, whether dispersed across the country or clustered in a single community, can regularly interact among themselves or with their leaders. In some instances people may, after considerable delay, indicate their responses to broadcasted messages by means of letters or petitions that are in turn broadcast. But live (real-time) dialogues have been virtually impossible, and communication remains mostly unidirectional. One result of such unidirectional communication is the increasing alienation of the citizen from political and social processes; another is the making of decisions that are unresponsive to the real wishes or needs of the people and, as such, widely resisted. (Prohibition and the bussing of school children are examples.) In addition, there is little opportunity for mutual influence to occur, or for an authentic group consensus to evolve.

At last there is a basic conception of the attributes *needed* to create a technological system that will allow a large number of citizens, dispersed throughout their communities and throughout the nation, to dialogue with each other regularly and to form their positions on public issues as a group. Following a limited number of technological and social innovations to be outlined here, it will be possible, to a very large extent, to approximate the town hall meeting condition on a mass basis. This envisioned system of mass participation draws on a combination of some already existing and some new technological features in conjunction with new social procedures (or "protocols").

Several questions have been raised about this mass participatory system.<sup>1</sup> Will people want to use such a system? Will it serve to reduce alienation and correct social injustice, or will it simply cater to the lowest common denominator? Finally, will the cost of such a system be prohibitive, or at least higher than people would be willing to pay?

As these questions have been thoroughly discussed elsewhere,<sup>1</sup> the answers are only reviewed briefly, and then the main purpose of this paper—to depict a mass participatory technology—is confronted.

The demand for greater citizen participation in national and local affairs, as well as in various so-called "private governments" (such as those of universities, hospitals, schools, and other institutions), is one of the most striking characteristics of the last few decades. It is one of the key demands shared by large numbers of youth, the minorities, and the women's movements, as well as by working-class persons.

① Participation is sought largely when citizens feel politically effective, not when they sense that their votes or presence in a meeting make no difference.<sup>2</sup> In circumstances where people feel they actually have a role to play, they are more likely to inform themselves. Exactly how much information can be absorbed is both far from established and highly debated; but it is clear that while not everyone can or will understand all the technical details, the majority of the citizens may quite effectively understand the main issues, such as war vs. peace, inflation vs. unemployment, etc.<sup>3</sup> This is

<sup>1</sup> For a review of the literature, see Lester Milbrath, *Political Participation* (Chicago: Rand McNally, 1965).

<sup>2</sup> For relevant data, see Gabriel A. Almond and Sidney Verba, *Civic Culture* (Boston: Little, Brown, 1965).

<sup>3</sup> For detailed augmentation and references to data, see Amitai Etzioni, *The Active Society* (New York: Free Press, 1968).

particularly true when the issues are of great importance to people (perhaps a debate over a school bond, a proposed highway, or a housing project) and when they feel that they can, or should, play a role in the decision-making process. The furor over the scheduled construction of a low-income housing project in a middle-class neighborhood in Flushing, Queens, is a case in point. As people find that their participation has a definite influence on the decisions finally reached; they, and other citizens, are increasingly likely to avail themselves of future opportunities to participate. As the general level of education improves and people have more free time, participation in community affairs might also increase.

② Whether informed and active citizens generate more conflict or more consensus, have greater feelings of alienation or of involvement, will depend on the way the system for mass participation is used (see below discussion of rules of access), as well as on general societal conditions. If citizens sense that their needs are ignored, the new technological system may well make them *more* aware of this condition, because of the increased communications between them. But if their expectations are unrealistic, it might help them adjust their aspirations. Thus, quite appropriately the participatory technology is likely to help those who seek genuine citizen participation by responding solely to their educated and "consensuated" needs.

③ As to the cost, the participatory features can be an auxiliary, or "add on," to systems that already exist, such as over-the-air network TV, radio, and telephone, or to systems which are desired for other, commercially viable purposes. As an "add-on" feature, the system suggested is rather inexpensive. Thus, for example, two-way cable television (CATV), where the return capacity is for sending digital signals (not video, and maybe even not audio), is attractive as a shopping device. (The viewer can order products displayed on the screen, in a kind of "live" mail catalogue.) This same device can also be used for public opinion polling at very little additional cost. Hence, it seems that a system that would lead to greater citizen participation might well be beneficial and economically viable.

One attribute of the system that is considered essential if it is to have the said consequences, and which should be highlighted because it deeply affects the design of our system, is that dialogue among citizens and between them and their leaders precede the polling of views. The system being sought is one of mass dialogue and response, not one that merely tallies votes. Both political theory and the practices in Hitler's Germany and Napoleonic France have shown that bringing a motion before the populace to be voted on "raw," i.e. without discussion, opens the society to demagogic influences. In a truly democratic process there is a genuine dialogue among the citizens and between them and their leaders before a vote is taken. One main purpose of this is to broaden the understanding of the citizens through pluralistic sources of information. It also allows the citizens to take into account the views and feelings of fellow citizens who are *not* like-minded. Without such a dialogue, the positions that citizens are likely to take tend to be impulsive, uneducated, and unnecessarily polarizing. *A reasoned, informed, and broadly-shared position requires dialoguing.* This is an assumption that runs throughout the system that is next discussed.



## II. The Specifications of the System: A Model

### 1. An Optimal Version of Minerva

An optimal mass dialogue and response system—or, more technically, a “Multiple Input Network for Evaluating Reactions, Votes and Attitudes,” MINERVA for short (Minerva was the ancient Roman goddess of political wisdom)—will provide a means for people to communicate with each other as groups and with central broadcasters.<sup>4</sup> MINERVA is now being developed at the Center for Policy Research in New York. Its prerequisites are:

- (a) a capacity to *address a group* (or to broadcast),
- (b) a real-time *group dialogue* of a geographically dispersed membership,
- (c) a continuous real-time *feedback* between the audience and the broadcasters (national or local political leaders or opinion-makers), under conditions approximating town hall meetings,
- (d) the *recording* of participants' public responses and the *reporting* of the evolving group consensus (or its absence) to participants,<sup>5</sup>
- (e) the *injection* of expert information into the dialogue,
- (f) the establishment of *rules that regulate the accesses* and utilization of the system and have a capacity to be revised according to the responses of the participants,
- (g) the provision of opportunities for *subpopulation dialogue*, *inter-subpopulation dialogue* (e.g. of the black communities of New York City, Los Angeles, Chicago), as well as various *combinations* of subpopulations (e.g. of the five boroughs of New York City in a city-wide network).

None of the technologies that are described below provide for all of these elements single-handedly. However, when put together in various mixes and following some adaptations, they could provide such a system. Before turning to these technologies, some of the more important uses of a fully developed system of dialogue and response will be mentioned.

In a completed system, every person who owns a radio or a television set and has access to a telephone will be able to follow, react, and participate in the discussion and resolution of public affairs. Thus, an electronic equivalent to town hall meetings is provided, allowing dispersed groups to act as if they were all in one central gathering place.

Communications among the people involved may never acquire the immediacy of actually being in one room. However, the system may actually expand participation by opening it to people who are not sufficiently committed to the issue under discussion to attend meetings in person, but who are interested enough to turn on their radio or TV sets. By following a discussion in this way, a person can gain a feeling for it before deciding whether to participate in person. Furthermore, MINERVA provides an

<sup>4</sup> For a previous report on MINERVA, see another “MINERVA: A Participatory Technology System,” in *Bulletin of the Atomic Scientists*, November, 1971, 27: No. 9, pp. 4–12.

<sup>5</sup> In real-time or only after short delays (not more than five minutes), so that they can “sense” each other and thus develop their positions in conjunction with the change in the position of others.

opportunity for the shy and the timid to participate actively in meetings; they can respond without the anxiety that direct exposure to the group would arouse. Also, it allows persons who cannot afford baby-sitters, are not well, or fear to leave their homes at night, to “attend” the meetings.

MINERVA will also provide the opportunity for frequent and intensive dialogue between geographically separate communities. (This requires linking local sub-networks to national networks, probably via satellite.) For example, residents of Harlem, on the East Coast, and Watts, on the West Coast, may meet periodically in joint town hall meetings, in which they listen to each other's spokesmen. Or, finally, communities that find it difficult to meet en masse, such as the white, affluent community of Scarsdale and the poor, black community of Harlem, may exchange views via such a network, whenever they wish to set aside a time unit for such a dialogue.

Such a system of dialogue and response can operate on many different levels with technologies appropriate for each level. The various possibilities are examined next.

### 2. The Communication Tree

The main device that allows millions of people to dialogue and create authentic consensus, and which has the potential to affect public policy, is the division of the citizenry into small groups. The members can discuss matters with each other and then delegate representatives to the next level, where the delegates in turn dialogue with each other and so on, until the society-wide level is reached.<sup>6</sup> In the U.S., this device operates both in the political primaries that precede party conventions and in the discussions in neighborhood political clubs that precede city-wide party decisions. Dialogues and resolutions on higher levels can be made visible to those who participated only on lower levels, and the final, system-wide resolution can be submitted to all participants for approval or rejection.

The following communication tree, which combines several technologies, offers a four-level dialogue and response system:

- (1) for *small groups* (up to 30 persons), via automated telephone conferencing;
- (2) for *small communities* (300–2,000 persons), via two-way cable TV, where available;
- (3) for *intermediate communities* (6,000 to 40,000 persons), via a combination of radio or over-the-air TV with regular telephones;
- (4) for still larger entities, including national and international ones to be referred to as *societal entities*—via networks that link the communication systems of intermediate communities: cable, microwaves, TV relay stations, or satellite.

Note that the larger entities assume that the smaller ones exist within them. Thus, a small community of 300 people may include 10 subgroups with 30 people in each. And an intermediate one of 40,000 people may contain four small communities with 10,000 people in each.

<sup>6</sup> For additional discussion and data, see Amitai Etzioni, “Consensus Formation in Heterogeneous Systems,” in his *Studies in Social Change* (New York: Holt, Rinehart, and Winston, 1966), pp. 136–151.



The features of each level are now explored and the reasons for choosing these particular levels given. After the envisioned communication patterns for each level are introduced, interlevel connections and combinations and the different kinds of communication trees are discussed. However, for the first go-around it might be useful to assume that the people who dialogue and respond live next to each other (rather than dispersed throughout a city, a state, or the nation) and that they do not necessarily know each other personally. It is also assumed that delegates from a lower "tree" level (e.g. a group of 30 persons) who are spokesmen at a higher level (e.g. a small community of 900 persons) are the choice of the communicating group itself rather than the previously elected or appointed representatives of a different collectivity.

Finally, while the communication tree might be activated from any level, and the activation process might move up, down, from the middle down and up, or sideways, it is assumed, for ease of narration, that the activation starts with a society-wide "priming" broadcast by one person or a panel, is followed by a discussion that percolates upwards from the smallest to ever more encompassing levels, and culminates in a nation-wide dialogue and vote.

### 3. Key Features that Appear on All Levels

In order to reproduce, with technological aids, features of a town hall meeting that are practical for a mass of people, the elements of an effective dialogue and response system need to be known. Obviously the system will contain one or more *speakers*, who address themselves to a *topic* on the *agenda*, and who seek the floor by a *procedure* (or rule of access), with a chairman (or some equivalent) granting the floor. Devices for requesting the floor, awarding it, and, perhaps, protecting the speaker from *undue disruptions* are needed.

Less obvious are the intra-citizen and inter-citizen processes. As a rule, citizens do not come to such meetings with their positions fully developed and cemented, or the whole process would be senseless. In evolving their personal position and in "moving" toward or away from each other, the speakers and various factions (if any) are affected by *non-verbal* cues, such as those of approval (applause, shouts of "yeah-yeah" and "right on!"), disapproval (hissing, booing), and apathy (restlessness, dropping out of the meeting). Without such cues, the process of position-formation by a group, as well as by its individual members, might be severely hindered. As these are partially omitted in any non-face-to-face arrangement, it might be useful to replace them electronically. Thus, the suggested system seeks to provide for these less obvious features of town hall meetings as well as for the more obvious ones.

Finally, the system must provide for a vote (as distinct from an expression of the sense of the group). The vote constitutes a formal *group expression* vis-à-vis the resolutions on the floor. Of course, a vote may come after a few meetings or after only one; it may concern the agenda or the chairman's status as well as substantive positions. In any event, the group processes "lock-in" after one or a set of votes have been taken at the end of one or more dialogue sessions. And, even if the dialogue occurred in many groups and on several levels, a system-wide vote should be possible after the final round.

## III. A Concrete Model

### 1. Small Groups (Up to 30 Persons): Telephone Conferencing

The telephone, as we know it, is almost completely dyadic. It is basically a two-way, two-person, audio-only, technological means of communication. Group telephoning is now available with a conference "bridge," but since the bridge requires manual operation—a person to set up each conference at considerable time, effort, and hence, cost—it is not used routinely. The most modern switchboard (ESS) allows two persons talking with each other to dial-in a third one, and then a fourth one, but no more.<sup>7</sup> This is a significant but limited step toward automated conference calls, which are needed for a large-scale, frequently used, inexpensive system.

The next step is an automated system that connects up to 30 persons, either by dialing-in or by a computer that calls all the numbers simultaneously. The ability to connect this many persons is needed because many natural groups have more than four members (e.g. most committees) and because starting a communication tree with a base composed of groups of four requires 14 levels, whereas one that starts with 30 requires only 6 levels.<sup>8</sup> Of course, the number 30 is only an approximation; a somewhat smaller or larger group may prove to be necessary for the most effective dialogue. The MINERVA research has already established that groups of nine members work quite readily in automated conference calls. Richard Remp, a MINERVA researcher, has conducted a series of 29 nine-person telephone conference calls in which specific social problems were discussed. Afterwards, the 261 participants responded to a questionnaire on the merits of telephone discussions. Sixty-seven per cent of the people indicated that they were able to get the floor easily, 65 per cent felt the discussions were effective, 73 per cent felt their vote on the topic was a good indication of their position, and 71 per cent called the technique very useful.<sup>9</sup>

The MINERVA circuit that is being developed has the following four *feedback* features (other than the voices of the participants, whose sub-verbal sighs, grunts of approval, etc., carry quite audibly): (1) an "I request the floor" cue capacity, (2) an electronic means for signifying positive and negative responses, (3) an electronic way to register a vote, and (4) *summary* cues which make the group visible by reporting to each participant—speaker and audience—the group's responses and tally of votes. The figure shows what one format of the feedback would look like to the participants.

*Continuous feedback* of the group feeling (the equivalent of "reading" the noise level in a hall) is possible; the sense of the group may also be assessed at the request of either the group members or the chairman. The technical demands of continuous feedback are necessarily greater than those of sporadic feedback. Sociologically, as well, continuous feedback may be undesirable because an overly precise or premature sense of the group may hinder the formulation of new ideas and minority expression. Even before votes are taken in town hall meetings, there is an *imprecise* sense of the group,

<sup>7</sup> Stephen H. Unger, "Technology to Facilitate Citizen Participation in Government," a Center for Policy Research working paper, February, 1972.

<sup>8</sup> Five levels would accommodate 24.3 million. Six levels would cover nearly 729 million.

<sup>9</sup> We gratefully acknowledge a Bell Labs contribution of a bridge to our experiment.



which seems to provide a more conducive condition for free dialogue and quality discussion. The best of both worlds might be realized if the group feedback prior to actual votes were provided not by numbers (e.g. 18 in favor, 8 opposed, remainder undecided) but either through summary bars, which avoid precise counting, or through some vaguer indication of individual cues. Scanning 30 lights gives an impression of the group feelings, but if a count is attempted, some lights are likely to change before the count is completed.

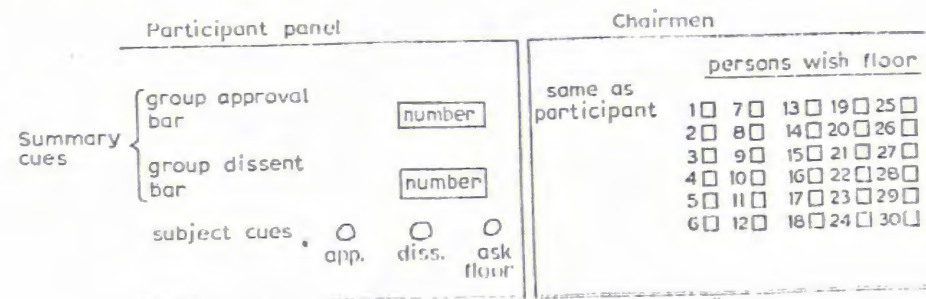


Fig. 1.

Dr. Stephen H. Unger, a member of the MINERVA team, has suggested that it might be possible to cue the chairmen with the same touch tones as those used by the telephone company. (The problem of filtering out audible tones from the receiver circuit is under investigation.) Other methods are being sought in the hope of minimizing the adaptations necessary in the telephone system itself, as distinct from adding panels and bridges. Perhaps a gavel will be provided for the chairman, to "bip" (known in our team as a meek gavel) or cut off (a harsh one) speakers when they try to usurp the floor. Dr. Unger has also raised the possibility of automating the chairman's role by using the bridge to allot the floor for a set period to those who seek it, in order for them to make their requests. (A further refinement would be to shorten the time allotted as the list of those in line grows: a warning light could alert the person who has the floor that his time will be up in, say, three minutes.)

Assuming all this becomes available, a time span of two hours can be set aside for small group dialogue after a system-wide "primary" broadcast and before a response tally is taken. The tally will be passed on to the next level of dialogue; that is, in the sequence reviewed here, dialogue in the small communities will start with a report of how the member groups expressed themselves. (If desired, one or more representatives of each member group, or a selected list of those representing groups which favored, opposed, and were divided on the issue, could present a summary of their groups' argument, to prime the small community's discussion.)

## 2. Small Communities (300-2,000 Persons): Group Cable TV

For communities in which cable-television is available in every house, as well as in public places such as schools, churches, political clubs, town halls, and entrance

lounges of high-rise buildings (now envisioned for Watburg, Conn., and Welfare Island Model City in New York, and, by 1985, expected in larger parts of the country), electronic conferences of several hundred persons seem possible. Following the primary national broadcast and small group telephone conferences, the dialogue may be extended to this level. Thus, if the national address is given at 10:30 A.M. on a non-working day, with telephone conferences between 11:00 A.M. and 1:00 P.M., the community dialogue may start, say, at 2 P.M. (Of course, some people may skip the first level; or the community dialogue could directly follow the national broadcast.) The dialogue would be over the cable TV's so-called "origination" channels (those which do not carry network broadcasts). Citizens would be able to react over a feedback channel. This channel would carry audio as well as digital signals, such as votes and requests for the floor. The system assumes a two-way CATV system (now in an advanced state of development) and the availability of a response box in each participant's home, similar to the one available to participants in the conference call system.

If all the 600 or more citizens who link up are within an area whose radius does not exceed 650 meters, as in a high-rise building, engineers report<sup>10</sup> that they should all be able to hear each other without special amplification. If all the audio input home-mikes were always "live," without requiring special activation, an intolerable noise might be the result. But they can be inactive, requiring, for example, a button to be pressed to be activated, like walkie-talkies. This situation now approximates a town hall meeting: several hundred people are able to boo, hiss, grunt, shout approval, follow the group sentiment, etc., as well as vote. The dialogue barrier, the number of persons that this system can maximally accommodate, has yet to be established. This barrier would obviously vary from group to group, according to how "well-mannered" their communication habits are. Determining the optimal dialogue barrier is a matter that can not be divined or argued. It is expected that for most socio-economic groups this barrier is located between 300 and 2,000 members.

Why use two-way cable TV and not telephone? First, some persons may wish to use the telephone for another purpose while other members of their family are engaged in the electronic town hall meeting. Second, there is a more technical question: Can the telephone circuits, presently designed for two persons, be amplified without very special arrangements to the point where, say, 600 people can easily dialogue? Third, cable TV is broad-band and hence can carry video signals both ways. While we do not expect every home to have a camera, the cable allows the center of the dialogue and video origination to be in any public meeting place or in any home using light and movable cameras, loaned or rented for the evening.

Also, it stands to reason that being able to see as well as hear the chairmen, and maybe other participants, and to present charts and tables visually, aids communication. People can pick up many additional "bits" this way.<sup>11</sup> Reliance on CATV rather

<sup>10</sup> Personal communication from Ted Wernitz, Center for Policy Research.

<sup>11</sup> One study, which compared the audio-only to the video-also system, raised some doubts about this: A. A. L. Reid, "Comparisons Between Telephone and Face-to-Face Conversation" (mimeographed, in the files of the American Telephone and Telegraph Company, New York, New York).



than picture-phones is suggested because it is less expensive and carries a more detailed picture. Telephone networks are overburdened with their present and projected business, whereas cable TV has unused channels and is expected to have many more in the near future.

Finally, tallies of responses and votes can be fed back to the participants more easily in the cable TV system, than over the telephone. The tallies may simply be flashed, like election results, on to the TV screen, rather than being read over the phone. Also, fairly complicated motions may be presented at voting time by using TV screens to display check-lists, which telephones cannot do.

### 3. Intermediate Communities (6,000-40,000 Persons): Combination of Radio or Over-the-Air TV with Regular Telephones

A different system is suggested for communities whose size puts them above the dialogue barrier, where it is not practical for everyone to dialogue on an *open channel*, either because the noise is too great, or because regulating the traffic is too cumbersome. Here one will rely on a dialogue among participants who have called in, by telephone, to a central broadcast station. Cable TV is not needed; a combination of local radio and regular (non-conference) telephones, or over-the-air TV (UHF, most likely) and regular telephones suffices. Hence, the system can also be used in small communities in which cable TV is not widely available.

The floor is obtained by telephoning the chairman to register a desire to address the group. When the floor is granted, the telephone call is broadcast over the air.

This system is expected to work best when the entire listening audience and the participating community are roughly co-extensive. For example, a town of 40,000 can use its local radio station in this way. In metropolitan areas, where the number who could tune in is much higher and spread out over many neighborhoods, it is better to use cable TV because the subdivision of channels along neighborhood lines defines the group according to those who can and those who cannot tune in. (For example, there are ten such sub-channels or "head-ends" in northern and ten in southern Manhattan.)

If an over-the-air system is used, it will be necessary to allow on the air only people calling from one particular area. (They may be screened according to the telephone exchange through which they make their calls, or by some other device.)

Phillip J. Brendel of the MINERVA team has investigated various ways of tallying people's responses and votes rapidly and frequently in this kind of situation. This has to be achieved without requiring the people to call in their responses because such calls would distract them from watching and listening to the dialogue, would overload the telephone lines, and would slow down the tallies. The method that seems most imaginative and responsive to these considerations is that of *telephone polling*. Here, each telephone is equipped with a response box, into which the person registers his preferences by pressing buttons, after which the response is tallied.

The MINERVA team is now studying the time required to poll people using the telephone method. As of now, it seems that 100 people can be polled (assuming a 16 bit response) per second by one polling unit. As these units are not expensive, a large number of them might be used simultaneously. Thus, if one out of every two residents

participates, ten polling units could poll a community of 20,000 in ten seconds. These responses would then be tallied and transmitted to the broadcasting center to be read by a radio announcer or flashed on a TV screen.

In addition to *final* votes, response tallies can be used to determine the agenda and whether to extend or close the debate, to change rules of access to the floor (see below), or to express *the sense of the group* on sub-points and tentative views on the whole issue (straw votes). These uses of tallying responses are the main replacement for sub- and non-verbal cues that telephone and two-way cable can carry. (These cues are missing in existing TV and radio panel *and* call-in shows because there is, in effect, no way for the listening audience to register its reaction.)

The size of the intermediate communities is set primarily by the desire to allow a sufficient diversity of speakers—representing all shades of viewpoints of the audience—to reach the floor. Technical limitations on tallying equipment and telephone exchanges also play a role in setting the size of the intermediate community. Forty thousand persons is used as a working upper limit for the size of the community, but it might actually be quite a bit lower, especially for active, verbal populations.<sup>12</sup>

### 4. Societal Entities: Cable, Microwaves, TV Relay Stations, or Satellite

A state, region, nation, or group of nations may all be covered by a system whose upper layer is a combination of a system-wide priming broadcast and two or, most likely, many more intermediate community systems of the kind already described. The broadcast can be carried over the air, on network TV, and the communities that make up the system can be connected via telephone cables, a TV relay station, satellite, or microwaves. System-wide polling would be achieved by feeding the tallies of each intermediate community to a central tally station, quite likely over telephone lines (as only digital signals, and not video communication, would be necessary).

The assumption here is that inter-citizen dialogue basically takes place within smaller, lower level units and that on the system-wide level, panelists—experts, leaders, mediators—participate (from central studios) by reacting to various feedbacks, which come in the form of frequent, system-wide tallies. Also, representatives of intermediate communities could address the societal system by telephoning in to a central switchboard. If desired, the participation of some citizens in the dialogue can be arranged in this way. Thus, the societal system is essentially a second-order intermediate community system. The main difference, due to much greater size of the societal unit, is that the probability that any one citizen or even community representative will address the whole system is much lower. Therefore, there is a great need to rely on another kind of feedback. If it is available frequently enough, it visibly affects the discussion (e.g. when the citizens' vote requires reopening an issue and the panel does so), *and* if it follows rather than replaces lower level dialogues, this feedback may give all involved an authentic sense of participation. By affecting the final outcome—whether helping to approve something or to vote it down—the citizens really will be participating.

<sup>12</sup> For detailed reasons and relevant calculations, see Phillip J. Brendel, "Incasting and the Telephone Network," A Center for Policy Research working paper, February, 1972.



Moving directly from the intermediate level of about 40,000 to a special level, such as the nation, might not be desirable because there are thousands of such entities and, hence, each unit's chance of presenting its views on the next level would be slim. This chance would improve significantly if one or more additional levels were provided. Therefore, a city-wide system might precede a state-wide one; regional tallies might be taken before the nation-wide tally, etc.

It is quite possible to start on a higher level, but once subgroups have been identified, they could subdivide in order to "caucus" while the meeting as a whole is temporarily adjourned. In this way, a more intensive dialogue will be possible. It will increase the probability that any one participant is able to address the group, rather than rely on tallies and cueing for feedback. After a period of time, the meeting of the entire group could resume. Another way in which these smaller electronic meetings can be used in a society-wide system is for the whole group to elect a resolution-drafting committee. Those elected would "leave" the "hall" and "meet" on their own, using a conference circuit. When they had completed their work, they would report back to the plenary meeting.

#### IV. Alternative Combinations of Levels and Groups

The suggested dialogue and response system may be used in many ways, which would differ in one or more details from the optimal model depicted so far. Some of these alternative ways are reviewed next.

##### 1. Use of One or Two Levels Without the Others

Any level may be used on its own or in conjunction with just one other level, disregarding the others. Thus, a national committee might find conference calls quite useful, especially if the calls are automated with various technical aids such as those already depicted. This would be the case even if no other electronic meeting followed or preceded such a committee meeting. Similarly, a 600 to 3,000 citizen cable conference, similar in size to a town hall meeting, might well be useful, even if not preceded by small group conferences.

##### 2. Variation in Composition of Groups

For dialogue and response purposes people can be grouped in a large variety of ways—according to age (all those under 30 and all those above 30), ethnic origin, political viewpoint, or various combinations thereof (e.g. age and viewpoint). In practice, though, there are severe limitations on what can be done without an undue increase in economic cost. It should also be pointed out that the various grouping criteria differ in the technological requirements they impose; this also restricts what can be done.

###### (a) Natural VS. Artificial

Consider the first level of telephone-conferencing. There can be provisions for people to choose their own groups, either via an extended dialing-in procedure, or a pre-set circuit (for instance, a Monday night public affairs group with a constant membership although all participants may not "attend" every week). Or, all those who wish to

dialogue can indicate this by calling in to a computer, which will then connect them onto conference circuits and thereby form the groups. Moreover, the computer may compose the groups according to some attribute specified by the callers. Some may choose to dialogue with like-minded persons, perhaps to organize themselves as a group to campaign for their position on higher levels. Others may request to speak with people whose views differ from their own, to win them over or to learn what others think and feel about the issue under discussion.

Similarly, chairmen for the small group conferences, as well as those who chair higher level conferences, may be natural leaders (emergent from the group), leaders elected by the group at conference, elected elsewhere (e.g. block chairmen, heads of tenant committees), or appointed by higher ranking leaders, etc.

On the intermediate and society-wide level, groups may be linked up both horizontally and vertically, either along "natural" lines (such as linking together all the boroughs of a city) or randomly (where part of Manhattan might be linked with Poughkeepsie). Almost always, a preference for natural links is expected to prevail because social and political forces outside the communication network resist being ignored. Thus, if the most salient divisions in a community are along neighborhood lines (in effect, ethnic and class and educational ones), a dialogue and response system that cuts across these lines is unlikely to survive, especially once its political relevance is recognized.

This does not mean that the system will necessarily be establishmentarian; for example, black leaders may suggest that Harlem and Watts be linked to each other, rather than to their city systems—New York and Los Angeles, respectively. But almost no one, in regard to most issues, is likely to favor random links. At the same time, there is considerable question as to what natural divisions to draw upon. While dialogue can be established along numerous *and* criss-crossing lines (e.g. Monday evening for the city; Tuesday for an ethnic group), the lines most commonly drawn upon, and above all, those which lead to tallies used in national combines, will significantly affect the nature of societal divisions and dynamics. For example, will MINERVA encourage us to think of the society as two nations, one black, one white, without major regional differences, or as one nation composed of persons who live in various parts of it, each part with a different racial ratio, but where white and black citizens join together to support their local needs and interests?

Preference for the bases of composing dialogue and response groups, selecting chairmen, and lining up with other groups is largely a matter to be decided by the citizens and not by researchers. But researchers can highlight the options and alert the public to the possible consequences that various choices are likely to have. However, much of the necessary research has not yet been done. At this point, what can be done is to emphasize that each criterion for group selection leads to significantly different consequences in the level and quality of communication, conflict, consensus, and alienation.

###### (b) Adjacent VS. Dispersed Groups

On all levels, geographically adjacent or separate persons or groups can be linked, although the greater the dispersal, the greater the tendency for technical difficulties



and high costs. Thus, for the same volume of calls, whether a telephone conference links people in the same neighborhood (using one telephone exchange), across a city (which requires inter-exchange calls, where lines are much fewer than within one exchange), or throughout the nation (long-distance lines), will, of course, strongly affect the costs as well as the probability that lines are available. For the time being, it seems, mass conference calls on a regular basis (as distinct from one special event, for which special equipment can already be assigned) will be practical only for local calls and might have to be limited to times when the system is not otherwise greatly used, such as on Sundays.

The problems imposed by non-adjacent groups seem particularly great when cable TV is used. While adjacent groups can use the same channel divided into sub-networks, non-adjacent callers – say, if the parents wish to talk about PTA matters without having non-parents participate – will need either (a) to set aside a “whole” channel for themselves (to which others could tune in), or (b) to be switched together manually for the evening, which is costly and requires a kind of cable network (“switched cable”) that differs from the one now very widely used (“frequencies-division”).

Small communities can be readily linked to intermediate ones, which can in turn be linked to societal systems, if they are adjacent; if not adjacent, the dialogue and response system will require expensive networking arrangements. Thus, the cost of linking nine American cities for one evening for a participatory show on the Public Broadcasting Corporations’ network has been estimated to include \$15,000 for leasing long-distance telephone lines alone! In the future, satellite and microwave stations may ease the problem, but for the time being, adjacency (or total system) exposures and dialogue have a clear technical and economic edge over non-adjacent ones.

### 3. Rules of Access: The Needed Social Procedures

Social innovations, or at least a set of experiments and decisions, will be needed before the new technological system can be used. Those “rules of access” (or mix of rules) that most effectively contribute to a successful meeting in a variety of situations will have to be established.

In any polity, an arena in which decision-making occurs, there exist limitations on the opportunities for communication of opinions and preferences. Even if substantive restrictions are prohibited (everyone is guaranteed the right to speak at some point), there still remain temporal restrictions (everyone cannot speak at once). The structure that regulates participation of polity members is referred to as the *rule of access*. For example, in a town hall meeting the rule of access may be that the floor is yielded to the person who raises his hand and manages to catch the chairman’s eye (and support). Theoretically, the rule may promise everyone the same chance; in practice, it is usually quite stratified.

For the purpose of developing MINERVA the following alternative rules of access are thus far being considered:

(1) Participants will be authorized to communicate on a *first come, first served* basis. The first person to indicate a desire to speak will automatically receive the floor.

(2) *Random access*: People to gain the floor will be randomly chosen from among

those indicating a desire to address the group, e.g. by a computer picking one person from each block or every Nth caller.

(3) *Access on the basis of popularity*: Since the opportunity to speak will vary according to the extent to which the audience desires to listen to the prospective speaker, there will be fixed minimum time units for each person who receives the floor. Thus, the opportunity to speak will be guaranteed to the less popular speakers, or randomly allotted among them.

(4) *Minority preference*: Special opportunities will be provided for some subgroups in the polity that have a particular attribute (i.e. youth, expertise, ethnic origin).

(5) *Access on the basis of representation*: Access will be given to those who demonstrate that they speak for others. The manner in which a person is officially designated as a “representative” might include: prior leadership in a natural group in the “real” world, a specified number of signatures on a petition, a special election to select speakers in “lower” level groups.

(6) *Access through neutral moderators*: Certain persons will attempt to give objective reports “upward” to larger audiences on the content and sense of discussions held in the smaller groups. These “moderators” will be selected on the basis of their ability to summarize views, remain objective, and guide discussions toward a productive interchange.

Other rules can, of course, be designed; above all, various mixes of rules already suggested seem promising. For instance, the discussion in an intermediate community may be opened by representatives, followed by a period of open random access for individuals, and closed with summaries by representatives.

The rules would surely differ as to their consequences. The following are criteria by which the effects may be assessed.

(1) *Consensus vs. dissensus*: To what extent are the ideas, attitudes, and choices expressed by the participants congruent or conflicting?

(2) *Stability of consensus*: To what extent are the opinions reported by persons while within the group retained after they have left it?

(3) *Moderation vs. polarization*: Does the rule promote moderation of views previously held or make people hold more intensely to their divergent viewpoints?

(4) *Quality of the discussion*: How informal, frank and open, and rich in alternatives and new ideas are the discussions?

(5) *Ease of procedure*: To what extent can the floor be gained and kept, ideas and resolutions “trafficked,” with no delays and difficulties resulting from the rule itself?

(6) *Legitimation vs. alienation*: Do participants feel that they have a fair chance to express themselves; is there an increase or decrease in acceptance of the group and its purposes?

(7) *Sustained interest and cohesion*: To what extent do the members desire to get together again, to use the same procedure?

### 4. An Alternative Communication “Tree”

A system that uses only telephones for multi-level dialogue is, in principle, also possible. Starting with groups that each have 30 members, then arranging for con-



ference calls first among the chairmen (or representatives) of 30 such groups, and then for their representatives, would after only five steps cover 24 million callers. Thus, all the citizens who could be expected to wish to discuss most issues could be "processed," assuming one hour per group, in a single afternoon. It might be noted, however, that using telephones for this purpose provides an audio-only system (unless picture phones are provided), no ready feedback of tallies, and a great strain on an already overburdened telephone system—especially when long-distance lines are needed. Still, more than one level of telephone conference seems practical—moving from 30 to 900 (30 groups of 30) and maybe to 30 representatives of 900—as long as one links together people from the same neighborhoods. As long as two-way cable TV is not widely available, this would be an especially useful system for groups who wish to dialogue but do not wish others to be able to tune in.

### V. Add-On and Multiple Uses

A major point, briefly mentioned earlier, deserves elaboration: MINERVA, or public affairs' use of the envisioned communications system, can be readily added on to other uses. So, if the other uses of the system, which require the same technological developments as MINERVA, justify the costs involved, MINERVA can get a free, or almost free, ride.

Consider the lowest level unit, that of automated conference calls on telephone lines. Without automation, the calls are difficult to arrange as they involve calling all the persons involved and finding a time they can all be at their places, and costly, as skilled operators may spend hours or even days setting up the call. Now assume that one of the following two arrangements were available: the first involves set groups, such as committees or the management of a corporation, that are dispersed across the country and wish to confer regularly. They may indicate on their respective telephones either that they are ready for conference if need be (by, say, flipping an "on" switch) or unavailable (via an "off" switch). Then, any committee member (or perhaps only the chairman), any plant manager (or the corporate director only, etc.) may initiate a conference call by calling a computer to indicate that one is desired. The call is completed when all stations are "on" (or when whatever the number considered necessary for a quorum is "on") at the pre-arranged time.

Under the second arrangement, group members may call in to a computer (using the computer as if it were an answer service) to report their availability for conferencing. When the entire group is available, all the telephones will ring. This arrangement does not necessarily have to be limited to "group members only." A committee chairman may call in to the computer requesting to speak to only a portion of the membership. Again, all phones will ring as soon as everybody is ready. Now, possible arrangements for conference calling can be compared. The "switch at your phone" system is easier to use than any computer, which would have to be called each time someone is or is not available for dialogue. But the second arrangement requires no modifications in the millions of telephones already installed and allows for the composition of different kinds of groups. Both may well be available one day.

Either of these arrangements would have several significant consequences. No longer

would committees or other dispersed groups be forced to travel great (or small) distances in order to convene. Conferences would entail significantly lower economic and psychic costs and may, therefore, become both more desirable and more frequent. This would, in turn, allow for more communication and, in principle, greater democratization. (Fewer decisions would be delegated to the chairman and/or the staff of committees since the difficulties of calling the committee together for frequent meetings on just a few matters would be reduced.)

On the non-instrumental side, easy and inexpensive conference calls would allow families, e.g. on holidays, and groups of friends to talk together not just two or three at a time, but with all the uncles, cousins, children, and grandchildren wherever they are.

While the technologies of telephone, over-the-air TV, and radio are quite well known, that of cable television, especially the two-way subdivided system envisioned here, is far less known and hence deserves brief commentary. Unlike most technological innovations, cable television is moving from the countryside into the city. The number of cable television subscribers has grown at an annual rate of 20 to 25 per cent and the system already serves 8 to 10 per cent of the population. A study prepared by Complan Associates has estimated that, by 1980, of the projected 100 million homes in the United States about half would be wired with cable TV.<sup>13</sup> The actual number will, of course, be affected by the services that the cable renders. If its potential to provide an easy way of shopping, fire alarms, burglar alarms, individualized educational and cultural programs, etc., is realized, it will be more widely sought-after. If it carries only entertainment, a lower level of penetration may take place.

So far, cable television is used mainly to carry a better signal, a service provided almost exclusively by commercial firms. However, there is a technological capacity for (a) still better, broader-band amplifiers (able to keep more channels on the same cables without leaking into each other), (b) more "head-ends" (points from which video programs can be originated to form sub-networks that are co-extensive with neighborhoods), and (c) two-way narrow-band channels (to carry voice and digital signals from the home to central locations).

With this new technology, cable television could be adapted to provide, in addition to the innovations mentioned above, medical checking of heart control devices, home terminals for information-retrieval systems, and, far from trivial, instant shopping. Since millions of people now buy through mail catalogues, there seems to be no reason why, if individual products were shown on the local channels and were easy to order, people would not do much of their shopping this way (this is being tried in Dennis, Cape Cod), especially in bad weather. (The saving from this innovation alone—in the cost of transportation, highway building, parking lots, etc.—would more than justify the costs of two-way CATV systems.)<sup>14</sup> And since MINERVA needs basically the same technology as these other services, cable television could be adapted to provide not only a richer and more individualized cultural, instructional, and informational

<sup>13</sup> Ralph Lee Smith, "The Wired Nation," in *The Nation*, May 18, 1970, p. 605.

<sup>14</sup> The author is indebted to Leonard Ross, economist and research associate at the Center for Policy Research, for this observation.



media, but also to provide a *participatory system* that would allow the citizenry to interact both with each other and with their representatives and leaders.

Finally, the means of national networking or hook up are already in great demand, and the wide use of satellites is such that there can be little question that there would be further networking, even if MINERVA never took off.

### In Conclusion

It is clear that several technical developments (from automatic conference calling to rapid tallying), social innovations (in the area of "rules of access"), and economic investments are needed before a mass participatory system will be available. Research thus far suggests, though, that one version or another of the multi-level system depicted can provide the needed technology. Moreover, it will enable dialogue among smaller entities, and frequent, easy, "feedback" by the citizens of larger ones. The extent to which this system is used and its effect on our society will depend, in part, on how specifically it is set up (especially on the rules of access that are used) and, in part, on external factors such as the responsiveness of the government, the spread of college education, and higher per capita income. But it does offer an opportunity for a more open, participatory society.

*Policy Sciences*  
Elsevier Publishing Company, Amsterdam--The Netherlands

## Forecasting and the Systems Approach: A Critical Survey

ERICH JANTSCH\*

*School of Public Health, University of California, Berkeley*

### ABSTRACT

Long-range forecasting for social systems deals with complex feedback interactions between all sectors and elements of such systems, and thus inherently implies facing the challenge of the systems approach. The latter may be characterized as an attempt to understand the self-organizing behavior of social systems and to grasp its potential dynamic implications. A survey of current approaches to forecasting attempts to discuss the state of the art and potentials for further development in this light. Many modelling approaches—in particular econometrics—are inherently restricted to mechanistic modes of behavior. Formalized man-technique interaction—for which innovative approaches have become known—may aid forecasting for adaptive modes of system behavior; computer simulation of structural models has considerable potential in this area. Finally, forecasting techniques may be applied so as to stimulate human inventive thinking. The systems approach provides the proper perspective for the meaningful use of formalized approaches to forecasting.

### 1. Introduction: The Challenge of the Systems Approach

Long-range planning for social systems implies *investment in a dynamic situation*; or in other words, the introduction of positive feedback elements into complex dynamic systems characterized by nonlinear interactions between multiple feedback loops. What is of interest here in forecasting is the outcome of such an investment—or rather, the *outcomes* of potential alternative investments and courses of action—in terms of repercussions propagated throughout the system by virtue of this complex feedback structure and, above all, in terms of changes in its internal and external behavior. What is of even greater interest is some indication elucidating what potential courses of action, feasible within certain constraints, correspond to stipulated desirable outcomes. The illusion of tangible and isolated problems dissolves into the notion of a dynamically changing "*problématique*" (Ozbekhan) evolving with a dynamic situation.

\* This paper is based on a contribution to the conference on "Long Term Planning and Forecasting" sponsored by the International Economic Association in Moscow, December 11–16, 1972. A related paper, outlining the theoretical frame of reference, will be published under the title "Forecasting and Systems Approach: A Frame of Reference" in *Management Science* in 1973.



and monopolies, but so as to make permissible, elements of co-operation.

to amendment of the Sherman Law, the following as embodying the principles which have been in Great Britain and its dominions:

That the words "in restraint of trade" wherever the Act shall be deemed and interpreted to mean, restraint of trade as, having due regard to the interests of producers, workers and consumers, shall be to the benefit of the public.

If the amendment were adopted, the effect would be that a case would be reached in such a case as the *Trenton*

The best sentiment of the profession with respect to that case by the Supreme Court seems to be admitting that the decision has correctly interpreted the law, it is unsound from an economic standpoint from the commercial standpoint—because the decision, even though the prices agreed upon were reasonable, would cause no material injury to consumers could be ascertained. If the amendment was unlawful even though, as may be deduced from the decision as a necessary inference, the continued existence of the industry was threatened by cut-throat price-competition. If this suggestion were adopted, a case like the *Trenton Pottery* would be adjudicated upon the basis of the interests of the public, that is, producers, workers and consumers, as in the *Shannon*, *Australian* and *Canadian* cases which have been decided; and not upon the basis of the interests of the public as the Sherman Law now requires. According to the prices agreed upon in the *Trenton Pottery Case*, as is apparently conceded, either the case would not have been begun at all, or if the jury had found that the amendment was reasonable, then the verdict would necessarily have been in favor of the defendants, because there would have been no injury to producers, workers or consumers.

If the amendment were adopted, the amendment would leave unimpaired the Sherman Law against trusts and monopolies, as in the *Standard Oil Case* and the *Tobacco Trust Case*; and would prevent the formation of oppressive or monopolistic combinations or

for T. Whitehead

## THE RADIO ACT OF 1927

A SYSTEM of law should keep pace with the economic development of the country. Recent developments in the use of the air, both as a means of transportation and a communication system, have been so rapid that the advent of each new vehicle of commerce was ushered in far ahead of rules governing its conduct.

In sponsoring the passage both of the Air Commerce Act of 1926 and the Radio Control Law of 1927, the American Bar Association, through the adoption of a far sighted program, has minimized to a great extent the amount of attention this legislation would otherwise have required by members of the Bar after its enactment. The concerted efforts of the Association over a period from 1920 to 1926, resulting in the passage by Congress of the Air Commerce Act of that year, were regarded with such seriousness that the Association, at the Denver meeting last July, created a permanent Committee on Air Law, enlarging its duties to cover the subject of the law pertaining to aeronautics, radio, and other uses of the air. One of the functions of the Committee, working in conjunction with the Secretary of Commerce, has been to assist in drafting regulations under the new Air Commerce Act. This work has now been completed, and the regulations of the Department of Commerce for the guidance and direction of the use of aircraft employed in interstate commerce have been promulgated. It can readily be understood that very important powers under the Act are lodged in the Secretary of Commerce, and that such regulations will be the basis of control by the Federal Government, and the individual states, on the question of sovereignty, which they should exercise and will exert over the air.

The Committee of the American Bar Association, following its policy in regard to the development of the law of aeronautics, conceived it to be its function, before the passage of the law, to advise with Congress regarding the law of radio control. Hearings of the Committee were held in Washington last November,

13 Va Law Review (1927)  
Davis



with a view to clearing up the then existing chaotic condition, which made necessary the passage of some law to replace the previous Act of 1912. As stated by President Coolidge in his annual message to Congress:

"Due to the decisions of the courts, the authority of the department under the law of 1912 has broken down; many more stations have been operating than can be accommodated within the limited number of wave lengths available; further stations are in course of construction; many stations have departed from the scheme of allocation set down by the department, and the whole service of this most important public function has drifted into such chaos as seems likely, if not remedied, to destroy its great value. I most urgently recommend that this legislation should be speedily enacted."

When the Air Law Committee convened at Washington in November, it developed from statements made to the Committee that at that time there were in existence 612 broadcasting stations; that 70 new stations were being constructed, and 110 other stations were contemplated; that all of these stations were using, and intended to use, wave lengths 200 to 550. The testimony of experts showed that there were only 89 channels which could be used by all of these 612 existing stations, and the 180 or more contemplated stations.<sup>1</sup> It was very obvious to the Committee that there were too many broadcasting stations operating, and about to be operated, and that interference was impossible, if these stations were permitted to operate at the same time.

Under the Act of August 13, 1912<sup>2</sup> the Secretary of Commerce had no discretion in issuing licenses. This was the opinion of the court in the case of *Hoover v. Intercity Radio Company*.<sup>3</sup> The Secretary of Commerce had refused to grant an application for a license to a new operator on the ground that there was no available wave length which could be assigned to a new station, without interfering with some former assignment. The court held, just as the Attorney General had previously

<sup>1</sup> There are six other channels, but these have been allocated to Canada.

<sup>2</sup> 9 Fed. Stat. Ann. (2nd. Ed.) 523.

<sup>3</sup> 286 Fed. 1003.

ruled,<sup>4</sup> that the Secretary had no discretion, and that therefore mandamus would lie to compel the Secretary to issue the license.

The 1912 statute was very simple. It comprised eleven sections, and included in the fourth section of the Act nineteen regulations. Section 1 provided for the issuance of licenses, and section 2 that the license should state the wave length authorized for use. The case of *United States v. Zenith Radio Corporation*,<sup>5</sup> held that operation upon a wave length, other than the one assigned in the license, did not subject the operating company to the penalties provided in the first and second sections of the Act.

The decision of Chancellor Wilson, in the case of *Chicago Tribune v. Oak Leaves Broadcasting Station*,<sup>6</sup> showed clearly that the law of 1912 was inadequate to deal with the situation. In this case the broadcasting company, operating station WGES, had commenced broadcasting on a wave length then used by WGN, which had been in existence for several years. The court held:

"We are of the opinion further that under the circumstances of this case priority of time creates a superiority in right and the fact of priority having been conceded by the answer, it would seem to this court that it would be only just that the situation should be preserved in the status in which it was prior to the time that the defendants undertook to operate over or along the wave length of the complainant."

It can readily be seen that the listening public was primarily interested in having many of the existing stations shut down, to insure less interference and therefore better reception. The Air Law Committee reached the conclusion that neither the Dill Bill nor the White Bill exactly met the problem presented, and recommended legislation providing for the closing up of superfluous stations, and the payment of "just compensation" to such stations, by taxing the remaining stations. Through the passage of the present law, the chaotic condition existing when Congress convened in December, has, to some extent, been cleared up, but under the present legislation there is no power given either to the Commission, or to the Secretary of Commerce, to close up

<sup>4</sup> 29 Opins. of Atty. Gen. 579.

<sup>5</sup> 12 Fed. (2d) 614.

<sup>6</sup> Decided in the Circuit Court of Cook County, Ill., Nov. 17, 1926.



existing stations, and likewise there is no provision for compensating stations whose licenses are not renewed.

In urging the incorporation of provisions permitting either the Commission or the Secretary of Commerce to close stations entirely, and to pay compensation, the Committee felt that the companies securing the new license when thus limited, would benefit by the closing of many of the present existing stations. From the larger profits which would then accrue, they could very properly be taxed in order to pay compensation to the stations which would be closed. In considering the amount of compensation, the element of good will of course was taken into consideration, and the suggestion made that a Compensation Board be created to administer these provisions of the law. In advocating these provisions in the law, the Committee felt that the then existing situation could be dealt with adequately only by limiting the number of licenses, and realizing that the listening public would be benefitted by having fewer and better stations, in that interference would be reduced to a minimum, desired the passage of a statute which would be clearly constitutional. These suggestions the Committee believed to be sound in law for the following reasons:

- “(a) The 1912 statute permitted every one to obtain a license. The Secretary had no discretionary power and he could be mandamusd to compel the issuance of a license. The licenses were not for any stated term and could be revoked only for cause. The companies with established business under such a situation had a right to believe that their investments could not be destroyed by the mere repeal of the 1912 law.
- (b) The situation is not analogous to the destruction of property rights involved in the passage of the prohibition laws, because in that case there were very large moral and police questions, and besides the laws were only passed after the Constitution itself had been amended.
- (c) The obligation of the federal government to pay just compensation for closing an existing radio station was recognized in the joint resolution of July 16, 1918, which permitted the President to take over radio stations during the time of war, but only upon payment of just compensation. It is to be noted that even when this power was re-

pealed on July 11, 1919, the compensation provisions were specifically continued.

- (d) The Committee sees no newer constitutional authority for depriving the citizens of property rights under the pending legislation than was included under the 1912 legislation.
- (e) The closing of stations by mere refusal to issue new licenses under the new legislation would be an indirect method of attempting to accomplish a beneficial result that had better be dealt with directly and by specific authority of law.
- (f) The suggestion is entirely in accordance with Chancellor Wilson's decision in the Chicago Tribune case.
- (g) The Secretary or the commission will avoid extended litigation and be able to procure advantageous results more promptly if he or it has the right and the obligation to pay compensation to the stations which are closed.
- (h) The suggestion seems to us eminently fair and must appeal to the general public, to the stations which are closed and to the stations which are permitted to continue to operate, as being reasonable and just.

In making this suggestion we are not unaware of the fact that the licensees who are permitted to continue will altogether have complete use of the channels of radio communication, to the exclusion of all others. We do not fear a criticism of a monopoly where there are three or four hundred different parties enjoying the monopoly. The limitation of the number of broadcasters, we believe, is necessary, just as the limitation of the number of telephone companies is necessary for the public convenience, and would be just as sound constitutionally as the limitation of use of certain highways to certain classes of vehicles.

The suggestion of compensation provisions is in accordance with the provisions of the various bills which have contemplated compulsory consolidation of the railroads. Security holders of railroads to be taken over by other roads were to be paid by the acquiring roads.

We see no objection to the signature of the resolution which was passed at the last session, providing for the waiver of rights as against the United States as a condition precedent to the granting of a new temporary license. We should like to see a resolution promptly enacted prohibiting the issuance of any new licenses for the time being and until the Congress can pass adequate legislation. We recommend this because the situation is growing worse steadily



due to the increasing number of licenses that are being issued.

You will note that in making these observations we have done so from the point of view of the listening public primarily, all in the interest of what we believe would be for the benefit of better reception and better programs. We do not consider it our function to take into consideration the difficulties of securing the passage of this or that bill nor the compromises which generally have to be made to secure the passage of any bill. We are not unaware of those difficulties, but it seems to us that the proper function of the American Bar Association's Committee is to tell the legislators what we think of the proposed legislation strictly from the lawyer's point of view.

In summary permit us to state that we believe that either of the bills would be an improvement over the existing situation, but only in respect to future licenses. On the other hand we think that neither bill deals, except by indirection, with the present condition, which the Secretary of Commerce says is chaotic.

The Committee believes that if its suggestions are followed there will be a greater justification for more complete regulation of the broadcasters and that the situation from the point of view of the listeners will be greatly improved."

The Radio Control Bill, as passed by Congress and signed by the President, is very frankly a compromise solution, and while not entirely adequate, it does, to some extent, represent a very substantial advance over the old law of 1912. It provides adequately for dealing with future stations, and by indirection meets to some extent the problems now confronting broadcasting.

The Radio Control Law has cured many of the defects in bills formerly proposed:

*First:* The preamble has omitted the declaration of ownership of the ether, and is proceeding properly under the commerce clause of the Constitution. The fundamental principle of the law, however, remains the same as expressed in the 1912 law:

"No person \* \* \* shall use or operate any apparatus for the transmission of energy or communications or signals by radio \* \* \* except under and in accordance with this act and with a license in that behalf granted under the

*provisions of this act.*

The corresponding paragraph of the 1912 law read as follows:

"No person shall use or operate any apparatus for radio communication as a means of commercial intercourse except under and in accordance with a license revocable for cause in that behalf granted by the Secretary of Commerce on application therefor."

The language in both acts is similar in thought and the new law merely changes the details of administration.

*Second:* The license term has been fixed under the new law at three years instead of two.

*Third:* While there seems to be no provision for forfeiture of license for transfer for more than the value of the physical equipment, there is a limitation of the right to transfer a license, and the Commission might properly decline to acquiesce in such a transfer for any reason which it may consider proper.

*Fourth:* Navy stations are permitted to transmit newspaper and other private commercial messages at reasonable rates, but this provision is permissive only until such time when there are privately owned facilities for such business.

The law provides for a Commission to operate for the first year. Thereafter the Secretary of Commerce will handle most of the problems which will arise, and the Commission will probably function only occasionally. It will be noted particularly:

(1) That the present law does not follow the suggestion of the Air Law Committee that the anti-monopoly provision be eliminated. The Committee believed, and recommended, that it is not the best legislative policy to incorporate in a regulatory measure provisions that either parallel, or duplicate, the Sherman and Clayton laws, with respect to monopoly or limitation of competition. Such a provision is in effect an additional penalty for the endorsement of the Sherman and Clayton laws, and in the judgment of the Committee, has no place in a radio regulatory act.

(2) That no power is given either to the present Commission, nor, when the Commission ceases to function, is any power lodged in the Secretary of Commerce either to close up existing stations or compensate stations whose licenses are not renewed.



The procedure contemplated by Congress apparently is for the Commission, or the Secretary of Commerce, to obtain a waiver with each application, and then, having the waiver, decline to issue the license. The language in the law reads as follows:

"No station license shall be granted by the commission or the Secretary of Commerce until the applicant (sic) therefor shall have signed a waiver of any claim to the use of any particular frequency or wave length or of the ether as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise."

Very obviously, the present operators of broadcasting stations either have rights, or they have no rights. It is quite clear also that Congress, in the passage of the present law, recognizes that they have certain rights, or the waiver thereof would not be a condition precedent to the granting of a license.

The case may very easily arise where waivers are filed by present operators, and a license not granted. The applicant will then be compelled to go to the courts on appeal, as provided by the new law, and he will enter upon such appeal handicapped by the waiver previously signed. Conceding that the operators have rights, it has been thought that the proper way to deal with them is to pay what they are worth in the event they are compelled to give them up. Should the Commission fail to renew present licenses to existing stations, litigation will result. The Chairman of the Air Law Committee, believes the solution to this difficulty will suggest itself to members of the Commission which has been appointed and is now functioning, and that they, following the recommendations of the American Bar Association Committee, will urge the passage at the next Congress of legislation which will remedy this very vital situation.

*W. Jefferson Davis.\**

SAN DIEGO, CALIF.

---

\*Member Air Law Committee of American Bar Association.



# The Myths and Realities of Corporate Pricing

Corporate profits may be recovering briskly this year, but resentment and suspicion of profits are rising briskly too. It is by now an article of faith in some sophisticated circles that the U.S. has become a corporate state, in which giant companies increasingly dominate markets and write their own price tickets regardless of demand by practicing "administered" and "target return" pricing. Ask ten campus economists whether prices will fall with demand in industries that are concentrated—that is, dominated by a few large firms—and nine of them will tell you that prices won't fall as much as they would if the industry were competitive. And almost everywhere the putative pricing power of big business is equated with the well-known monopoly power that organized labor exercises over wages.

So the pressure is mounting to police pricing practices and other "abuses" in concentrated industries. Senator George McGovern, for example, is denouncing oligopolies as responsible for most of the nation's inflation, and is sponsoring measures to break up big companies. Meanwhile, the notion that price controls should become a permanent American institution is certainly taken seriously by more and more people. The Price Commission itself, which has adopted the practice of regulating prices by relating them to profit margins of the past three years, seems to be leaning toward a theory of managed prices.

Yet all these passionately cherished attitudes and opinions are based at best on half truths, and perhaps on no truth at all. The portentous fact is that the theory of administered prices is totally unproven, and is growing less and less plausible as more evidence comes in. Always very controversial, it has lately been subjected to an extended counterattack of highly critical analysis.

Some of the best work on the subject is being done by the privately funded Research Program in Competition and Business Policy at the University of California (Los An-

**Business is often accused** of setting prices by a simple formula: price equals costs plus overhead plus a predetermined profit. But it only seems to be doing so, says Professor J. Fred Weston of U.C.L.A., who spent a good part of two years discussing pricing with top executives. According to Weston's research, large, sophisticated companies necessarily decide on prices the way they do on investment, going through most if not all the agonies shown in this drawing.



geles) Graduate School of Management, under Professor J. Fred Weston. For nearly two years now, Weston and his group have been taking a fresh, empirical approach to subjects like industrial concentration, profits, competition, and prices. Their techniques include asking businessmen themselves how they set prices, and trying to find out why businessmen's formal statements about their price policies are usually so different from their actual practices.

The program, among other things, hopes to come up with a new theory of corporate profitability. "So far," Weston says, "we find that profit rates are not significantly higher in concentrated than in nonconcentrated industries. What we do find is that there is a relationship between efficiency and profits and nothing else." But a vast amount of work, Weston admits, needs to be done. As happens so often in the dismal science, the more economists find out about a subject, the more they realize (if they are honest) how much they still have to learn.

### **Mr. Means shows the way**

The argument about administered prices is now nearly forty years old; one philoprogenitive professor who took sides at the start is preparing to instruct his grandson on the subject. Few controversies in all economic history, indeed, have used up so many eminent brain-hours or so much space in learned journals. Much if not most of the argument has been conducted on a macroeconomic level; that is, it has been concerned with analyzing over-all statistics on industrial concentration and comparing them with figures on prices. And that is exactly what was done by the man who started the argument by coining the phrase "administered price" in the first place. He is Gardiner Means, seventy-five, author (with the late Adolph Berle) of the celebrated book *The Modern Corporation and Private Property*, published in 1932.

Like a lot of economists in that day, Means was looking for reasons why the great depression occurred. He noticed that many prices remained stable or at least sticky, even when demand was falling. Thus demand was depressed still further, and with it production and employment. Means's figures showed that wholesale prices fluctuated less in

*Research associate: Varian Ayers Knisely*



highly concentrated industries than in others; so to distinguish these prices from classic free-market prices, which are assumed to fluctuate with demand, he called them "administered" prices, or prices set by fiat and held constant "for a period of time and a series of transactions."

As an explanation for depression, Means's theory got some devastatingly critical attention over the next few years, but it did not fade away. In the middle 1950's it was revived as a major explanation for cost-push inflation, which Means calls administrative inflation; i.e., the supposed power of big business to raise prices arbitrarily. In 1957 the theory was taken up by Senator Estes Kefauver's antitrust and monopoly subcommittee, whose chief economist was John M. Blair, one of the nation's most energetic and passionate foes of industrial concentration. Ere long, dozens of the nation's eminent economists got into the argument, and many concocted novel and often persuasive arguments in behalf of the theory of administered prices. Besides Blair, the advocates included the Johnson Administration's "new economists," such as James Duesenberry, Otto Eckstein, Gardner Ackley, and Charles Schultze, with "independent" savants like Adolph Berle and J. K. Galbraith helping out from time to time.

### Why did they wait so long?

The burden of proof, of course, is on the advocates of administered-price theory. They must do more than merely nourish a prejudice, particularly if their thesis is to provide a reliable guide for antitrust and other public policy (to say nothing of serving as a base for a new interpretation of the American economy, such as Galbraith vouchsafed to the world in his book, *The New Industrial State*). In other words, they must offer very convincing evidence they are right. That, it is fair to say, they have not done. In 1941 economists Willard Thorp and Walter Crowder, in a study for the Temporary National Economic Committee, used a sophisticated analysis of price, volume, and concentration to conclude that there was no significant relationship between the level of seller concentration and price behavior and volume. Shortly afterward, Alfred Neal, now president of the Committee for Economic Development, argued that any measure of price inflexibility must consider cost changes, "a matter over which industries have little if any discretion." These and other attacks on Means's theory seemed to dispose of it as a proven cause of depression.

As a major explanation of cost-push inflation, the theory was also subjected to severe criticism. Murray N. Rothbard of the Polytechnic Institute of Brooklyn, for one, simply laughs at the theory of administered prices, and terms it a bogey. "If Big Business is causing inflation by suddenly and wickedly deciding to raise prices," he says, "one wonders why it hadn't done so many years before. Why the wait? If the answer is that now monetary and consumer demand have been increasing, then we find that we are back in a state of affairs determined by demand, and that the law of supply and demand hasn't been repealed after all."



Just two years ago the National Bureau of Economic Research printed a little book calculated to put an end to the argument. It was called *The Behavior of Industrial Prices*, and was written by George J. Stigler, a distinguished economist at the University of Chicago, and James K. Kindahl, of the University of Massachusetts. Stigler and Kindahl correctly observed that, owing to hidden discounts and concessions, a company's quoted prices are often very different from the prices it actually gets. So instead of using official figures compiled by the Bureau of Labor Statistics

on sellers' quotations, as Means and others had done, Stigler and Kindahl used prices at which their surveys told them sales were made. These were then matched with figures on industry concentration. The Stigler-Kindahl findings for the period 1957-61 did not differ much from findings made with B.L.S. figures. But the findings for 1961-66 differed considerably, and Stigler and Kindahl at least showed that prices in concentrated industries were not as inflexible as some people thought. What is very important is that Stigler and Kindahl probably understated their case because their surveys did not manage to get at true selling prices. As most business journalists are well aware, companies neither record nor generally talk about all the "under the table" prices and other valuable concessions they make when the market is sluggish.

### **"Normal" profit isn't so normal**

While this macroeconomic analysis of price and concentration was going on, a few economists were beginning to take a microeconomic or close-up view of pricing. Why not ask businessmen themselves just how they really price their products? This bright idea, however, proved not so easy to apply as to state. Classic economic theory says business should set prices to balance supply and demand—i.e., "to clear the market." But in 1939 two economists at Oxford University published a survey of thirty-eight British companies that found most of them tended to price their output pretty much on a stodgy cost-plus basis, almost as if they were accountants, or trying to behave like Gardiner Means's oligopolists.

It remained for Professor I.F. Pearce of the University of Nottingham to clear up the paradox. Pearce had been trained as a cost accountant, and understood why prices are not always what they seem. He pointed out that business almost universally bases prices on a cost figure, which in turn is based on both past cost data and future cost estimates; an economist would call this figure the long-term average cost. In most firms, moreover, a recognized profit margin remains stable over periods long enough to be significant, and is therefore considered normal. "What is less generally known, except to those who practice the art of price fixing," Pearce says, "is how often and for what a variety of reasons 'normal' profit is not in fact charged against any particular sale . . . The informal adjustment of



margins, since it is both informal and *ad hoc*, tends to be left out of any general discussion of price fixing routine, and yet the issue really turns upon it. Margins charged are highly sensitive to the market under normally competitive conditions, and the 'norm' is simply that figure around which they fluctuate."

To demonstrate what he meant, Pearce made an elaborate study of one medium-sized British manufacturing firm. He sent out questionnaires and conducted formal interviews, and made a record of quoted prices and actual selling prices. He found that a wide variation existed between the margins talked about in interviews and surveys and the margins actually achieved. "Normal" profit margins, in other words, were mere checkpoints in the company's planning process.

Of course, a significant minority of U.S. businesses actually do price on a cost-plus basis—the regulated monopolies like utilities, pipelines, and transportation companies, as well as a lot of military contractors. At first glance, many unregulated companies also seem to price on a cost-plus basis. This is only natural. Since they obviously cannot survive unless they take in more than they spend, the easiest way to think about a price is first to think like an accountant: price equals costs plus overhead plus a fair profit. Cost-plus, furthermore, is a useful ritual, with great public-relations advantages. A smart, prudent businessman would no more publicly brag about charging all the traffic will bear than he would publicly discourse on his wife's intimate charms. Recoiling from branding himself a "profiteer," he admits only to wanting a "fair" return. Ironically, this has made him a sitting duck for economists who accuse him of not striving to maximize his profits because he controls the market, and of changing his prices only when his planned return is threatened.

### **When it's right to charge all you can get**

But no mechanical formula can guarantee a profit. Both cost and profit estimates depend on volume estimates; and volume, among many other things, depends on the right price, whether that price maximizes unit profit right away or not. A company with unused capacity and a growing market may well take the classical course of cutting prices and temporarily earning a smaller return on investment than it considers normal. But it may have equally cogent



reasons for not cutting prices. The theorists of administered prices have pointed accusing fingers at business' behavior in the recession of 1957-58, when it raised prices somewhat in the face of falling demand. What happened was that costs were increasing faster than demand was falling. According to the theory of pure competition, they should have raised prices. That they did, both small firms and large.

On the other hand, many companies, particularly those with new products, do charge all the traffic will bear, and so they should. It is not going too far to attribute the innovativeness and technical progress of the Western world to this kind of profit maximizing, and the innovative backwardness of the Soviet Union and East Europe to the absence of it. The hope of realizing extraordinary profits on their innovations, at least temporarily, is what drives capitalist corporations into risking money on research. DuPont's strategy for the best part of fifty years was to develop "proprietary" products and to charge all it could get for them as long as the getting was good. So with the giants in data processing, pharmaceuticals, machine tools, and other high technologies. But these proprietary profits inevitably fire up competition, which invades the market with innovations of its own. Thus the story of Western industrial progress is the story of the progressive liquidation of proprietary positions.

### **The razor blades were too cheap**

This is not to say that all or even most businesses are skillful practitioners of the art of pricing. Daniel Nimer, a vice president of a large Chicago company, has made an avocation of studying pricing, and lectures and conducts surveys and seminars on the subject both here and abroad. Nimer believes that business in general is still far too inflexible in its pricing techniques, and too prone to take a merely satisfactory return. The most frequent error, Nimer says, is to fail to charge what the traffic will bear, particularly when marketing a novel product. In 1961, Wilkinson Sword Ltd. brought out its new stainless-steel razor blades at 15.8 cents apiece. Overnight Wilkinson accumulated a staggering backlog of orders, the sort of thing that usually results in delivery delays and an expensive crash expansion program. Had Wilkinson started at 20 cents a blade, Nimer believes, it would have been much better able to fortify its



position. Among Nimer's pearls of wisdom: (1) A big backlog is a nearly infallible indication of an underpriced product. (2) Always make decisions today that will help you tomorrow, and remember that it is easier to cut prices tomorrow than to raise them. (3) The key to pricing is to build value into the product and price it accordingly. (4) Above all, pricing is both analytical and intuitive, a scientific art.

### Setting a target

The major if not the first case study of U.S. pricing was published in 1958 by the Brookings Institution, in its book *Pricing in Big Business*. The authors were A.D.H. Kaplan (who was then a senior staff economist at Brookings and is now retired), Joel B. Dirlam of Rhode Island University, and Robert F. Lanzillotti of the University of Florida. Using questionnaires, interviews, and memos, the trio analyzed the pricing policies of twenty of the largest U.S. companies, including G.E., G.M., Alcoa, A&P, Sears, Roebuck, and U.S. Steel. Although the actual practices of the companies were predictably hard to describe and even harder to generalize about, the authors did manage to narrow the corporations' *goals* to five. The most typical pricing objectives, the authors decided, were to achieve (1) a target return on investment, (2) stable prices and markups over costs, (3) a specified market share, (4) a competitive position. Another objective, not so frequently cited, was to compete by taking advantage of product differences. The study's conclusion, written by Kaplan, was that many big, powerful companies seem not to be overwhelmingly controlled by the market, yet even they do not dominate the market. They do not have things their own way, with steady prices and rates of return, but are constantly forced to examine and change their policies.

Manifestly this study gives scant comfort to the administered-price theorists. Professor Lanzillotti apparently felt it was too easy on big business. Granted money to do further work on the data, he came up with a more critical interpretation of them in an article in the *American Economic Review* of December, 1958. Since Lanzillotti is now a member of the Price Commission and has been described as knowing "more about prices" than anyone else on that body, his thoughts are worth attending to. Lanzillotti devoted much of his thesis to the prevalence of so-called target-return pricing, which at that time was an almost esoteric concept.



When companies use target-return pricing, he explained, they do not try to maximize short-term profits. Instead they start with a rate of return they consider satisfactory, and then set a price that will allow them to earn that return when their plant utilization is at some "standard" rate—say 80 percent. In other words, they determine standard costs at standard volume and add the margin necessary to return the target rate of profit over the long run.

More and more companies, Lanzillotti argued, are adopting target-return pricing, either for specific products or across the board. He also concluded that the companies have the size to give them market power. Partly because of this power and partly because the companies are vulnerable to criticism and potential antitrust action, all tend to behave more and more like public utilities. Target-return pricing, with some exceptions in specific product lines, implies a policy of stable or rigid pricing.

Many of Lanzillotti's conclusions have already proved vulnerable to microeconomic analysis, most particularly at the hands of J. Fred Weston, who launched U.C.L.A.'s

**Research Program in Competition and Business Policy** about two years ago. Prior to that, Weston studied finance and economics at the University of Chicago and wrote the three most popular (and profitable) textbooks on business finance. He got into pricing by a side door, having steeped himself in the literature on corporate resource allocation. He spent a considerable part of three years talking about that subject with executives—at first formally, then informally and postprandially. But he soon began to realize that he was also talking about the way prices were made. So he shifted his emphasis from financial to economic questions, and broadened considerably the scope of his work. Like others before him, he discovered that what businessmen formally say about their pricing and what they do about it are often very different. And their action is more consistent with classical theory than their talk.

In a major paper not yet published, Weston proceeds to apply his investigations to the three "popular" and related theories that were at the heart of the administered-price concept: (1) that large corporations generally try to realize a target markup or target return on investment; (2) that their prices tend to be inflexible, uncompetitive, and unresponsive to changes in demand; (3) that contrary to a fundamental postulate of classic economic theory, large, oligopolistic corporations do not maximize profits, but use their market power to achieve planned or target profit levels.



## The constraints of the market

The concept of target pricing, Weston's research showed, was an arrant oversimplification of what actually happens in large companies. "The Brookings study," he explains, "focused on talking to top sales and marketing men, who take a target as given. If you talk to top executives, you find they use the target as a screening device, a reference point." Pricing decisions, he found out, cannot be (and are not) made apart from other business decisions; price lists are based on long-run demand curves. In fact, as the drawing on page 84 suggests, all the considerations that go to make investment and other policies also go into pricing, either deliberately or intuitively.

Neither large nor small businesses have price "policies," Weston adds; pricing is too much interwoven with other factors to be formulated independently of them. And most of the people Weston talked to kept emphasizing the constraints of the market. In short, target-return pricing is not what the critics of business think it to be. If anything, it is an interim checkpoint set up by management to specify tentatively the company's potential.

Often, Weston argues, critics of corporate pricing condemn behavior as oligopolistic that does nothing more than follow modern accounting practices. Firms of all sizes use accounting budgets, plans, and controls to formulate performance objectives. Standard volume represents the firms' best judgment of the expected volume of operations, and standard cost is the unit cost at standard volume. And a technique called variance analysis compares management's actual performance with standard performance in order to evaluate and improve the former.

Economic textbooks, says Weston, have failed to keep up with such developments in the art of management, with the result that economists often fail to understand the nature and implications of business planning. In *The New Industrial State*, for example, Galbraith argues that planning by firms, aided by government, is eliminating the market mechanism. Nonsense, says Weston. Planning and



control as management uses them do not eliminate the market or its uncertainties. Planning and control are what the market forces you to do. Since they provide a way of judging performance and spotting defects, a device to shorten the reaction time to uncertainty and change, they really increase the market's efficiency.

### How Detroit reacts

The administered-price theorists have pointed to the auto industry as the archetype of a disciplined oligopoly whose prices are very rigid. This characterization is largely based on the industry's practice of setting dealers' recommended prices at the beginning of a model year. Actually, the auto companies change those prices, sometimes frequently and substantially, as the year rolls on and specific models demonstrate their popularity or lack of it. The price changes take a wide variety of forms: bonuses for sales exceeding quotas, bonuses for models not doing well, and so on. As Professor Yale Brozen of the University of Chicago analyzes the industry: "Competition in the auto market actually *makes* the retail price. If the retail price is low relative to wholesale prices, the dealers can't live, and the company must give them better margins; if the retail price is high, the dealers tend to get rich, and the company raises wholesale prices and steps up production."

Now that foreign competition has become so powerful, the auto companies find it harder than ever to price arbitrarily. "Take our Vega," a G.M. man says with some feeling. "If anything is the reverse of target-return pricing, that Vega is. We did not *make* its price. We had to *take* a price that was set by our competitors. Then the only way we could make a profit was to bring our costs down."

Summing up the alleged reluctance of large corporations to compete, Weston quotes Professor Martin Bailey of Brookings, who describes the idea as "a theory in search of a phenomenon."

The third allegation dealt with by Weston—i.e., that the large corporation, in formulating its price policies, does



not seek to maximize profits—is a tough one to prove either way. “Management’s approach to pricing is based upon planned profits,” Lanzillotti has contended. “If we are to speak of ‘administered’ decisions in the large firm, it is perhaps more accurate to speak of administered *profits* rather than administered *prices*.” To support his contention, Lanzillotti re-examined profit data on the twenty companies covered in the Brookings book. The data seemed to verify his belief that large firms are able to achieve their target returns on investment.

Weston noticed two major defects in the argument. One was that targets were specified for only seven of the twenty firms. The other was that Lanzillotti defined return on investment as the ratio of income before preferred-stock dividends to stockholders’ net worth, including preferred stock, which makes the return look artificially large. But return on investment is normally and more realistically defined as the ratio of income (before interest payments) to total operating assets. On this basis, the figures show a big discrepancy between target and actual returns. And the Lanzillotti table included results for only the years 1947-55. When the figures were extended through 1967, there was an even larger discrepancy.

### **“We just don’t know”**

Moreover, the returns above target were consistent with a lot of contradictory theses—with target pricing, with random behavior, and with profit maximization; the returns below target were also consistent with a number of alternative theses. Weston’s final conclusion: Studies by Lanzillotti and by others have established neither that large firms are able to “control” or plan profits, nor that they do not want to maximize or optimize profits. Case not proved: additional evidence and analysis needed.

“The third proposition probably cannot be answered anyway,” Weston adds. “How do you know if firms are maximizing their profits? In an early draft I made the mistake of thinking that a company earning more than

*continued page 125*



## The Myths and Realities of Corporate Pricing *continued from page 89*

target was maximizing its profits. This isn't necessarily so. We just don't know. We are, however, finding out a lot of positive facts about other related things. It has always been assumed, for example, that there will be collusion in an industry with few firms. But the fact is that we are beginning to get solid evidence that competitive efficiency is an important characteristic of such industries." This finding, Weston points out, is consistent with the work of Professor Brozen, who has analyzed in detail the profitability of hundreds of companies. "Concentrated industries are concentrated because that, apparently, is the efficient way to organize those industries," says Brozen. "Unconcentrated industries are unconcentrated because that, apparently, is the efficient way to organize them."

### **The big company as cost leader**

Standard textbook theory assumes that only "atomistic" industries—i.e., those with many companies and dominated by none—are perfectly competitive in price and highly responsive to changing tastes and technologies. But Weston contends that companies in concentrated industries can and do serve the consumer just as effectively. This view, incidentally, is persuasively set forth in a new book, *In Defense of Industrial Concentration*, by Professor John S. McGee, on leave from the University of Washington. The notion that concentration leads to the end of capitalism, McGee argues, springs from indefensibly narrow definitions of both competition and the aims of the economic system. Economic competition is best understood as an evolutionary process and not as a rigid structure or set of goals. But there is no necessary conflict between concentration and "competitiveness," even when the latter word is used in its narrow sense.

You can't explain the new competition with narrow textbook theory, Weston says. Big companies may be price leaders, but they are also cost leaders. Continually subjected to the efforts of rivals to steal business away, they deal with this uncertainty by reducing costs wherever they can. As Weston sees it, this kind of price leadership does not result in high prices and restricted output, as textbook theory says it should. What it does is to compel companies to try to strike a balance between growing as fast as possible and raising earnings per share as fast as possible.



### Are oligopolists more profitable?

Among the other provocative papers financed by the U.C.L.A. program is an unpublished dissertation on the relationship between industrial concentration and prices, by Steven H. Lustgarten, twenty-eight, who now teaches economics at the Baruch College of the City University of New York. His investigations show that during the period 1954-58, prices rose faster in concentrated industries. But the reason seems logical. Firms expanded plant and equipment at an abnormal rate. As production costs increased, prices did too. So Lustgarten could neither confirm nor reject the theory that 1954-58 was a period of profit-push inflation. For the years 1958-63, however, there was no relationship between concentration and price changes. The theory of administered prices, in other words, remained unproven.

A study of concentration and profits was done by Dr. Stanley Ornstein, thirty-three, a consultant to the program. He examined the traditional hypothesis that, as concentration increases, the likelihood of collusion or "weak competitive pressures" also increases, and leads to higher profits in

concentrated industries than in others. Not so, says Ornstein. Because stock-market prices represent the discounted value of expected future earnings, Ornstein used stock-market values to represent profitability over the long run. To eliminate false correlations, he also examined individual profit rates of the largest corporations in each industry, 131 companies in all, and subjected them to multiple regression analysis, a mathematical technique that is used to determine the relative influences of several variables.

"From 1947 through 1960," Ornstein observes, "the return on equity dropped from around 15 percent to 8 or 9 percent, and in a continuous trend. Long-term fluctuations like this shouldn't occur if there is collusion or administered bias." Like Brozen, Ornstein finds no connection between high profits and concentration. On the contrary, he finds there is vigorous competition among so-called oligopolists. His conclusion, made after much analysis, was somewhat more cautious: "This study does not disprove the traditional hypothesis [that oligopoly is characterized by high profitability], any more than previous studies proved it. It does show, however, that prior conclusions have gone far beyond those warranted by economic theory."



## Remember the New York Yankees

One of the U.C.L.A. program's most distinguished participants is Professor Harold Demsetz, forty-one, on leave from the University of Chicago, where he taught for eight years. Demsetz' interests at present lie mainly in identifying the true sources of corporate efficiency. He maintains that when there is no real barrier to the entry of new competitors, concentration is not an index of monopoly power. Therefore, if a concentrated industry has a high rate of return, monopoly power is not the cause of it. Concentration results from the operation of normal market forces, and from a company's ability to produce a better or cheaper product or both, and to market it efficiently. Some companies are downright lucky, and some outperform others, while some are both lucky and superior performers.

Confirming Demsetz' belief, Professor Michael Granfield, twenty-eight, has tentatively concluded that differences in efficiency may account for most differences in profit levels, and that high profits do not necessarily imply high prices but often quite the opposite—high volume and low prices. One way he accounts for efficiency is by what he calls Team Theory. "The old saw holds that the team outperforms its individual members; it may be right," says Granfield. "Although other companies are constantly hiring executives away from I.B.M., these companies never seem to do as well as I.B.M."

"Many managerial economies are not always evident," Ornstein adds. "The only way to get them is to get the whole team. The New York Yankees were a winning team for

years; the technical skills responsible for their record accounted for only about 10 to 20 percent of the answer. What is really involved is managerial skills, and they can't be duplicated. To some extent a successful management is synergistic. By this I mean that there seem to be managerial economies of scale just as there are multi-plant economies of scale. If so, the argument that you can break up big business and not hurt the consumer is wrong."

It may not be long before the program staff develops a formal theory about what really makes enterprises excel, and why the country is better off handling them with a certain amount of care instead of busting them up like freight trains in a classification yard, or subjecting them to permanent price controls.



## Stored in the minds of millions

The theory of administered prices, however, is not yet done for. Its new critics will doubtless find the going slow. Before their credo can hope to gain "popular" acceptance, it must first achieve standing in professional economic journals. And it has, for the moment, absolutely no political appeal. Thanks in large part to Ralph Nader, the big corporation is the whipping boy of the day. Indeed, George Stigler glumly predicts that the controversy will continue for another generation or more. "Administered-price theory," he says, "is like the Sacco-Vanzetti case. Whatever the jury's verdict, the defendants' innocence is stored in the minds of millions. So is the 'guilt' of administered prices, and the businessmen who practice them."

The administered-price theorists are not resting on their oars, either. Gardiner Means, who started it all nearly forty years ago, now argues that the recent combination of inflation and recession can be explained *only* by his administered-price thesis. In the June, 1972, issue of the *American Economic Review*, he defines his theory and then tears into the Stigler-Kindahl book, which he says misrepresents his position.

What may be more important in its effect on public opinion, John Blair, he of the Kefauver committee, is publishing a monumental 832-page volume entitled *Economic Concentration—Structure, Behavior and Public Policy*. This opus contains something from almost everybody who has written about concentration, and is complete with dozens of charts, as well as an introduction by Means. The fruit of more than thirty years of fighting big business, the work is larded with quotations and chuck-full of footnotes. Blair's mind is made up, and his book is passionately partisan; but that will probably not prevent it from being given glowing reviews in the popular press.

For all this, there seems no doubt that the case against the theory of administered prices will grow stronger. Groups like Weston's are being organized elsewhere. The University of Rochester, for example, has set up the Center for Research in Government Policy and Business in its Graduate School of Management, and is looking around for private donations.

No matter what such groups find, it will be salutary. For the controversy about administered prices proves, among other things, how little Americans know about the inner workings of the big corporation, the country's most characteristic institution. And if present trends in research are any indication, the more that can be learned, the stronger will be the case for revising wrong notions about corporate behavior.

END



# The Politics of Inflation

By ALAN GREENSPAN

Of late, analysts, myself included, have been expending an inordinate amount of effort relating the current U.S. economic instabilities to such recent events as the Arab oil embargo or the sale of wheat to the Soviet Union. But while such events undoubtedly have significance and in some instances considerable significance, they cannot explain the overall inflation-ridden economic climate of recent years.

I see inflation as essentially a political, not an economic problem. And in view of the increasing politicization of economic policy, I despair at an early reversal of the trends that have been building for the past decade and longer.

Political decisions on economic policy are characterized by a focus on short-term benefits at the expense of long-term costs. This leads inevitably to "crisis" solutions that come to grips only with the immediate manifestations of a problem. Invariably secondary crises soon arise as a consequence. An advanced capitalist economy simply can't function effectively under such policies because the crises ultimately undermine savings and capital investment and, as a consequence, economic growth. Economic regimentation is at the end of the activist road.

The ever-increasing political focus on short-term benefits at the expense of long-term costs has been particularly evident in the budgetary process as candidates for political office have vied with each other to capture votes by proposing new or bigger expenditures programs. As a consequence, new spending programs now threaten to far outstrip the revenue raising capacity of the economy. Since raising taxes has a "short-term cost," politicians have steered away from this position and have implicitly opted for deficit spending. (The benefits of deficit spending are, of course, short-term while its inflationary costs are relatively delayed.)

Furthermore, since deficits which are not accompanied by an expansion in the money supply induce sharply rising interest rates which offend the housing constituency, there is a further tendency for the money supply also to expand. The result is a standard fiscal-monetary inflation such as we are currently experiencing.

## Numerous Explanations, but . . .

We are always afforded numerous alternate explanations as to the cause of the inflation each time such a period occurs. This time we will probably be told it is an international commodity price explosion; next time it is likely to be the result of a wage cost push. What invariably seems to be the case, however, is that sooner or later the price level accommodates itself to the level of the money supply adjusted for the level of production.

The underlying strength of the American economy has been its ability, until now, to absorb much of these inflationary pressures without any significant evidence of slowed economic growth. However, the process cannot go on indefinitely, largely because of the difficulty of sustaining adequate capital expenditures in the current American climate.

Business invests in plant and equipment

whenever projected earnings yield an implicit rate of return in excess of the cost of capital. In recent years, largely as a result of increasing the shares of income going to labor, profit margins have been inadequate. As a result, the expected future earnings have been insufficient to generate capital projects which would both employ the growing labor force and generate levels of production such that our standard of living would continue to climb.

It is fairly evident from the failure of certain major industries to embark upon significant capacity expansion programs, despite the huge backlogs which confront them, that the prices which they are being allowed to charge under the various price

## *Political decisions on economic policy are characterized by a focus on short-term benefits at the expense of long-term costs.*

control programs are below equilibrium. By this I mean that their prices are below those levels which would generate an earnings expectation sufficient to encourage capital outlays adequate to permit production levels consistent with the historical increase in demand.

Moreover, the inflationary instabilities and the increasing uncertainties associated with greater government intervention into the market system have so increased the risks involved in new capital projects that the expected rate of return which most companies would require in order to initiate capital expenditures is now higher than it would have been, say, 10 years ago. As a consequence, we now need a higher rate of return and a higher proportion of the national income going to profits if we are to generate sufficient capital expenditures to maintain the aggregate growth in real income of which we are capable. But the question of greatest importance is still the political system. Will it allow this shift to occur granted the politicizing of economy policy-making?

The preliminary answer at the moment appears that it will not. We are already seeing attempts to find scapegoats for the failure of the politico-economic system to function. Every member of the House of Representatives is up for re-election this fall (as is, of course, a third of the Senate). There is a growing awareness that the economy is not functioning properly. Charges by the Democrats that it's the Nixon administration's mishandling of our problems which is at fault are not wholly credible since this administration has largely adopted the policy recommendations of the Democratic Congress. The average incumbent politician senses the need to disassociate himself from the decision-making establishment and accordingly seeks ways to place himself into the "outsider-blameless" category.

This process is leading a growing number of vote-seekers to look for scapegoats for the current economic malaise. The big corporation has become the safest and most visible target. Big business has become particularly vulnerable in recent

years since with discouragingly few exceptions it fails to speak out in its own defense and increasingly attempts to appease its critics. A prominent Senator has already suggested that the oil industry become a public utility with federal officials on its board. It clearly does not require much imagination to envisage this process spreading to other industries and our stumbling into a planned economy with all of its growth stultifying rigidities. It is far easier for politicians to ascribe government initiated inflation to "monopolistic practices" of business rather than to take the blame themselves. (Why such monopolistic practices are incapable of being initiated during noninflationary periods such as the early 1960s is conveniently ignored.)

## Increased Antibusiness Sentiment

As a consequence, the byproduct of the mounting, inflation-created imbalances which I most fear is an ominous increase in antibusiness sentiment. This could become a precursor of an acceleration in the regimentation of the American business system. The trend, of course, is not particularly new but the pace of late appears to have quickened perceptibly.

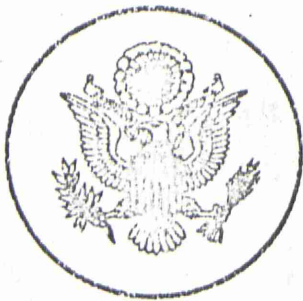
There is nothing inevitable about such a trend since its roots are political and political decisions can be reversed. However, until we see clear evidence that the prevailing "instant solution by government edict" mood has changed, it is difficult to be sanguine so far as the outlook is concerned.

When we see a rash of political decisions which recognize their immediate and short-term costs but are promulgated because of their long-term benefits, our view will change. In fact, in the current context, almost all of the decisions which are necessary to allow the free market processes to unwind the present imbalances are of the short-term cost for long-term benefit type. Thus, there is even now, as there was in the beginning, a direct tie between increasing regimentation of business and short-sighted political programs.

As inflationary pressures continue to mount we can expect a resurgence of the usual plethora of symptom-fighting remedies. Most likely the same short-sighted approaches will be taken which helped worsen our problem in the first place. Although wage and price controls, or other types of "income policies," never seem to work, after each failure there is some new explanation as to why that particular experiment failed. Hopefully, at some point the general principle will be grasped: namely, that such approaches, by suppressing inflationary symptoms, exacerbate the inflation and must lead to an eventual breakdown of the control mechanism itself. The reasons given in any particular episode for the breakdown are merely the vehicle through which that breakdown occurred. If the general principle is not grasped we may end up with Incomes Policy, Experiment II, Phase I, before the year is out.

Mr. Greenspan is president of Townsend-Greenspan & Co. Inc. The above article is adapted from a recent Townsend-Greenspan economic newsletter. An editorial on this subject appears today.





EXECUTIVE OFFICE  
OF THE PRESIDENT

## OFFICE OF TELECOMMUNICATIONS POLICY

FURTHER EVALUATION OF  
VHF TELEVISION BROADCASTING  
FREQUENCY ASSIGNMENT CRITERIA

DRAFT



## INTRODUCTION AND SUMMARY

In October 1973, OTP issued a report on "Technical Analysis of VHF Television Broadcasting and Frequency Assignment Criteria." This report indicated that:

- o Through the application of readily available techniques, over 60 additional VHF television broadcasting stations could be inserted into the major 100 markets in the Continental United States without adverse technical impact on established services.
- o The current FCC television assignment criteria should be reviewed and revised, taking into account the current state of the radio art, experience gained in the past 20 years, and technical compensations which can be applied readily to permit additional use of the valuable VHF television broadcasting spectrum allocations.

On November 19, 1973, the Association of Maximum Service Telecasters (AMST) released an analysis of the foregoing OTP report. This analysis has been useful in that it served to clarify the issues involved and raised other issues not addressed by the OTP report. In essence, the AMST concluded that:

- o OTP's study was defective as regards its basic premise and contained numerous errors.
- o VHF drop-ins would impair or destroy UHF television broadcasting.
- o The OTP study did not point to any technological or other breakthroughs for making more VHF channels available.

The report herein:

- o Underscores the validity of the basic premise of the original OTP analysis.
- o Presents existing situations and data which refute AMST claims.
- o Shows that, through the adoption of engineering refinements additional to those applied in the October OTP report, another 28 VHF drop-ins could be effected in the top 100 markets, for a total of 90.



- o Points out that, despite the availability of television broadcasting allocations for over 25 years, UHF-TV usage and frequency assignment criteria (taboos) are wasteful of spectrum space; for example, only 28% of UHF assignments being active as of 1 December 1973. A new low-power type of UHF television service is also suggested.
- o Concludes that:
  - There is even greater substantiation to support the recommendation that current FCC television assignment criteria be reviewed and revised;
  - The FCC should initiate a Notice of Inquiry looking toward a revised frequency allocation structure for the spectrum between 100 and 1000 MHz, this being particularly important in light of the recently announced General Radio Conference of the ITU to be held in 1979 at which time the International Table of Frequency Allocations will come under intensive review.

COMMENTS ON AMST REPORT OF NOVEMBER 19, 1973

AMST cited the lack of providing for "minimum city grade signals", a term not used in the OTP report nor contained in FCC Rules, as the principal deficiency in the October OTP presentation. It was asserted that over half of the OTP proposed drop-ins could be summarily dismissed as they would "have to be located too far away from the city of license to provide it with the minimum city-grade signal strength required by the Commission's Rules."

The FCC Rules do not, in fact, make any reference to city limits, per se, nor do they specify minimum distances in terms of mileage from transmitter site to the major city to be served. Rather, the rules specify that certain minimum field intensities (measured in dBu) must obtain "over the entire principal community to be served." The rules do state that, "in general, the transmitting antenna of a station should be located at the most central point", but go on to provide specifically that, "... topography, shape of the desired service area, and population distribution" may have a bearing on choice on antenna location (emphasis added).

The AMST assertion is based on a misinterpretation of the OTP phrase: "(7) Assume the location of drop-in transmitters to be generally consistent with the normal distance of existing VHF stations from the cities principally served." As shown in Attachment 1, the OTP study did not propose to locate stations farther away from principal market areas than is the case for many stations already operating and for which ample precedent exists, both as regards coverage and distance. In other words, OTP proposed locating stations in a fashion already endorsed by FCC (through the granting of licenses to operate).



When determining whether a proposed station will provide adequate service in a given area, two primary factors must be taken into account: the desired area (community) to be served and the expected distance that a satisfactory signal can be transmitted within that area. In considering potential sites for VHF drop-ins, the OTP first determined whether existing stations in the same area were providing Grade-A coverage to ranges at least equal to the distance from the proposed drop-in site to the furthest portion of the intended service area. In nearly every case, as shown in Attachment 1, it was found that existing stations were providing Grade-A coverage to at least those distances, and in many cases considerably greater. The average OTP drop-in to city of license (furthest edge of city limit) distance in Attachment 1 is 35.7 miles. The average Grade-A coverage distance claimed for existing stations in the same locales is 51.7 miles. In the majority of cases involved in Attachment 1, the coverage of proposed OTP drop-ins would be such as to provide field intensities equivalent to "minimum city grade" service in the cities of license.

In further rebuttal to the artificiality of the "minimum city-grade signal" argument, it is observed that stations located judiciously 25-45 miles from principal cities of license would in many cases provide better service to the public than those located directly in the cities. This is due to the significant population shifts which have taken place over the last 20 years; a factor not provided for adequately in the application of current TV broadcasting technical criteria. Specifically, based on the 1970 census\*, there are some 76 million people living in suburban areas, 64 million in central cities, and 63 million in rural areas.

Attachment 2 is a list of the principal market areas and the change in their populations between 1960 and 1970. As this chart indicates, in the top 100 markets 74 had net suburban population increases greater than comparable central city growth, 11 had decreases, and for 14 information was not available. The average increase was approximately 34%.

Furthermore, the strategy of dropping in VHF-TV stations in the suburban areas of certain top markets, to provide greater diversity of service to a more geographically dispersed population, is supported by the already extensive use of translators. Such translators, of which there are several thousand in being, have come into existence to provide TV coverage to the more remote areas not being served by broadcasting stations. Indeed, many existing translators are used by parent broadcasting stations to expand their normal areas of coverage. Thus, translators could be used, as necessary, in a comparable fashion to cover those portions of suburban areas which might not be covered adequately by proposed drop-ins.

The AMST analysis also cited various other problems with the OTP presentation, e.g., technical antenna orientation difficulties in suburban areas, inadequate consideration of FAA safety requirements, and the lack of technological breakthroughs.

---

\* Bureau of Census Report--The People In Metropolitan Areas, May 1971.



The assertion that there would be an adverse effect on residential antennas, in situations where a drop-in may be on the opposite side of a city from existing transmission sites, is not supported in fact and is considered to be another artificial technical barrier. If receiver antenna reorientation were necessary, many antennas are rotatable. Also, many television sets use "rabbit ears" which can be oriented quickly to optimize reception. There are numerous single and double city situations where current TV transmitters are either cross-town from each other or in opposite directions from much of the viewing population. These include single cities such as Miami and Grand Rapids, and towns such as Annapolis located between Baltimore and Washington. Further examples are found in the following market areas: Albany-Troy-Schenectady, N.Y.; High Point-Winston-Salem-Greensboro, N.C.; Wilmington, N.C.; Tulsa, Oklahoma; Little Rock, Arkansas; and Medford, Oregon. The latter city, while not in the top 100 market areas, serves as a classic illustration. The point can be made no better than by quoting one of the involved station's advertisement which appears on page 651-b of the 1972-73 Television Factbook:

"... When comparing Medford's two TV stations, you'll find it profitable to keep in mind that their transmitters are now a full 51 miles apart. KOB1 5M moved its transmitter north ... The other station moved south toward the California border. Both moves were for the purpose of expanded coverage ..."

It should also be pointed out that there is no prohibition in FCC rules with respect to where one station must be located vis-a-vis other stations associated with the same city of license.

The AMST report comments that some of the proposed drop-ins would not be possible because of transmitter locations being too close to airports. While this may be true in isolated cases, it was not demonstrated by the evidence supplied in the AMST analysis; a weak point at best since considerable flexibility exists as regards the location of most potential drop-ins.

The question of lack of technological breakthroughs must be viewed in the context of possible technological innovation in the television industry during the last 20 years. Innovations of particular note, which either are not being applied uniformly or are not being tested, are the use of precise frequency control and cross-polarization. The additional drop-ins possible with the use of the former technique are treated subsequently. As mentioned in the initial OTP analysis, the use of vertical polarization, in combination with the existing horizontal polarization, should be evaluated as to its potentialities.



The nature of the AMST criticism of the OTP report was not unexpected and is consistent with its position on similar proposals in the past. A typical example is the AMST objection to a petition for a UHF assignment in Ann Arbor, Michigan (FCC Docket No. 19718). To quote the FCC "... it appears that channel 28 could be located ... southeast of Flint and, thus, there would appear to be no problem. AMST, in anticipation of this fact, states that it is not sufficient to merely show that there is an area where a transmitter may be located consistent with mileage requirements and that a showing must be made of specific availability taking into account zoning, FAA considerations, economic factors including coverage, topography, and the area to be served." After careful consideration of the proposal and AMST's arguments, the Commission concluded, "In the circumstances, we do not feel that the matter is of as great a concern as AMST wishes us to believe ... Accordingly, we find that the public interest, convenience and necessity would be served by assigning [the channel] to Ann Arbor ..."

In short, the nature of the evidence provided in the AMST report further serves to support the original OTP recommendation calling for review and revision of existing VHF-TV technical criteria. An analysis of the detailed comments contained in the AMST report of November 19, 1973 is set forth in Attachment 3.

#### ADDITIONAL VHF DROP-INS THROUGH THE USE OF PRECISE OFF-SET FREQUENCY CONTROL

As indicated in the OTP October 1973 report, "Technical Analysis of VHF Television Broadcasting Frequency Assignment Criteria", there are several engineering techniques which could be applied to permit the operation of additional VHF television stations in the top 100 markets. It was foreseen that over 60 additional VHF-TV stations could be "dropped" into these markets through the relaxation of existing co-channel separation criteria by 10% and by the employment of moderately directional antennas to achieve an additional 5% reduction where needed. A corrigendum to the October report is contained in Attachment 4.

Techniques not applied in the October analysis include terrain shielding, vertically polarized transmitting antennas, off-set frequency, and precise frequency control.

The use of terrain shielding must, of necessity, be considered on a case-by-case basis. Potential drop-ins would be determined in those instances where extensive variations in terrain features exist, taking advantage of detailed topographical information.



### UHF-TV IMPLICATIONS

The OTP October 1973 report was a preliminary analysis of the technical suitability of the existing VHF-TV assignment criteria. Purposely, no reference was made to UHF aspects since, from a technical standpoint, this was considered to be a separate issue. The AMST report of November 19, 1973, however, makes repeated reference to possible adverse impact of VHF drop-ins on UHF. Such reference raises additional questions as regards the efficiency with which TV broadcasting spectrum allocations are currently being used.

It is noted that, notwithstanding the recent actions of the FCC to alleviate land mobile pressures by the reallocation of certain portions of the UHF-TV band, 42% of the spectrum between 100-1,000 MHz (which is particularly suitable from a propagation standpoint for mobile communications) remains allocated for broadcasting purposes. In the UHF portion (between 470 and 806 MHz) only 28% of the assignments were active as of 1 December 1973, despite the fact that the UHF-TV broadcasting spectrum allocations have been available for over 25 years.

The AMST report of November 19, 1973 draws attention to the fact that of the 934 TV broadcasting stations on the air, 35% or 330 are UHF. It should also be pointed out that this 35% accounts for 82% of the total spectrum space allocated for TV broadcasting. In other words, 604 TV stations are accommodated on 72 MHz of allocated VHF spectrum, whereas only 330 TV stations are satisfied on 336 MHz of allocated UHF spectrum.

The technical credibility of existing UHF assignment criteria is also subject to question. An extract of published comments bearing on the taboos associated with such criteria, arranged so as to answer certain questions relative thereto, is set forth in Attachment 6.

The foregoing situation obtains at a time when extensive effort is being expended in an attempt to meet requirements associated with such important requirements as emergency medical and highway safety services, pressing needs for additional communications in support of VHF Maritime services, etc.

If the current technical criteria were modified appropriately and only real TV requirements were to be provided for, in the 1980's the nation could be in a situation of spectrum plenty rather than famine in the critical portion between 100 and 1000 MHz, with all the opportunities that this offers to the general public.

Another area worthy of exploration is that of low powered (100 watts or less) UHF drop-ins to serve local communities/areas. For example, if a need for such service were to be justified, it is estimated



that virtually an unlimited number of such assignments could be made to serve portions of suburbs or metropolitan areas. Using the most conservative criteria, it is foreseen that at least 14 such stations could be accommodated in the Washington/Baltimore complex (see Attachment 7).

#### CONCLUSIONS

Based on the foregoing, there is even greater substantiation to support the OTP recommendations for review and revision of the current FCC Television Assignment Criteria.

Additionally, and in view of spectrum considerations resulting from planning activities between OTP and the FCC since early 1970, the FCC should initiate a Notice of Inquiry looking toward a revised frequency allocation structure for the spectrum between 100 and 1000 MHz; this to be based on sound engineering concepts, realistic requirements, and advances in technology, including cable and space applications. The need for such planning is particularly important in the light of the recently announced General Radio Conference of the ITU to be held in 1979, at which time the entirety of the International Radio Regulations, and in particular the International Table of Frequency Allocations, will come under intensive review.



ANALYSIS OF AMST NOVEMBER 19, 1973 REPORT

The following comments address specifically the AMST's reduction of OTP's 62 proposed drop-ins to the 8 which it found to be "without obvious defects":

- o Of the 34 proposals rejected initially by AMST, on the basis of claimed excessive distance from station to furthest portion of principal city:
  - 24 OTP proposals remain valid without further consideration when viewed in terms of existing grade-A coverage distances in the same areas. As shown in Attachment 1, each of these OTP proposed stations would be located closer to the cities than the ranges being claimed for grade-A signals from existing stations in the same areas.
  - An additional five were rejected by AMST due to "assignments" (co-channel stations), which the FCC has assigned to nearby cities but which are not being utilized. As conceded in the AMST report, if the unused assignments were deleted the proposed drop-ins could be accommodated-- in many cases with no reduction in existing separation requirements. Obviously, if the assignments were utilized, the drop-ins would be precluded. In either case, an additional five VHF stations would obtain.
  - Three of the drop-ins were cited by AMST as being short-spaced to Canadian stations. The "stations" cited, CBUCT-Ch 9; CBUDT-Ch 13; and "CBUTZ" (assumed to be CBUT-2)-Ch 3; are, in fact, local, low-power automatic repeaters of parent stations in Canada. All operate at power levels below 1 kW and are located in the 100-mile-plus range from the proposed drop-ins. Taking this into account, and assuming the application of good, state-of-the-art engineering practices, the proposals are considered feasible.
  - The two remaining proposed drop-ins deserve special mention. Channel 8 in Kansas City would be located 54 miles from the furthest point of the city limits, and existing grade-A coverage extends for up to 49 miles. However, considering the market represented by the heavily populated area to the west (including Topeka), and the fact that grade-B coverage in the area extends more than 75 miles, the drop-in is deemed to be a viable proposal. Channel 7 in Binghamton, N.Y., represents a borderline case under



the initial OTP criteria. Using 15% co-channel derogations, the station could be placed about 22 miles from the city, if a slight compromise (approximately 10 miles) were accepted in the separation distances on two co-channel stations. In consideration of existing derogations which exceed 15%, and additional measures which hold promise for reducing separation requirements even further (as discussed in this report), the proposal is deemed worthwhile.

- o The next three stations to be dismissed by AMST were ruled out because of terrain-caused signal obstruction. This possibility is conceded. The initial OTP report also noted that terrain factors, if taken into account to advantage, would undoubtedly "increase the areas in which drop-ins could be located." It is foreseen that through careful and objective consideration of terrain features, more new stations might be found than were rejected by the AMST analysis.
- o The AMST study next cited 17 stations as having "obvious critical defects."
  - Eight of these were noted as being in UHF markets where they would "serve no use and ... threaten successful UHF operations"; not a technical argument. The UHF matter is treated in further detail elsewhere in this report.
  - The remaining nine stations were faulted for a variety of reasons, including "obvious FAA problems." The weakness of this point has already been discussed (see pp. 4 and 5 of basic report). Among other factors cited regarding these nine remaining stations were: "antenna orientation" (7 cases), "excessive distance or signal suppression" (2 cases), and "multi-directionalization" (4 cases). Antenna orientation has been discussed (see p.4 of basic report) and, based on the numerous existing cases, a few of which were cited, can hardly be considered to be disabling. The two cases of excessive distance or signal suppression are not supported by specific technical analysis or data, nor are the four instances of multi-directionalization.

The AMST report also stated that the OTP study, "failed to take into account the effect of the proposed drop-ins on each other ...", and cited the conflict between proposed channels 8 Green Bay and Milwaukee. The report did not cite the only other such case, Channel 4 in both Albany-Schenectady-Troy and Binghamton, N.Y. OTP recognized the conflicting nature of these two cases, i.e., it was not an oversight. The report was a preliminary analysis intended to indicate areas in the top 100 markets where VHF stations could be inserted without a



deleterious effect upon existing VHF stations. In each of the two cases above, either of the proposed drop-ins could be accommodated but, obviously, not both.

It was specifically mentioned in conjunction with the release of the OTP study that it represented a preliminary analysis and was intended to encourage the FCC to review existing television assignment criteria, looking toward revision so as to permit a more efficient use of the limited spectrum resource. It was acknowledged that there might be errors. For example, the failure to consider the educational station at Booneville, Miss. and an assignment in Clarksville, Tenn. results from the fact that these assignments do not appear in the 1972-73 Television Factbook (cited in the OTP report as its data source).

That the AMST, with its vastly more complete and sophisticated data base, found so few substantive errors in the OTP study is considered significant.



IRE Transactions on Broadcasting Transmission Systems  
-- December 1958

REDUCTION OF COCHANNEL TELEVISION INTERFERENCE BY  
VERY PRECISE OFFSET CARRIER FREQUENCY

L. C. Middlekamp  
Federal Communications Commission  
Washington, D. C.

For some time it has been the allocation practice in this country to assign television broadcasting stations on the same channel and geographically adjacent to carrier frequencies offset by 10 or 20 kilocycles per second in order to reduce interference. By requiring a tolerance of only  $\pm 1$  kilocycle, the improvement obtained was a result of only the relative slowly varying visibility of interference as a function of horizontal line rate. Because of the state of the art no effort was made to take advantage of the rapid variations of visibility that were known to occur simultaneously for small frequency changes related to the field rate. However, recent developments in crystal techniques and oscillator circuits, as well as the pressure for more TV stations, have been such to warrant a thorough investigation of the improvements to be gained if the offset carrier frequency can be precisely set and held to a tolerance of only a few cycles per second.

Such studies were carried out concurrently at our FCC Laboratory and by other groups elsewhere.<sup>1</sup> Our investigations could be divided logically into three parts: (1) Precision frequency offset near 10 kc; (2) Precision frequency offset at low frequencies; and (3) Multiple co-channel interference.

When two television signals on the same channel are present simultaneously at the input terminals of the receiver, interference to the desired signal results. If the desired signal is transmitted on color standards, and if the frequency of one carrier differs from that of the other by 9980 cps, and if the ratio of the desired to the undesired is more than 20 db, this interference takes the appearance of narrow, stationary horizontal bars. These bars are areas in which the displayed brightness of the scene is alternately increased and decreased by the interfering signal from the magnitude actually transmitted, with identical disturbances to each successive field. For ratios less than about 20 db, there are additional effects, due to the modulation of the undesired signal, but these will be ignored in this description by restricting the amount of undesired signal.

In endeavoring to evaluate improvement to be gained from precise carrier frequency control, a method of procuring and presenting the



data in the most revealing way should be chosen. Here at our FCC Laboratory we chose to present the data in what we term "Contours of Equal Objectionability," which are simply plots of the ratios of undesired carrier magnitudes to the desired carrier magnitude that produce the same perceptible degradation as that resulting from a reference undesired carrier, with frequency difference as the independent variable.

Before presenting the results and attempting to predict tolerances necessary for improvement by precise offset techniques, it might be of value to some to describe co-channel interference effects at the ratios of interest.

As the frequency difference is changed a few cycles, the horizontal bars (or stripes) appear to move upward or downward relative to the picture, the velocity and direction of the motion depending on the amount and sense of the frequency difference. It is found that the annoyance value or degradation to the picture is not as great for this moving condition as it is when the stripes are stationary; in fact, it steadily decreases as the relative velocity of motion increases.

When the difference frequency has been increased by 30 cps (actually 29.97 with color standards) to a value of 10,010 cps, there again appears to be a cessation of movement. The interference stripes are apparently interleaved with respect to the optical display. Such interleaving results in the same lines alternating in brightness from field to field in such a manner that at normal viewing distances the eye tends to average out the difference between displayed and actual scene brightness. It is found that this connection results in minimum annoyance or over-all picture degradation at the price of small area flicker, which is not generally objectionable at normal viewing distances.

With further increases in the frequency difference, motion of the stripes again occurs, but this time the velocity decreases with increasing frequency difference until a stationary bar pattern again appears after a nominal 30 cps increase.

The degradation simultaneously increases and reaches a maximum when the bar pattern becomes stationary at 10,040 cps.

Further increases or decreases reveal a cyclic repetition of these phenomena at intervals of 59.94 cps in the vicinity of 10 kc separation between the stations. For monochrome standards, this would naturally be a 60 cps variation.

Now that we have described the interference effects for frequency differences near 10 kc, let us examine some of the resulting Contours of Equal Objectionability.



Figure 1 portrays two Contours which are the results of tests made on seven observers on the same monochrome receiver and utilizing the same desired color slide modulation. They differ only in that the one was for a ratio of -34 db of the 9980 cycle reference to the desired, while the other was for a ratio of -26 db. The 60-cycle variation in interference visibility is readily apparent, and the curve for the -34 db reference is markedly sinusoidal in nature. We can see that there is slightly more than 12 db between peaks for the conditions existing in the Contour utilizing the -34 db reference, while only 10 db exists when the interference level was raised to a ratio of -26 db.

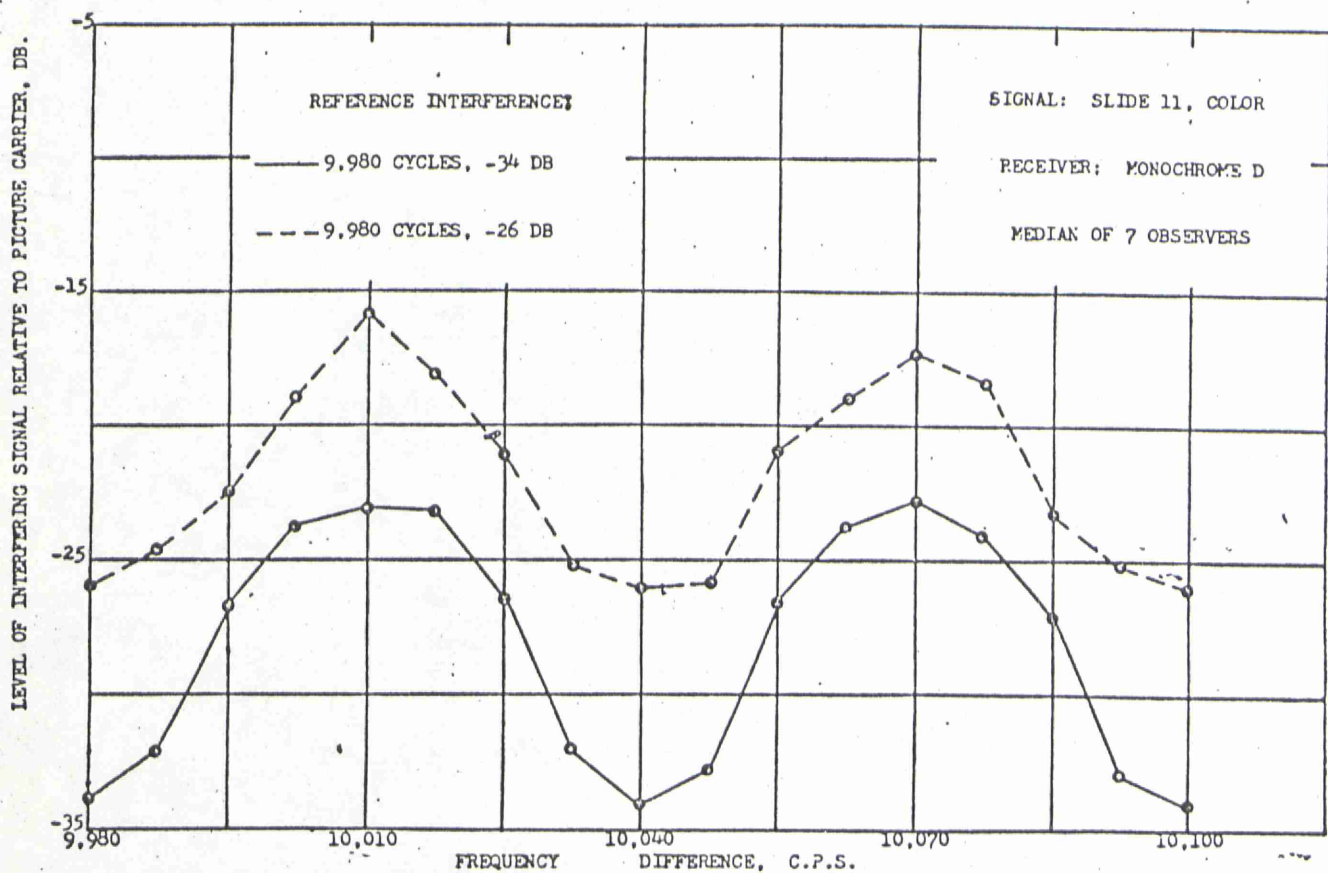


Fig. 1



It should be pointed out that all of this improvement is not available with the use of precise offset carrier in lieu of our present system, since our present tolerances are such that the offset frequency is not at all times at that value which produces maximum interference visibility. Actually, it varies between minimum and maximum visibility so that our improvement would be somewhat less.

In Figure 2 we again show two Contours of Equal Objectionability, one of which was also in Figure 1. The second contour in this case differs in that it was for a live program as the desired modulation. It is to be noted here that only 8 db difference exists between the peaks for this condition.

It should also be pointed out that the magnitude of improvement shown in these two figures was, to some extent, "idealized" in that external sync signals were provided to the receiver. Sync jitter caused by interfering signals reduces the improvement available at the frequencies providing optimum conditions.

The Contour resulting from a live program as the desired modulation, with a -26 db reference interference, but viewed on another monochrome receiver utilizing its own sync stripping circuitry is given in Figure 3. The limited number of points for this Contour do not accurately describe the shape of the curve, but it was included to show variations in magnitude that exist with different receiver conditions. It can be seen that less than 6 db exists between the peaks of maximum and minimum interference visibility.

A careful analysis of the foregoing figures reveals several pertinent facts:

1. The apparent visibility of co-channel interference near 10 kc carrier offset can be considerably reduced by setting the carrier frequency of the two stations to certain discrete values, provided the sync standards are also precisely controlled.
2. Near 10 kc, the carrier frequency difference producing optimum picture quality (least degradation) is an even multiple of the frame rate and is repeated at 60-cycle intervals. (The 10010 cps value for color standards is the 334 multiple of the 29.97 cps frame rate. On monochrome standards,  $334 \times 30$  results in a carrier frequency difference of 10020 cps).
3. The necessary tolerance would appear to be on the order of a few cycles per second.



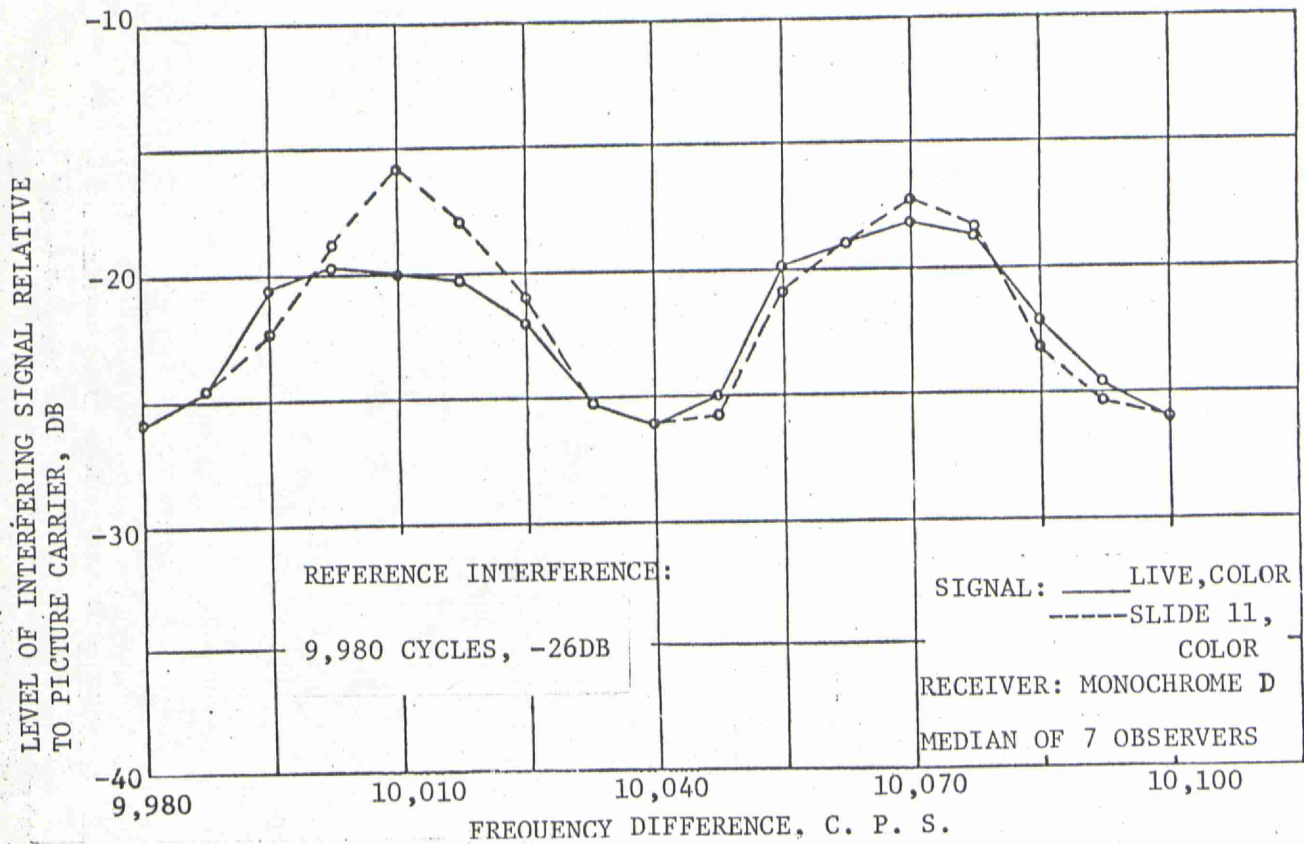


FIGURE 2

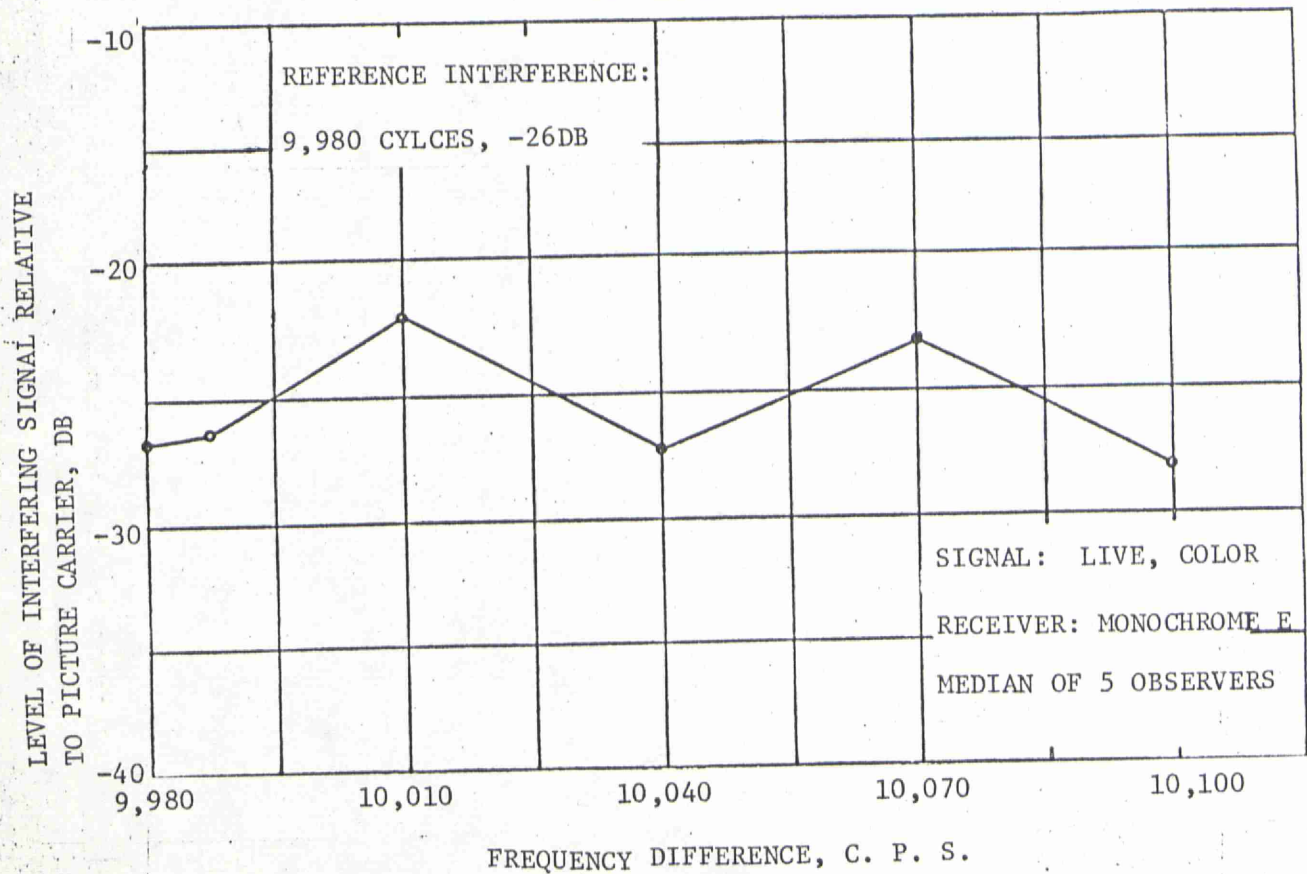


FIGURE 3



Thus, we now have available a scheme for reduction of co-channel interference between two stations. However, it should be possible to provide for an even greater number.

We may progress to three signals quite easily by simply recalling that our present +10 kc non-precise offset provides for this case. The plus and minus offset signals produce a beat frequency in the vicinity of 20 kc and this value results in reduced interference visibility as compared to non-offset carriers.

Because of the extremely close similarity to 10 kc Contours, we will not show here any Contour for the added improvement to be gained near 20 kc with precise carrier frequency control, simply stating that we and others have found that for this range also even frame multiples of frequency difference result in improvements of magnitudes similar to that obtained near 10 kc. Thus, precise control of carrier frequency and sync standards permit a reduction in interference between three co-channel stations.

However, expansion into a lattice embracing more than three co-channel stations requires application of additional effects, and we find one possibility in Contours of Low Frequency Precision Offset. Here again, before discussing our results, we would like to describe the effects.

When the frequency separation of the two signals is in the order of a few hundred cycles, the effects produced are much different than those near 10 kilocycle separation. At 180 cps, a stationary pattern is produced, but it consists of only a few wide stripes. These stripes also appear to move upward or downward as the frequency difference is changed, but now, unlike the 10 kc region, it is considered that the picture degradation increases with the motion of the interference bars. However, the degradation reaches a maximum and begins to decrease with still greater frequency change until at an increase to 210 cps a minimum of picture degradation is found. This point corresponds in some aspects to the interleaved condition at 10,010 cps. It is noted that in this region there is now present a noticeable flicker effect which was not so objectionable at the higher beat frequencies. The flicker is at a 30 cps rate, resulting from the alternating effects on brightness of a given area of the picture on successive fields. The average effect approximately cancels, but the eye is susceptible to the 30 cps flicker in areas as large as the stripes now present. For this condition, the observers felt that the interfering signal degraded the picture to a greater extent than it did when the principal effect was the stationary pattern at 180 cps.

As the frequency separation is further increased, the motion of bars resumes and picture degradation again increases until a frequency



region is reached where the motion becomes so slow that its annoyance begins to diminish. Similar to the region near 180 cps, this region covers only a very few cycles around 240 cps, where the bar pattern becomes stationary and a sharp decrease in degradation occurs.

It was observed that this sequence of effects is repeated at 60 cps intervals (actually 59.94 cps for color standards), with two points of minimum degradation. There is reason to believe that the relative improvements at both the even and odd frame multiples will vary with picture brightness and ambient illumination, since the observed flicker is affected by both.

When the carriers' frequency difference was doubled, the same general variation and effects occurred.

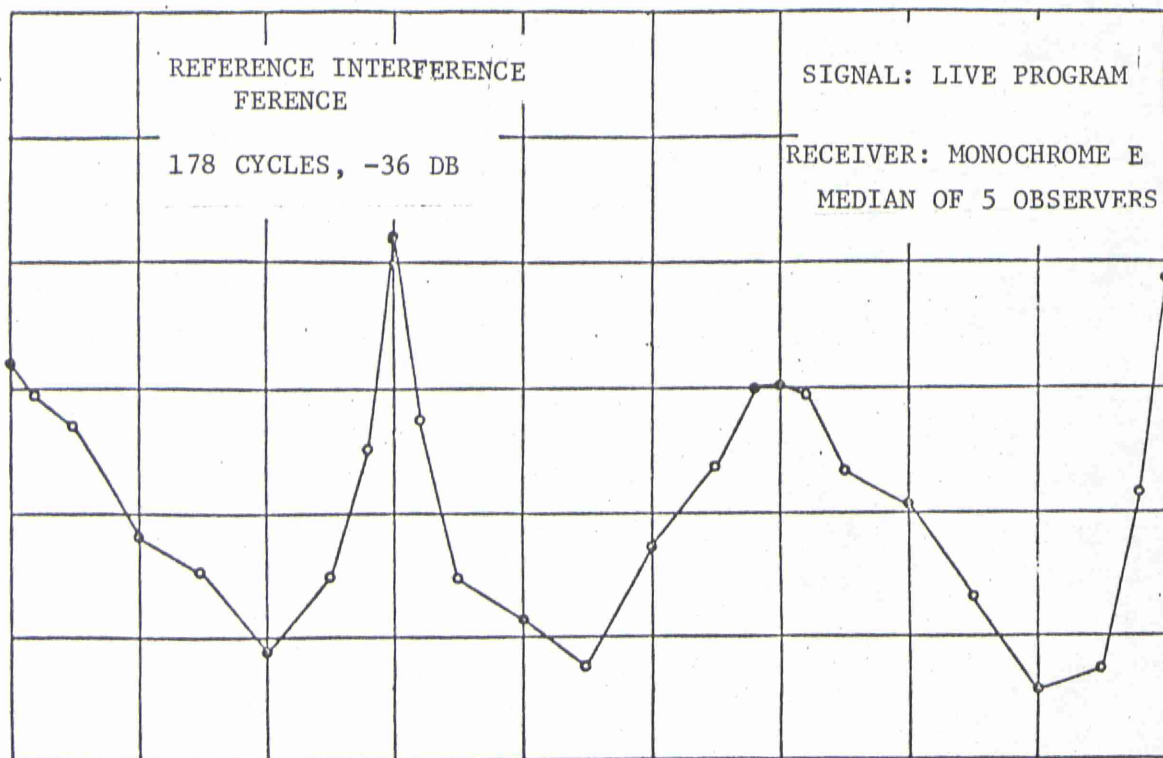
In Figures 4 and 5 we have portrayed two Contours of Equal Objectionability for live program modulation on the desired signal at low offset frequencies. We would particularly like you to note the rather broad peak at 210 cps in Figure 4. This peak corresponds in some aspects, particularly the optical interleaving, to the desirable peak at 10010 cps. It should be observed that 210 cps, however, represents an odd frame multiple and it is found that for all difference frequencies below half-line rate the interleaving frequency value is an odd multiple of the frame rate.

If this represented the only condition of minimum interference visibility, we would have little use for low frequency offset, since the difference between any two even numbers can never be odd. Specifically, if we tried to assign a precise frequency value to a fourth station in our three-station lattice we would find it impossible to satisfy both the even and odd multiple frame relationships required to obtain the available improvement respectively at high and low frequency offset. (We are, of course, considering that this fourth station would necessarily have low frequency offset with one of the three existing stations in the lattice, but have high frequency offset with the other two.) An even number of frame multiple is required.)

However, note that an improvement over non-precise offset of even greater magnitude is available at low frequency values that do represent even frame multiples, such as 180 or 240 cps. We recognize that the frequency width of these peaks is very narrow in comparison, and that their utilization would involve more strict carrier frequency tolerance. Nevertheless, it can be seen that over 14 db of interference reduction is available from these offset values if we hold our carrier frequency difference to  $\pm 1$  cps, and this tolerance apparently can now be obtained. It is these values that permit us to complete a multi-co-channel lattice.

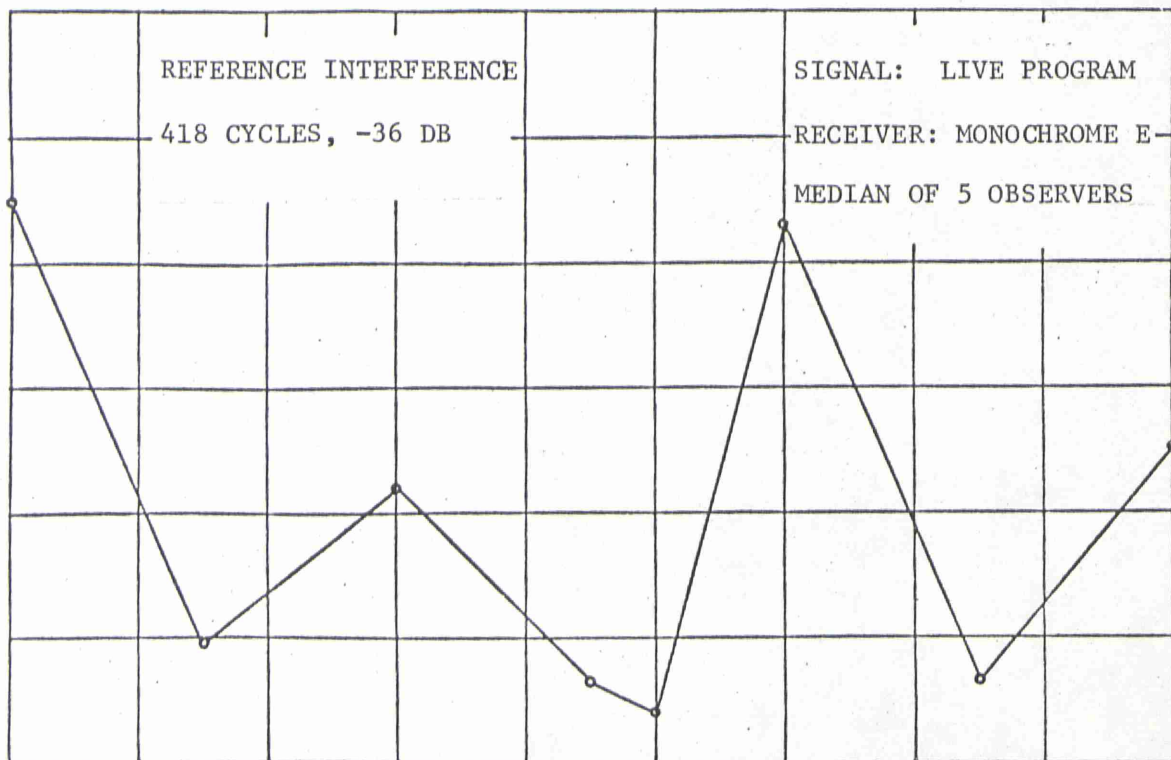


LEVEL OF INTERFERING SIGNAL RELATIVE  
TO PICTURE CARRIER, DB.



FREQUENCY DIFFERENCE, C. P. S.  
FIGURE 4

LEVEL OF INTERFERING SIGNAL RELATIVE  
TO PICTURE CARRIER, DB.



FREQUENCY DIFFERENCE, C. P. S.  
FIGURE 5



We would like to stress at this point that we are not stating that carriers precisely offset at 180 or 240 cps will not create greater interference visibility than those offset 10010 or 10070 cps. We are, however, showing that for the stations that exist in a multi-co-channel lattice, the utilization of both high and low frequency precision offset provides a method of reducing the visible interference effects.

As the concluding portion of this paper, we would like to present some results of our study of multiple co-channel interference.

During our investigation of precision offset, it became apparent that no information existed concerning the quantitative effects of a second interfering co-channel signal even though our offset system provided for three signals. We therefore decided to determine the added protection in db needed to prevent additional degradation to the desired picture when a second interfering co-channel signal is present.

There are, of course, two possible frequency relationships between a desired and two undesired co-channel signals, and that is that the desired may be either on channel or else offset. In addition, however, the offset could be either precise or else of the type presently utilized.

When the offset frequencies were not precisely controlled, the median of seven observers indicated that six db of added protection was required to prevent additional degradation to the desired picture for either frequency relationship of desired and undesired.

When precision offset was utilized, only four db of added protection was required to prevent additional degradation to the desired picture with a second co-channel interfering signal, when the desired signal was on channel. When the desired signal was a precise offset carrier, it was found that only three db added protection was required.

It seems pertinent to point out that the experimental technique in obtaining our data involved the use of post detection insertion of video frequencies. At the ratios of interest, it was found that no difference in effects occurred for this method in lieu of feeding rf frequencies to the antenna input of the receiver. It should be remembered also that our data was obtained with a limited number of observers and limited picture material. The ratios could be expected to differ somewhat if a greater number of observers and different picture material were utilized.

In summation, for desired to undesired ratios greater than 20 db we have found that:



- (1) A considerable reduction in visible co-channel interference may be obtained by precisely off-setting the video carrier frequencies.
- (2) The frequency difference for a co-channel signal producing minimum picture degradation at high frequency offset (near 10 kc) is an even multiple of the frame rate of the composite video signals.
- (3) When the frequency difference of the co-channel signal is in the low offset range (a few hundred cycles) minima of picture degradation are obtained when the frequency difference is both an even and odd multiple of the frame rate, but the greatest minimum is for the even multiple.
- (4) A considerable reduction of visible interference in a multi-co-channel lattice may be obtained by combining both high and low frequency precision offset so that the difference frequencies will all be even multiples of the video frame rate.
- (5) The precision required to utilize both high and low frequency offset is approximately +1 cycle per second, dictated primarily by the requirements for low frequency offset benefits.
- (6) The presence of a second interfering co-channel signal equal to the first interfering signal requires only 4 db more protection for the desired to prevent additional picture degradation when precision offset is used. For non-precision frequency offset, 6 db more protection is required.

#### BIBLIOGRAPHY

- 1 RCA Laboratories, RCA REVIEW, December, 1956, Vol. XVII, No. 4



Published Comments Bearing on UHF-TV Taboos

There has been much speculation and rhetoric, but little hard quantitative analysis, regarding the validity of current UHF-TV Taboos. There are indications that substantially more use could be made of the spectrum space now allocated for UHF-TV. These indications stem from two points: a) available channels exceed UHF-TV requirements originally foreseen; b) technical regulations pertaining to UHF-TV assignments are overly conservative in the light of current knowledge of wave propagation and receiver technology. Certain indications and their sources, some advocacy in nature, are noted below.

How are the available UHF-TV channels being used?

As of 1/1/72, UHF-TV channels in the top 100 market-cities were used as follows: (1)

105	( 34.0%)	On the air
54	( 17.5%)	Authorized but not on the air
5	( 1.6%)	Applications pending
145	( 46.9%)	Available
309	(100.0%)	Allocated

In the top 10 market-cities, two vacant channels from the lowest seven UHF-TV channels are allocated for use by the land mobile service<sup>(7)</sup> under severe restrictions so as to protect the UHF-TV Table of Assignments.<sup>(8)</sup>

How are UHF-TV assignments made? (2)

A UHF-TV channel is assigned to a geographical location on the basis of a minimum separation distance from those locations which are assigned the same channel and a maximum of 18 other channels. The reasons for these distance separations, or "taboos", are:

<u>Taboo</u>	<u>Minimum Mileage Separation</u>	<u>Number of Channels Affected</u>
Co-channel	155, 175, 205*	1
IF Beat	20	1 to 2
Intermodulation	20	4 to 8
Adjacent Channel	55	1 to 2
Oscillator Radiation	60	1 to 2
Sound Image	60	1 to 2
Picture Image	75	1 to 2
	Total	10 to 19

\* Varies with location within U.S.



What is the effect of these taboos?

1. For each allocation of a UHF-TV channel, 60 to 114 MHz (10 to 19 channels) are excluded from TV use for a radius of 20 miles; 30 to 54 MHz (5 to 9 channels) are excluded for a radius of 55 miles.(2)
2. The assignment plan adopted in 1952 limits the ability of the Commission to maximize the utilization of spectrum space.(3)
3. The taboos reduce the flexibility which the Commission would otherwise have in making UHF-TV assignments, which could permit the present number of assignments--and perhaps more--to be accommodated in less spectrum space.(4)
4. The fact that all but 15 assignments in the present Table can be made in 7 fewer channels is a further basis for judgment that efficient use is not being made of the UHF television spectrum.(9)
5. The application of the UHF-TV taboos has resulted in substantially less efficient utilization of the UHF spectrum than the VHF spectrum.(14)

What would be the effect if the taboos could be eliminated or modified?

1. More broadcast station assignments could be made, if desired, or--more likely--a number of UHF-TV channels could be allocated to other (non-broadcast) services such as land mobile radio on an exclusive or shared basis. If the existing UHF-TV allocations could be accommodated in seven fewer channels, those seven channels would be sufficient to effectively double the spectrum space now available for land mobile.(4)
2. If emphasis is placed on trading taboos for UHF-TV channels, the number that would be made available in the New York City area varies from 0 to 11, depending on the number of taboos removed. This spectrum space would be available for assignment to some service. Because of the adjacent channel taboo, however, only 7 of the 11 channels could be used for TV in NYC. All of these figures assume retention of the co-channel taboo.(5)
3. Eliminating the intermodulation and IF beat 20-mile taboos, and reducing the image taboos slightly, would allow the lower 7 UHF-TV channels to be diverted to other use. The displaced TV assignments could be reassigned to higher channel numbers with very few unsatisfied assignments.(9)
4. There can be no question that the number of UHF-TV assignments could be increased considerably over those now in existence and in markedly less spectrum than is now assigned.(15)



Are the taboos realistic?

1. The initial taboos were based upon channel 2-6 propagation charts, and newer information shows that this results in the mileage separations given in all of the taboos being excessive. The taboos did not take into account the effect of terrain variations on propagation, and the same curves are used for smooth as for rough terrain. Further, no advantage is taken of terrain factors where the shielding effect of intervening high terrain may make the specified separations between stations unnecessary. The taboos were predicated upon the assumption that non-directional antennas are used at receiving locations. Directional antennas with front-to-back ratios in the order of 15 db are commonly used in households which expect to receive UHF stations from any distance, and such antennas are an absolute necessity in the "fringe" areas of a TV station. The taboos on IF beat, intermodulation, adjacent channel, oscillator radiation, sound image, and picture image are all based upon the anticipated characteristics of UHF-TV receivers, as seen in 1948. It would be indeed a serious indictment of the TV industry if no improvements have been made in the 20 years which have elapsed. The taboos were predicated upon the assumption that geographic separations must be based upon the signal strength that would result if all stations used maximum permissible effective radiated power. This is clearly faulty, as an examination of the actual powers and heights in use by the existing stations will demonstrate.(6)

2. The use of the low VHF band propagation curves for predictions of UHF service has no basis in theory and, in general, results in predictions of service greatly beyond the actual service radius.(13)

3. The Sixth Report and Order (of the FCC in 1952) established a number of ground rules for use of UHF-TV spectrum which were based upon a massive compromise of inadequate data.(15)

Can the taboos be eliminated or modified?

1. If wave propagation is actually different from that used in the preparation of the taboos, then the taboos can be adjusted in the light of present knowledge.(6)

2. Preliminary results indicate that at least the IF beat and intermodulation taboos can be greatly reduced and perhaps eliminated entirely.(8)

3. The correction of interference caused by the poor selectivity of modern receivers would have value in the solution of problems beyond those which are the subject of this Inquiry (FM interference to TV). For example, the minimum adjacent channel spacing taboo might be reduced.(11)



4. It appears that it is not costly to provide additional adjacent channel selectivity in receivers if necessary.(10)

5. The RF stage of a typical television receiver has a bandwidth of approximately 10 MHz, whereas only 6 MHz of bandwidth is necessary to accommodate a television channel. This contributes to intermodulation interference which could be minimized by improving the design of the television tuner input circuits. With potential intermodulation interference minimized, consideration could then be given to eliminating or reducing the intermodulation interference "taboo" which currently restricts the full utilization of all of the UHF television channels.(11)

6. A properly engineered television assignment plan would eliminate some, perhaps most, of the interference problems that the present taboos are intended to prevent or alleviate. For example, co-location of equal strength adjacent-channel stations as suggested by Norman Parker and others\* may enable a more efficient spectrum utilization plan while at the same time producing less potential for adjacent-channel TV interference than the present 55-mile separation requirement. A hexagonal grid type of allocation plan, as advocated by Parker in the same paper referred to above, or the rhomboidal plan of the Commission's UHF-TV Report 5.2.2\*\* are examples of methods for improving spectrum utilization.(8)

What needs to be done?

1. The results of tests argue that the Commission should pursue a study of television interference as related to possible reduction of the UHF-TV taboos, with special attention to be given to the elimination of the intermodulation and IF beat taboos. If sufficient data cannot be compiled by means of the FCC's own resources, the Commission should request additional needed data from all interested parties. Alternatively, the Commission could launch an inquiry into the necessity for the taboos, setting forth the issues on which data should be furnished and specifically soliciting comments from all interested parties.(8)

2. The question of whether UHF-TV taboos can be eliminated or modified is expected to be resolved by a continuing FCC evaluation effort to determine:

---

\* "A Proposal for the Modernization of the UHF Television Taboos," by Norman Parker of Motorola, Inc., presented at the November 1970 IEEE PGVT Conference and "Some Comments on the Technical Realities Concerning Television Allocations", George R. Town and William L. Hughes, IRE Transactions on Broadcasting, Vol. PGEC-7, December 1961, No. 4, pp. 17-23 (see page 22).

\*\* UHF-TV Report 5.2.2, UHF Assignment Plan, by Arnold G. Skrivseth, FCC Office of the Chief Engineer, UHF-TV Project, May 29, 1961.



- a) if present taboos are realistic in the light of modern TV receiver characteristics and, if not, the degree to which the present taboos may be modified;
- b) if receiver design modifications, required to permit relaxation of the taboos, would be technically and economically feasible; and,
- c) if existing taboos can be modified, whether it would be economically and technically feasible to reallocate selected channels in the UHF television band.(5)

3. The Commission's staff, and especially the Office of the Chief Engineer, has recognized for several years the need to review the present validity of the taboos.(4)

4. The Commission has under consideration instructions to its staff to conduct an in-house investigation of the geographic separation standards for UHF television stations (the so-called UHF-TV taboos).(7)

Should something be done?

1. Commission statement, in 1952, re propagation:

As the quantity of available [propagation] data increases, the Assignment Rules and Standards may be revised at a later date in the light of scientific findings.(10)

2. Commission statement re receiver characteristics:

The Commission wishes to emphasize that, in the electromagnetic environment in which receivers must operate currently and in the future, the allocation of frequencies to meet receiver inadequacies is not justified. The spectrum is simply too valuable to afford this luxury.(12)

Sources

- (1) FCC 7/15/70 report re Economics of TV-CATV Interface (statistics updated to 1/1/72).
- (2) FCC Rules & Regulations 73.610 and 73.698.
- (3) Motorola reply comments in FCC Dockets 16004 and 18052, 10/12/71.
- (4) Philip M. Walker report to FCC Commissioner Thomas J. Houser, 9/27/71.



- (5) FCC Report No. R-7105 re A Study of the Restrictive Effects of UHF-TV Taboos - New York City Area, 10/29/71.
- (6) Radio Specialists Company comments in FCC Docket 18261.
- (7) FCC Docket 18261 First Report & Order, 5/20/70.
- (8) Electronic Industries Association (Land Mobile Section) comments in FCC Docket 19183, 12/1/71.
- (9) Report of A. Earl Cullum, Jr. & Associates, Consulting Engineers, to the Allocations Research Council, 11/15/68.
- (10) FCC Dockets 8736, 8975, 9175 and 8976 Sixth Report & Order, 1952.
- (11) Corporation for Public Broadcasting and National Public Radio, Inc. comments in FCC Docket 19183, 12/1/71.
- (12) FCC "Policy to Govern the Change of FM Channels to Avoid Interference to TV Reception."
- (13) Comments of A. Earl Cullum, Jr. & Associates in FCC Docket 16004, 11/19/66.
- (14) Motorola comments in FCC Dockets 16004 and 18052, 6/28/71.
- (15) "UHF-TV Taboos: Fact, Fiction, or Fraud?" by Martin Cooper in July/August 1970 issue of Action published by National Association of Business & Educational Radio, Inc.



LOCAL COMMUNITY UHF TRANSLATOR TYPE DROP-INS  
IN WASHINGTON/BALTIMORE COMPLEX

If it were considered to be in the public interest, a new low-power type of television service could be introduced in and around major metropolitan areas. In most cases, high power VHF/UHF TV stations are oriented to serve large segments of the population. The envisioned local community service could, through small, low-power stations, serve a number of local communities in and around these metropolitan areas.

This concept is predicated on the following assumptions:

- o The local community UHF drop-ins would operate on appropriate UHF channels, i.e., not within the distance separation criteria for UHF-TV broadcasting assignments.
- o Adjacent channel assignments would not be made closer than 55 miles to UHF-TV broadcasting assignments.
- o The technical characteristics of such drop-ins would be limited to antenna heights of less than or equal to 100 feet and transmitters less than or equal to 100 watts.
- o Such low-power stations could provide a grade-A signal over a circular area having a radius of about 3-5 miles, and have a co-channel separation of 15-20 miles.
- o Drop-in channels would be chosen to be at least 5 channels removed from existing UHF stations in principal communities.
- o Such channels, when so removed, would need to be separated among themselves by only one channel.

Using the above assumptions, it is estimated that three low power community stations per suitable channel could be accommodated in the Baltimore area and four in the Washington area. The channels which could be used for these stations are indicated in Table I.

TABLE I

Baltimore/Washington UHF Low-Power Drop-Ins

	<u>Currently Assigned Channels</u>	<u>Drop-In Channels</u>
Baltimore	24, 45, 54, 67	30, 37
Washington	14, 20, 26, 32, 50	37, 58



It is concluded that, based on the foregoing conservative technical assumptions, a local community TV broadcast service could be established within the present allocation structure. For instance, within the Baltimore/Washington complex the number of stations which could be established would be:

Baltimore	3 locations and 2 channels =	6 Drop-Ins
Washington	4 locations and 2 channels =	8 Drop-Ins
Total	7 locations and 4 channels =	14 Drop-Ins

Noting that channels 24 and 54 in Baltimore and 32 and 50 in Washington are not active, an additional 17 low-power stations could be accommodated for a total of 31.



1974  
Vol. I

## ACCESS TO THE MEDIA

by

REC'D JUN 21 1974

Sandra Stencel

	page
FIGHT OVER MATTER OF PRESS FAIRNESS	449
Miami Herald Case Before the Supreme Court	449
Newspaper Reaction to Idea of Enforced Access	451
Other Complaints of Unfairness in News Coverage	452
Concern Over Joint Newspaper and TV Ownership	454
CONSTITUTIONAL ISSUES CONCERNING ACCESS	457
High Court Views on Scope of First Amendment	457
Barron's Theory of Need for New Interpretation	458
Fairness Doctrine, Equal Time in Broadcasting	460
Distinctions Between Press and Broadcast Rights	461
MEANS OF PUBLIC ACCESS TO NEWS OUTLETS	462
Letters-to-Editor Columns and New 'Op Ed' Pages	462
Ombudsmen for Readers; Papers' Self-Criticism	464
Rise of Journalism Reviews and Underground Press	466
National News Council to Study Citizen Complaints	467

No. 23  
June 21



Copyright 1974 by Congressional Quarterly, Inc.,  
publishers of Editorial Research Reports

THE RIGHT to make direct use of material contained in Editorial Research Reports is strictly reserved to newspaper, magazine, radio and television clients of the service. Others wishing to quote from the Reports for other than academic purposes must first obtain written authorization.

RICHARD M. BOECKEL, *Editor Emeritus*  
HOYT GIMLIN, *Managing Editor*

Editorial Research Reports  
1414 22nd Street, N.W.  
Washington, D.C. 20037

---

## ACCESS TO THE MEDIA

---

THE HISTORIC DEBATE over the rights and responsibilities of a free press is entering a new phase marked by a demand for public access to the news media. This demand represents attempts by minority groups to gain outlets for voicing their causes, by political candidates for assured air time or guaranteed newspaper space, by aggrieved persons who want the right to reply. The list is long. Underlying nearly all of these demands for access to the news media is a professed belief that the First Amendment's freedom-of-the press provision gives all people the right to express their views through existing journalistic institutions.

The Supreme Court is expected to rule soon on the constitutionality of a Florida right-to-reply law. It grants any candidate for public office whose record or character is attacked in a newspaper the right to have a reply published in that paper. The news media across the nation are almost unanimous in viewing the law as a serious violation of the First Amendment. Moreover, there is fear that other states or even Congress might enact similar legislation if the Florida law is upheld. At present, Mississippi is the only other state with a right-to-reply law. Sen. John L. McClellan (D Ark.) said in February that if the Court upheld the Florida statute, Congress should consider passing a national right-to-reply law along the same lines.

The case rests on a relatively new concept which is stated by a leading advocate of public access, Jerome A. Barron, a law professor at George Washington University, in this way: "Freedom of the press must be something more than a guarantee of the property rights of media owners."<sup>1</sup> Professor Barron contends that in an era of mass communications, the First Amendment guarantees of freedom of speech and of the press are meaningless unless the public has access to "the great engines of public opinion—radio, television and the press." But due to extraordinary technological changes that have taken place in the communications field, he maintains, ownership of the press—and consequent control of the material it publishes or

---

<sup>1</sup> Jerome A. Barron, *Freedom of the Press for Whom?* (1973), p. iv.



broadcasts—is restricted to a small number of wealthy individuals. Barron calls this a private censorship as depressing to the free flow of ideas as government censorship.

Barron argued his theory before the Supreme Court on April 17, 1974, in behalf of Pat L. Tornillo, an unsuccessful candidate for the Florida legislature in 1972, who was criticized editorially by *The Miami Herald* prior to the election.<sup>2</sup> Tornillo asked for an opportunity to respond under the state's right-to-reply law, which had been enacted in 1913 in a spirit of campaign-practices reform.<sup>3</sup> The *Herald* refused and Tornillo went to court. Judge Francis J. Christie of the Dade County Circuit Court dismissed the case on the ground that the law was unconstitutional. Tornillo appealed and on July 10, 1973, the Florida Supreme Court, by a vote of 6 to 1, ruled in his favor.

The majority opinion said the law "is designed to add to the flow of information and ideas and does not constitute an incursion upon First Amendment rights...since no specified newspaper content is excluded. There is nothing prohibited but rather it requires, in the interest of full and fair discussion, additional information." The Florida Supreme Court also said that an affirmative obligation on the part of the government to assure the right of access to the news media is necessary as a counterweight to its concentration of control. "The First Amendment did not create a privileged class which through a monopoly of instruments of the newspaper industry would be able to deny to the people the freedom of expression which the First Amendment guarantees," the court held.

Professor Barron repeated these arguments before the U.S. Supreme Court. He also argued that right-to-reply statutes are necessary to balance the Court's recent decisions on libel, particularly the ruling in *New York Times v. Sullivan* (1964). In that decision the Court imposed limitations on the application of libel laws to the press. It said that "debate on public issues should be uninhibited, robust, and wide open and that it may well include vehement, caustic and sometimes unpleasantly sharp attacks on government and public officials." To win a libel suit, a public official or other public figure, indeed any newsworthy person, would henceforth have to prove that a false accusation was published with "actual

<sup>2</sup> The paper said editorially on Sept. 20, 1972, two weeks before the election: "We cannot say it would be illegal but certainly it would be inexcusable of the voters if they sent Pat Tornillo to Tallahassee." In a second editorial on Sept. 29 the paper accused Tornillo of practicing "shakedown statesmanship."

<sup>3</sup> In its 61-year history the law had been invoked only once before, in 1971 in a case involving the *Daytona Beach Morning Journal*. The judge in that case said that the law was "clearly unconstitutional" and dismissed the case.

malice" in mind—that the newspaper knew in advance the charge was false and published it anyway—or that the paper showed a "reckless disregard" for the facts.

President Nixon told Congress on March 8, 1974, that the *Sullivan* decision has given the press "virtually a license to lie." In the same message to Congress, on campaign reform, Nixon asked the lawmakers to consider enactment of a federal libel law "so that people interested in running for public office can have greater assurance of recourse against slanderous attacks on them and their families."<sup>4</sup> At the President's request, the Justice Department began to study whether a federal right-to-reply law might be enacted "to encourage more good people to run for public office."

#### Newspaper Reaction to Idea of Enforced Access

The Florida case became a *cause célèbre* in the news business. Almost all of the major news organizations,<sup>5</sup> filed friend-of-the-court briefs with the Supreme Court on behalf of the *Herald*. Many of those who oppose right-to-reply laws and other means of guaranteeing public access do not deny that a problem of access exists. They do, however, say the problem is not as serious as the other side insists, and challenge proponents of access to name important minority positions that have not been publicized by the media.

Many persons believe that broader public access is a laudable goal in theory, but that it raises too many practical problems for newspapers. Florida Supreme Court Justice Joseph A. Boyd, in that court's only dissenting opinion, wrote: "Almost everyone whose name has been carried frequently in the news media has been offended at one time or another by stories or comments in which he disagrees." To give each person space to reply, he said, would flood the newspapers with replies or discourage them from printing critical stories, analyses or editorials.

Other opponents of right-to-reply contend that such laws would have a "chilling effect" on vigorous newspaper coverage of electoral issues. Instead of permitting the public to hear both sides of a debate, as the Florida Supreme Court intended, the laws could have the opposite effect. Editors,

<sup>4</sup> The United States has not had a federal libel law since the Alien and Sedition Acts of 1798 expired March 3, 1801. Those laws, which provided punishments of fines or imprisonment for persons convicted of publishing false and malicious writings concerning the President or the government, expired before the Supreme Court could rule on their constitutionality.

<sup>5</sup> Including the American Newspaper Publishers Association, the National Newspaper Association, the American Society of Newspaper Editors, the National Association of Broadcasters, and several individual papers.



fearing costly demands for free space, might stop covering electoral matters altogether. The American Newspaper Publishers Association labeled the Florida statute a "politician's privilege" law.

---

*"In practical effect, there is no difference between any order of government which tells a person or a publication what he must say and one telling him what he may not say."*

Malcolm B. Johnson, Editor  
Tallahassee Democrat

---

Spokesmen for the press tend to see right-of-access laws as the first step toward total government control over the editorial content of newspapers. Daniel Paul, attorney for *The Miami Herald*, argued before the Supreme Court on April 17 that compelling a newspaper to print something is the same as telling it what not to print. "Forced publication," he said, "is a form of regulation as pernicious as direct censorship." Paul argued that the First Amendment protects the press from the "intrusive editorial thumb" of the government. A newspaper must be free to exercise its editorial discretion and judgment in determining what to print and what not to print. The only restraints on a newspaper, Paul said, should be those imposed by its readers and by its journalistic integrity.

#### Other Complaints of Unfairness in News Coverage

Questions about the credibility and fairness of the press have been raised with increasing frequency in recent years. Blacks, Chicanos, Indians and women are among many who have complained of inadequate news coverage of their problems or ideas. Much of the Nixon administration's criticism of the "Eastern liberal establishment press" has been blunted by Watergate disclosures and Vice President Spiro T. Agnew's resignation,<sup>6</sup> but the idea was planted that supposedly liberal media executives in New York and Washington are not concerned with the problems and values of ordinary citizens.

"We, in newspaper journalism," wrote Peter Bruce Clark, publisher of *The Detroit News*, "tend to see events differently

<sup>6</sup> For background on Agnew's attacks on the press, see "First Amendment and the Mass Media," *E.R.R.*, 1970 Vol. I, pp. 43-60.

from the way many of our readers see them. Hence we describe events differently from the way they see them. We answer questions about events that they do not ask. We do not answer questions that they do ask. Thus many of them come to doubt us, especially during a time of intense social strain and disagreement."<sup>7</sup> According to Ben Bagdikian, public dissatisfaction with the media is also related to its role as the daily harbinger of bad news. He wrote recently:

The attacks and harassments of the press come at a crucial point in American social history. The country had passed through more than a decade of radical change, in race relations, in assassinations of three national leaders, in a disastrous war, in lifestyles, in international strategy, all of it inevitably creating turbulence and confusion under the best of conditions.

All of it was transmitted to the public by the news media. The news was real. The events would have occurred without the media. But they have made the media, the bearer of bad and disturbing news, a perfect scapegoat. The most powerful leaders of the country have done precisely this, turning public confusion and uneasiness about events against the press.<sup>8</sup>

A study of press credibility conducted by the Gallup Poll organization for its newspaper subscribers, released in December 1973, showed that a substantial majority of persons interviewed (76 per cent) agreed, or partly agreed, with the statement "Newspapers devote too much space to what is wrong with America and not enough to what is right."

A nationwide survey sponsored by the University of Texas in 1972 found that 84.4 per cent of those who responded thought the media sometimes slanted the news. Furthermore, 57.6 per cent of those polled felt that newspapers should be required to give equal space to all sides of an issue; 47.7 per cent said there should be a law to make newspapers give equal coverage to Democrats and Republicans; and 41.1 per cent said newspapers should be required to print statements by spokesmen for all groups.<sup>9</sup>

At a news conference on Oct. 26, 1973, President Nixon accused the television networks of "outrageous, vicious, distorted reporting." His words prompted the National News Council, established in 1973 as a non-profit independent organization to investigate public grievances against the press, to ask White House Press Secretary Ronald L. Ziegler

<sup>7</sup> Peter Bruce Clark, "Journalists' Ideals and Readers' Doubts," *The Bulletin of the American Society of Newspaper Editors*, April 1973, p. 6.

<sup>8</sup> Ben Bagdikian, "First Amendment Revisionism," *Columbia Journalism Review*, May-June 1974, p. 44.

<sup>9</sup> Martin L. Gibson, "The Public Thinks We Slant the News," *The Bulletin of the American Society of Newspaper Editors*, September 1972, p. 1.



for specific instances. Ziegler responded that the White House had neither the time nor the staff to prepare such a list. After making additional efforts to obtain the information from the White House, the council announced on May 14 that it was impossible to get at the truth of the matter.

#### Concern Over Joint Newspaper and TV Ownership

The growing concentration of media ownership is central to Professor Barron's thesis of lack of access. The number of competing daily newspapers in the United States has been steadily declining since early in this century. According to *Editor & Publisher*, the number of morning and evening newspapers dropped from 2,042 in 1920 to 1,774 in 1973.<sup>10</sup> Rival dailies remain in few American cities. Rising labor and production costs and the loss of advertising revenue to television and radio have forced many of the surviving dailies to succumb to absentee chain ownership. Newspaper chains, or groups, now control more than half of the nation's daily newspapers and more than 60 per cent of the total circulation (see table, p. 456).<sup>11</sup> "At the present rate of expansion," Sen. Thomas J. McIntyre (D N.H.) has predicted, "all of the daily newspapers—I said all of them—will be owned by chains in less than 20 years."<sup>12</sup>

Some persons feel that the trend toward monopoly was speeded up by the 1970 Newspaper Preservation Act. The law allows competing newspapers in the same city to pool their printing and business operations if one of them is in danger of failing. Some metropolitan newspapers had in fact been doing so since the early 1930s.<sup>13</sup> What prompted Congress to act in 1970 was a Supreme Court ruling in 1969 that a joint operating agreement between the *Arizona Daily Star* and *Tucson Daily Citizen* violated federal antitrust laws.

The Newspaper Preservation Act was pushed in Congress by the American Newspaper Publishers Association, the Department of Commerce, and several newspaper groups or chains. It had the editorial support of much, but not all, of the nation's press. Opposition came from the National Newspaper Association, the American Newspaper Guild, the International Typographical Union, the Amalgamated Lithographers, the AFL-CIO, and from some individual news-

<sup>10</sup> The 1973 figure, however, represented a net increase of 13 over the 1,761 1972 total and was the largest total number since 1940.

<sup>11</sup> Stephen R. Barnett, "Merger, Monopoly & A Free Press," *The Nation*, Jan. 15, 1973, p. 79.

<sup>12</sup> Quoted by Donald Paneth, "Newspapers in Chains," *The Nation*, May 8, 1972, p. 589.

<sup>13</sup> From 1933, when the first arrangement was made, 22 joint arrangements had become effective in 19 states by the time the law was enacted. For a listing of the papers and details of the legislation, see *Congressional Quarterly Almanac* 1970, pp. 238-243.

papers. Among the voices of opposition, columnist Nicholas von Hoffman ridiculed the justification offered for the measure—that without it financially weak newspapers would fail. He said the beneficiaries of the bill included such "failing" enterprises as the Scripps-Howard, Knight, Hearst and Newhouse newspaper organizations.<sup>14</sup>

Compounding the problem of media concentration is the growing number of joint newspaper-broadcast operations.<sup>15</sup> According to an estimate made early in 1973 by Stephen R. Barnett, law professor at the University of California at Berkeley, there were some 93 instances in some 85 American cities where the owner of the daily newspaper also owned a local television station.<sup>16</sup> ANPA reported in 1970 that 96 television and 300 AM and FM radio stations were owned by companies operating newspapers in the same area. Joint ownership is nothing new. In 1940, for example, 250 (30.8 per cent) of the country's 814 AM radio stations were affiliated with newspapers. After World War II, newspapers were quick to acquire interests in the newly emerging television industry and by 1950 owned 41 (42 per cent) of the 97 television stations then in existence.<sup>17</sup>

---

*"If war is too important to be left to  
generals, then journalism is too important  
to be left to journalists."*

Albert H. Kramer  
Citizens Communications Center

---

The Federal Communications Commission has been under strong pressure from the Justice Department in recent years to draft new rules to prohibit newspapers from owning radio and television stations in the same city. The department's antitrust division filed a brief with the commission on May 15, 1974, urging it to phase out "cross-ownership" over a five-to eight-year period by denying license renewals to stations under newspaper control or affiliation. It was suggested that

<sup>14</sup> *The Washington Post*, July 13, 1970.

<sup>15</sup> See "Competing Media," *E.R.R.*, 1969 Vol. II, pp. 531-554.

<sup>16</sup> "Merger, Monopoly & A Free Press," *The Nation*, Jan. 15, 1973, p. 79. See also, "The FCC's Nonbattle Against Media Monopoly," *Columbia Journalism Review*, January-February 1973, p. 43.

<sup>17</sup> Figures cited by Raymond B. Nixon, a University of Minnesota journalism professor, in testimony before the Senate Judiciary Subcommittee on Antitrust and Monopoly, March 19, 1968.



## LARGEST U.S. NEWSPAPER CHAINS

### By Number of Newspapers

Chain	Number of dailies
Gannett Newspapers	54
Thomson Newspapers	47
Scripps League Newspapers	36
Donrey Media Group	30
Freedom Newspapers	22

### By Total Circulation

Chain	Number of dailies	Total circulation (1974)
Tribune Co. Owned Newspapers	8	3,867,270
Newhouse Newspapers	21	2,765,729
Knight Newspapers	16	2,492,121
Gannett Newspapers	54	2,302,650
Scripps-Howard Newspapers	18	2,028,214*

\*As of September 1973

SOURCES: Editor & Publisher Yearbook 1974, Individual Chains

owners be allowed to trade papers or broadcast stations with those in other cities; they could thus remain in both businesses but not in the same community.

The Justice Department took the position that cross-ownership violated antitrust policy. In their brief, department lawyers said that advertising rates charged by jointly owned television stations and newspapers run 10 to 15 per cent higher than those demanded when stations and papers are competing for dollars. The department said that a ban on cross-ownership would encourage more independent news coverage.

The proposed ban on joint ownership was supported by several public interest media groups. Albert H. Kramer of the Citizens Communications Center said that the basic argument was the "presumption that the more diversity of voices in the media, the more likely you are to get robust debate and critical scrutiny of the media itself." Arguing against stripping newspapers of their hometown broadcasting stations were the National Association of Broadcasters and ANPA. Publishers contended that the FCC actively encouraged newspapers to take out licenses in the early 1940s when television broadcasting was just beginning. Moreover, many newspaper owners said they provided superior broadcast ser-

## Access to the Media

vice because they lived in the community, were familiar with local needs and issues, and generally devoted more broadcast time to local news. Opponents of the rule also argued that some newspapers would fold without the revenues earned by their radio or television stations.

The Justice Department has underscored its determination to press the FCC to adopt a new cross-ownership rule by opposing individual license renewals as they come due. Since November 1973, the department has asked the FCC to lift broadcast licenses held by publishers in Milwaukee, St. Louis, Minneapolis, Des Moines, and Topeka. Some publishers have argued that such moves have been politically inspired by the White House.<sup>18</sup> But an administration-sponsored bill, which has passed the House and is before the Senate Commerce Committee, would prohibit the FCC from using the license renewal process to break up cross-ownerships.

## Constitutional Issues Concerning Access

THE FIRST AMENDMENT states that "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or of the right of the people peaceably to assemble, and to petition the government for a redress of grievances." Most Americans know that their right to freedom of expression is rooted in those words. History offers a guide to their origin but not to their precise meaning. That is largely a matter of Supreme Court interpretation—and that interpretation has come almost entirely in the last half-century.

The late Justice Hugo L. Black was identified with the "absolute test" doctrine, which is sometimes interpreted, perhaps mistakenly, as a "literal meaning" of the First Amendment. Black expressed his idea of the doctrine in a 1966 obscenity case.<sup>19</sup> "I think," Black said, "the founders of our nation in adopting the First Amendment meant precisely that the federal government should pass 'no law' regulating speech and press but should confine its legislation to conduct...."

<sup>18</sup> The Washington Post reported on May 16, 1974, that tape recordings of President Nixon's White House conversations in the hands of the House Judiciary Committee confirmed that his anger at the newspaper was behind license challenges to two stations, WJXT in Jacksonville and WPLG-TV in Miami, owned by Post-Newsweek Stations Inc.

<sup>19</sup> Ginzberg v. United States, 383 U.S. 463.



Many legal scholars have difficulty, however, in drawing a line between speech and conduct.

At any rate, the absolute test has never won the support of a majority of justices and has never been defined with precision. Instead, for the past two decades or more, the Court has tended to employ what is sometimes known as the balancing test when the First Amendment comes in conflict with another constitutional right. As enunciated in 1970 by Chief Justice Frederick M. Vinson,<sup>20</sup> the Court must in each case balance the individual interest in freedom of expression against the social interest sought by the regulation which restricts expression.

The First Amendment is a negative commandment; it tells the government what it must not do, that is, it must not abridge the freedom of speech or of the press. The Founding Fathers believed that the people's freedom of expression would be assured as long as the government kept its hands off. Today a number of persons feel that this conception of the First Amendment is out of date in an era of mass communications. They point out that today's communication business is gigantic both in financial terms and in the size and scope of its audience, yet its control lies in the hands of a small group, many of whom look upon the media as simply profitable business enterprises. Consequently, it is argued, today's media monopolies often exercise the same abridgement of expression that the Founding Fathers feared from the government.<sup>21</sup>

For these reasons, the argument continues, a new interpretation of the First Amendment is needed, one which would require the government to take positive steps to see that the public has access to the means of communication. Supporters of such an interpretation say that it is not as radical as it might appear. In the area of civil rights, for example, the courts have held that it is not enough simply to forbid discrimination; the government must take positive action to promote the realization of equality.

#### Barron's Theory of Need for New Interpretation

One of the first to recognize the possibility that the government might one day be forced to impose the First Amendment on the media was the Commission on Freedom of

the Press. The commission, under the chairmanship of Dr. Robert Maynard Hutchins, then chancellor of the University of Chicago, was set up in 1943 by publisher Henry L. Luce and the Encyclopedia Britannica to evaluate the functioning of the entire communications industry. In its report, released on March 26, 1947, entitled *A Free and Responsible Press*, the commission said:

Our society requires agencies of mass communication. They are great concentrations of private power. If they are irresponsible, not even the First Amendment will protect their freedom from government control. The amendment will be amended....

Everyone concerned with the freedom of the press and with the future of democracy should put forth every effort to make the press accountable, for if it does not become so of its own motion, the power of government will be used, as a last resort, to force it to be so.

....Under our system the legislature may pass no law abridging the freedom of the press. But this has never been thought to mean that the general laws of the country were inapplicable to the press. The First Amendment was intended to guarantee free expression, not to create a privileged industry.

---

*"The ninnies who talk about access would expose viewers to all unedited maunderingings that come along."*

Richard W. Jencks  
Vice president, CBS

---

In recent years, the chief spokesman for the new interpretation of the First Amendment has been Professor Barron. He first stated his theory publicly in an article in the June 1967 issue of *Harvard Law Review*.<sup>22</sup> Barron wrote:

What is required is an interpretation of the First Amendment which focuses on the idea that restraining the hand of government is quite useless in assuring free speech if a restraint on access is effectively secured by private groups. A constitutional prohibition against governmental restrictions on expression is effective only if the Constitution ensures an adequate opportunity for discussion. Since this opportunity exists only in the mass media, the interests of those who control the means of communication must be accommodated with the interests of those who seek a forum in which to express their point of view.

In the summer of 1970 Barron drafted a right-to-access bill which was introduced in the House of Representatives by Rep. Michael Feighan (D Ohio) as the Truth Preservation Bill, but

<sup>20</sup> American Communications Association v. Douds, 339 U.S. 382.

<sup>21</sup> See Alan Reitman and Trudy Hayden, "Should Government Impose the First Amendment on the Media?" *Educational Broadcasting Review*, December 1968. Reprinted in *Mass News—Practices, Controversies, and Alternatives*, edited by David J. Leroy and Christopher H. Sterling, 1973, pp. 226-239.

<sup>22</sup> Jerome A. Barron, "Access to the Press—A New First Amendment Right," *Harvard Law Review*, Vol. 80, June 1967, pp. 1641-1678.



it never came to a vote. The bill would have imposed on "newspapers of general circulation" an obligation to grant a right to reply to any individual or group which had been subjected to editorial comment in the paper. The law also would have required newspapers to accept political opinion as a paid advertisement if it had been rejected in the news columns.

#### Fairness Doctrine, Equal Time in Broadcasting

The Supreme Court on May 29, 1973, in the case of *Columbia Broadcasting Company v. Democratic National Committee*, ruled that radio and television stations are not bound to sell time to individuals and groups who wish to air their views on public issues. In upholding an FCC ruling that broadcasters were not required by either the First Amendment or the agency's "fairness doctrine" to accept these editorial announcements, Chief Justice Warren E. Burger said on behalf of the Court that the right of access demanded might work contrary to the public interest in fair presentation of the news. Moreover, he said that for the government to require such a right of access would limit the journalistic discretion traditionally left—by Congress and the FCC—to the broadcaster.

The Court saw the basic question as "not whether there is to be discussion of controversial issues of public importance in the broadcast media, but rather who shall determine what issues are to be discussed by whom and when." Providing a right of access to the airwaves might work chiefly to benefit persons who could afford to buy the time. Control of the broadcast discussion of public issues could then slip from the hands of the broadcast licensees—who can be held responsible under the fairness doctrine—to whomever could afford to buy the time, and those persons could not be held accountable for fairness. For 40 years, Burger concluded, Congress and the FCC have been searching for a way in which "to achieve reasonable regulation compatible with the First Amendment rights of the public and the licensees." It would be a mistake for the courts to "freeze this necessarily dynamic process into a constitutional holding."

The broadcast media already are subject to a right-to-reply requirement—the so-called "personal attack" rules. The rules, first set forth in July 1967 and twice amended, were an extension of the FCC's "fairness doctrine."<sup>23</sup> The doctrine requires a broadcaster to provide a reasonable

<sup>23</sup> The fairness doctrine was set forth in a 1959 amendment to Section 315 of the Federal Communications Act of 1934. That section also states the "equal time" requirement that if a broadcaster permits a legally qualified candidate for a public office to use his station, he must also give equal opportunities to all other candidates for that office.

opportunity for the presentation of conflicting viewpoints on controversial issues of public importance. A personal attack is defined by the FCC as an attack on the honesty, character or integrity of persons or groups "during the presentation of views on a controversial issue of public importance." The licensee is required to furnish any person or group attacked with a transcript or summary of what was said and offer "reasonable opportunity" to respond.

It was a challenge to the "personal attack" rules which brought about the landmark *Red Lion* decision in which the Supreme Court on June 9, 1969, upheld the constitutionality of the fairness doctrine.<sup>24</sup> The Rev. Billy James Hargis attacked author Fred J. Cook in a "Christian Crusade" broadcast in 1964 by radio station WGBB in Red Lion, Pa. When Cook asked for free air time to reply, the station suggested that he buy time just as Hargis had done. Cook thereupon sued the station on the ground that he was entitled to free time under the "personal attack" rules.

The Radio-Television News Directors Association, together with CBS and NBC, became parties to the suit in order to challenge the validity of the rules. The Seventh Circuit U.S. Court of Appeals in Chicago held Sept. 11, 1969, that the FCC had exceeded its authority and that the rules encroached upon the First Amendment rights of the broadcasting station. But the Supreme Court reversed the appeals court and upheld the authority of the FCC to make the rules and their constitutionality. Justice Byron R. White wrote that the rules "enhance rather than abridge the freedoms of speech and press protected by the First Amendment.... It is the purpose of the First Amendment to preserve an uninhibited marketplace of ideas in which truth will ultimately prevail, rather than to countenance monopolization of that market, whether it be by the government itself or a private licensee."

The basic rationale behind the fairness doctrine and other government restrictions on radio and television is that there are only a limited number of frequencies in the broadcasting spectrum. Professor Barron contends that while newspapers do not suffer from the same physical limitations as the broadcast media, economic factors make it as difficult to obtain access to the print media as to radio and television. In fact, he said, "TV broadcasting could be less of a limited access medium than the daily newspapers." He explained:

<sup>24</sup> *Red Lion Broadcasting v. Federal Communications Commission*, 395 U.S. 367.



"Many American cities have not utilized, or have underutilized, UHF frequencies. Facilities to use these frequencies can be built at competitively minimal cost compared with the financial resources needed by a new entrant into the daily newspaper market in any large...American city."<sup>25</sup>

For this reason, Barron and others want some form of the fairness doctrine to be applied to all media, especially newspapers.

But spokesmen for newspapers point out that in the *Red Lion* decision the Supreme Court reiterated its position that different technological barriers to entry into the broadcasting and the newspaper business justify the differing First Amendment treatment of the two media. In 1973, the Court again stated that "the broadcast media poses unique and special problems not present in the traditional free speech case. Unlike other media, broadcasting is subject to an inherent physical limitation. Broadcast frequencies are a scarce resource; they must be portioned out among applicants. All who possess the financial resources and the desire to communicate by television or radio cannot be satisfactorily accommodated."<sup>26</sup>

### Means of Public Access to News Media

A FREE SOCIETY "cannot endure without a free press, and the freedom of the press ultimately rests on public understanding of, and trust in, its work." This was the conclusion of a Twentieth Century Fund task force appointed in 1971 to examine the feasibility of setting up a press council in the United States (see p. 467).<sup>27</sup> In recent years American newspapers have taken a number of steps to increase their credibility with the public. An essential factor in restoring credibility is the willingness to admit errors and to correct them. Some papers are publishing accuracy forms and asking their readers to report mistakes. Other newspapers send accuracy forms to persons mentioned in news stories. Correction of an error may be accomplished by printing a correction, by writing a complete follow-up story, or by some direct

<sup>25</sup> Barron, *Freedom of the Press for Whom?*, p. 147.

<sup>26</sup> *Columbia Broadcasting System v. Democratic National Committee*, 412 U.S. 94 (1973).

<sup>27</sup> The Twentieth Century Fund, *A Free and Responsive Press—Task Force Report for a National News Council*, 1972, p. 3. The Twentieth Century Fund is a research foundation established in 1919 and endowed by Edward A. Filene. It publishes studies on major American institutions.

communication with the person who made the complaint. Increasingly popular is publishing corrections under a standing head that appears regularly in a specific location.

Although newspapers almost always oppose any government attempt to assure accuracy or fairness, they are taking steps on their own to be more accountable to their readers. In response to criticism that they do not provide enough diversity of opinion, many newspapers are giving more space to letters to the editor and are actively encouraging people to write. However, two journalism professors at Stanford University, David L. Grey and Trevor R. Brown, wrote that letter columns are not as representative of public opinion as they might appear. Not only are letters chosen for publication by a highly subjective process, they said, but they are often severely edited.<sup>28</sup> Many newspapers claim the volume of letters is too great to publish more than a sampling of the number they receive. *The New York Times* received 58,524 letters in 1973—a daily average of about 150—six times more than in 1945 and more than twice as many as in 1967.

In addition to expanding the space provided for letters, the *Times* added an Op-Ed page in September 1970. The Op-Ed format—journalistic jargon for a page of opinion and commentary opposite the page on which the paper's own editorials are printed—was pioneered in the 1920s by the now-defunct *New York World*. A few papers, notably the *The Plain Dealer* in Cleveland and *The Detroit News*, have been using such pages since the 1960s.

Since its inception, *The New York Times* Op-Ed page has become a forum of great influence. "Like the *Times* itself, it is an institution of national rather than merely local interest and significance," writes Carl Gershman, "and also like the *Times* itself, it has achieved this position, at least partly, as a result of the sheer quantity and range of the material it has published."<sup>29</sup> In addition to the paper's regular columnists, the Op-Ed page contains a potpourri of articles on contemporary political and social issues by outsiders. Approximately one of every four essays published is unsolicited. Special attention is given to those points of view completely divergent from the paper's editorial position.

<sup>28</sup> David L. Grey and Trevor R. Brown, "Letters to the Editor: Hazy Reflections of Public Opinion," *Journalism Quarterly*, Vol. 47, 1970, p. 450. See also Gerald S. Nagel, "Letters to the Editors: A Public Bid for Fame," *Columbia Journalism Review*, May-June 1974, pp. 47-48.

<sup>29</sup> Carl Gershman, "The 'Times' Op-Ed Page: Both Ends Against the Middle," *Commentary*, April 1973, p. 45. Gershman is a member of the National Committee of the Social Democrats and is national vice-chairman of the Young People's Socialist League.



William Safire, formerly a speechwriter for President Nixon, became a columnist for the *Times* in April 1973. George Will, Washington editor of William Buckley's *National Review*, writes a column that often appears in and is syndicated by *The Washington Post*.

"A good newspaper, I suppose, is a nation talking to itself."

Arthur Miller  
Playwright

A major criticism of many Op-Ed pages is that they devote too much space to syndicated political columnists writing from Washington. Editors in smaller communities respond that they sometimes have difficulty finding local citizens with intriguing ideas that can be passed on to the public. But more and more newspapers offer at least one local column from someone who is not a staff writer. *The Salt Lake City Tribune* opens a column called "Common Carrier" to outsiders and pays a five-member community panel to screen copy for it.

#### Ombudsmen for Readers; Papers' Self-Criticism

Another approach to strengthening press credibility has been that of assigning someone to see that public complaints get acted on. One of the first persons to suggest the possibility of journalistic "ombudsmen"<sup>39</sup> was press critic Ben Bagdikian. In the March 1967 issue of *Esquire* magazine, Bagdikian wrote: "Some brave owner someday will provide for a community ombudsman on his paper's board, maybe a non-voting one, to be present, to speak, to provide a symbol and, with luck, exert public interest in the ultimate fate of the American newspaper."

The idea was picked up by A. H. Raskin of *The New York Times* in an article entitled "What's Wrong With American Newspapers?"<sup>31</sup> Raskin proposed that American dailies should establish "their own department of internal criticism to check on the fairness and accuracy of their coverage and comment." He said that such a department head should have enough independence to serve as "an ombudsman for the readers"

<sup>39</sup> A Swedish word adopted by a number of American papers to designate someone to assist the public in its complaints or problems with the press.

<sup>31</sup> A.H. Raskin, "What's Wrong with American Newspapers," *The New York Times Magazine*, June 11, 1967.

and enough authority "to get something done about valid complaints and to pose methods for more effective performance of all the paper's services to the community, particularly the patrol it keeps on the frontier of thought and action."

On June 19, 1967, just eight days after the Raskin article appeared, Norman E. Isaacs, executive editor of *The Louisville Courier-Journal* and *Times*, announced to his staff that City Editor John Herchenroeder was assuming the function of house critic for the two papers. He has retained the position ever since and has become perhaps the best-known and most successful press ombudsman. In addition to handling more than 3,000 reader complaints each year, Herchenroeder writes a daily appraisal of both papers for the owners, editors and reporters.<sup>32</sup>

Most newspapers do not use the term ombudsman, preferring instead to use an easier-to-pronounce and more descriptive title such as "Mr. Go-Between," "Reader Contact Editor" or "Public Access Editor." At several papers the ombudsman has the additional responsibility of writing a column in which he informs the public how the newspaper operates, tells how "foul-ups" occur, or generally discusses the performance of the news media.

Professor Keith P. Sanders was commissioned by the American Newspaper Publishers Association in 1973 to evaluate ombudsmen and other accountability programs being employed by daily newspapers. While saying that it was too early to tell how well the programs had worked, he reported in November 1973 that most editors he spoke with thought that their readers were pleased that the newspapers "care" about their opinions. The editors also thought that the ombudsman approach has enabled them to develop a better awareness of the needs of the readers and what they are thinking about.<sup>33</sup>

Many ombudsmen find that the most difficult part of their job is not handling the public's complaints but dealing with internal criticism. "Newspapermen are the most sensitive creatures in America," said Richard L. Harwood, an assistant managing editor of *The Washington Post* who served as the

<sup>32</sup> Among the other daily papers in the United States to operate ombudsman-type programs are *The Washington Post*, *St. Petersburg Times*, *Wilmington Morning News* and *Evening Journal*, *Minneapolis Star*, *Delta Democrat-Times* (Greenville, Miss.), *The Grand Rapids Press*, *The Journal Herald* (Dayton, Ohio), *Salt Lake Tribune*, *New Castle News* (Pa.), *Omaha World-Herald*, *The Milwaukee Journal*, *The Express* (Easton, Pa.), *Register-Republic* (Rockford, Ill.), *Journal and Courier* (Lafayette, Ind.), and *The Observer-Dispatch* (Utica, N.Y.).

<sup>33</sup> Keith P. Sanders, "What Are Daily Newspapers Doing to be Responsive to Readers' Criticisms: a Survey of U.S. Daily Newspaper Accountability Systems," *American Newspaper Publishers Association News Research Bulletin*, Nov. 30, 1973.



paper's ombudsman from September 1970 to September 1971. "They do not like to be criticized. They definitely do not like to be criticized in print."<sup>34</sup>

#### Rise of Journalism Reviews, Underground Press

The National Commission on the Causes and Prevention of Violence said in its 1969 report: "Few American institutions are as free from responsible and systematic analysis as the American press. The press, which performs the role of reporter and critic for other institutions, has been reluctant to undertake self-analysis." Charges such as this have prompted some newsmen to step back and examine their own performance. One indication of the move toward self-examination has been appearance of local and national journalism reviews.

The oldest of these, the *Columbia Journalism Review*, describes itself as "a national monitor of the news media." Its purpose, as stated in its pilot issue in the fall of 1961, is "...to assess the performance of journalism in all its forms, to call attention to its shortcomings and strengths, and to help define—or redefine—standards of honest, responsible service ...to help stimulate continuing improvement in the profession and to speak out for what is right, fair and decent."

*"Freedom of the press is guaranteed  
only to those who own one."*

A. J. Liebling  
Press critic

Another media review is [MORE], which takes its name, brackets and all, from the reporter's traditional bottom-of-the-page notation. In addition to its monthly appraisal of the news business, [MORE] also sponsors the annual A. J. Liebling Counter-Convention. The convention is named for the late journalist who for many years wrote articles for *The New Yorker* magazine under the title "The Wayward Press." It is called a counter-convention because the first session in 1972 was held at the same time as the ANPA convention.

The first local journalism review was founded in Chicago in 1968 by dissident reporters unhappy with local press coverage of police actions at the Democratic National Convention. Since then local and regional media reviews have been set up in various places, including Alaska, the Connecticut River

Valley, St. Louis, Philadelphia, Houston, Dallas, Portland-Salem, Minneapolis-St. Paul, Denver, Tucson, San Francisco Bay area, and southern California. The most obvious limitation of journalism reviews, writes press critic Alfred Balk, is one of coverage. "They are, and always will be, too few compared to the number of media organizations. The circulation of each is limited, even in its chosen area of concern; quality is uneven and may not reflect the views of broad segments of the community; and perhaps, most important, because of these organs' limited exposure, they are too easily ignored."<sup>35</sup>

"Underground newspapers," like local journalism reviews, provide outlets of varying quality for differing views of contemporary issues as well as for critiques of the performance of the news media. The "underground press" has been defined as "newspapers...which are concerned with non-conformist trends culturally and politically, and which operate on a low, low financial plane, if indeed any at all. Culturally this means new art forms—in music, dress, life style, cinema, graphics, writing, painting, photography, etc. Politically, this means all forms of anti-government activity and dissent...."<sup>36</sup> The birthdate of the "alternative press" usually is given as 1964 or 1965 when a group of papers, including the *Los Angeles Free Press* and the *Berkeley Barb*, began publishing. By 1971, according to the Twentieth Century Fund, there were 300 to 350 underground newspapers sprinkled across the country.

#### National News Council to Study Citizen Complaints

The creation of the National News Council in August 1973 was another attempt to bridge the gap between the public and the press. The council was proposed by the Twentieth Century Fund Task Force in its report of December 1972. It asked "that an independent and private national news council be established to receive, to examine, and to report on complaints concerning the accuracy and fairness of news reporting in the United States, as well as to initiate studies and report on issues involving freedom of the press."

A similar recommendation made 25 years earlier by the Hutchins Commission (see p. 459) was coldly received by much of the American press. A few local and regional press councils were set up during the late 1960s and early 1970s. The most ambitious regional press council experiment in the

<sup>35</sup> Alfred Balk, "Background Paper" in *A Free and Responsive Press*, (publication of the Twentieth Century Fund Task Force) p. 56.

<sup>36</sup> Explanation given by journalist Tom Miller in August 1971 in testimony before a federal grand jury seeking information about Miller's radical contacts. Miller claimed journalistic immunity. Quoted by Daniel Ben-Horin in "Journalism as a Way of Life," *The Nation*, Feb. 19, 1973, p. 239.

<sup>34</sup> Richard L. Harwood, "Press Criticism: Who Needs It?" *The Bulletin of the American Society of Newspaper Editors*, February 1972, p. 10.



United States is being carried out in Minnesota. There, at the initiative of the Minnesota Newspaper Association, a state-wide council was established in 1971 to deal with grievances against newspapers anywhere in the state. However, the model for the new National News Council was the 20-year-old British press council. The General Council of the Press was established in 1953 under pressure from a Parliament concerned with monopoly and sensationalism in British newspapers.<sup>37</sup>

Since the National News Council in America opened for business on Aug. 1, 1973, it has received about 200 complaints. Of these, 34 were judged to be specific enough to be taken up by the Council's Grievance Committee. In mid-May, for example, the Council dismissed a complaint by Mobil Oil Corp. against an ABC-TV documentary shown on March 20, 1974, on the oil crisis. Although the program created the "specific editorial impression...that government policy on oil has been manipulated over the years by the oil industry itself," the council said that ABC was well within its First Amendment rights in saying so.

Among allegations now being considered by the Council are: (1) charges by Graham Martin, U.S. ambassador to South Vietnam, that *New York Times* reporter David Shipler had inserted "numerous inaccuracies and half-truths" in a story about U.S. assistance to Saigon; and (2) a complaint by a New York lawyer that the public television program "Black Journal" had been one-sided in supporting the construction of black housing in a white Newark neighborhood. Many of the complaints have been submitted by a group called Accuracy in Media. AIM, established in September 1969, seeks out errors in news reporting and commentary, requests retractions, then buys ads to publicize the mistakes if they are not corrected.

It has been charged that American journalism has drifted away from strict standards into an area in which more and more opinion is being written into stories. Critics of AIM maintain that the organization has its own political ax to grind. Richard Gottschald, news director of WDIO-TV in Duluth, Minn., said, "AIM should be exposed for what it is—essentially a conservative group established to play judge and jury, and to imply to the public that the media is giving Americans an intentionally distorted view of our government's acts and policies. Using its own one-sided evaluation

<sup>37</sup> John Penrose, "A Review of the Press Council," *Seminar Quarterly*, June 1973, pp. 8-12. The quarterly is published by the Copley Newspapers.

of stories, innuendo and nit-picking critiques, AIM attempts to substitute its judgment for those of the media editors and reporters."<sup>38</sup>

Like its British forerunner, the National News Council has no legal or coercive powers to force compliance with its findings. The council's "only power," Executive Director William B. Arthur has said, "is the power derived from publicity given its proceedings, and even this power is totally dependent on the judgment of editors to publish or not to publish the council's findings."<sup>39</sup>

Some major news organizations, including *The New York Times* and ABC-TV, still have withheld their cooperation. *Times* Publisher Arthur Ochs Sulzberger expressed fear that the council might "encourage an atmosphere of regulation" that could lead to government intervention. Sulzberger was not alone in his reservations about the press council. Tony Day of the *Los Angeles Times* told the 1973 meeting of the American Society of Newspaper Editors, "We have no universal standards except fairness and courage, and the achievement of those standards no press council can begin to measure ...if we are going to preserve our diversity, our discipline has to remain self-discipline."

Besides the lack of unanimous support from the news media, the council's most pressing problem is public ignorance of its existence or its purpose. In fact, presidential assistant Bruce Herschensohn, who became involved in the council's attempt to verify Nixon's charges of "unfair reporting by the national television networks," told a reporter, "To tell you the truth, I had never heard of the National News Council."<sup>40</sup> The press council idea is not a panacea for all the shortcomings of the media. But the establishment of the National News Council, together with the other experiments for making the news media more responsive to the public, shows that "consumerism" has caught up with the press. The public clearly wants a stronger voice in setting standards for the communications media, and the media cannot afford to ignore this demand.

<sup>38</sup> Quoted by Daniel Epstein in "A Critical Look at One of the Press' Critics," *The Bulletin of the American Society of Newspaper Editors*, March 1974, p. 4. See also James Carey, "Ready, Aim, Fire!—Accuracy in Media," *Seminar Quarterly*, December 1972, pp. 13-19.

<sup>39</sup> William B. Arthur, "The News Council Lives!" *The Bulletin of the American Society of Newspaper Editors*, November-December 1973, p. 6.

<sup>40</sup> Quoted by Lee Dembard in *The New York Times*, June 2, 1972.



## Selected Bibliography

### Books

- Barron, Jerome A., *Freedom of the Press For Whom?* Indiana University Press, 1973.
- Clark, David G. and Earl R. Hutchison (eds.), *Mass Media and the Law: Freedom and Restraint*, John Wiley & Sons, 1970.
- Kriehbaum, Hiller, *Pressures on the Press*, Thomas Y. Crowell Company, 1972.
- Leroy, David J. and Christopher H. Sterling (eds), *Mass News—Practices, Controversies and Alternatives*, Prentice-Hall, 1973.

### Articles

- Bagdikian, Ben H., "First Amendment Revisionism," *Columbia Journalism Review*, May-June 1974.
- "Right of Access: A Modest Proposal," *Columbia Journalism Review*, spring 1969.
- Barnett, Stephen R., "Merger, Monopoly & A Free Press," *The Nation*, Jan. 15, 1973.
- Barron, Jerome A., "Access to the Press—A New First Amendment Right," *Harvard Law Review*, Vol. 80, June 1967.
- Clark, Peter Bruce, "Journalists' Ideals and Readers' Doubts," *The Bulletin of the American Society of Newspaper Editors*, April 1973.
- Cranberg, Gilbert, "Is 'Right of Access' Coming?" *Saturday Review*, Aug. 8, 1970.
- Gibson, Martin L., "The Public Thinks We Slant the News," *The Bulletin of the American Society of Newspaper Editors*, September 1972.
- Hamilton, John Maxwell, "Ombudsmen for the Press," *The Nation*, March 16, 1974.
- Henderson, Hazel, "Access to the Media: A Problem in Democracy," *Columbia Journalism Review*, spring 1969.
- Kriehbaum, Hillier, "The 'Op-Ed' Page Revisited," *Saturday Review*, Nov. 13, 1971.
- Paneth, Donald, "Newspapers in Chains," *The Nation*, May 1972.
- Penrose, John, "A Review of the Press Council," *Seminar Quarterly*, June 1973.
- Pincus, Walter, "Fairness in the News," March 23, 1974.
- "Media Monopolies," *The New Republic*, Jan. 26, 1974.
- Powers, Thomas, "Right-to-Reply Laws," *Commonweal*, May 17, 1974.
- Raskin, A.H., "What's Wrong with American Newspapers," *The New York Times Magazine*, June 11, 1967.
- Sanders, Keith P., "What Are Daily Newspapers Doing to be Responsive to Readers' Criticisms: A Survey of U.S. Daily Newspaper Accountability Systems," *American Newspaper Publishers Association News Research Bulletin*, Nov. 30, 1973.
- "America's News Industry: Responsible or Reckless?" *U.S. News & World Report*, April 29, 1974.

### Reports and Studies

- Editorial Research Reports, "Competing Media," 1969 Vol. II, pp. 531-554; "First Amendment and Mass Media," 1970 Vol. I, pp. 41-60.
- "Press Freedom Under Pressure: Report of the Twentieth Century Fund Task Force on the Government and the Press," November 1971.



For Publication, Broadcast or Research

REC'D JUN 21 1974

## ACCESS TO THE MEDIA

By Sandra Stencel

Editorial Research Reports

Washington, June....--The historic debate over the rights and responsibilities of a free press is entering a new phase marked by demands for public access to the news media. The Supreme Court is expected to rule soon on the constitutionality of a disputed Florida right-to-reply law. It grants any candidate for public office whose character or record is attacked in a newspaper the right to free space in that paper for a reply.

The nation's news media are almost unanimous in viewing the law as a serious violation of the First Amendment. Moreover, if the Florida law is upheld, there is fear that other states or Congress might enact similar or even broader legislation.

The case rests on the relatively new concept that the First Amendment's freedom-of-the-press provision gives all people the right to express their views through existing journalistic institutions. "Freedom of the press must be something more than a guarantee of the property rights of media owners," says Jerome A. Barron, a law professor at George Washington University who is a leading advocate of public access to the media.

\* \* \* \* \*

Professor Barron argued this theory before the Supreme Court in April 1974 on behalf of Pat L. Tornillo, an unsuccessful candidate for the Florida legislature who was criticized editorially by The Miami Herald before the 1972 election. Tornillo demanded space to respond under the state's little-known 1913 right-to-reply statute. The Herald refused and Tornillo went to court. The Dade County Circuit Court dismissed the case on the ground that the law was unconstitutional, but the Florida Supreme Court in July 1973 ruled 6 to 1 in Tornillo's favor. The court said the law "is designed to add to the flow of information and ideas and does not constitute an incursion upon First Amendment rights."

The court also said that affirmative government action to assure the right of access to the media was needed to balance the growing concentration of news media ownership. According to Editor & Publisher, the number of daily newspapers dropped from 2,042 in 1972 to 1,774 in 1973. Rising labor and production costs and advertising competition from television and radio have forced many dailies to succumb to absentee chain ownership. Newspaper chains now control more than half of the nation's daily newspapers and more than 60 per cent of the total circulation.

( M O R E )



being inimicable to community  
umming.<sup>25</sup> The Commission itself  
with the majority in opposition,  
peting applications at renewal be

ort in the Congress, rising<sup>27</sup> opposi-  
the initiative to ease the WHDH  
he 1970 policy statement. The  
d in favor of the Commission's

s that they reveal the background  
ement which, in practical terms,  
ntially the protection it initially  
tandably, the industry is pleased  
and the new policy award renewal  
ast performance by the licensee,  
een in the public interest and the  
been substantially attuned to the  
e the new policy permits the filing  
are not considered on their own  
performance is found to be insub-  
titutive effect of the new policy is  
ainst such filing contained in S.

he n... policy is examined further.

NEW APPLICANT OF A STATUTORY  
NIZED BY THE SUPREME COURT,  
PROCESS OF LAW

31  
policy statement, a qualified new  
y to be heard *on the merits of his*  
licensee's performance has not been  
eds and interests of its area. Upon  
incumbent, all other applicants are  
eir respective qualifications.<sup>32</sup>

32 See Hearings on S. 3004, Subcommittee on Com-  
munications, December 1969. For a critical analysis  
of the bill, it is concluded that the bill "in its endeavor  
to effect rational decisionmaking, would have the  
effect of eliminating the most powerful available incen-

33 See the Senate and about 100 supporters in

34 See the Senate and about 100 supporters in  
the new policy "virtually assured  
the broadcasters, backlash to the  
protection. It would prevent the  
licensee until it found the licensee

35 Chairman Burch has  
the new policy "virtually assured  
the broadcasters, backlash to the  
protection. It would prevent the  
licensee until it found the licensee

The statutory right of a qualified applicant to have a full hearing  
before denial of his application is clearly set forth in Section 309 (a)  
and (e) of the Act. Subsection (a) reads as follows:

Subject to the provisions of this section, the Commission shall determine, in  
the case of each application filed with it to which Section 308 applies, whether  
the public interest, convenience, and necessity will be served by the granting of  
such application, and, if the Commission, upon examination of such application  
and upon consideration of such other matters as the Commission may officially  
notice, shall find that the public interest, convenience, and necessity would be  
served by the granting thereof, it shall grant such application.

Pertinent portions of subsection (e) read as follows:

If, in the case of any application to which subsection (a) of this section applies  
\* \* \* the Commission for any reason is unable to make the finding specified in  
such subsection, it shall formally designate the application for hearing \* \* \* Any  
hearing subsequently held upon such application shall be a full hearing in which  
the applicant and all other parties in interest shall be permitted to participate \* \* \*

In short, the Commission must either grant the license application  
of a qualified applicant, or provide such applicant with a full hearing  
on the merits. This hearing right exists whether the applicant is con-  
testing with other new applicants or with an existing licensee seeking  
renewal and to deny him such right is to deny him due process of law.

*Ashbacker case* interprets section 309 as requiring hearing whenever  
mutually exclusive applications are filed

In *Ashbacker*,<sup>33</sup> the Commission had before it two applications, one  
for authority to construct a broadcasting station, and the other to  
change an operating frequency. The Commission declared that the two  
applications were "mutually exclusive," because the result of granting  
both would be intolerable interference for both applicants. The  
Commission granted one without a hearing and the same day design-  
ated the other for hearing.

The Supreme Court held that the Commission had erred in that the  
Act requires a comparative hearing when mutually exclusive applica-  
tions are involved. The Court said:

It is thus plain that Section 309(a)<sup>34</sup> not only gives the Commission authority  
to grant licenses without a hearing, but also gives applicants a right to a hearing  
before their applications are denied. We do not think it is enough to say that the  
power of the Commission to issue a license on a finding of public interest, conveni-  
ence or necessity supports its grant of one of two mutually exclusive applications  
without a hearing of the other. For if the grant of one effectively precludes the  
other, the statutory right to a hearing which Congress has accorded applicants before  
denials of the applications becomes an empty thing. We think that is the case here.  
\* \* \* We only hold that where two bona fide applications are mutually exclusive,  
the grant of one without a hearing to both deprives the loser of the opportunity which  
Congress chose to give him. (Italics supplied.)<sup>35</sup>

It is unmistakably clear that renewing an incumbent's license  
under the 1970 policy statement without giving a qualified new  
applicant a comparative hearing on his mutually exclusive application

<sup>33</sup> *Ashbacker Radio Corp. v. FCC*, 326 U.S. 327 (1945).

<sup>34</sup> Section 309 was amended in 1952, 1960 and 1964. The Act's Legislative History reveals that the amend-  
ments dealt primarily with procedure and did not limit the hearing right of Section 309(a) discussed in  
*Ashbacker*. The 1952 amendment moved the hearing provision from subsection (a) to subsection (b). The  
1960 amendment moved it to subsection (c). H. Rep. No. 1890, 86th Cong. 2nd Sess. (1960) and H. Rep.  
No. 1351, 88th Cong. 2nd Sess. (1964).

<sup>35</sup> *Ashbacker* at 330. Although *Ashbacker* involved competing applications for new broadcast authority,  
the Court's reasoning is equally applicable to the policy statement.



COMMENTS PREPARED FOR THE  
AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

"AMERICA: THE FIRST INFORMATION SOCIETY"

MONDAY, FEBRUARY 23, 1976

BOSTON, MASSACHUSETTS

THE INFORMATION SECTOR: DEFINITION & MEASUREMENT

MARC U. PORAT

FEBRUARY 23, 1976



## INTRODUCTION

We are now an information economy. Over half of our wage bill and some 45% of GNP originates in the production, processing or distribution of information goods and services. This paper addresses a failure in self-perception. We have not yet, at a national policy level, fully recognized how forcefully and irrevocably our economy has changed in the last twenty years. I shall attempt to describe in detail how the informational components of GNP were assembled and accounted, and how the economy as a whole is conceptualized.

Some 15 years ago, Machlup took us on a "magnificent guided tour of a major sector of the economy" -- the knowledge producing and distributing industries.<sup>1</sup> He estimated that total knowledge production in 1958 was almost 29 percent of GNP, and that knowledge-producing occupations accounted for about 31% of the U.S. workforce.

Machlup also estimated the knowledge industries expanded at a compound growth rate of 10.6 percent per year between 1947-1958 -- doubling in less than 4 years. His

---

<sup>1</sup>Fritz Machlup, The Production and Distribution of Knowledge in the United States, Princeton University Press, Princeton, New Jersey, 1962. The quote is attributed to Kenneth E. Boulding, who has also written extensively on the knowledge industries.



seminal work, which lead to subsequent books by Bell<sup>2</sup>, Drucker<sup>3</sup>, and others, provides the conceptual underpinnings for this paper.

Bell introduced the concept of a "post-industrial society" in which services eclipse agriculture and manufacturing as a source of national wealth. For Bell, the key axial principles of a post-industries society are the emergency of knowledge, information and planning as pre-eminent activities. Drucker emphasized the importance of knowledge and information in the modern organization's arsenal.

An economy can be separated into two domains. The first is involved in the transformation of matter and energy from one form into another. The second is involved in transforming information from one pattern into another. The two domains are linked and unseparable. Manipulation of matter and energy would be impossible without a sizable input of knowledge, planning, coordination and control information. And the production, processing and distribution of information would be impossible

---

<sup>2</sup>Daniel Bell, The Coming of Post Industrial Society, Basic Books, New York, 1973. The concept of the service sector was first introduced by Colin Clark (Conditions of Economic Progress) in 1940, and expanded in Victor Fuchs' contributions on The Service Economy (NBER, 1968).

<sup>3</sup>Peter Drucker, The Age of Discontinuity, Pan Books Ltd., London.



without a sizable input of matter and energy. The systematic marriage of these two domains is absolute. The question is the relative contribution of each partner in producing economic wealth. Parker<sup>4</sup> and Oettinger<sup>5</sup> were instrumental in providing the organizing principle. In this paper, the two domains are described and measured, and their structural relationship is examined.

The infrastructure of an information economy is the panoply of new information machines and services -- computers, telecommunications networks, satellites, cable television systems, communication hardware, information "utilities" and the like. The superstructure of an information economy are the huge public and private bureaucracies. I shall be describing the dimension of the bureaucracies -- their size and location within the economy. In particular, the Federal Government is conceived as an "information industry," and its inputs and outputs are measured.

---

<sup>4</sup>Edwin B. Parker. See generally, "Social Implications of Computer/Telecommunications Systems", Center for Interdisciplinary Research, Stanford University. Report No. 16.

<sup>5</sup>Anthony Oettinger, "Information Industries in the United States", Britannica Book of the Year, 1975. Oettinger summarizes the argument with the following aphorism: "Without matter there is nothing; without energy, matter is inert; and without information, matter and energy are disorganized, hence useless."



The Office of Telecommunications (Commerce), under a grant from the National Science Foundation (RANN/Division of Advanced Productivity Research and Technology) is presently conducting a study of the information sector. The work is aimed at (1) formally introducing a definition and measurement of a sector which is consistent with the National Income accounts, and (2) investigating the structure of the information economy using Input-Output techniques.



THE INFORMATION WORKERS

In the traditional sense of the word, "industry" was a person's work or craft. Agricultural societies are characterized by a workforce whose largest segment works in farms; similarly, an industrial society is one where the largest group works in factories or skilled crafts types of occupations. The largest group in the U.S. workforce is now involved in a variety of informational occupations -- jobs whose major feature is producing, processing or distributing symbols.

The Bureau of Labor Statistics provides an Occupation by Industry matrix showing the location of 440 different occupational groups within 200 industries. I have converted this detailed information on the U.S. occupational structure into a matrix of employees compensation. This new matrix shows the precise wage bill paid by each industry for all types of workers. The following data come from that matrix, and a look at the Census of Populations dating back to 1860.

The 400 occupations were organized into five major classes and thirteen groups. Table 1 shows the conceptual scheme (detailed occupations are omitted) and the employee compensation paid to each class in 1967. Our information workforce earned \$234,106 in 1967. This represents about 51% of the total wage bill and about 30% of value added (GNP).



TABLE 1: 1967 INFORMATION WORKERS' COMPENSATION \*

MARKETS FOR INFORMATION

\$ million

10	KNOWLEDGE PRODUCERS	<u>46,964</u>
100	Scientific and Technical Workers	18,777
110	Private Information Services	28,187
20	INFORMATION DISTRIBUTORS	<u>28,265</u>
200	Educators	23,680
210	Public Information Disseminators	1,264
220	Communication Workers	3,321

INFORMATION IN MARKETS

30	MARKET SEARCH AND COORDINATION SPECIALISTS	<u>93,370</u>
300	Information Gatherers	6,132
310	Search and Coordination Specialists	28,252
320	Planning and Control Workers	58,986
40	<u>INFORMATION PROCESSORS</u>	<u>61,340</u>
400	Non-Electronic Based	34,317
410	Electronic Based	27,023

INFORMATION INFRASTRUCTURE

50	INFORMATION MACHINE WORKERS	<u>13,167</u>
500	Non-Electronic Machine Operators	4,219
510	Electronic Machine Operators	3,660
520	Telecommunication Workers	5,288

TOTAL INFORMATION	243,106
TOTAL EMPLOYEE COMPENSATION	454,259 **
INFORMATION AS % OF TOTAL	53.52%

\* Employee compensation includes wages and salaries and supplements.

\*\* Excluding military workers.



The change in the workforce did not happen suddenly. The trend towards information and away from other types of occupations has been persistent since the turn of the century. Figure 1 shows a time series on the U.S. workforce split into two groups: information workers and all other workers. Because of definitional ambiguities, we computed the chart using both restrictive and inclusive definitions. Depending on one's definition, information workers represented over 50% of the workforce between 1976 and 1980.

Figure 2 shows a four sector aggregation of the U.S. workforce: agriculture, industry, services and information. The chart clearly shows the transformation of the U.S. through three distinct stages.

In Stage I (1776 - 1906), the largest single group in the labor force was in agriculture. By the turn of the century, industrial occupations began to grow rapidly, and became predominant during Stage II (1906 - 1954). In the current period, Stage III, information occupations comprise the largest group.

We now leave this very brief description of the information sector in labor and move to an industry view where the composition of GNP is analyzed in detail.



870  
% OF  
TOTAL WORKFORCE

100

Figure 1

TIME SERIES OF U.S. LABOR FORCE  
(1860 - 1980)

TWO SECTOR AGGREGATE

90

NON-INFORMATION  
WORKERS

80

70

60

50

40

INFORMATION  
WORKERS

30

20

10

CROSS-OVER  
REGION

1860 1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980



↑

also seen  
seen front page

Graphs use titles

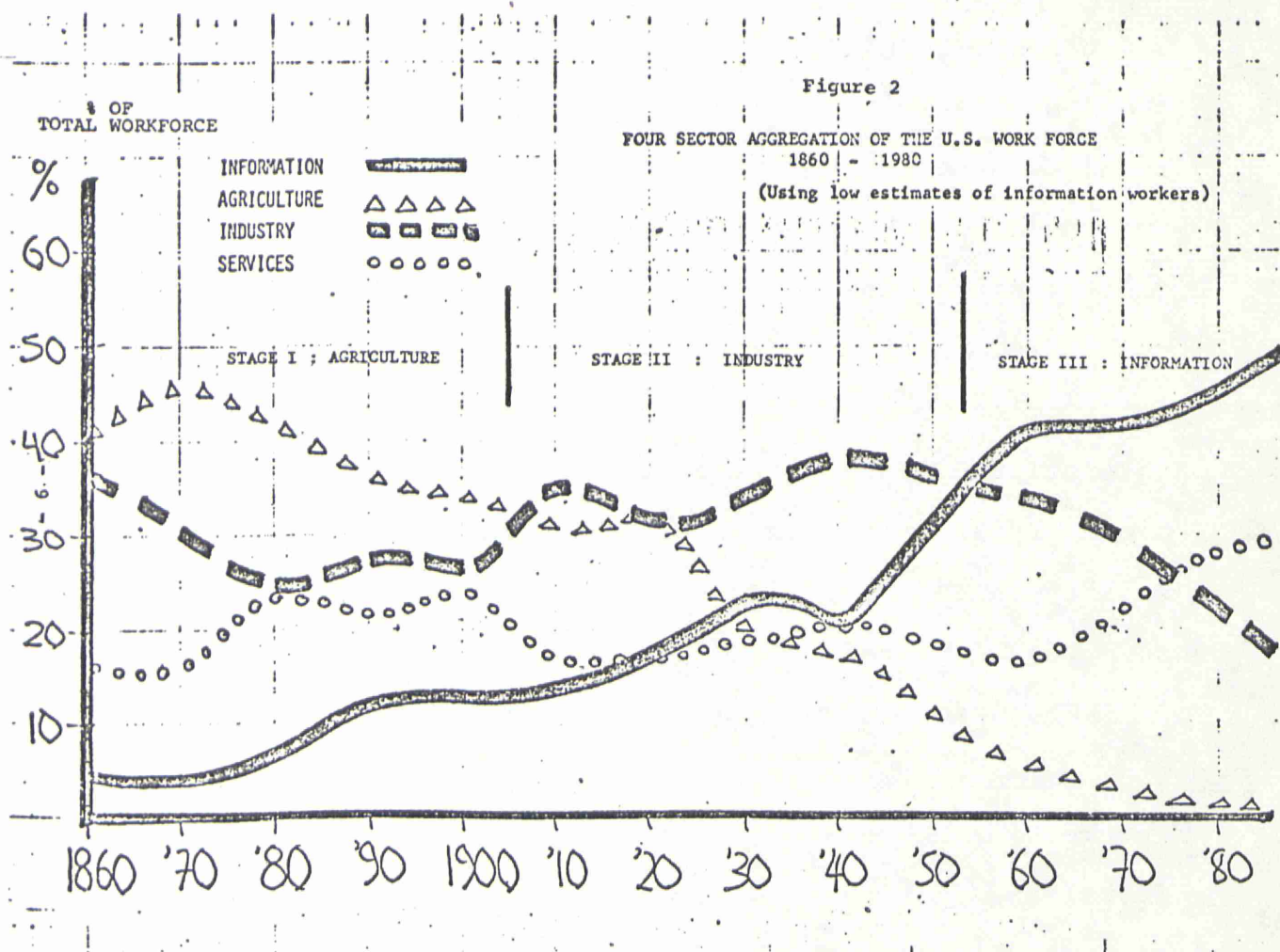
Aggregation of 14  
U.S. work force  
1860 - 1980 "

- information  
- industries (A)  
-

- Front page

←





### THE INFORMATION ACTIVITY

Information is by its nature a heterogeneous commodity, and the collection of industries which sell information goods and services are equally heterogeneous. Information cannot be collapsed into one sector -- like agriculture -- but rather the production, processing and distribution of information goods and services should be thought of as an activity.



One way of motivating the conceptual scheme that underlies our definitions and measurements is to think of the "food activity" in the economy. The provision of food involves a variety of heterogeneous industries: the farm, the trucking firm, the wholesaler, the food processor, the grocery store, the restaurant, and the manufacturer of stoves and refrigerators. Similarly, the provision of information is an activity that involves a large number of interrelated industries: education, the communications media, advertising, business consulting, brokerage industries, and manufacturers of "information machines" such as computers, telephones and television sets.

The information activity includes three distinct sectors. The primary sector includes those industries which sell information goods and services to intermediate demand (other firms) and final demand (consumers, governments, gross capital formation and net export). Their primary product, an information good or service, is transacted in a marketplace. This market basket of information machines and services is sold mostly to the other two sectors of the information activity -- the private bureaucracy and the public bureaucracy. These two sectors comprise the planning, coordinating, inquiring, communicating, analyzing and deciding activities of a non-market nature. The private bureaucracy resides within firms, hence its output is never transacted on a marketplace; the public bureaucracy includes



the informational portion of federal, state and local governments, and it too is shielded from market pressures. As we shall see, the planning sector of our economy is very large indeed.

The three sectors of the information economy together accounted for over 45 percent of Gross National Product in 1967. The remaining 55 percent of GNP originated in the non-informational sector of the economy. This domain covers agriculture, mining, most durable and non-durable goods manufacturing, the bulk of retail and wholesale trade, transportation services, personal services, utilities and the non-informational parts of government such as dam-building and national defense.

This paper is a summary of a more detailed accounting of the three information sectors.<sup>6</sup> We shall take a close look at the composition of GNP in the three sectors, and present an Input-Output scheme that organizes the economy using a simplified six-sector scheme.

---

<sup>6</sup>See Porat, The Information Economy, (forthcoming dissertation), Stanford University, 1976.



THE PRIMARY INFORMATION SECTOR

Machlup's taxonomy of knowledge producing and distributing industries included: (i) education, (ii) research and development, (iii) the media of communication, (iv) information machines, and (v) information services. These five classes of goods and services are generally included in the primary information sector.

The hundreds of goods and services in the primary information sector are conceptually organized into the seven categories of Table 2. The different classes of information goods and services were chosen with a theoretical scheme in mind<sup>7</sup> that divided information into categories that are meaningful from a theoretical or policy-making point of view. For example, "Knowledge production and inventive industries" raises the theoretical issues of information as a market commodity, especially as a public good. "Search and coordination industries" raise the problems of information in markets, where the behavior of markets under different degrees of imperfect information is examined.

A more conventional way of describing the primary information sector is by simply listing the industries involved and showing their share of GNP. Table 3 gives an overview of the primary information sector. The thousands

---

<sup>7</sup> Porat, "The Information Economy and the Economics of Information," Stanford University, 1976.



TABLE 2: TYPES OF INFORMATION GOODS AND SERVICES INDUSTRIES

1. Knowledge Production and Inventive Industries
  - R&D and inventive industries
  - Private information services (legal, architectural, business consulting, accounting, counselling, etc.)
2. Information Distribution and Communication Industries
  - Education
  - Public information services (e.g., libraries)
  - Regulated communication media (e.g., television, radio, telephone)
  - Unregulated communication media (e.g., film, newspaper, publishing)
  - Retail distribution of information goods (e.g., newsstands, TV stores)
3. Search and Coordination Industries
  - Search industries (employment agencies, non-speculative brokers, credit agencies, title abstract companies)
  - Advertising industries (e.g., advertising agencies, direct mail)
  - Non-market coordinating institutions (e.g., business associations, professional associations, labor unions, political organizations)
4. Risk Management
  - Components of insurance industries (e.g., diagnostic, actuarial, processing functions)
  - Components of finance industries (e.g., analytical, clerical transactions processing)
  - Speculative brokers (e.g., security and commodity, patent owners and lessors)
5. Information Infrastructure
  - Non-electronic based processing (e.g., printing photography, blueprints)
  - Electronic-based processing (e.g., data processing, xerography)
  - Telecommunications (e.g., telephone, data networks, satellite)
6. Information Goods Manufacturing Industries
  - Non-electronic consumption or intermediate goods (e.g., paper, ink, pens, pencils, photographic supplies)
  - Non-electronic investment goods (e.g., typewriters, printing presses, office machines, mechanical calculators, scales)
  - Electronic consumption or intermediate goods (e.g., television sets, semiconductors, calculators)
  - Electronic investment goods (e.g., computers, instrumentation, satellites, communication equipment)
7. Support Facilities
  - School buildings, telephone and telegraph facilities, office buildings: construction, repair and maintenance, furnishing and rental.



TABLE 3: OVERVIEW OF THE PRIMARY INFORMATION SECTOR

----- (\$ Million 1967)				
CONVENTIONAL * SECTOR OF ORIGINATION	INFO FINAL DEMAND	% TOTAL FINAL DEMAND	INFO VALUE ADDED	% TOTAL VALUE ADDED
AGRICULTURE	0	0	0	0
MINING	0	0	0	0
CONSTRUCTION	13,263	1.67	10,107	1.26
MFRG: NON-DUR	7,248	0.91	12,596	1.58
MFRG: DURABLE	26,908	3.38	20,987	2.64
SERVICES	84,200	10.59	118,934	14.95
TOTAL	131,619	16.55	162,624	20.45

\* Includes only information industries which usually appear under the broad non-information sector designation, e.g., computers as a portion of the durable goods manufacturing sector.



of goods and services that are summarized in the detail Table 4 show the sector of origination in the standard National Income and Product Accounts. For example, "printing" appears in the Non-Durable Manufacturing sector of the accounts; hence, the \$7.2 billion in sales to final demand shown by the non-durable manufacturing sector in Table 3 contains just the informational elements of the printing industry.

We are now producing a time series of the primary information sector covering the period 1929-1972. It should be ready sometime in May.

#### THE TWO PLANNING SECTORS

The other two information sectors are the heart of the modern post-industrial economy. They are the huge bureaucracies in the private economy and in the government -- the corporate headquarters, the Executive agencies, the decision-making towers downtown, the acres of government office buildings, the R&D labs and the computer centers within industry. These private and public planning centers are staffed by an army of secretaries, clerks, managers and lawyers. They are equipped with truckloads of typewriters, computers, microwave and telecommunication gear.



TABLE 4 : DETAIL OF PRIMARY INFORMATION SECTOR, (\$ Millions 1967)

Selected Components From:	Sales to Final Demand (Product)	Value Added (Income)	Value Added as % of GNP
<u>TOTAL INFORMATION</u>	131,619	162,624	20.45
<u>Information Services</u>			
Communications, exc. radio & TV	10,080	16,029	2.02
Radio & TV Broadcasting	7	1,580	0.20
Wholesale & Retail Trade	16,273	16,403	2.06
Finance and Insurance	20,652	23,003	2.89
Banking	6,928	9,574	
Credit Agencies	1,913	- 145	
Security & Commodity Brokers	2,257	2,779	
Insurance Carriers	9,554	7,310	
Insurance Agents & Brokers	0	3,485	
Real Estate & Rental	3,714	15,392	1.94
Hotels, Personal & Repair Service	1,414	853	0.11
Business Services	7,750	22,878	2.88
Miscellaneous Business Svc.	2,982	9,101	
Advertising	205	1,594	
Miscellaneous Professional	4,563	12,183	
Amusements	1,783	2,009	0.25
Medical, Educational & Non-Profit	22,564	17,147	2.16
Doctors Offices	6,829	5,394	
Other Medical & Health	34	234	
Educational Services	7,957	5,170	
Non-Profit Organizations	7,744	6,349	
Federal Government Enterprises	1,581	3,640	0.46
<u>TOTAL INFORMATION SERVICES</u>	85,818	118,934	14.95
<u>Manufacturing: Non-Durable Information Goods</u>			
Paper & Allied Products	768	1,780	0.22
Printing & Publishing	5,493	10,481	1.32
Miscellaneous Manufacturing	510	335	0.04
Office Supplies	470	---	
<u>TOTAL MANUFACTURING NON-DURABLE INFORMATION GOODS</u>	7,248	12,596	1.58
<u>Manufacturing: Durable Information Goods</u>			
Other Furniture & Fixtures (Offices)	1,000	1,273	0.16
Special Industries Machines	742	425	0.05
Office, Computing, Actg. Mach.	5,023	2,750	0.35
Electric Industrial Equipment	1,054	669	0.08
Radio, TV, Comm. Equipment	13,722	7,812	0.98
Electronic Components & Acces.	1,435	3,643	0.44
Misc. Electrical Machinery	195	111	0.01
Scientific & Control Instruments	2,187	1,851	0.23
Optical, Ophthalmic, Photographic Equipment	2,550	2,453	0.31
Imports	-1,618	---	
<u>TOTAL MANUFACTURING DURABLE INFORMATION GOODS</u>	25,290	20,987	2.64
<u>Construction: Information Structures</u>			
New Construction (Offices)	11,840	6,307	0.79
Maintenance and Repair Construction (Offices)	1,423	3,710	0.47
<u>TOTAL CONSTRUCTION: INFORMATION STRUCTURES</u>	13,263	10,107	1.27



The private and public bureaucracies are largely substitutable. They both operate in a world of rule-making and standardized procedures. They are virtual monopolists of certain kinds of information, yet they are seldom regulated nor do they compete in the traditional sense for their "revenue". These bureaucracies can be conceived as firms from an accounting standpoint also, and the following two sections will describe the share of GNP attributable to these "firms".

In sum, the private bureaucracies cost us \$141 billion to maintain -- some 17 percent of the 1967 GNP. The public bureaucracies cost us an additional \$65 billion, or another 8 percent of GNP. That is, fully one fourth of the 1967 economy is accountable purely to the informational activities of the private and public planning systems. Let us see how these numbers were developed.

#### The Public Bureaucracy

Governments perform many functions, some of which are purely informational in nature. In this section we shall take a close look at the informational inputs and outputs of the Federal government -- the largest information industry in the U.S. economy.

The Federal information industry can be conceptually described as a multi-product firm, with a definable stream



of inputs and outputs.<sup>8</sup> The "marketplace" in which the "firm" operates is drawn in Figure 3. Demand for the firm's outputs originates with voters or special interests expressed directly in the form of lobbying or indirectly through the voting mechanism. In response to these preferences, budget -- the government's bill of goods and services to be purchased -- is formulated by the President and reformulated by Congress. The budget represents the firm's obligations to purchase goods and services from the private economy and to hire labor services from households. Table 5 shows an overview of the government's inputs in 1967, and Table 6 shows a detailed breakdown of those inputs. The government purchased two classes of goods and services, as shown in Figure 3. The informational inputs -- such as computers, communication gear, filing cabinets, R&D services, office space, satellites, managers, clerks, scientists, lawyers, economists -- accounted for over \$44 billion out of a \$91 billion procurement. In addition to these direct purchases, the Federal Government "bought" educational services from state and local governments through grants-in-aid and transfers.

---

<sup>8</sup>For a discussion on the economics of bureaucracies, see William A. Niskanen, Jr., Bureaucracy and Representative Government, Aldine-Atherton, Chicago, 1971.



FIGURE 3: THE FEDERAL "INFORMATION INDUSTRY" - INPUTS & OUTPUTS

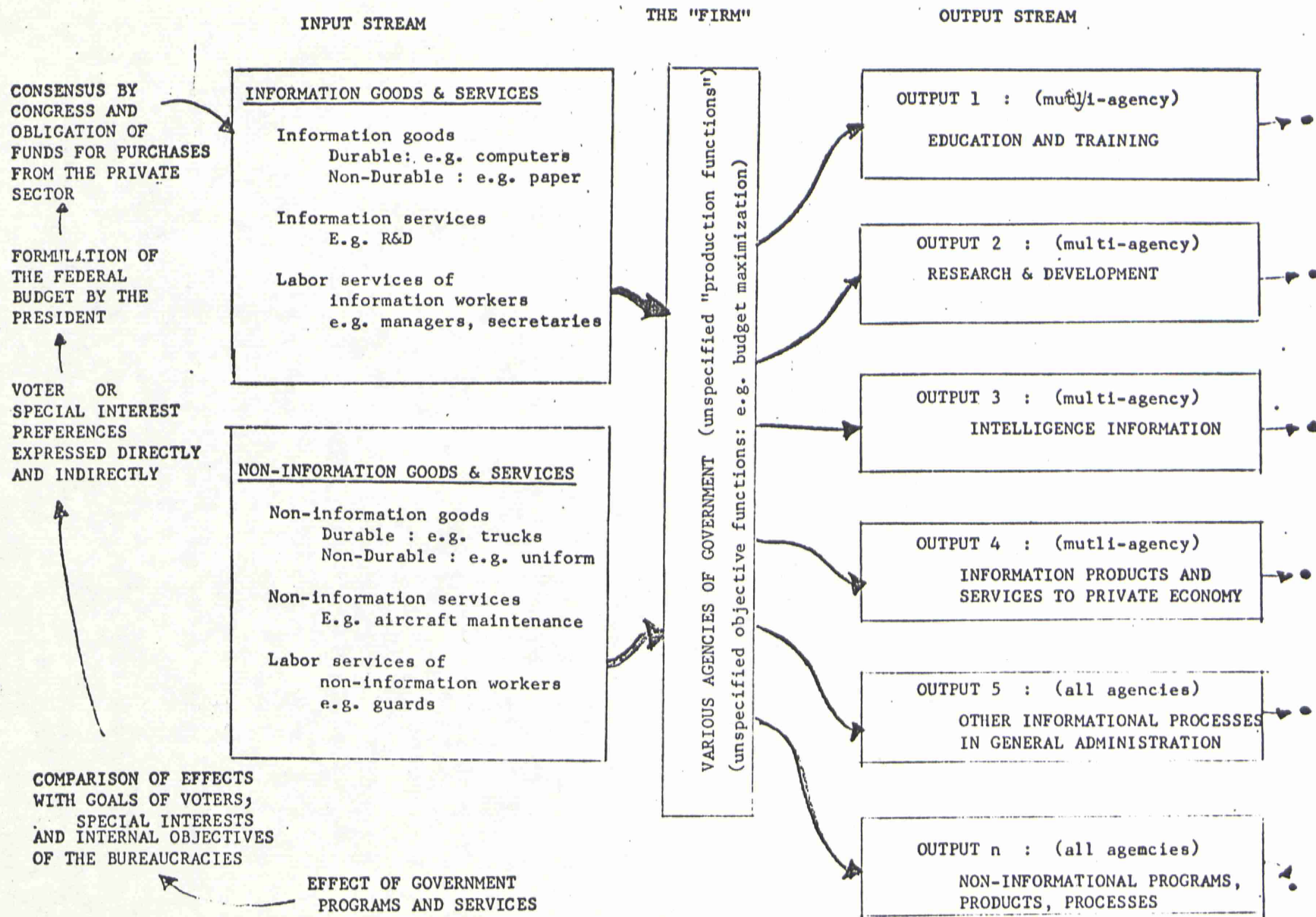




TABLE 5: INFORMATIONAL INPUTS OF THE FEDERAL GOVERNMENT  
(\$ Millions 1967)

	TOTAL	INFORMATION	NON-INFORMATION
TOTAL EXPENDITURES	163,594	60,873	102,721
PURCHASES OF GOODS & SERVICES FROM THE PRIVATE SECTOR	<u>90,706</u>	<u>44,926</u>	
Information goods		8,826	
Information services		2,982	
Research & development		13,133	
Non-information goods and services		--	
Wages & salaries	35,205	--	--
Information workers		20,028	--
Non-information workers			15,177
"PURCHASES" FROM STATE & LOCAL GOVERNMENT AS GRANTS	<u>15,826</u>	<u>3,011</u>	<u>12,815</u>
Educational services		2,924	
Other informational S.		87	
Non-informational			12,815
"PURCHASES" FROM TRANSFER ACCOUNTS & OTHER FINANCIAL ACCOUNTS	<u>52,417</u>	<u>12,954</u>	<u>39,463</u>
Debt service payments for general administration		10,456	
Other informational		2,498	
Non-informational (e.g., social security & welfare payments)			39,463
SUBSIDIES LESS CURRENT SURPLUS OF GOVERNMENT ENTERPRISES	<u>4,645</u>	<u>-61</u>	

Source: Department of Commerce, U. S. National Income and Product Accounts, SCB; unpublished data: details of government purchases from the private sector, BEA; Industry by Occupation Wage matrix, unpublished data based on BLS and BLS data; Civil Service Commission report "Occupations of Federal White Collar Employees;" Census of Manufacturers and Census of Business for 1967.



TABLE 6: INFORMATIONAL INPUTS OF THE FEDERAL GOVERNMENT  
(Detail)  
(\$ Millions, 1967)

CONSTRUCTION	408	SERVICES	2,982
New office buildings	199	Telephone and telegraph communication	544
New education buildings	22	Banking transactions	28
Repair and maintenance on office buildings	187	Credit agency transactions	5
		Insurance carriers transactions	14
MANUFACTURING:		Rentals on office buildings and commissions	229
DURABLE GOODS	8,008	Miscellaneous Business Services	
Wood office furniture	8	Leasing computers and Xerox	163
Metal office furniture	31	Research and development labs	50
Other public buildings, e.g., libraries	7	Other	11
Printing trades machinery	17	Advertising	1
Electronic computing equipment	360	Miscellaneous professional services (legal, etc.)	590
Calculating & accounting machinery	55	Motion pictures	87
Typewriters	43	Offices of physicians (prorated)	49
Scales & balances	8	Educational services--private	300
Office machines N.E.C., e.g., duplicating	67	Nonprofit organizations	640
Electric measuring instruments	226	Post Office	271
Radio and TV receiving sets	82		
Phonograph records	3		
Telephone and telegraph apparatus	205	Research and Development	13,133
Radio & TV communications equipment	5,313	From "information industries"	3,669
Electron tubes	211	Printing equipment industries	1
Semiconductors	45	Office, computing and accounting machines manufacture	96
Electronic components NEC	385	Electric measuring instruments manufacture	27
X-ray diagnostic apparatus	11	Radio, TV, & communications equipment manufacture	768
Engineering & scientific instruments	373	Electronic components manufacture	41
Mechanical measuring devices	77	Professional, scientific instruments manufacture	18
Automatic temperature controls	6	Research and development labs	1,059
Watches & clocks	93	Universities & private schools	1,659
Optical instruments & lenses	59	Foreign	63
Photographic equipment & supplies	323	From all other industries	9,464
		Produced within federal agencies	
NON-DURABLE GOODS	410		
Paper mill products (selected)	18	HOUSEHOLDS: WAGE SERVICES	
Envelopes	12		
Coated & glazed paper	5	INFORMATION WORKERS	20,028
Newspapers	2	Knowledge producers	
Periodicals	1	Information distributors	
Book publishing	4	Market search and coordination specialists	
Book printing	27	Information processors	
Miscellaneous publishing	1	Information machine workers	
Commercial printing	173		
Manifold business forms	0	TOTAL INFORMATION PURCHASES	26,411
Engraving and plate printing	-34		
Printing inks	1	TOTAL GOVERNMENT PURCHASES	
Pens and mechanical pencils	21	(NATIONAL INCOME ACCOUNT)	90,804
Signs and advertising displays	3		
Office supplies	176		



These factor inputs enter the firm's production function in some unspecified manner. That is, the firm chooses a mix of capital and labor that maximizes its return in the provision of outputs according to some objective function. What that objective might be has been the source of considerable debate recently. Some people think that the agencies' objective is to maximize budget; others claim that the individual bureaucrat's objective is to minimize risk; in an elective context, the objective is clearly to maximize votes. A possible objective might even be to maximize social welfare. The particular choice of production and objective functions does not change our accounting scheme.

The inputs are transformed into a variety of outputs, which are sold to consumers and presumably generate some level of satisfaction or well-being. The value of the outputs is not known in a conventional sense, since consumers (voters) reveal their preferences only in a diffused manner -- through the long delay loop associated with representative government and election. However, one can break down the government's outputs into a fairly coherent scheme. We are now working to break down the government's outputs into a fine level of detail. The intention is to replicate the primary information sector industries within the government as much as possible. For example, like the primary informational sector, the Federal bureaucracy contains an "accounting industry" (GAO), a "printing industry" (GPO), an "insurance industry" (FDIC), an "employment



agency" (Civil Service Commission), and a "library industry" (Library of Congress, National Library of Medicine). In addition, there are a number of outputs which have only weak analogs in the private economy -- regulation, foreign intelligence, economic planning -- and are more closely related to the "quasi-firms" of the secondary sector.

Table 7 shows the outputs of the Federal Government arranged into three classes: (i) outputs that have direct analogs in the primary information sector; (ii) the "secondary" outputs; and (iii) specialized government functions. We are now analyzing the Federal Budget (1958-1972) to measure the growth of these governmental industries.

By assumption, the entire bill of goods purchased as information inputs is consumed in the provision of the information outputs. In this manner, we can impute a price to each of the services as equalling the cost of inputs.



TABLE 7: PRIMARY & SECONDARY INDUSTRY OUTPUTS OF THE FEDERAL GOVERNMENT (Plus Examples)

I. PRIMARY INDUSTRIES

A. Management Consulting

Office of Management and Budget  
Soil Conservation Service  
National Mediation Board  
Institute for Telecommunication Sciences

B. Physicians Offices (prorated)

Center for Disease Control  
U.S. Army Health Services Command  
Veterans Administration (part)

C. Accounting

General Accounting Office  
Defense Contract Audit Agency  
Comptroller of the Army

D. Financial

1. Loans and Credit

Rural Electrification Administration  
Maritime Administration  
Housing and Urban Development Mortgage

2. Currency

Bureau of the Public Debt  
Federal Reserve System (part)

E. Data Processing

NIH, Justice, Treasury - general purpose computers  
Internal computation sections

F. Telecommunications

Defense Communications Agency  
GSA Automatic Data and Telephone Service  
ARPANET

G. Insurance

Social Security Administration  
Federal Crop Insurance Corporation  
Overseas Private Investment Corporation

H. Publishing

Bureau of Engraving and Printing  
Government Printing Office  
National Technical Information Service

I. Real Estate Management

GSA Public Building Service  
Federal Property Council

J. Libraries

Library of Congress  
National Library of Medicine  
National Archives

K. News and Broadcasting

1. News Syndicates

U.S. Information Agency  
Voice of America  
Corporation for Public Broadcasting

2. Public Relations and Advertising

U.S. Travel Service

L. Education

Agricultural Extension Service  
Transfer payments for education  
U.S. Naval Academy

M. Research and Development

National Bureau of Standards  
U.S. Geological Survey  
Director of Defense Research and Engineering  
NSF, NRC, etc.

N. Legal

The Federal Courts  
The General Counsels  
The Department of Justice (portions)

O. Employment Agencies

Civil Service Commission  
Selective Service System  
U.S. Army Recruiting Command  
Agency personnel offices

II. "Secondary" Industries

P. Policy Planning

The Congress  
The President and the White House Staff  
The Joint Staff (DOD)  
Cabinet Level Administrators  
Health Resources Administration

Q. Market Information Specialists

Foreign Agricultural Service  
Defense Supply Agency  
Federal Supply Service

R. General Administration

(residual includes many components not subject to breakdown)

1. Variety of quasi-industries mirroring the primary industries above.

III. Specialized Governmental Functions

S. Intelligence

1. Foreign

CIA  
Defense Intelligence Agency  
National Security Agency  
National Reconnaissance Office

2. Domestic

FBI  
Drug Enforcement Agency  
Defense Investigative Service  
Secret Service

T. Regulation of Industry

Nuclear Regulatory Agency  
Civil Aeronautics Board  
Securities and Exchange Commission  
Antitrust Division of Justice Department  
Comptroller of the Currency  
Occupational Safety and Health Administration

U. Economic Planning Information

Internal Revenue Service  
Bureau of Labor Statistics  
Federal Crop Reporting Service  
Bureau of Economic Analysis

V. Diplomacy and Foreign Policy

National Security Council  
Department of State (excluding AID transfer payments)  
International Trade Commission  
Arms Control and Disarmament Agency

W. Services Provided Free to Private Industry

Federal Aviation Administration  
Coast Guard (Harbor Management and Regulation;  
Safety Inspections)



The Private Bureaucracy

The private economy has an information bureaucracy of its own. This is the planning, coordination and management sector that exists in every organization -- a collective of decision-makers and paper shufflers, of inventors and designers, of information machine operators. It is the corporate army of (technically) "non-productive" workers who earned a staggering \$162,644 million in wages and salaries in 1967, and whose activities accounted for around 20 percent of value added.

These bureaucratic empires can be divided into smaller firms-within-firms. One can build, in an accounting sense, a "data processing firm" within a pharmaceutical company; or a "law firm" within a steel manufacturer.

Table 8 shows a partial list of these "quasi-firms" -- firms that produce an information service which is completely consumed by the non-information firm. By assumption the services of the quasi-firms are "sold" to the non-information side of the firm. The value of these services is then embedded as a joint output with some non-informational good or service. For example, a ton of steel may contain 18¢ worth of "information services" that were produced by the steel firm's quasi-firms.



TABLE 8 PARTIAL LIST OF QUASI-FIRMS WITHIN NON-INFORMATION FIRMS

<u>QUASI-INDUSTRY</u>	<u>INPUTS</u>	<u>OUTPUTS</u>
Electronic data processing services	Computer hardware, perfirals, programming, consulting	EDP services, e.g., accounting, payroll, inventory, MIS
Advertising	Services of writers, artists, account mgrs, office and other facilities; photo-composing and art equipment; video and film equipment	Placing time in media, producing advertisements, designing adv. campaigns
Letter typing service	Secretaries, typewriters, composers, stationary, desks, office space...	Letters, business communications
Duplicating service	Xerox machines, operators, paper, operators	Copies
Printing service	Printing presses, folding and binding equipment, platemaking equipment, pressmen, operatives	Firm's stationary, forms, brochures etc. not contracted from the outside
Direct Mail Service	Addressographs, computer files, labeling & stamping machines, paper and envelopes, operators, facilities	Addressing service, mailing service, mailing list management etc.
Research & Develop.	Laboratories, EDP, scientists, technicians, support staff, facili.	R&D knowledge, invention, patents, processes, evaluations
Press Clipping Svc.	Newspapers, clerks, facilities	Newsletter -- customized information service.
Business Management	Services of managers, telecommunications, EDP, facilities, support staff, consulting economists, technicians, scientists, marketing	Planning
Accounting & Bookkeeping services	Services of accountants, bookkeepers, supporting clerical staff, accounting machinery, EDP, telecommunication facil.	Accounting information, billing etc.
Legal services	Attorneys, facilities, telecommunication, EDP, supporting clerical staff and facilities	Counsel, litigation, letters, briefs, etc.
Patent and Copyright Holding	Knowledge products, e.g., books, records, inventions	Royalty income
Library Services	Books, filing cabinets, shelves, librarians	Information sotrage and retrieval services, research services



Table 9 shows an analysis of the employee compensation paid by non-information industries. (These industries have been "cleaned" to remove the informational components). A quick glance at the ratios of information wages to total wages shows that a significant portion of a non-information firm's values added originates in the provision of information services. A similar breakdown was computed on the capital flow matrix to show the depreciation (capital consumption allowances) taken on information machines vs. non-information machines. Together, these two items completely account the flow of both labor and capital services -- hence the value added in the private bureaucracies.

#### Information Flows Between the Planning Sectors

These two bureaucracies "talk" to each other, more or less effectively, in coordinating and managing our entire economy. Their communications instruments are well known: the telephone, the computer, the telecommunications network, the omnipresent memos, letters and forms. The amount of paperwork flowing into Federal agencies each year has been estimated to fill 4 1/2 million cubic feet of space. The Select Committee on Small Business, in a report on "The Federal Paperwork Burden" estimated that



Table 9 COMPONENTS OF VALUE ADDED ORIGINATING IN THE SECONDARY INFORMATION SECTOR

Non-Information Industry	Employee Compensation of Info. Workers	Info. as % of Compensation	Capital Consumption Allowances (Depreciation on Info. Capital)	Info. as % of Total Depreciation	Total Secondary Value Added
(\$ Millions 1967)					
1) Livestock & Products	24	1.98	18.6	.32	67
2) Other Agriculture Products	43				
3) Forestry & Fishery Prods.	24	21.42	6.0	9.61	30
4) Agr., Forest, Fish Services	166	23.12	7.1	3.71	173
5) Iron, Ores, Mining	69	27.38	1.6	2.50	71
6) Nonferrous Ores Mining	116	27.42	1.4	2.12	117
7) Coal Mining	179	14.47	3.5	1.38	183
8) Crude Petrol, Natural Gas	481	54.54	50.9	2.26	532
9) Chemicals Mining	55	29.57	2.6	1.42	58
10) Stone, Clay Mining	217	29.60	7.3	2.54	224
11) New Construction, Net	7073	33.09	261.6	12.39	9949
12) Mainten & Repair Constr., Net	2614				
13) Ordnance & Accessories	2652	64.73	23.0	23.73	2675
14) Food & Kindred Products	4571	34.68	178.1	10.79	4749
15) Tobacco Manufactures	247	40.96	6.0	8.17	253
16) Fabrics, Yarn & Thread	1018	30.07	18.3	4.63	1036
17) Misc Textile Goods	312	39.39	5.0	6.63	317
18) Apparel	2185	32.10	40.0	18.62	2225
19) Misc Fabricated Textiles	345	38.25	5.2	13.59	350
20) Lumber & Wood Products	827	26.82	19.2	4.04	846
21) Wooden Containers	50	32.68	0.9	6.42	51
22) Household Furniture	539	32.20	5.8	7.36	545
23) Furniture & Fixtures, Net	180	32.09	4.4	9.84	184
24) Paper Products, Exc Boxes, Net	1145	40.42	339.9	41.51	1485
25) Paper Contain & Boxes	726	43.29	5.1	3.49	731
26) Printing & Publishing, Net	514	83.31	N/A	N/A	514
27) Chemicals, Net	2212	52.79	100.5	8.36	2313
28) Plastics & Synthetics	854	43.00	40.8	8.10	895
29) Drugs, Cleaning & Toilet	1579	64.16	36.4	0.31	1615
30) Paints	380	59.10	14.0	25.40	394
31) Petroleum Refining	1273	56.18	62.7	6.51	1336
32) Rubber & Plastics	1652	41.24	27.1	6.51	1679
33) Leather Products	60	25.64	1.3	7.92	61
34) Leather, Industrial	436	29.48	4.9	12.83	441
35) Glass Products	554	39.18	13.7	7.62	568
36) Stone & Clay Products	1345	39.78	50.5	8.01	1396
37) Primary Iron & Steel Mfrg.	2843	30.98	125.7	6.55	4068
38) Primary Nonferrous Mfrg.	1312	38.00	48.3	7.41	1360
39) Metal Containers	315	41.83	6.0	6.75	321
40) Heating & Plumbing Prods.	1475	42.92	29.0	13.29	1765
41) Screw Machine Prods.	1183	38.42	19.2	7.08	1202
42) Other Fabric Metal Prods.	1535	42.33	20.4	8.03	1555
43) Engines & Turbines	468	46.61	12.1	9.07	480
44) Farm Machinery	550	44.04	14.8	11.73	565
45) Construction Machinery	823	47.65	29.7	13.17	853
46) Material Hauling Machinery	376	47.66	12.9	21.69	389
47) Metalworking Machinery	1437	43.66	50.3	15.12	1487
48) Special Industry Mach., Net	733	46.83	20.3	11.09	753
49) General Industry Machinery	1203	46.81	46.2	15.54	1249
50) Machine Shop Prods.	766	46.82	2.4	5.27	768
51) Service Industry Machines	539	46.83	16.3	15.20	555
52) Electrical Ind. Apparatus, Net	1498	52.97	73.3	28.93	1571
53) Household Appliances	539	40.07	34.2	27.63	573
54) Electric Light & Wire	636	53.00	22.0	21.22	656
55) Misc Electric Prods., Net	478	52.93	N/A	N/A	478
56) Motor Vehicles & Equip.	2970	35.14	144.5	13.08	3115
57) Aircraft & Parts	5079	59.23	99.1	20.40	5178
58) Other Transport. Equip.	887	35.62	28.4	16.59	915
59) Prof. & Sci. Equip., Net	268	47.26	44.3	24.59	312
60) Optical & Photo. Equip., Net	70	50.36	36.8	18.78	107
61) Transport. & Warehouse	7277	34.77	388.0	8.21	7665
62) Utilities	1983	49.52	149.6	4.09	2033
63) Wholesale & Retail, Net	32,289	53.54	870.6	13.12	33,160
64) Finance & Insurance, Net	469	97.51	1147.3	80.05	1616
65) Real Estate & Rental, Net	1474	96.53	349.4	2.07	1823
66) Hotels, Personal, Repair, Net.	1781	27.05	118.8	8.20	1900
67) Misc Business Services, Net	2837	84.54	839.6	59.54	3677
68) Auto Repair & Service	1073	28.35	27.0	2.82	1100
69) Amusements, Net	505	35.84	114.7	18.53	620
70) Medical & Nonprofit, Net	4333	38.29	180.6	27.70	4514
71) Fed. Gov't. Enterprise, Net	1335	79.85	N/A	N/A	1335
72) State & local Gov't.	1441	69.61	N/A	N/A	1441
TOTAL					\$ 129,222 M



"it's costing about \$18 billion a year at all levels of Government to print, shuffle, and sort all these forms. It is also costing small businessmen about \$18 billion to fill out the different forms, Internal Revenue Service forms, wage and price forms, social security forms, quarterly this and monthly that. And the cost of the small businessman must necessarily be passed to you and me, to the consumer."

Senator McIntyre's summary  
(Page 2)

The 7 volume, 2,285 page report only discusses small business. One can only gasp at the additional paper shuffling of larger enterprises, and the total cost to us both as consumers and taxpayers. For example, the office of the Secretary of Defense has estimated that the cost of producing and distributing user's manuals on DoD weapons systems alone ran over \$4 billion in 1972!



### THE SIX SECTOR ECONOMY

The structure of the three information sectors, and their relation to the rest of the economy, is shown in Figure 4.

The primary information sector produces, processes and distributes information goods and services for sale to the rest of the economy. Its major input, other than the goods and services purchased endogenously, is information labor from the household sector. Its outputs -- computers, radios and TV's, newspapers, accounting services, R&D and the like -- are purchased by households, by the private and public bureaucracies and by other primary information industries.

Sector II, the private bureaucracy, includes all the planning, inquiring, communicating and decision-making capabilities in the private sector. It houses the white collar superstructure that controls the manufacturing and distributive activities of the modern corporation. It draws as its major inputs the goods and services produced by the primary information sector (e.g., telecommunications, computers and information workers from households), and has three kinds of outputs: (i) the private bureaucracy performs information services on behalf of the "productive" sector; (ii) it communicates with the public bureaucracy through required tax and business information giving and through private lobbying; (iii) it communicates with households through advertising and market information programs.



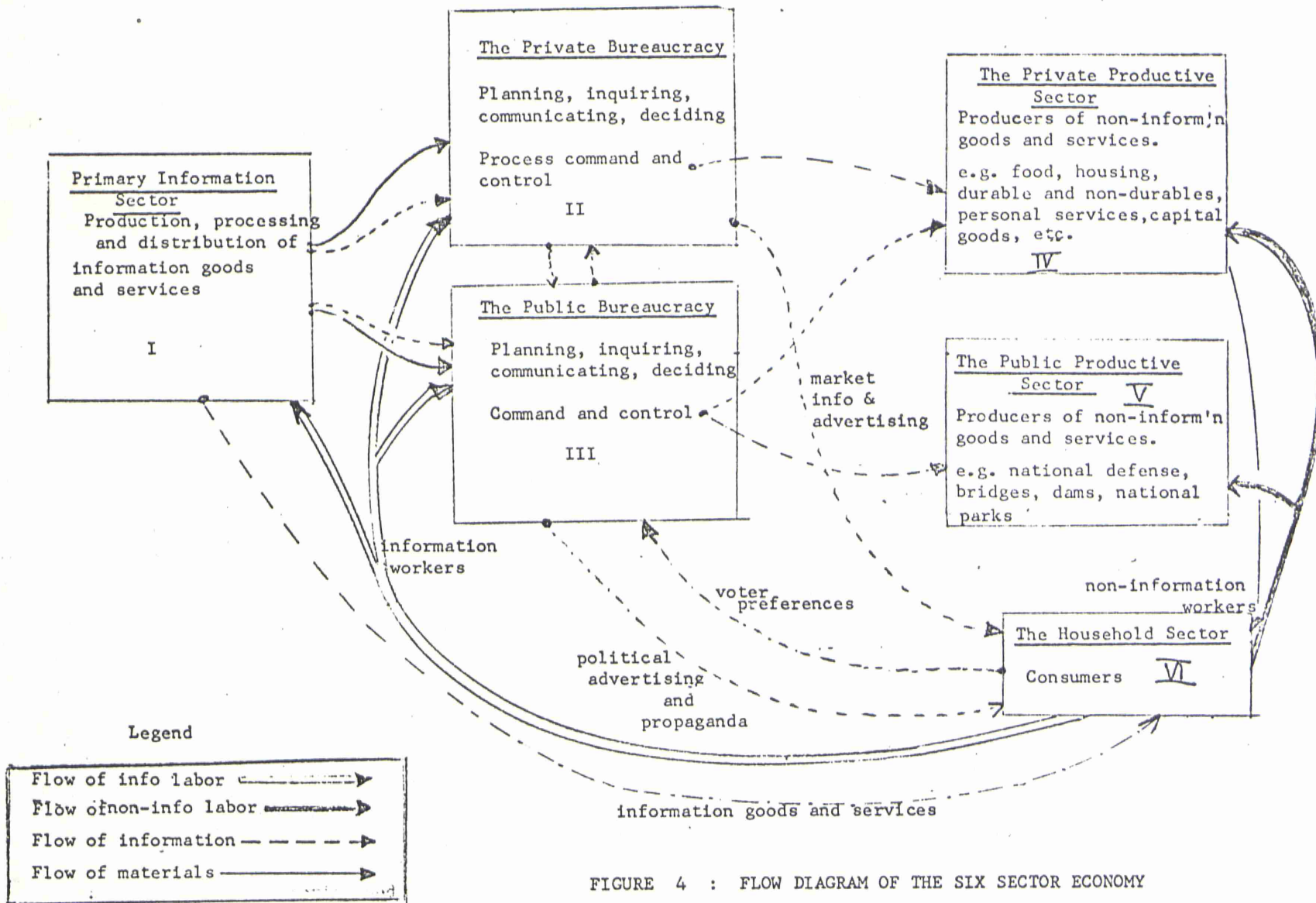


FIGURE 4 : FLOW DIAGRAM OF THE SIX SECTOR ECONOMY



Sector III, the public bureaucracy, performs the planning and decision-making activities of the government agencies. Some actions may constitute direct market intervention (e.g. regulation), other actions may affect market allocations indirectly (e.g. tax and subsidy programs, personal income redistribution). Its major inputs include goods and services purchased from the primary information sector (e.g., office buildings, computers, consulting) plus information workers from the household sector (e.g., managers, secretaries, computer programmers). Its major outputs are a variety of informational services, plus process command and control of a few "productive" activities (e.g., dam-building). It receives voter preference or special interest information as a major input, and puts out a variety of political information and propaganda messages as outputs.

Finally, we see the household sector, which supplies labor services to the primary information sector, to the public and private bureaucracies and to the private and public "productive" sectors. It buys goods and services from the primary information sector (e.g., pocket calculators, financial transaction services, movies), and a large variety of goods from the private productive sector (e.g., food, housing, clothing). The household sector puts out preference information to the private bureaucracy (through allocation of disposable income) and to the public bureaucracy (through the voter lobby).



### The Input-Output Matrix

The conceptual scheme in Figure 4 shows the flow of goods and services between the six sectors of the economy. In reality, the flow of goods and services to intermediate and final demand is a highly complex transaction. To summarize the interrelated nature of the U.S. economy, I have translated the six-sector scheme into an Input-Output matrix. The work was done at a very fine level of detail (at the 7-digit Standard Industrial Classification Code level) with the help of the Bureau of Economic Analysis which is responsible for producing both the National Income and Product Accounts and the Input-Output tables.<sup>9</sup>

Table 10 shows a simplified summary of the revised Input-Output matrix. A word of explanation is in order. The major sectors displayed along the top of the transactions table represent the consuming industries, and the sectors on the left side of the matrix are the producing industries. Since all industries both buy and sell goods and services, the transactions table shows the inter-industry sales. For example, the primary information industries sold \$62.4 billion within the sector, and another \$75.4 billion to the information "quasi-industries" within non-information firms. To repeat, the actual I/O tables show these flows of goods and services in great structural detail.

---

<sup>9</sup>Our software can produce any I-O matrix of any dimension up to the 507 order level.



# CONSUMING INDUSTRIES

PRODUCING INDUSTRIES	PRIMARY INFORMATION SECTOR	SECONDARY INFORMATION SECTOR	NON-INFORMATION SECTOR	FINAL DEMAND
PRIMARY INFORMATION SECTOR	\$62.4	\$76.5	0	\$131.6 16.5%
SECONDARY INFORMATION SECTOR	0	\$1.5	\$218.7	45.3 5.7%
NON-INFORMATION SECTOR	\$53.8	0	\$526.9	618.5 77.7%
VALUE ADDED	\$162.6 20.4%	\$199.6 25.1%	\$433.2 54.5%	GNP = \$795.4

TABLE 10 : 1967 INPUT - OUTPUT MATRIX  
(\$ Billion current)



The intermediate flows within the large square matrix should not be confused with the final demand flows on the right hand column. As shown, the secondary information sector by assumption has no output other than the employee compensation of government information workers. The entire output of the private bureaucracies (some \$218.7 billion) is sold on a fictional account to the non-information side of the firm. Also, the intermediate sales should not be confused with the value added row at the bottom of the matrix.

When the matrix is completed later this year, we shall be in position to address a large number of policy questions regarding the structure of the information economy. Table 11 gives a flavor of the types of questions that are appropriate for Input-Output analysis.<sup>10</sup>

---

<sup>10</sup> See generally: Brody and Carter (eds.), Input-Output Techniques, North-Holland Publishing Co., New York 1972.

William Miernyk, Elements of Input-Output Analysis, Random House, New York, 1965.

Chiou-Shuang Yan, Introduction to Input-Output Economics, Holt, Rinehart & Winston, 1969



TABLE 11:USES OF THE INPUT-OUTPUT MATRIX

- (i) Estimating the direct plus indirect effects on GNP and on the distribution of GNP across industries given a change in final demand, such as:
  - A change in gross capital formation (investment) in a particular type of capital good, e.g., a telecommunication network.
  - A change in exports or imports, e.g., royalty and patent imports and exports, tariff changes.
  - A change in government purchase of goods and services, e.g., procurement alternatives.
  - A change in personal consumption expenditures.
- (ii) Estimating the direct plus indirect effects on labor given a change in the output of a given industry. This involves a detailed labor impact analysis of a change in final demand. The same methodology can be adapted to investigate the effect on GNP and the workforce under different assumptions regarding productivity.
- (iii) Estimating the effect on GNP and prices given a change in one of the factor prices, i.e., in wages (due to unionization of the white-collar or "information" workers), capital (due to capital shortages or riskiness in high technology enterprises), or natural resources. In conjunction with this application, a technique for decomposing inflation by industry source has been developed in the U.S. An open research question is whether the information sector is inflationary (due to high labor requirements and lack of an adequate productivity measure) or deflationary (due to the extensive use of cost-declining technology and the sparse use of cost-rising energy resources).
- (iv) Revealing the structural interdependence of the economy with respect to the "information infrastructure." In particular, investigating possible "bottlenecks" in the economy as investment or development programs are undertaken. A closely related application is to measure the effect of a constraint on an investment or development program, e.g., imposing the constraint of zero growth in energy consumption.
- (v) Estimating the effect of technical substitution on the economy. For example, forecasts of information-intensive production functions (i.e., high degree of substitution of computer technology for mechanical or labor-intensive technologies) can be implemented experimentally in the I-O matrix to gauge the change in requirements -- both direct and indirect -- on the rest of the economy.



CLOSING STATEMENTS

The work reported in this paper is directed towards building a sufficiently robust "soapbox" so that policy makers in the field of communications can move past the debate whether or not we are in fact an emerging information economy. Time series data will confirm that the trends are persistent, continuous and probably irreversible. The interrelated structure of the information sectors to the rest of the economy and within itself is now apparent and measurable.

We have seen that the information activity in the U.S. economy accounted in 1967 for over 45 percent of Gross National Product. By now, some nine years later, the activity is probably approaching 50 percent of GNP. Half of our wealth originates with the provision of a myriad of information goods and services; and half of that originates in the planning sectors of the economy.

Yet, despite the enormous commitment of resources to this information creature, our self-image has not substantially changed. We still see ourselves as an industrial society, composed of firms engaged in vigorous competition on open marketplaces. We still hold that markets, if left to their own competitive devices, will find some benign equilibrium that efficiently and equitably allocates resources. We still persist in denying what has become awesomely plain to see: that we



are already a planned economy. The planning sector is growing by leaps and bounds both inside the private and public bureaucracies. Our schools and universities are churning out the planning work force every year -- administrators, managers, analysts, information scientists. Together they own and control a brand new technology, something that has never existed in such abundance before. They control a soft technology -- theory, methodology, organizational and technical knowledge, practical experience to create almost anything imaginable. And they control a hard technology -- computers, satellites, a communication infrastructure to help them inquire, plan, decide, order, monitor and evaluate their planning efforts.

The question is not whether we want to plan or not. The question is how to use our planning resources so that the planning that is being done will be done most productively. In the American context, I believe that this means something very specific. It is not the French version of indicative planning; it is not the Japanese plan of central bank control; it is not the Russian five year command economy; it is not the Chinese communal planning. We need to plan for market structures that, once in place, require very little planning and control. This is not a trick phrase spun of rhetoric. Rather, it is a challenge to invent some institutional mechanism to coordinate the entrepreneurial initiative of firms and the intent of



policy-makers in a manner that is consistent with some stated social good.

The force of technological change has a way of both creating and destroying markets. As technology progresses, old institutions come into direct conflict, and new ones form to mediate the conflicts or appropriate the profits that the new opportunities present. The advent of an information economy puts us in a refreshing and rare position. We can pari passu observe, define and measure the economy as it develops.

Epochal social and economic changes are seldom discrete events. Rather, they emerge slowly -- first as changes in the technological or economic organization of a society. Later, maybe much later, after changes in the infrastructure have matured, social organization responds at the level of the superstructure. Legal organization, social organizations, rules and habits, and finally behavior slowly but surely adjust. The role of policy, it seems to me, is to embed an ideology -- a sense of what "ought to be", a normative idealism -- into emerging infrastructures.



But it is not clear to me how a planning environment that fosters a secretive and ultra-adversary relationship between the private and public bureaucracies is likely to result in meaningful long-range development of the information economy. And it is clear that without such planning, the many pitfalls and dead-ends associated with rapid development of a new technology and a new economic order will not easily be avoided.

In the case of the information economy, the policy opportunities are ample and well-known. Research efforts at Stanford, Harvard, M.I.T. and other schools with programs on information technology and public policy are beginning to form images of "desirables" and "undesirables". New firms are crowding the competitive edge of traditionally monopolized industries, clamoring for new rules that will allow them entry. And the Washington machinery is besieged by policy issues whose higher-order consequences have hardly been conceived.

These events are so abstract and impersonal that they have not yet entered the public consciousness. It is a great irony that when crucial social policy is set into place, only the elite -- in business, government and academia -- has any incentive to intervene.