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## OPERATIONAL DESIGN AND PROCEDURES

### A Study of Four Media

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#### Chapter A: Comments on the Objectives of the Study

This study investigated the audiences of four magazines: Ladies' Home Journal, LIFE, Look and The Saturday Evening Post; one newspaper supplement, This Week; four\* radio programs: Amos 'n' Andy, Charlie McCarthy, Jack Benny and Lux Radio Theatre; and five television programs: Colgate Comedy Hour, Fireside Theatre, Red Skelton, Texaco Star Theatre and Your Show of Shows. For each of these media, the objectives were three-fold:

1. To show the kinds and number of people reached by a single or average issue, broadcast or telecast.
2. To show the kinds and number of people reached by a series of issues, broadcasts or telecasts.

\*It was our objective to measure five radio programs, the fifth program being Walter Winchell. Early in the survey, however, Walter Winchell went off the air for an indefinite period on account of illness. As a result, it was necessary to drop this program from the study.

3. To show how frequently people are reached and what kinds of people they are.

For the four magazines and This Week, audience figures are shown up to six issues for all characteristics. (For the sake of comparison with the previous LIFE Studies, the number of people reached by seven to thirteen issues of each of the print media was projected. And information is available on how often they are reached.) For radio and television, up to four broadcasts or telecasts are shown for all characteristics and total.

The two-issue, two-broadcast, two-telecast accumulated audiences consist of those people who were reached by at least one of two issues or by at least one of two broadcasts or telecasts; the three-issue, three-broadcast, three-telecast accumulated audiences consist of those people who were reached by at least one of three issues, at least one of three broadcasts or telecasts, etc.

For the print media, the kinds and number of people

reached by one or two issues out of six; three or four issues out of six and five or six issues out of six is shown; for radio and television, the kinds and number of people reached by one or two broadcasts or telecasts out of four, and three or four broadcasts or telecasts out of four is shown.

### Chapter B: Balanced Accuracy

From the technical viewpoint, the objective of any study is to produce specified data with a maximum of accuracy within a given administrative structure. Aside from the mechanical factors of coding, editing and tabulating, the accuracy of a sample survey depends upon (1) the reliability of the response on the part of the person being interviewed, (2) the execution of the field work and interviewing, and (3) the sampling error.

A sample survey consists of a series of operations (such as field training, questionnaire-testing, instructions, etc.), and the experimenter, in his design, has considerable choice in the utilization of those operations that meet the purpose of the study. He should select those operations which, in combination, contribute to the maximum overall accuracy. The difficulty arises in that one particular operation may be most efficient for one of the above components of accuracy and yet may be highly inefficient for the other two components. For instance, a factor that would increase accuracy of field operation, might decrease reliability of response and decrease the sampling reliability. The selection of one

operation may consequently force the inclusion of another operation which, from a standpoint of overall accuracy, is undesirable.

The determination of the overall survey design thus becomes a problem of operations analysis where all of the operations together must be considered as an entity with the objective of obtaining the maximum accuracy for the end product. As a chain cannot be any stronger than its weakest link, a sample survey cannot have more accuracy than the accuracy of its weakest operation. Making a particular link many times as strong as the others at the expense of the others reduces the overall strength. The experimenter is required to achieve *balanced accuracy*, rather than maximum accuracy in any one operation.

The choice of operations for this study began at the design stage and extended through to the preparation of the final report. Following is a simplification of an example to illustrate how one operational choice was made in this survey:

The objective of the study was to obtain accumulative and repeat audiences of print media and radio and television. A choice of one of several scheduling procedures had to be made in the design phase of the study. Three of those scheduling procedures considered are discussed below:

#### **Alternative 1—Use one sample, get all data in single interview.**

In one sample, interview on six issues of each of the five print media and obtain measurements of listening and viewing of previous six weeks on five radio and five television programs.

**Alternative II—Use five independent samples.**

In one sample, interview on all six issues of a single print medium and ask about previous six weeks' listening and viewing for one radio program and one television program. Two months later, interview different people on a second print medium, a second radio program and a second television program; etc. for five samples.

**Alternative III—Use one sample, interviewing same people six times.**

Interview on one issue of each print medium and one broadcast and telecast of each of the air media. After two months, return to the same people and repeat for a second issue of each of the print media, a second broadcast and telecast of each of the air media, etc. for six visits. However, during summer interviewing, omit radio and television programs which are off the air.

Each of these alternatives must be considered in the light of obtaining maximum accuracy for the end product. Each has its own advantages and disadvantages, but one must consider the advantages and disadvantages in combination to arrive at a decision of which alternative yields overall maximum accuracy.

Alternative I has the highest degree of sampling accuracy as all respondents are interviewed once and data for all media are based on the total sample, which, for a given cost, can be made very large. However, the accuracy of the field opera-

tion would be questionable. The length of the interview would tax respondents' cooperation to a point where many interviews could not be completed and, in addition, any information obtained would be of low reliability on account of respondent fatigue.

Alternative II has the highest degree of accuracy in field execution, but it has the least sampling accuracy as the data for any one medium are based on one-fifth of the total number of interviews, and an additional contribution to variation is introduced in analysis because each audience is based on a different sample of people. Additionally, an artificial difference between media may be introduced because the media are studied at different times of the year. Finally, reliability of respondents' recall on radio and television programs is questionable when taken over an extended period.

Alternative III has a higher sampling accuracy than Alternative II, but lower than Alternative I. It is not as desirable with respect to accuracy of field execution as Alternative II because of the necessity of repeat visits to the same people; of course, it is far more accurate on field execution than Alternative I. But Alternative III is substantially more accurate with respect to reliability of response than either Alternative I or II. Moreover, Alternative III allows for any possible seasonal differences and measures all media through an annual cycle. This meant limiting radio and television measurements to a maximum of four exposures, since the leading radio and television programs are not on the air in the summertime.

Alternative III provides the best balance of all accuracy

considerations and was, therefore, the one chosen.

Below are some of the operations that had to be so considered in the various phases of the study. The following sections and the Introduction deal with particular operations decided upon. As stated previously, each operation had to be considered in view of its effect on the overall accuracy of the study and whether or not it was in conformity or in conflict with the other operations.

#### **1. Design Phase**

The timing of the entire study.  
The problem of scheduling.  
The age of the issues and programs.  
The scheduling of interviewing.  
Average issue concept vs. specific issue concept.  
The spacing of audience observations.

#### **2. The Questioning Procedure**

Recognition vs. recall.  
Definition of reader, listener, viewer.

#### **3. Field Staff Training**

The number of primary sampling units.  
The duration of the study.  
The variations in the content of the questionnaire over time.

The understandability of the questionnaire.

Centralized vs. decentralized (on the spot) training.

#### **4. The Sampling Phase**

The size of sample.  
The number of primary sampling units (counties or combination of counties).  
The number of clusters.  
The number of interviews per cluster.  
Including all household members or a sample of one person in each household.  
Use of nights-at-home formula or callbacks.

#### **5. Execution of Field Work**

Understandability of the questionnaire.  
Familiarity with area—maintaining same areas throughout vs. rotating areas.  
Size of interviewing load—opportunity to make callbacks.  
Timing of interviews.

#### **6. Editing—Coding—Tabulating**

Continuous flow of work vs. one-time operation.

In arriving at the optimum choice of operations for balanced accuracy, an attempt was made to establish the final

choice on as objective criteria as possible. Each of the above operations and alternatives was judged on the basis of (1) accuracy of response, (2) accuracy of field work, and (3) sampling error. Very little is known precisely, at the present time, of the relative weights to be assigned to each cell. Nevertheless, the experimenter, in designing a study, is at an advantage in making use of such a device.

## Chapter C: The Design

### 1. Planning and Pretesting

Work on the technical design of the survey began in the fall of 1951. 1,200 interviews were conducted in a pilot study in the New York Metropolitan Area to perfect and test each detail upon which the accuracy of the final study depended. None of these interviews, of course, is included in the statistics of this report.

The new study was conceived to include several publications, radio and television programs. The pilot test established the optimum between maximum information and reliability obtainable in a single interview. Out of this pilot study, the final operational design was developed, whereby six waves of interviewing were to take place, each wave lasting eight weeks.

### 2. Training of the Field Staff

After the pilot study, the enormous training program and organization of the field staff began. The high degree of

accuracy required in the interviewing and the field sampling operation made special schooling of the interviewers imperative irrespective of their training in the past.

Every interviewer who worked on the survey was personally trained. Thirty-five instructors carried out the training program. In each interviewing locality, a minimum of three of the firm's best qualified interviewers were trained, one being appointed an "alternate," to be used if needed. Each interviewer went through a rigid training course from start to finish.

Training of the interviewers was decentralized. Instructors went to all parts of the United States assembling in each locality interviewing crews. Each instructor carefully explained the general purposes of the survey. (Interviewers were told the study wanted to measure people's interests in movies, magazines, radio and television.) Then came a thorough briefing on the subject matter of the questionnaire and on the questions themselves. The interview itself was carefully considered, for it required deft handling and psychological skill on the part of the interviewer. The questionnaire was not intended to be handled by simply reading questions in the customary numbered order. Each interviewer was trained to use instantaneously carefully contrived comments in such a manner as to maintain a natural rapport-inspiring atmosphere. The seeming ad lib "bridges" between questions were memorized by the interviewer, and his ability to use them skillfully was an important qualifying factor.

Instructors set up "mock" locations and went out individually with each interviewer. First the instructor demon-

strated the entire operation, and then the interviewer went through it himself with new respondents while the instructor carefully observed his performance on all phases of the field operation. Suggestions, comments and criticisms were brought to the interviewer's attention until he had mastered all phases of the operation.

In the final phase of training, executives of the Field Department in the home office took over control, as the field work would be coordinated by them while the study was conducted. A test assignment was sent to all interviewers, the test being a duplicate of the survey itself. Interviewers went out to sample areas (none of which was used for the final survey), located their households, selected specified individuals, called back, if necessary, and conducted interviews as they were to be done on the actual survey. Over 2,000 test interviews were made. Each test questionnaire was reviewed and examined in the home office. Each questionnaire was edited to determine any error, omission or inconsistency in the interviewing. All test questionnaires, and a page of remarks were returned to the interviewers. The instructors, who were standing by, were also sent a summary of their crews' work. The instructors then proceeded to clarify any remaining problems with their crews and re-instruct when necessary.

Only after this exhaustive training and testing were the interviewers considered fully prepared to take on this special 12-month assignment. 207 different interviewers participated in the final survey. Some characteristics of these interviewers are presented in the following table:

Characteristics of Interviewers

<b>Sex:</b>	Male	53%
	Female	47%
<b>Age:</b>	Under 25	2%
	25-34	38%
	35-44	39%
	45-54	21%
<b>Education:</b>	1-3 years high school	3%
	High school graduate	35%
	1-3 years college	30%
	College graduate or beyond	32%

### 3. Field Work

The extensive field requirements for this study necessitated prodigious efforts by the field staff, probably never before demanded in a national audience study. Each interviewer was instructed to make up to eight calls, if necessary, on each respondent each wave. (There were special occasions where efforts had to be extended up to 12 calls.) Most interviewer visits were made in the evening, but if any one particular respondent preferred to be interviewed at another time or place, then the interviewer returned to him at the time and place specified by the particular respondent. No substitutions of any kind were permitted. The principal consideration was that once a respondent was specified, in accordance with

the method described in the section titled "Stages of Sampling," that person and no other had to be interviewed—no matter where or when.

As the interviewers were to interview the same respondents six different times during the survey, they had to establish excellent rapport with the respondents. They recorded detailed information about each respondent's habits, when he was most likely to be at home, his interests and so forth. By obtaining such information himself, the interviewer was always prepared for his later visits with the respondents. Needless to say, during the survey, the usual checks on interviews were made. Personal visits, telephone calls, post cards and letters were all used as checks. The efforts related to thorough field work had the effect that of the 7,141 completed interviews in Wave I, 73.3% or 5,236 persons were interviewed on all remaining five waves.

A total of 36,686 interviews with 7,141 respondents were made during this survey, necessitating 99,052 different visits. All single issue audience figures are based on these interviews. The accumulative and repeat audience figures are based on 5,236 respondents interviewed on all six waves, with whom 31,416 interviews were made with 78,540 different visits.

#### **4. Field Schedules**

In the chapter on "Balanced Accuracy," it was indicated that one of the reasons the survey was scheduled over an entire year was to allow for any possible seasonal differences

between media. For radio and television, however, the summer months were excluded altogether, as the leading radio and television programs usually go off the air for the summer. The radio and television data, therefore, are based on approximately eight months of the year. Audiences of print media, of course, cover issues that appeared in all seasons of the year.

Even during the same season, the number of people reached by a particular magazine or newspaper issue, broadcast or telecast, will differ from the number of people reached by another issue, broadcast or telecast. These fluctuations and irregularities may occur because of external forces or because of the influence of the contents of a particular issue, broadcast or telecast. In order to iron out such wrinkles, as many issues, broadcasts and telecasts of each magazine and program were studied as were feasible.

For administrative control, each of the six waves was split into two halves, giving 12 half-waves in all. In each half-wave, different issues of the magazines were used. Respondents were interviewed at eight-week intervals at six different times over a year. For LIFE, Look and The Saturday Evening Post, 12 different issues of each were used, the average age of each issue being 4.4 weeks for LIFE; 5.0 weeks for Look; and 4.7 weeks for The Saturday Evening Post. Ten different issues of Ladies' Home Journal were used (two issues being common to two half-waves), with an average age of 8.0 weeks. Issues of his Week were changed more frequently in order to have an average age of 1.7 weeks. In all, 36 different issues of This Week were used. Average ages of issues were

selected on the basis of the indicated findings in the Pilot Study.

In each wave, every respondent was asked about his most recent listening or viewing of each of the radio and television programs. Only those listening or viewing within the last seven days were counted as listeners or viewers.

Thus, while many different issues and different broadcasts and telecasts are represented in this report, each respondent provided information about only six particular issues of each representative of print media and four particular broadcasts or telecasts of each radio and television program. Accumulation and repetition, therefore, were measured only up to six

issues of print media and up to four broadcasts and telecasts of air media.

All figures in this report represent average issues and average broadcasts and telecasts. The survey was not designed to present results for individual issues, broadcasts and telecasts, but rather averages. This meant maximizing the total number of issues, broadcasts and telecasts within the framework of the operation. Therefore, with the exception of two issues of Ladies' Home Journal, each issue, broadcast and telecast is represented by only a fraction of the total sample.

The Field Schedule is shown in the following table.



### Field Schedule 1952

Interviewing Week (Monday thru Sunday)	Dates of Magazine Issues Carried					Dates of Radio and Television Programs*
	LIFE	LOOK	POST	JOURNAL	THIS WEEK	
<b>WAVE I</b> Feb. 18-Feb. 24 Feb. 25-Mar. 2 Mar. 3-Mar. 9 Mar. 10-Mar. 16 Mar. 17-Mar. 23 Mar. 24-Mar. 30 Mar. 31-April 6 April 7-April 13	Feb. 4 Feb. 4 Feb. 4 Feb. 4 Mar. 3 Mar. 3 Mar. 3 Mar. 3	Feb. 12 Feb. 12 Feb. 12 Feb. 12 Mar. 11 Mar. 11 Mar. 11 Mar. 11	Feb. 2 Feb. 2 Feb. 2 Feb. 2 Mar. 1 Mar. 1 Mar. 1 Mar. 1	Feb. Feb. Feb. Feb. Feb. Feb. Feb. Feb.	Feb. 10 Feb. 17 Feb. 24 Feb. 24 Mar. 9 Mar. 16 Mar. 23 Mar. 23	Feb. 11-Feb. 23 Feb. 18-Mar. 1 Feb. 25-Mar. 8 Mar. 3-Mar. 15 Mar. 10-Mar. 22 Mar. 17-Mar. 29 Mar. 24-April 5 Mar. 31-April 12
<b>WAVE II</b> April 14-April 20 April 21-April 27 April 28-May 4 May 5-May 11 May 12-May 18 May 19-May 25 May 26-June 1 June 2-June 8	Mar. 31 Mar. 31 Mar. 31 Mar. 31 April 28 April 28 April 28 April 28	April 8 April 8 April 8 April 8 May 6 May 6 May 6 May 6	Mar. 29 Mar. 29 Mar. 29 Mar. 29 April 26 April 26 April 26 April 26	Mar. Mar. Mar. Mar. April April April April	April 6 April 13 April 20 April 20 May 4 May 11 May 18 May 18	April 7-April 19 April 14-April 26 April 21-May 3 April 28-May 10 May 5-May 17 May 12-May 24 May 19-May 31 May 26-June 7
<b>WAVE III</b> June 9-June 15 June 16-June 22 June 23-June 29 June 30-July 6 July 7-July 13 July 14-July 20 July 21-July 27 July 28-Aug. 3	May 26 May 26 May 26 May 26 June 23 June 23 June 23 June 23	June 3 June 3 June 3 June 3 July 1 July 1 July 1 July 1	May 24 May 24 May 24 May 24 June 21 June 21 June 21 June 21	May May May May June June June June	June 1 June 8 June 15 June 15 June 29 July 6 July 13 July 13	Off the Air

\*Radio and television audiences refer to the seven-day period immediately preceding the day on which the interview was made.

### Field Schedule 1952-1953

Interviewing Week (Monday thru Sunday)	Dates of Magazine Issues Carried					Dates of Radio and Television Programs*
	LIFE	LOOK	POST	JOURNAL	THIS WEEK	
<b>WAVE IV</b> Aug. 4-Aug. 10	July 21	July 29	July 19	July	July 27	Off the Air
Aug. 11-Aug. 17	July 21	July 29	July 19	July	Aug. 3	
Aug. 18-Aug. 24	July 21	July 29	July 19	July	Aug. 10	
Aug. 25-Aug. 31	July 21	July 29	July 19	July	Aug. 10	
Sept. 1-Sept. 7	Aug. 18	Aug. 26	Aug. 16	Aug.	Aug. 24	
Sept. 8-Sept. 14	Aug. 18	Aug. 26	Aug. 16	Aug.	Aug. 31	
Sept. 15-Sept. 21	Aug. 18	Aug. 26	Aug. 16	Aug.	Sept. 7	
Sept. 22-Sept. 28	Aug. 18	Aug. 26	Aug. 16	Aug.	Sept. 7	
<b>WAVE V</b> Sept. 29-Oct. 5	Sept. 15	Sept. 23	Sept. 13	Sept.	Sept. 21	Sept. 22-Oct. 4
Oct. 6-Oct. 12	Sept. 15	Sept. 23	Sept. 13	Sept.	Sept. 28	Sept. 29-Oct. 11
Oct. 13-Oct. 19	Sept. 15	Sept. 23	Sept. 13	Sept.	Oct. 5	Oct. 6-Oct. 18
Oct. 20-Oct. 26	Sept. 15	Sept. 23	Sept. 13	Sept.	Oct. 5	Oct. 13-Oct. 25
Oct. 27-Nov. 2	Oct. 13	Oct. 21	Oct. 11	Oct.	Oct. 19	Oct. 20-Nov. 1
Nov. 3-Nov. 9	Oct. 13	Oct. 21	Oct. 11	Oct.	Oct. 26	Oct. 27-Nov. 8
Nov. 10-Nov. 16	Oct. 13	Oct. 21	Oct. 11	Oct.	Nov. 2	Nov. 3-Nov. 15
Nov. 17-Nov. 23	Oct. 13	Oct. 21	Oct. 11	Oct.	Nov. 2	Nov. 10-Nov. 22
<b>WAVE VI</b> Nov. 24-Nov. 30	Nov. 10	Nov. 18	Nov. 8	Oct.	Nov. 16	Nov. 17-Nov. 29
Dec. 1-Dec. 7	Nov. 10	Nov. 18	Nov. 8	Oct.	Nov. 23	Nov. 24-Dec. 6
Dec. 8-Dec. 14	Nov. 10	Nov. 18	Nov. 8	Oct.	Nov. 30	Dec. 1-Dec. 13
Dec. 15-Dec. 21	Nov. 10	Nov. 18	Nov. 8	Oct.	Nov. 30	Dec. 8-Dec. 20
**Dec. 29-Jan. 4	Dec. 15	Dec. 16	Dec. 13	Nov.	Dec. 21	Dec. 22-Jan. 3
Jan. 5-Jan. 11	Dec. 15	Dec. 16	Dec. 13	Nov.	Dec. 28	Dec. 29-Jan. 10
Jan. 12-Jan. 18	Dec. 15	Dec. 16	Dec. 13	Nov.	Jan. 4	Jan. 5-Jan. 17
Jan. 19-Jan. 25	Dec. 15	Dec. 16	Dec. 13	Nov.	Jan. 4	Jan. 12-Jan. 24

\*Radio and television audiences refer to the seven-day period immediately preceding the day on which the interview was made.

\*\*No field work was done during the week-Dec. 22-28.

## 5. The Sample

Today it is generally accepted that probability sampling is essential to meet the accuracy requirements of an audience study. Like the previous study of LIFE's accumulative audiences, this study used a probability sample. In the interval between the studies, sampling techniques have been improved, particularly in the direction of measuring the probability of including each unit in the sample. This section describes and discusses the sampling procedures employed in this study.

The general reader may find this section somewhat technical since it is necessary at times to make use of the specialized vocabulary familiar to sampling experts. Full explanation and definitions of these terms may be found in the literature on sampling theory and techniques.

### Repeat Interviews and Accumulative Interviews

In sampling theory it is often assumed that information can always be obtained from each unit selected for inclusion in the sample. This assumption is usually permissible for sampling operations where the units are not people or do not require information obtained from people. But in the sampling of human populations, where the unit is an individual or a household, there is always a small segment of the sample that provides no information; that is, interviews cannot be obtained.

The causes of this non-response emanate from many sources: People are away on business trips or vacations; someone in the household may be temporarily ill or recently

have died; some people are too busy at the time; and others are simply uncooperative. In investigations primarily interested in household characteristics this problem is not so severe as in investigations concerned with the characteristics and behavior of individuals. In household studies, information about the household is often obtained from any adult member of the household. But in studies of individuals, *particular* individuals must be interviewed, for no other person can supply the information reliably. The problem of obtaining maximum response in studies of individuals, therefore, is greatly magnified.

This survey, in addition to being concerned with individuals, called for re-interviewing the same individuals over a period of time, thereby increasing the problem of non-interviews. It was not possible to limit the entire study to one interview, as no reliability could have been placed on a procedure which would have involved questioning respondents at one sitting about 66 specific events of reading, listening and viewing. Instead, each respondent had to be interviewed at six different times, each time being questioned on one issue, broadcast or telecast of each of the media.

A sampling operation designed to revisit the same potential of people over a period of time can either maximize the number of people re-interviewed ("repeat" interviews) or accumulate the number of different people interviewed at least once ("accumulative" interviews).\*

\*This is true, of course, so long as there is a residual population impossible to interview on any one sample. If every potential respondent could always be interviewed, the "repeat" and "accumulative" interviews would be identical.

pose 100 people are visited on the first wave and 80 of these people are interviewed. In the second wave, these same 100 people are again visited and again 80 are interviewed. Two extreme situations are possible:

- a. The 80 people interviewed in the first wave are also interviewed in the second wave.
- b. The 20 people not interviewed in the first wave are interviewed in the second wave and 60 people are interviewed on both waves.

In situation "a", the accumulative number of different interviews is 80 and the repeat is 80. In situation "b", the accumulative number of different interviews is 100 and the repeat is 60. Now, depending upon the purposes of the particular study, situation "a" may be desirable, situation "b" may be desirable, or a compromise between the two. Whatever choice is made, maximum results can be obtained by the direction of effort put forth in the field.

The present study was designed as a panel without replacement, since accumulation of audiences and frequency of exposure can be measured best from a sample whose members' behavior has been observed completely. Therefore, the repeat sample had to be maximized (situation "a"). This presented a tremendous challenge to the field operation, for respondents were to be interviewed on six different occasions.

The challenge was further magnified because it was known that approximately 20% of the people interviewed on the

first wave would move within a year's time.\* As this study was to take place over an entire year, this meant that the maximum repeat that could have been achieved was 80%. Additionally, there would be losses resulting from deaths, serious illnesses, refusals, etc. Given these facts, it was essential to make every effort throughout the survey period so that a maximum number of "repeat" interviews would be obtained.

Several devices were used to maintain interest and cooperation among the respondents in the survey. Two premiums were given to them. Two letters were sent to each of them thanking them for their continued cooperation and briefly explaining the ostensible purposes of the survey. Additionally, many individual letters were sent for varied reasons, such as to ask reluctant respondents to cooperate, to express sympathy to respondents who were ill or had a recent death in the family, to congratulate respondents on births and marriages, etc.

All these efforts were necessary to maximize the number of repeat interviews and to obtain as close to the maximum of 80% as possible. The actual percentage of those interviewed on Wave I who were also re-interviewed on all other waves was 73.3%. The 7,141 people interviewed in Wave I represent 88.6% of the potential sample of 8,060 in Wave I. Of the missing 11.4%, 8.8% were permanent refusals and the remaining

\*The Bureau of the Census estimates that 18.7% of the population changed residences between March, 1949 and March, 1950 and 21.0% changed residences between April, 1950 and April, 1951, Series P-20, No. 39.

2.6% represent people who were not found at home after the extensive number of callbacks.

Of course, maximizing the initial number of interviews and repeat interviews is meaningless unless the people interviewed on the first wave, as well as people interviewed on all waves, are representative of the population. Representativeness of a sample, however, can never be proved. It is only through a searching analysis of the sample design, the field work and the sample findings presented as validations, that one can pass judgment on the trustworthiness of the results. The sample findings of this study are compared with Census data in Chapter G.

#### **Stages of Sampling**

The population sample designed to meet these requirements was a probability sample of the area type, in which selections were made by a random process so that each respondent's chance for inclusion could be measured within close limits. There were four steps in the sampling operation which led to the choice of each respondent.

- a. A sample of *primary sampling units* was selected. All the counties in the United States were divided into two groups: those which form part of a metropolitan area and the remaining non-metropolitan counties. At this stage, the sampling unit was the individual non-metropolitan county and the whole metropolitan area. (A metropolitan area often comprises several counties.)

Metropolitan areas were stratified by geography, size

of principal city, per cent of homes with refrigeration and an economic index of the labor market as measured by per cent of women in the labor force. The strata were established to yield approximately equal population in each stratum. Those areas with population greater than the stratum size were automatically selected. From the remaining metropolitan areas, one area was selected from each stratum with probability proportionate to size.

The stratification of non-metropolitan counties was based on geography, population density, per cent of persons engaged in agriculture, per cent of homes with refrigeration and per cent of women in the labor force. One county was selected from each stratum with probability proportionate to size.

All selections at this stage were made by the use of random numbers.

This series of selections resulted in a choice of 55 primary sampling units. In total, 110 counties were included.

- b. A sample of *clusters* within each primary sampling unit was selected. The population of each county or metropolitan area was stratified by residence in open country and urban places. The open country population was further stratified by geography, and the urban population by city size. One cluster was selected from each sub-stratum.

Clusters in urban places were defined as blocks or groups of blocks. In cities over 50,000 sample clusters

were selected from Block Statistics with probability proportionate to size. In smaller cities and towns, clusters were defined on street maps, and sample clusters were selected with probability proportionate to size where housing data or aerial photographs were available, and with equal probability elsewhere.

In open country areas, clusters were defined on the most recent public highway and transportation maps available. These maps show data on the location of dwelling units. Clusters of approximately equal size were outlined with boundaries of roads, railroad tracks, streams or other landmarks which could easily be identified.

Selection was again made with probability proportionate to size with the aid of random number tables.

A total of 800 clusters were selected. The number of households drawn into the sample varied slightly from cluster to cluster. Some clusters had nine, some ten and some eleven, depending on the population of the stratum from which the cluster was selected.

c. *Selection of Households within Clusters*

In the absence of a complete and up-to-date roster of every member in a population, there is a point in the selection of the sample where part of the sampling operation must be done at the field level. The human element enters, not necessarily for the selection of the sample, but for providing material for such a selection. In view of the rigid requirements for a probability sample, this gathering of the material becomes the most vulnerable

in the entire sampling process.

When the area type of probability sample is employed, this step occurs subsequent to the selection of the clusters and in the process of designating households to be visited.

In spite of the best possible training of the interviewers, it has long been recognized that in the field they cannot be relied upon to objectively select a sample. Therefore, about 15 years ago, a method was introduced whereby interviewers would list all of the households within each selected cluster, submit these lists to the central office, and the central office would select a sample therefrom.\* Using this method, the accuracy of the final sample is dependent upon the accuracy of the listings, and unless the listing procedure is carried out with utmost care, biases will enter into the sample selection. Omissions, accidental or intended, of dwelling units from the listings are not detectable from the sample. More recently, advanced methods have been employed such as the use of half-open interval sampling and Sanborn Maps to counteract the possible inadequacies of using listings only.

A number of methods for selecting a household within clusters were examined in great detail, with a view toward utilizing that one which gave the greatest assurance of a foolproof operation. It was required that the method ensure that every household within the selected cluster had an equal chance of being included in the sample.

\*Frankel, Lester R., and Stock, J. Stevens, "On the Sample Survey of Unemployment," *Journal of the American Statistical Association*, March, 1942, Vol. 37, pp. 77-80.

It was also required that the method yield the probability of each household being selected. The method that was finally selected utilized the identical principle of half-open interval sampling and in many cases used Sanborn Maps.

Since the 800 clusters included in the sample were selected with probabilities proportionate to 1950 Census counts, the number of households to be selected for interview would have been constant from cluster to cluster if the sampling had been done in 1950. This method would have caused every household to come into the sample with exactly equal probability, the probability being known in advance from cluster to cluster. However, since the sampling was actually conducted two years later, the selection of a fixed number of dwelling units per cluster yields only approximately equal probabilities for every unit included in the sample. It was decided to proceed in the following order: to allocate the sample as though the operation were conducted at the time of the census; to ensure that within a particular cluster every dwelling unit had the same chance of coming into the sample; and finally, to determine the actual probability of a household being selected from the cluster. The actual probability would vary from the 1950 probability in view of new construction and demolition of housing structures.

The selection of households was then divided into two parts: (1) The actual selection of a predetermined number of dwelling units and (2) The employment of a procedure whereby probabilities of selection were ascer-

tained.

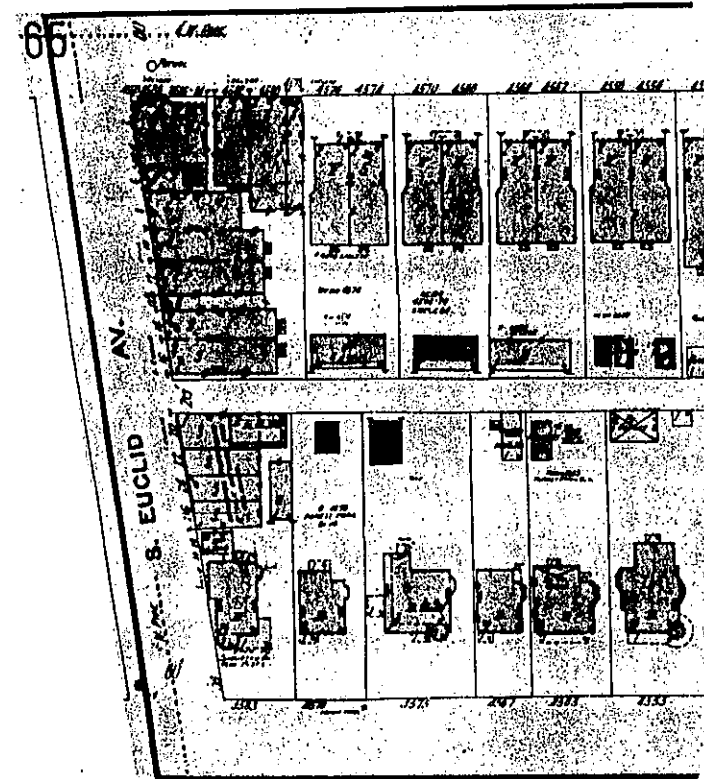
In order to meet the first requirement, detailed maps were obtained for each of the clusters in the sample. Each interviewer was provided with such a map and a randomly defined starting point was identified on it. The interviewer proceeded from the starting point along a pre-designated route. If he encountered new streets or roads or alleys not indicated on the map, special instructions told him what path to follow at these points. After counting a randomly determined number of households from the starting point, the interviewer began making calls. From this point on, the interviewer called on each consecutive household along his route. This procedure is in essence the same as that used in half-open interval sampling.

The second objective was achieved at the completion of the field work. By the time the field work had been completed, after a full year's work, the interviewers were thoroughly familiar with their clusters. At that point, and only then, the interviewers made an enumeration of the total number of dwelling units existing in a cluster. In doing so, they recorded any new construction and demolitions since the beginning of the survey work. Many precautions were taken to ensure an adequate performance. The procedure varied, depending upon the density of the population within clusters. In rural clusters and in those located in small cities, it was not difficult for the interviewer to reliably enumerate the number of dwelling units contained therein, because he was already familiar with the territory and, in general, no unusual configuration of

buildings existed. In several instances, however, the work was compared with current city directories. The most difficult problem occurred in the case of cities with population of 250,000 and over. In these places, the interviewers listed every cluster and also constructed detailed maps showing the location of each structure and the number of dwelling units contained therein. The interviewers' lists and maps were checked against our Sanborn Maps. Because of the interviewers' thorough familiarity with the areas in which they had been working for a year, it was necessary only in very few cases to re-visit clusters in order to investigate discrepancies. Such discrepancies were found most often to be due to the recent subdivision of flats, defined on the Sanborn Maps as one to a floor in a multi-family structure, into smaller dwelling units. Thus, the enumeration procedure served to modify the Sanborn Maps where changes had occurred, while the maps served as a guide to assure us of the thoroughness of the enumeration.

Sanborn Maps are made for use in the Fire Insurance industry. They are kept up to date by annual revision. They are drawn to large scale, usually 50 feet to the inch, and show an enormous amount of detail. Every structure is mapped, indicating type of construction, number of stories, porches, etc. One- and two-family structures are distinguishable from other structures. In addition, in multiple-family units, structures with one family per floor are identifiable, as are rooming houses with 10 or more rooms available for lodging purposes. A host of other detail are

shown on these maps, such as stores, garages, hotels, fire hydrants, main water lines, etc. An example of a section of a Sanborn Map is shown below.\*



Map section reproduced through the courtesy of the Sanborn Map Company.

\*For further discussion of the application of Sanborn Maps in sampling, see: Morris H. Hansen, William N. Hurwitz and William G. Madow, "Sample Survey Methods and Theory": Vol. I—Methods and Applications; Chapter VI, p. 249; to be published by John Wiley and Sons, July, 1953.



The above procedures thus satisfied the condition implicit in any probability sample, that condition being that the probability of every unit coming into the sample be known. Whether or not the probability is known in advance is immaterial.

d. *Selection of Individuals within Households*

The selection of the specific individual within each of the chosen households had to be undertaken at the field level by the interviewer. As in the case of household selection, one cannot depend upon the interviewer to make an objective selection of an individual within the household. It was necessary to introduce a technique which either minimized or completely eliminated the human element in this selection.

A technique had been developed and applied by us in the 1950 study of LIFE's accumulative audiences which was simple for the interviewers to use. It gave every member of the selected household an equal chance of being included in the sample. It defined one and only one person as a respondent in each household in the sample. The same technique was employed in this study.

On the questionnaire used in the first wave, when the respondent was selected, space was provided for listing every household member aged 10 years and over. There was a box, within which one column was used for the names and another column for a series of "X" marks. These "X" marks were put on the questionnaires in the New York office. Their arrangement was such that every

household member listed had an equal chance of selection, independently of the size of the household. This method ensured knowledge of the probability of each respondent's being selected when his household came into the sample, just as the enumeration of households within a cluster ensured knowledge of the probability of each household's being selected. Knowledge of these probabilities ensures the correct representation of both individuals and households in the survey data.

The column of "X's" was covered with black tape. After the interviewer had listed all household members, the tape was removed and the pattern of "X" marks automatically designated the particular respondent in the household.

## Chapter D: Some Definitions

### I. What is a Reader?

The definition of a "reader" for this survey had to be equally applicable for each of the print media. Such a definition must draw a simple, least arbitrary boundary between "reading" and "not reading." The definition of a reader in this survey is: Any person who, after going through an issue with the interviewer, states that he is sure that he has looked into that issue some time previous to the interview.

A person is asked whether or not he has looked into the issue only *after* he has inspected the issue. This requires that the respondent should not be asked whether he has seen any item *during* his inspection of items in the magazine. If, dur-

ing this item-by-item inspection, a respondent is asked whether he has seen each item before, he may erroneously claim he has seen an item because he confuses the item with a similar one he has seen somewhere else. He, therefore, commits himself to appear as a reader of that issue when, in reality, he may not be. The danger is that later the respondent may feel himself under considerable pressure and not be able to reverse this original readership claim, even though further examination convinces him he has not looked into the issue before. Vice-versa, the respondent may be doubtful of the familiarity of specific items observed in isolation. He thereby may be inclined to deny readership of the issue in order to avoid seemingly contradictory statements.

The considerations which guided the measuring method are consistent with the basic law of psychological measurement, that "*The Recognition Unit has to approximate the Perception Unit.*"

A common example illustrates this principle. Driving along a road by car may enable the motorist to "recognize" the road and thereby be certain he is on the right road. The motorist meets a barn first, a railroad crossing second, a warning curve sign third, a traffic light fourth, etc. Each of these items observed in isolation, without the benefit of the preceding ones and following ones, remains unproductive for the recognition of the road. It is the totality of these items that convinces the motorist that he has gone over this road before.

It is interesting to note that everyone in daily life tends to obey the Law of Recognition and Perception when he himself seriously is concerned with the question, "Have I seen

this magazine or not?" He realizes that he frequently cannot determine his own readership or non-readership of a magazine on the basis of a single page without the benefit of other pages. He, therefore, deliberately leafs through the issue first before he feels safe to commit himself to himself. The extent to which he leafs through is determined by what his Perception Unit is.

The technique in this study avoided all readership questioning until the respondent had inspected every editorial item used in the survey copy.

For the four magazines, all major editorial items and major features were shown. For *This Week*, every item and feature was shown that appeared in the edition circulated locally. In areas where *This Week* is not distributed, the items appearing in the edition carried by the newspaper located closest to the respondent were used.

Finally, the definition does not require any number of items greater than one to be read or seen. The definition implies that "something" is read or seen. "Something" means that one or more items were seen—that is, *at least one* item was seen. This is the only definition that provides a uniform measurement for all magazines, regardless of the number of items in different magazines. A reader definition of seeing 10 items is far more severe for a magazine with 20 items than for a magazine with 30 items. Any fixed requirement greater than one item read or seen imposes a greater penalty on magazines with a small number of editorial items than on magazines with a large number of editorial items. Moreover, any raising of the minimum only serves to leave out part of

the reading population.

The requirement of seeing at least one item does not imply that most readers see only one or a few items in a publication. Such reasoning is equivalent to concluding that most voters are 21 years old, because the requirement for voting is that the individual be at least 21 years old. There are some data available on the number of items readers see in LIFE. The 1950 LIFE audience study found that the average LIFE reader recalled seeing 69% of all the items in an issue, and that 1.6% of all readers recalled seeing only one item.

The questioning technique first asked all respondents: "Have you looked into any issue of Look magazine within the past six months, either at home or somewhere outside your home? How about LIFE? And The Saturday Evening Post? Ladies' Home Journal?" For This Week the question was the same, except that a comment was added: "Here is what This Week looks like" (the front cover of This Week was then shown to respondents); "it comes with some weekend newspapers." It was decided to show each respondent the front cover of This Week as some persons who do read it may not recognize the supplement from the name alone. Showing the supplement to them, therefore, minimized the danger of not counting these people. A respondent who gave a definite answer of "No" to any magazine was classified as a non-reader of that issue of the magazine. Whenever a respondent said "Yes" or "Not Sure," he then made a thorough examination of the issue of the magazine carried by the interviewer.

In the second question, the respondent was asked to exam-

ine the copy without suggesting or implying the readership purpose of the interview: "While I leaf quickly through this issue, please stop me if we come to an item that looks especially interesting." The burden and boredom of page by page questioning was avoided. The interviewer simply turned through the entire issue and the respondent answered only when an item appeared interesting to him. In this way, the respondent was made to feel that the chief purpose of the interview was editorial and that his interview was valuable, regardless of whether or not he had seen the issue before.

Many respondents enjoy this procedure and some even like to pass judgment on certain items by adding "opinions." The few respondents who are so diverted from the subject can be brought back by the use of the appropriate comment made by the interviewer. A great deal of care went into formalizing these comments, and they became an integral part of the interview. If, during the item-by-item exposure, the respondent insisted on mentioning that he had seen an item before, the interviewer said: "Suppose this were the first time you had seen it, does this item *look* especially interesting?" This brought the respondent back to the subject and carried the implication that the interviewer was more concerned with what the respondent thought about the item's appearance than with whether or not he had seen the item.

After the respondent had gone through the survey copy, the interviewer cautioned him against the possibility of confusing items in that issue with similar ones seen elsewhere: "As you know, the articles and pictures in different magazines are often very much alike. Just to keep the record straight, let

me ask you . . ." The interviewer immediately followed this with the final key question that established a respondent as a reader or non-reader. "Now that we've been through the whole issue, are you sure whether or not you happened to look into this *particular* issue before?"

A person is considered a reader only if he answers this question affirmatively. It means he has read or seen something in that issue before; that is, at least one or more items.

## 2. What is a "Listener"? What is a "Viewer"?

This study measured the audiences of print media in such a way as to make them projectable to all people 10 years of age and over in the United States. For radio and television, a measurement technique had to be used which would also be projectable to all people 10 years of age and over in the United States. To achieve this, comparable opportunities for exposure had to be ensured. Therefore, the measurement had to:

- a. Be based on people—not sets—not homes; just as the audiences of print media are based on people.
- b. Include all people, no matter where they live—in television areas or not; just as print media audiences represent all areas regardless of whether or not the medium is distributed there.
- c. Include all listening or watching no matter where the activity occurs—in homes, in cars, or in taverns; just as print media audience figures include reading in homes, in offices or in airplanes.

- d. Include listening or watching whether for only a few minutes or for the entire program; just as print media measurements include readers of only a few items as well as readers of all of them.

It must be remembered that while the audience measurements for print media, radio and television were made comparable as far as *opportunities* for exposure to these media were concerned, the *units* measured cannot be made comparable. Print media are measured in terms of space, radio and television in terms of time. Print media were measured by exposure to a particular issue, radio and television by exposure to a particular broadcast or telecast of a program.

The method of questioning for radio and television proceeded as follows: "Did you happen to listen to a radio (watch any television) anywhere in the last three weeks, either at home or somewhere outside your home?" Any person answering "Yes" or "Not Sure" was asked the next series of questions: "Have you listened to all or any part of a Jack Benny radio program within the past three weeks, either at home or somewhere outside your home? Have you listened to all or any part of an Amos 'n' Andy radio program within the past three weeks?" etc., for other radio programs. For certain programs, additional description was given in order to clearly identify the programs. For instance, Texaco Star Theatre was additionally described as the program that "stars Milton Berle"; the Colgate Comedy Hour as the program that "stars a different comedian each week, like Eddie Cantor, Dean Martin and Jerry Lewis and others;" etc.

A respondent saying "No" or "Not Sure" to any of these

programs was counted as a non-listener (or non-viewer) of that program on that wave. For each program answered "Yes," the respondent was then asked questions pointed to remind him of the very last broadcast (or telecast) of that program he had listened to (or watched). One such question was: "The last time you listened to (watched) the program, did you listen to (watch) it on a home radio, or car radio, or what? (On a home television set or somewhere else?)" An additional question was: "The last time you listened to (watched) the program, did you listen to (watch) all of it or only a part of it?" The purpose of these questions was to serve as additional aids to the respondent to help him remember the *last* occasion on which he listened to or watched the program. With his mind focused on this last particular occasion, he was then asked the key question: "The last time you listened to (watched) the . . . . . program—was that over two weeks ago, over a week up to two weeks ago, or within the last seven days (not counting today)?" Respondents who gave a vague answer to this question, such as "last week," "last Sunday," "about a week ago," etc., were further questioned by the interviewer to ascertain the exact day and date. For example, "last Sunday" could mean to some respondents "this past Sunday" or "Sunday a week ago." Additional questions clarified this and served as a further aid to the respondent to help him recall the last program he listened to (watched).

All persons who listened to or watched a program "within the past seven days" are "listeners" or "viewers" of that particular program on that wave.

According to the survey schedule, radio data were to be based on 32 different broadcasts of each of the four radio programs, and television data on 32 different telecasts of each of the five television programs. In reality, however, the number of different broadcasts or telecasts represented in the results is somewhat lower. This is because radio and television broadcasts and telecasts did not always go on as scheduled. Occasionally, a special event caused a national blackout of a particular broadcast or telecast. Notably, the political campaign of 1952 brought about cancellations of several broadcasts and telecasts. These "losses" are not included in the results, for to call a person a non-listener or non-viewer of those particular broadcasts or telecasts would have unjustly lowered the audience figures for these media. A complete description of the extent of such losses and how they were handled in tabulating is given in Chapter F.

### 3. A Note on Conditioning

In the report of the first study of LIFE's accumulative audiences, as well as in the study of LIFE's household audiences, the question of possible conditioning of respondents was discussed. In being repeatedly questioned on the same subject, there is a possibility that a respondent's interest in the subject increases or decreases and his behavior toward it therefore changes. In those studies where the questioning was centered on LIFE only, it was found sufficient to ask within the framework of interest a few questions about motion pictures and to show folders of motion picture scenes to diversify the subject matter. No pattern of respondent conditioning

was detectable when this practice was employed. It was felt, therefore, that in the present study, where again the emphasis in the questioning was on interest and where the subjects of questioning were so widely diversified, the possibility of conditioning was at a much lower level. Each interview contained questions about motion pictures, four radio programs, five television programs, a newspaper supplement and four magazines. During the summer, while the radio and television programs under study were off the air, various questions on radio listening and television viewing were included in the interview in order to maintain the diversity of subjects.

### **Chapter E: The Meaning of Repeat and Accumulative Audiences**

The audiences reached by a series of issues, broadcasts or telecasts of a medium build up as the number of issues, broadcasts or telecasts increases. For example, suppose that a single issue of a magazine reaches one million people. A second issue also reaches one million people, etc. The question then is: "How many people are reached by two issues of the magazine?" Two extreme situations are possible:

1. The *same* one million persons are reached by both issues.
2. The persons reached by the second issue are completely *different* from the persons reached by the first issue.

In the first situation, the number of *different* persons reached by the two issues is one million, the same as the number reached by one issue. Each person is a "repeat." Every

person reached was exposed twice to the magazine since he was reached by both issues. The audience of a single issue was one million and the "accumulative" audience of two issues was also one million, since no new audience was added by the second issue.

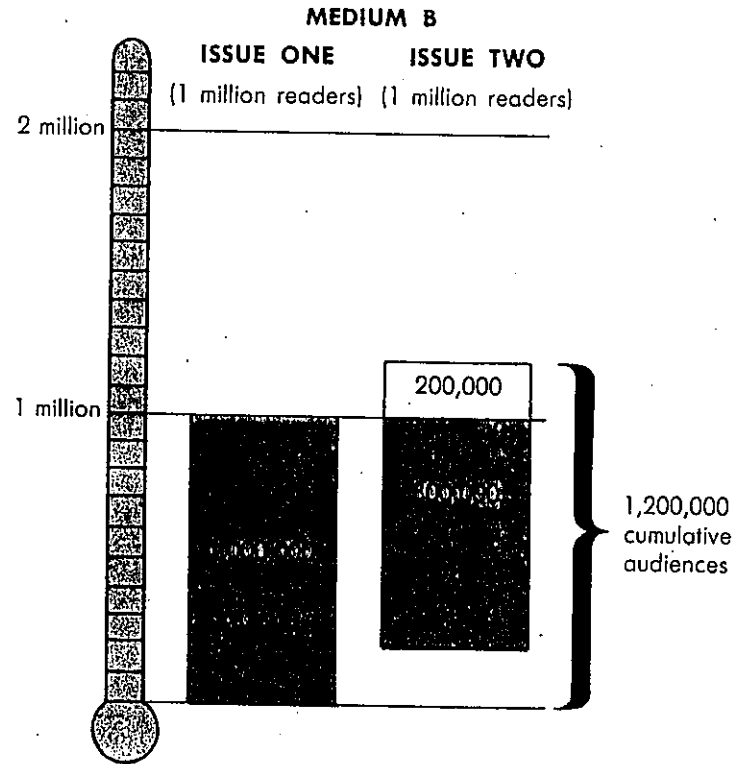
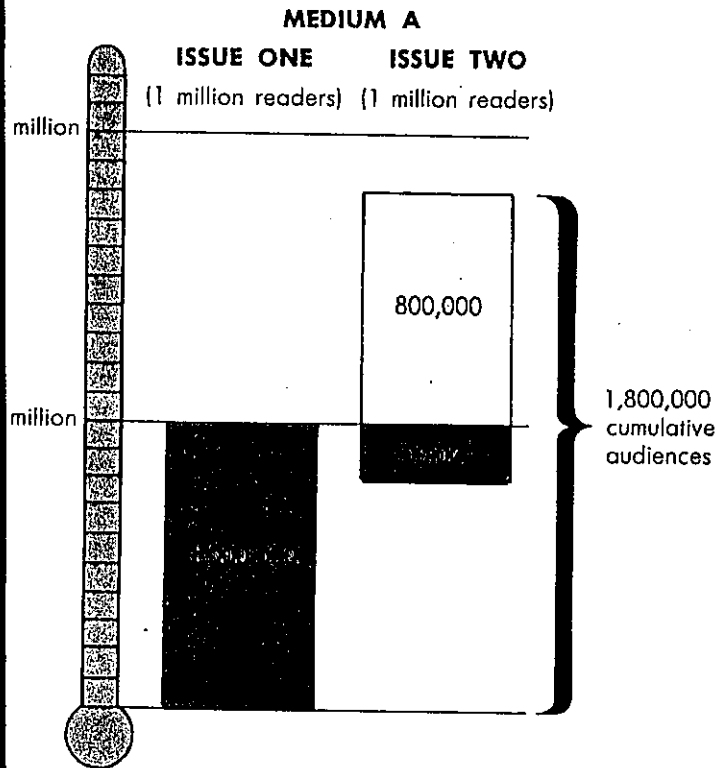
In the second situation, the number of different persons reached by two issues is two million—the one million reached by Issue One and the one million different people reached by Issue Two. In this case, there are *no* repeats. The audience of a single issue was one million, but the accumulative audience of two issues was two million, since all new persons were added by the second issue.

In reality, of course, the true situation for any medium lies somewhere between the two extremes mentioned above. Some of the persons reached by Issue One would also be reached by Issue Two—certainly not all of them as in the first situation, or none of them as in the second situation. It is important for the advertiser to know just how many persons reached by one issue, broadcast or telecast are also reached by a second, a third, a fourth, etc. He must know whether a medium makes repeat impressions on the same people or whether succeeding issues, broadcasts or telecasts accumulate new audiences.

Consider a more realistic situation of Hypothetical Media A and B. Both, let's say, reach the same number of people, one million, with Issue One. Both also reach one million with Issue Two. However, here is the difference: The accumulative audience of Medium A is 1.8 million and the accumulative audience of B is 1.2 million. "A" has more accumulation

than "B." However, Medium A has a repeat audience of 200,000 and B has 800,000. That is, B has more repetition than A.

From these examples, it is evident that two media which reach the same number of people with an average issue, broadcast or telecast, can have very different accumulative and very different repeat audiences. Conversely, two media



which reach different numbers of people with an average issue, broadcast or telecast, may reach the same accumulative or the same repeat audiences. Many other combinations are possible and, in addition, both repetition and accumulation continue as the number of issues, broadcasts or telecasts increases.

Audience accumulation and repetition vary somewhat with the spacing between the audience observations. In this study all observations on each medium were spaced eight weeks apart for each respondent. The six-issue audiences for print media are representative of six issues spaced at eight-week intervals over a year. Similarly, the four-broadcast and four-telecast audiences of the air media are representative of widely spaced intervals. In the 1950 LIFE Accumulative Audience Study, on the other hand, the audiences were representative of a more restricted period.

A longer interval between observations tends to give slightly different accumulation and repetition rates, mainly because of population changes and changes in people's habits. For example, two issues spaced fifty years apart would probably have 100% turnover in audience. It was anticipated, therefore, that the LIFE accumulative and repeat audiences of the two studies would differ somewhat, independently of any other considerations of audience size or composition.

The particular spacing of issues used in this study was a part of the overall survey design. The scheduling of the field work was arranged so that all seasons would be represented, and therefore the results could be given the most general interpretation. It should be particularly noted that the audiences do not represent consecutive issues, broadcasts or telecasts.

An examination of this study together with the previous accumulative audience studies of LIFE provides some information about the effect of spacing on repetition and accumulation rates. The previous studies of LIFE's accumulative

audiences contained issues of varied spacing, but with all 13 issues studied restricted to a six-month period. Special analysis showed that such differences that exist between the audiences of individual issues, or between pairs and higher groupings of issues, obscure any significant pattern which could be attributed to spacing alone. The tendency of the data, though not significant, indicated very slightly lower accumulation of closely spaced issues. A clue to the extent of the difference in accumulation rates due to spacing can be seen by comparing on an index basis the audiences of the 1950 study, which contained 13 issues in a six-month period and therefore closely spaced, with those of the present study, representing six issues spaced over a year.

Audience reached by:	1950 Study	1953 Study
	<i>13 issues in 6 months</i>	<i>6 issues in 12 months</i>
One issue	1.00	1.00
Two issues	1.44	1.47
Three issues	1.72	1.77
Four issues	1.92	1.99
Five issues	2.07	2.16
Six issues	2.20	2.29

While it appears that differences in spacing result in differences of minor magnitude with regard to LIFE's audiences, this conclusion should not be generalized to other magazines or other media. The editorial content of some print media, and the content of some radio and television programs, may be such as to lead to a greater or lower repetition in closely



spaced issues, broadcasts or telecasts. In view of the evidence shown above and an examination of the variations in the repetition and accumulation rates among magazines, it appears that the rate of accumulation is more a function of the particular magazine than of the particular spacing of issues.

## Chapter F: Tabulations

Editing and coding of questionnaires were done concurrently with the interviewing. All editing and coding was handled as a continuous operation throughout the year of the survey by the same people. This staff was kept small. Thus, the entire operation ensured uniform interpretation of instructions and a high level of performance. Tabulations were made only after all waves of the survey were completed.

### Single Issue Audiences

Single issue audiences for each of the print media and for each radio and television program were obtained from the original sample of 7,141 people. After the field observations had been completed, each person was assigned a measure of probability concerning his behavior with regard, for example, to reading of a particular magazine. In those cases where he was interviewed once, this measure was either 1 or 0, depending upon whether or not he had read the magazine in question. If he had been interviewed twice, his measure of probability was either 2/2, 1/2 or 0, depending upon whether he had read 2, 1 or 0 of the two issues shown to him. At the final

level, for the person interviewed six times, his measure of probability was one of the following: 6/6, 5/6, 4/6, 3/6, 2/6, 1/6, 0. After these estimates of probabilities had been assigned to all 7,141 people in the sample, an overall estimate was obtained. In utilizing this procedure, the estimation of audience size was essentially independent of the number of times a person had been interviewed. However, the reliability of the estimate increases as the proportion of people interviewed six times increases.

Thus, the average issue audience of each print medium is based on the 36,686 observations procured from the 7,141 people interviewed in Wave I. According to the survey schedule for the air media, each program's average broadcast or telecast audience should have been based on 22,849 observations procured from these 7,141 people. However, observations were missed for individual programs. The reasons for these were: (1) cancellation of broadcasts during the 1952 election campaign and on Election Day; (2) variations in the starting and ending of the summer hiatus; (3) a strike of television engineers which caused the cancellation, almost throughout the country, of one showing of the Colgate Comedy Hour; (4) change of the Texaco Star Theatre to a three-week-in-four schedule in the fall-winter season of 1952. In tabulating the audience data, these special occasions were omitted so that they do not affect the size of the audiences. Therefore, air media audiences are based on somewhat less than the full sample. The following table presents the actual number of observations on which the average audiences are based:

Number of Observations for Radio and Television Average Audiences

Radio Programs	Number of Observations
Amos 'n' Andy	22,506
Charlie McCarthy	21,889
Jack Benny	22,643
Lux Radio Theatre	22,552
Television Programs	
Colgate Comedy Hour	21,958
Fireside Theatre	20,930
Red Skelton	22,803
Texaco Star Theatre	19,193
Your Show of Shows	22,643

**2. Accumulative and Repeat Audiences**

For the purposes of obtaining audience accumulation and repetition rates, it is necessary to make repeat observations on the same people over a period of time. The original sample in its entirety could not be used, since some people were not carried through the entire year of the field work. It was therefore necessary to base these rates on the 5,236 people interviewed in all six waves. A total of 31,416 observations were made for each print medium, and for the air media the number of observations ranged from a minimum of 17,562 to a maximum of 20,944 per program.

As was expected, the composition of the six-wave panel

differed somewhat from that of the total sample. A panel operation inevitably gives rise to varying panel attrition rates among people with different characteristics. As is shown below, the individuals whom a panel is most likely to lose are people living in rented homes, who are more mobile than home owners, and men of draft age.

The panel characteristics on sex and age of individuals and home tenure of households are compared below with the original sample.

	Sample	Panel
	%	%
<b>Sex: Male</b> . . . .	47.6	45.3
	%	%
<b>Age: 10-14</b> . . . .	9.4	10.7
15-19 . . . .	8.4	8.2
20-24 . . . .	8.0	6.5
25-34 . . . .	19.4	18.6
35-44 . . . .	19.5	19.8
45-54 . . . .	14.4	15.1
55 and over . .	20.9	21.1
	%	%
<b>Tenure: Own home</b> .	58.0	62.9

In order to obtain close identity between the panel, on which accumulative audience data were based, and the original sample, on which the audiences of the average issue,

broadcast and telecast were based, ratio estimating procedures were applied to the panel for the above three characteristics before accumulative audience tabulations were made.

The repetition rates up to six issues were found directly from the survey by counting up the number of exposures of each respondent to each medium. However, since the audiences of different issues of a medium fluctuate about the average issue, the manner in which audiences accumulate over a series of issues depends on the order in which the issues are taken. Many such orders are available: for example, chronological order, reverse chronological order, or any of numerous random orders. There are 720 such orders of arranging six issues, and 24 such orders of arranging four issues. The choice of any particular order would be arbitrary. However, a simple computation yields the *average* result of all possible orders of arrangement. This is a useful figure in practice, since it gives the expected accumulation of any arrangement of issues. The mathematical basis for this computation is given in Chapter H.

The accumulation and repetition rates up to six issues for print media and four broadcasts and telecasts for air media were applied to the average issue, broadcast and telecast audiences.

### **3. City Sizes**

The city size breakdowns used in this survey refer to the absolute sizes of the places in which people reside. Thus, an individual living in a suburb within a metropolitan area

is classified as living within a metropolitan area in a city of the size class in which the suburb falls.

### **4. Household Income**

Each respondent was given a card of income groups by which he classified his household. When a child was the respondent, this information was procured from an adult household member when possible. An inquiry on income always gives rise to a residual group who refuse to give the information requested or claim not to know it. In these cases, the income group in which the household fell was determined on the basis of interviewers' estimates of income together with interviews' subjective socio-economic rating and other household characteristics.

### **5. Projections**

All audience data are projected on a total of 119,600,000 persons. This is the estimate of the Bureau of the Census of the population aged 10 years and over, April 1952. This figure was given on request in a letter from the Chief of the Population and Housing Division, March 3, 1953.

## **Chapter G: Validations**

### **1. Circulation**

The table below compares the survey's estimates of the number of copies sold by each of the four magazines and This Week with the ABC figures. All figures are rounded to the nearest 5,000. ABC figures are estimates of the U. S. net paid circulation excluding bulk and sales to the armed forces.

	Survey Estimates of U.S. circulation		Estimated U.S. circulation at time of check based on ABC figures	
	Projected number of copies	Copies per hundred households	Number of copies	Copies per hundred households
LIFE	4,985,000	11.0	5,030,000	11.1
S. E. P.	3,605,000	7.9	3,775,000	8.2
Look	3,015,000	6.6	3,130,000	6.9
L. H. J.	4,015,000	8.8	4,050,000	8.9
This Week	10,110,000	22.2	10,295,000	22.6

All survey estimates appear to be on the low side. In reality, they may be on the high side, since the survey estimates did not include copies purchased by the institutional population and business establishments.

During the year of the field work some publications had changes in their circulation. For example, Ladies' Home Journal has substantially increased its circulation since June, 1952, when the survey ABC check was made.

## 2. Household Ownership of Radio and Television Sets

The data below compare the survey's estimates of the percentage of households owning radio and television sets with independent industry estimates.

	Survey Estimates (April 1952)	Independent Estimates
	%	%
Own a radio set*	94.5	95.6 <sup>(1)</sup>
Own a television set	38.1	37.3 <sup>(2)</sup>

\*Survey reports radio sets in working order. Census reports all radio sets.

Television ownership data were procured again from the panel at the time of the last interview.

	Survey Panel Estimate (January 1953)	Independent Estimate
	%	%
Own a television set	46.1	46.0 <sup>(3)</sup>

## 3. Other Comparisons

Comparisons of survey sample findings with similar findings of independent sources do not in themselves validate the sample. However, when the sampling operation is independent of known population characteristics, then the ability of the sample to reflect the population in these known characteristics is to some degree evidence of its ability to measure the unknown population characteristics which are the purpose of the survey. The evidence presented below is, of course, not so relevant as the more direct evidence of purchases of publications and ownership of radio and television sets.

The following tables show the comparison of data obtained from the original sample of 7,141 individuals with data obtained from the panel of 5,236 individuals who were interviewed in the original sample and in all the five succeeding waves, and with corresponding data from independent sources, where such data were available.

(1) 1950 Census of Housing, Series HC-5 No. 2.

(2) N.B.C. Television Network Data Chart, April, 1952. The number of sets was divided by the number of households in the U. S. The N.B.C. figures include sets in bars, restaurants, etc.

(3) N.B.C. Television Network Data Chart, January, 1953.

## INDIVIDUAL CHARACTERISTICS

	Estimates derived from sample of 7,141 respondents	Estimates derived from panel of 5,236 respondents	Independent Estimates
	(Pop. 10 and over)		(Pop. 10 and over)
	%		%
<b>Sex:</b> Male . . . . .	47.6	*	48.0 <sup>(1)</sup>
	(Pop. 14 and over)		(Pop. 14 and over)
	%		%
<b>Age:</b> 14-19 . . . . .	11.1	*	11.3 <sup>(2)</sup>
20-24 . . . . .	8.7		8.6
25-34 . . . . .	20.9		21.0
35-44 . . . . .	21.1		19.3
45-54 . . . . .	15.6		16.1
55 & over . . . . .	22.6		23.7
Total . . . . .	100.0		100.0
<b>Education:</b>	(Pop. 25 and over)	(Pop. 25 and over)	(Pop. 25 and over)
<i>Years of school completed</i>	%	%	%
0-4 . . . . .	9.3	9.5	11.1 <sup>(3)</sup>
5-7 . . . . .	14.4	14.0	16.4
8 . . . . .	21.6	20.6	20.8
9-11 . . . . .	18.0	18.6	17.4
12 . . . . .	20.5	21.1	20.8
13 or more . . . . .	16.2	16.2	13.5
Total . . . . .	100.0	100.0	100.0

\*See Chapter F, Section 2.

## INDIVIDUAL CHARACTERISTICS

	Estimates derived from sample of 7,141 respondents	Estimates derived from panel of 5,236 respondents	Independent Estimates
	(Pop. 14 and over)	(Pop. 14 and over)	(Pop. 14 and over)
	%	%	%
<b>Employment and Occupation:</b>			
<i>Employed</i> . . . . .	51.3	51.6	55.0
Professional, semi-professional . . . . .	3.7	4.0	4.7 <sup>(2)</sup>
Proprietor, manager, official . . . . .	4.4	4.0	5.5
Clerical, sales . . . . .	9.9	10.5	10.8
Craftsman, foreman . . . . .	8.8	8.8	8.0
Operative . . . . .	10.0	10.0	11.1
Laborer (except farm) . . . . .	2.7	2.7	3.3
Service worker . . . . .	5.7	5.3	5.9
Farmer, farm laborer . . . . .	6.1	6.3	5.7
Not Employed . . . . .	48.7	48.4	45.0
Total . . . . .	100.0	100.0	100.0
	(Pop. 14 and over)	(Pop. 14 and over)	(Pop. 14 and over)
	%	%	%
<b>Marital Status:</b> Married . . . . .	71.2	70.1	68.5 <sup>(4)</sup>
	(Pop. 10 and over)	(Pop. 10 and over)	(Pop. 10 and over)
	%	%	%
<b>Race:</b> Non-white . . . . .	10.6	11.0	10.0 <sup>(3)</sup>

### Sources of Independent Estimates:

- |  |  |
|--|--|
| <p>(1) Estimate of Bureau of the Census, April 1952, per letter from Howard G. Brunsman, Chief, Population and Housing Division, Bureau of the Census, March 3, 1953.</p> <p>(2) Current Population Reports, Labor Force, Series P-57 No. 118, April 1952.</p> <p>(3) 1950 Census of Population, P-B1.</p> | <p>(4) Current Population Reports, Population Characteristics, Series P-20 No. 41, April 1952.</p> <p>(5) 1950 Census of Housing, Preliminary Reports, Series HC-5 No. 1.</p> <p>(6) 1950 Census of Housing, Advance Reports, Series HC-8 No. 1.</p> <p>(7) Estimates R. L. Polk &amp; Co., July 1, 1952, per letter March 27, 1953.</p> |
|--|--|

## HOUSEHOLD CHARACTERISTICS

	1941 Sample	Derived from panel of 1,200 respondents	Independent Estimates
<b>Number in household: One person</b>	7.4	9.0	9.2 <sup>(5)</sup>
Two persons . . . . .	28.8	27.9	27.9
Three . . . . .	22.0	22.6	22.6
Four . . . . .	18.7	18.8	18.9
Five . . . . .	10.7	10.6	10.5
Six or more . . . . .	12.4	11.1	10.9
Total . . . . .	100.0	100.0	100.0
<b>Tenure: Own home . . . . .</b>	58.0	*	55.0 <sup>(6)</sup>
<b>Automobile: Makes of car owned</b>	%	%	%
Buick . . . . .	**	7.0	7.5 <sup>(7)</sup>
Cadillac . . . . .		1.2	1.4
Chevrolet . . . . .		24.6	22.8
Chrysler . . . . .		3.0	2.8
De Soto . . . . .		2.2	2.1
Dodge . . . . .		5.6	6.1
Ford . . . . .		18.7	18.1
Hudson . . . . .		2.4	2.1
Mercury . . . . .		2.5	3.2
Nash . . . . .		2.3	2.5
Oldsmobile . . . . .		4.9	5.4
Packard . . . . .		1.6	1.6
Plymouth . . . . .		11.3	11.2
Pontiac . . . . .		5.9	6.5
Studebaker . . . . .		3.0	3.4
Other makes . . . . .		3.8	3.3
Total . . . . .		100.0	100.0

\*See Chapter F, Section 2.

\*\*Automobile data were not procured for the original sample.

## Chapter H: Projection to 13 Issues of Print Media

Since the accumulative audience measurements up to 13 issues of LIFE shown in the 1950 study had been found useful, at the beginning of this study it was specified that approximations of the accumulative audiences up to 13 be obtained. To obtain these estimates through actual field observations would have been beyond the magnitude of this study; it would have required either the elimination of several of the media being studied, or the extension of the field work for another year. On the other hand, it was noted in the previous study that the accumulative audience up to six issues of LIFE was over 80% of that up to 13. It was therefore felt that it would be possible to project the 6 issues' audiences of the print media up to 13 issues with a satisfactory mathematical model.

### The mathematical model

A suitable mathematical model was developed, which operates under the most general conditions and provides a basis for projection. This model does not rely in any way upon the data obtained previously when the accumulation of LIFE's audience up to 13 issues was studied. This latter study, however, provided a basis for testing the model.

We only assume that a frequency distribution exists through the duration of the survey which describes the various probabilities of seeing the average issue of a publication. This distribution may be a continuous function or it may be non-continuous.

The symbols used are:

$p$  = probability of an individual seeing the average issue of a magazine. In the population of the United States there are some people for whom the probability of seeing the average issue is zero. These are the people who never see it. At the other extreme, there are some people who see every issue, whose probability is unity. It is possible for  $p$  to take on any value between zero and one.

$f(p)$  = the number of people associated with a given value of  $p$ .

$P$  = the total number of people in the United States 10 years of age and older.

$\pi_r^n$  = the number of people seeing  $r$  out of  $n$  issues of the magazine; i.e., the audience of exactly  $r$  out of  $n$  issues.

For example:  $\pi_1^1$  = the number of people seeing one out of one issue

$\pi_0^1$  = the number of people seeing zero out of one issue

$\pi_4^6$  = the number of people seeing four out of six issues

$K_n$  = the accumulative audience up through  $n$  issues.

Thus,  $K_n = P - \pi_0^n$ ; the accumulative audience up to  $n$  issues is equal to the total population minus those who have seen none out of  $n$  issues.

$P = \int_0^1 f(p) dp$ , the total population is the sum of all  $f(p)$ . Since there is no restriction as to whether  $f(p)$  is



continuous or non-continuous, the integration is taken in the Stieltjes sense.

Let us consider individual  $i$ , whose probability of seeing an average issue of Publication X is  $p_i$ . Then out of  $n$  particular issues, he reads on the average  $np_i$  of them. However,  $p_i$  is  $i$ 's probability of seeing an *average* issue, and  $n$  *particular* issues are random as far as  $i$  is concerned. Therefore,  $i$  may read from zero to all  $n$  of the  $n$  particular issues, with probabilities shown below:

Number of issues read, out of $n$	Probability
0	$(1 - p_i)^n$
1	$\binom{n}{1} p_i (1 - p_i)^{n-1}$
2	$\binom{n}{2} p_i^2 (1 - p_i)^{n-2}$
...	...
$n - 1$	$\binom{n}{n-1} p_i^{n-1} (1 - p_i)$
$n$	$p_i^n$

The number of people who, like  $i$ , have  $p_i$  probability of seeing an average issue is  $f(p_i)$ . Each of these people has probability  $\binom{n}{r} p_i^r (1 - p_i)^{n-r}$  of seeing exactly  $r$  out of  $n$  particular issues. Therefore, the mathematical expectation is that  $\binom{n}{r} p_i^r (1 - p_i)^{n-r} f(p_i)$  people in the group read exactly  $r$  out of  $n$  issues.

Now let us sum up all the groups of people having all possible probabilities  $p_i$ . Since nothing is assumed about

the distribution  $f(p)$  except its existence, then we must use the Stieltjes integral to accomplish the summation. Thus, we discover the audience relationships:

$$\begin{aligned}\pi_1^1 &= \int_0^1 p f(p) dp \\ \pi_0^1 &= \int_0^1 (1 - p) f(p) dp \\ \pi_4^6 &= \int_0^1 \binom{6}{4} p^4 (1 - p)^2 f(p) dp\end{aligned}$$

In general,

$$\pi_r^n = \int_0^1 \binom{n}{r} p^r (1 - p)^{n-r} f(p) dp$$

For convenience of notation, let

$$I_r^n = \frac{\pi_r^n}{\binom{n}{r}} = \int_0^1 p^r (1 - p)^{n-r} f(p) dp$$

Obviously,  $I_r^n > 0$ , for all finite values of  $n$ .

From this we can develop a series of important relationships as follows:

$$\begin{aligned}I_r^n &= \int_0^1 p^r (1 - p)^{n-r} f(p) dp \\ &= \int_0^1 p^r (1 - p)^{n-r-1} (1 - p) f(p) dp \\ &= \int_0^1 p^r (1 - p)^{n-r-1} f(p) dp \\ &\quad - \int_0^1 p^{r+1} (1 - p)^{n-r-1} f(p) dp \\ &= I_r^{n-1} - I_{r+1}^n \\ \therefore I_r^{n-1} &= I_r^n + I_{r+1}^n\end{aligned}$$

Thus, once having the  $\pi_r^n$ , for all values of  $r$  from 0 to  $n$  for a particular  $n$ , it is possible by this series of relationships among the  $I$ 's to compute all the accumulative and repeat audiences for all issues less than  $n$ .

Also, having a single  $I_r^n$ , and all  $I_r^{n-1}$  for  $r$  from 0 to  $n-1$ , it is possible to derive all  $I_r^n$  as well as  $K_n$ .

#### Projection to 13 issues

With the formula in terms of  $I_r^n$  demonstrated in the model, and knowing that  $I_r^n > 0$ , it is possible to develop a series of inequalities concerning the audiences of issues beyond  $n$ . For example, a useful inequality is that the growth of the accumulative audience from  $n$  to  $n+1$  issues cannot be more than the growth from  $n-1$  to  $n$  issues.

Another important series of inequalities can be developed by Schwarz's inequality. This states that:

$$\left[ \int_a^b g_1(x)g_2(x) dx \right]^2 \leq \int_a^b [g_1(x)]^2 dx \int_a^b [g_2(x)]^2 dx$$

This inequality obtains for all real functions  $g_1$  and  $g_2$ , whether or not they are continuous.

If we let

$$g_1 = [p^r(1-p)^{n-r-1}f(p)]^{1/2}$$

$$g_2 = [p^r(1-p)^{n-r+1}f(p)]^{1/2}$$

then

$$g_1g_2 = p^r(1-p)^{n-r}f(p)$$

Substituting in Schwarz's inequality, we get

$$\begin{aligned} & \left[ \int_0^1 p^r(1-p)^{n-r}f(p) dp \right]^2 \\ & \leq \int_0^1 p^r(1-p)^{n-r-1}f(p) dp \int_0^1 p^r(1-p)^{n-r+1}f(p) dp \\ & \therefore (I_r^n)^2 \leq I_r^{n-1}I_r^{n+1} \end{aligned}$$

In general,

$$(I_r^n)^2 \leq I_{r+b}^{n+a}I_{r-b}^{n-a}$$

With all the  $I_r^n$  computed for all  $n$ 's 6 and less, there are sufficient data to permit the setting of extremely narrow bounds for the accumulative audience of 7 issues. From the lower bound of the 7-issue accumulative audience, the lower bound of the 8-issue audience can be set, etc. The successive upper bounds are set by the same method.

This procedure can be illustrated thus:

Knowing all the  $I_r^n$ , we set the lower bound of  $I_r^{n+1}$  by the relationship:

$$I_r^{n+1} \geq \frac{(I_r^n)^2}{I_r^{n-1}}$$

To set the upper bound, we make use of the relationships:

$$I_r^{n+1} = I_r^n - I_{r+1}^{n+1}$$

$$I_{r+1}^{n+1} \geq \frac{(I_{r+1}^n)^2}{I_{r+1}^{n-1}}$$

$$\therefore I_r^{n+1} \leq I_r^n - \frac{(I_{r+1}^n)^2}{I_{r+1}^{n-1}}$$

Hence,  $I_r^{n+1}$  is bounded by expressions involving  $I$ 's of lower order, which are known:

$$I_r^n - \frac{(I_{r+1}^n)^2}{I_{r+1}^{n-1}} \geq I_r^{n+1} \geq \frac{(I_r^n)^2}{I_r^{n-1}}$$

Since, for a fixed value of  $r$ ,  $I_r^n$  is a decreasing function of  $n$ , the bounds of the inequality get smaller with increasing  $n$ .

To arrive at the audiences from 7 to 13 issues which are shown in the tables of this report, we took the mid-point between the upper and lower bounds developed at each stage.

Because accumulative and repeat audiences of radio and television programs were measured only up to 4 issues, the data were insufficient for setting the desired narrow bounds on projections to higher order audiences.

The maximum possible errors due to projection of the print media audiences beyond 6 issues are shown below. For each publication, the entire projected system as a unit is subject to the same tolerance as the 6-issue accumulative audience. To obtain the approximate tolerances of the projected audiences, the tolerance of the 6-issue audience should be added to the errors shown in this table.

Maximum Errors Due to Projection from Six to Thirteen Issues

	LIFE	The Saturday Evening Post	Look	Ladies' Home Journal	L. H. J. (Females Only)	This Week
Audience reached by:						
Seven issues	50,000	50,000	50,000	50,000	50,000	50,000
Eight issues	50,000	50,000	50,000	50,000	50,000	50,000
Nine issues	100,000	100,000	100,000	100,000	100,000	100,000
Ten issues	200,000	200,000	200,000	200,000	150,000	150,000
Eleven issues	350,000	300,000	400,000	300,000	250,000	300,000
Twelve issues	550,000	450,000	650,000	500,000	350,000	450,000
Thirteen issues	800,000	650,000	950,000	750,000	500,000	600,000

## Chapter I: Tolerances

Every figure in this report is subject to its own sampling tolerance, which depends on a multitude of factors. Below are the tolerances of the single issue audiences of print media and the single broadcast and telecast audiences of radio and television programs, and also the tolerances of the accumulative audiences.

### Tolerances (19 in 20 probability level)

	Magazines and Newspaper Supplement	
	Single-issue audience	Six-issue accumulative audience
	%	%
Life	1.4	2.3
Saturday Evening Post	1.1	2.1
Look	1.2	2.5
Ladies' Home Journal	1.0	2.0
This Week	1.5	2.4

	Radio Programs	
	Single broadcast audience	Four-broadcast accumulative audience
	%	%
Amos 'n' Andy	1.3	2.3
Charlie McCarthy	1.2	2.1
Jack Benny	1.3	2.3
Lux Radio Theatre	1.1	2.0

	Television Programs	
	Single telecast audience	Four-telecast accumulative audience
	%	%
Colgate Comedy Hour	1.9	2.6
Fireside Theatre	1.7	2.3
Red Skelton	1.9	2.5
Texaco Star Theatre	1.9	2.5
Your Show of Shows	1.9	2.6

Alfred Politz Research, Inc.  
September 1, 1953

**CUMULATIVE AUDIENCES OF  
LIFE  
IN TOTAL**  
(From One to Thirteen Average Issues)

Audience reached by	% coverage of U. S. population	Number of readers
One issue	22.1%	26,450,000
Two issues	32.4	38,800,000
Three	39.1	46,800,000
Four	44.0	52,550,000
Five	47.7	57,000,000
Six	50.6	60,500,000
Seven (estimated*)	53.0	63,350,000
Eight	54.9	65,700,000
Nine	56.6	67,650,000
Ten	57.9	69,300,000
Eleven	59.1	70,700,000
Twelve	60.2	71,950,000
Thirteen	61.1	73,050,000
Read none of thirteen issues	38.9	46,550,000
<b>Total: All people in United States ten years old and older</b>	<b>100.0%</b>	<b>119,600,000</b>

\*The audiences from seven to thirteen issues are estimated by extension from survey data. See "Operational Design and Procedures", Chapter H.

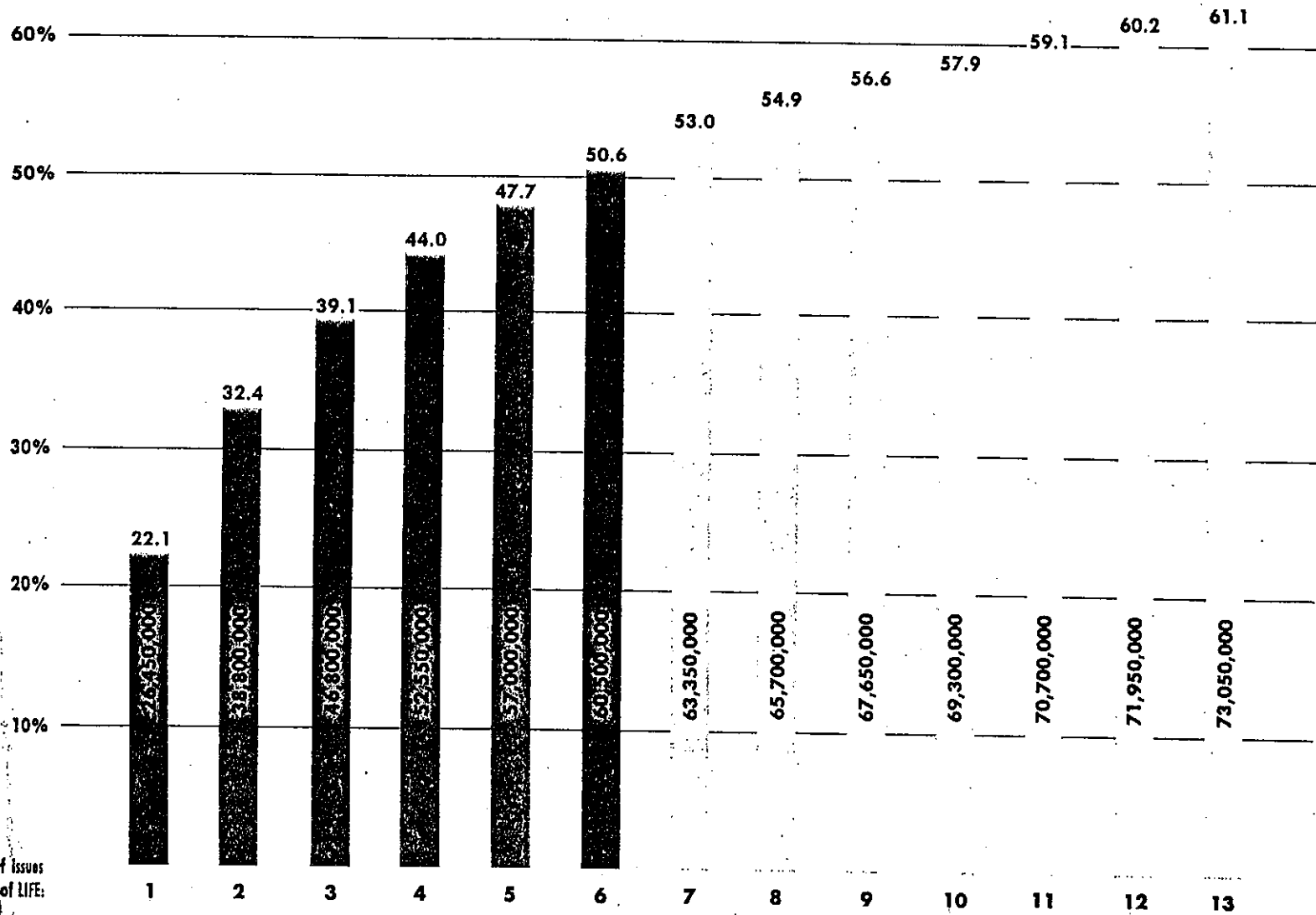
# CUMULATIVE AUDIENCES OF LIFE IN TOTAL

(From One to Thirteen Average Issues)

TOTAL

coverage and projections

% coverage  
70%

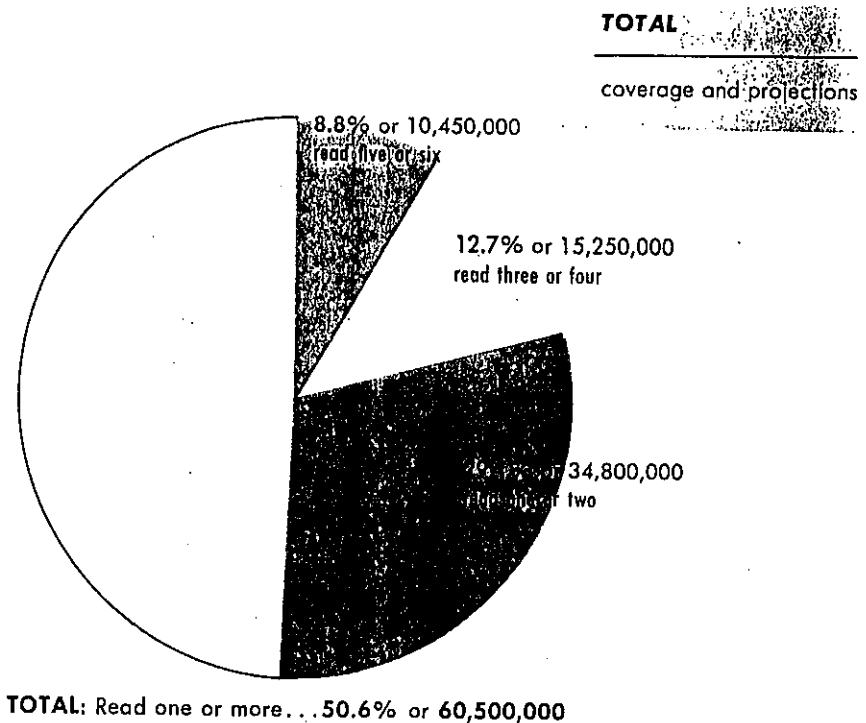


No. of Issues  
of LIFE:

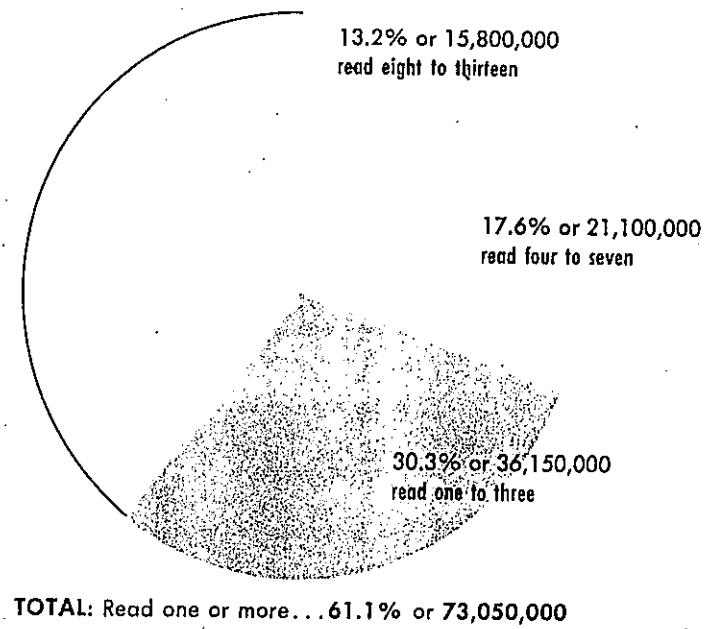
The audiences from seven to thirteen issues are estimated by extension from survey data. See "Operational Design and Procedures", Chapter H.

**REPEAT AUDIENCES OF  
LIFE  
IN TOTAL**

**Number of issues read out of six**



**Number of issues read out of thirteen\***



The repeat audiences out of thirteen issues are estimated by extension from survey data. See "Operational Design and Procedures", Chapter H.

**TOTAL**

audience coverage and projections

**REPEAT AUDIENCES OF  
LIFE  
IN TOTAL  
(Out of Six Average Issues)**

Number of issues read out of six issues	% coverage of U. S. population	Number of readers
One or two	29.1%	34,800,000
Three or four	12.7	15,250,000
Five or six	8.8	10,450,000
Total: Read one or more	50.6%	60,500,000

**(Out of Thirteen Average Issues)\***

Number of issues read out of thirteen issues	% coverage of U. S. population	Number of readers
One to three	30.3%	36,150,000
Four to seven	17.6	21,100,000
Eight to thirteen	13.2	15,800,000
Total: Read one or more	61.1%	73,050,000

\*The repeat audiences out of thirteen issues are estimated by extension from survey data. See "Operational Design and Procedures", Chapter H.