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A study of consumer reaction to educational pharmaceutical advertising

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A STUDY OF CONSUMER REACTION TO EDUCATIONAL PHARMACEUTICAL ADVERTISING

By

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

Educational advertising has been a valuable member of the pharmaceutical industry's media team for the past thirty years. During this period the educational approach to consumer advertising has driven home (1) the necessity of prompt and proper medical care; and (2) the story behind the industry's contribution to the nation's good health. But how effectively does an educational advertisement get across its message? Moreover, what is consumer reaction to an educationally designed attempt to maintain effective pharmaceutical public relations?

I. THE PROBLEM

Statement of the problem. It was the purpose of this study (1) to give a brief account of the origins of educational advertising; (2) to discuss the recent educational advertising programs of the Parke, Davis and Eli Lilly Companies; (3) to present female student and housewives' attitudes with regard to certain educational advertisements written by the Parke, Davis and Eli Lilly Companies; and (4) to present recommendations to the Parke, Davis and Eli Lilly Companies regarding their educational advertising programs.

II. DEFINITIONS OF TERMS USED

Institutional advertising. Before the proper definition of educational advertising can be given, care should be taken to define its parent - the institutional method of advertising. According to Frey,

> Institutional advertising, in contrast to merchandise advertising, aims to establish favorable attitudes toward the company as a whole. It does not aggressively promote a specific brand or service. Although most institutional advertisements have the ultimate objective of increasing the present or future demand for its advertised product or brand, this is not always the case. Sometimes its purpose is to forestall the passage of unfair legislation or to win support of favorable legislation. Sometimes its aim is to improve dealer or employee morale. Its objective may be the improvement of public relations.[1]

Educational advertising. Similar to institutional advertising, the educational message attempts to build favorable opinion and "increase the present or future demand for its advertised product or brand".[2] However, the educational media technique - an offshoot of institutional advertising - is more singular in purpose than its progenitor. Where the institutional method is used in such diversified areas as company strikes, price wars, community relations, and shareholder communications, the educational approach is designed more for instructional communications of a public service nature. (See appendices A and B for examples of institutional and educational advertisements.)

The instructional material discussed is in most cases related to the type of business supporting the educational campaign.[3] For example, pharmaceutical houses sponsor public

1 A. W. Frey, Advertising (N.Y.; The Ronald Press, 1947) p.7.
2 Ibid.
3 S. Rovner, "Human Interest Ads.: I.L.I.'s Secret", Editor's and Publisher's, 82:12 (January 29, 1949.)

and mental health information; life insurance organizations purchase space for vocational guidance information to high school youths.[4] In short, care is taken to affix the company signature to an instructional program related to their product, organization, and industry.[5]

CHAPTER II

A BRIEF REVIEW OF THE HISTORY OF ADVERTISING IN THE UNITED STATES FROM THE EIGHTEENTH TO THE TWENTIETH CENTURIES

A brief description of the PRODUCT-INSTITUTIONAL-EDUCATIONAL metamorphosis in this country points up the close relationship each form of advertising has with the other.

I. PRODUCT ADVERTISING

There was little product advertising in the American colonies during the early part of the eighteenth century. "With the Stamp Act not applying to Colonial newspapers, advertising was not suppressed in the early part of the eighteenth century. However, the crude state of society and the small volume of business exchanges gave few opportunities for any form of product advertising."[6]

Benjamin Franklin, well known statesman and printer, gave the Colonies the only worthwhile contribution in the graphic arts field. It was Franklin who showed the Americans the first real semblance of effective artistic display.[7]

4 G. Smith, "Public Service Ads. Pay Big Dividends": New York Life Insurance Company, Printer's Ink, 253:26-7, (December 16, 1955.)
5 C. Judson, "Consider Booklets for Your Public Relations", Printer's Ink, 219:40 (June 6, 1947.)
6 G. B. Hotchkiss, Outlines of Advertising, (N.Y., Macmillan, 1950) p.7.
7 Ibid., p.8.

By 1750, the increased number of general stores ignited the spark for more product advertising. But with heavier space sales came a problem. Although the rates were low, many business men sought free advertising space in the editorial and feature columns.

This naturally placed newspaper men in an awkward spot. For if they wanted any advertisers at all they were forced to cooperate. Due to this uncomfortable situation country editors were coerced into publicizing "Jed. Smith's hair tonic found in Uncle Sparkie's general store", in the editorial sections of their papers.[8]

It was not until 1840 that product advertising made impressive gains. The birth of the advertising agency in that year gave the entire graphic arts industry a much needed boost. Aided by improved methods of communication learned during the Civil War period, the agencies fought for national recognition of the much misunderstood advertising industry.[9]

The Civil War period has arbitrarily been picked for ending the discussion of product advertising. Any attempt at discussing the product activity of the twentieth century would have carried this chapter of the study beyond its importance. Had it not been for the pioneers of product copy and layout, present day institutional and educational advertising people would lack much of the production technique

8 Ibid., p.9.
9 Ibid.

painstakingly learned by men like Franklin and the early founders of the American advertising agency.

II. INSTITUTIONAL ADVERTISING

The World War I era has been picked as the starting point for tracing the institutional media technique. Yet, there is evidence of attempts at advertising institutionally as far back as the sixteenth century. (See Hotchkiss' Outlines of Advertising, Chapter I.)

In defense of choosing the early twentieth century as a demarcation point, however, it wasn't until that time that institutional messages were part of an organized marketing program.

World War I Days. Most institutional messages were diverted toward the war effort. War bond drives, enlistment campaigns, blood drives, and victory slogans took up all available space.[10]

The 1920's. The introduction of a great number of post-war products increased industrial expansion. Needing a medium to impart good-will messages, such industries as meat, shoe, chemical, and lumber, called upon institutional advertising. And a good portion of this institutional dollar was spent on explaining the high costs for the new products.[11]

The 1930's. Little if any positive advertising was written during this period. Price wars, strikes, and

10 Section on Institutional Advertising, Industrial Arts Index, (1910-20).
11 Ibid., (1920-30).

industrial squabbles between chains and independents kept the institutional writers occupied.[12]

The early 1940's. One billion dollars was spent on institutional advertising in this period. The themes - as we so well remember - were:

1. "Stop Hitler now!"
2. "A slip of the lip can sink a ship."
3. "Save your grease."
4. "V for Victory."

Directly after the war the problems of de-mobilization caused a loosening of moral values. Hence, parents were prompted to clamp down on their children's outside conduct and their own reckless driving.[13]

The late 1940's. Good workers for an expanding American economy was the goal of all industrialists in this period. Institutional media techniques were called upon to help promote the post war idea.[14]

III. EDUCATIONAL ADVERTISING

Although there were traces of the more educational type of message in the early 1900's, (see Industrial Arts Index; section on Educational Advertising, (1910-15) it was not until the 1940's and 1950's that companies decided to invest a great deal of money on the comparatively new media technique.

Themes like "Our National Parks", "Good Hints for Good Health", and "The Great Ideas of Western Man" - all instructional material of a public service nature - have been

12 Ibid., (1930-40)
13 Hotchkiss, Op. cit., p.15.
14 Op. cit.

supported in the last two decades. Two and one half million reprints sent out by the International Paper and New York Life Insurance companies alone, are just two of the educational campaigns completed in the 1950's. What's more, the one and a quarter million reprints distributed by each to consumers, shareholders, school children, and government publics represents an investment of $500,000 apiece for a "Conservation" and insurance sponsored "Career-Building" series.

It is hard to pinpoint the total effect educational advertising has had on the pharmaceutical marketing and public relations scene. To pinpoint the exact variables which stimulate sales and favorable public opinion is not an easy chore. However, the growing list of large industrial organizations utilizing the educational approach in their advertising campaigns is indicative of its potential ability as a communicative device.

CHAPTER III

RECENT EDUCATIONAL CAMPAIGNS OF (1) PARKE, DAVIS AND COMPANY, (2) ELI LILLY AND COMPANY

I. PARKE, DAVIS AND COMPANY

The Detroit, Michigan pharmaceutical house has been an educational advertiser since 1928. During this time company advertising executives have designed their messages to drive home the "importance of prompt and proper medical care."[15]

A list of sub-themes gives an idea of what Parke, Davis advertisements have been like since 1928.

[15] Wiant, Kuhl, and Duffy, "Physicians Help Write Public Service Advertisements", Detroit, Michigan, Young and Rubicam Inc., February 20, 1956 (Mimeo.).

1. "Is the secret of cancer locked in this cell?"
2. "How to select the family doctor."
3. "Some things you should know about reducing your weight."
4. "Ever see a telegram from your heart?"
5. "Two babies and whooping cough."

Recently, Parke, Davis officials developed a new type of educational or instructional advertising program. And Mr. Ralph G. Sickels, director of advertising and public relations, had this to say about the 1956 campaign:

> For twenty eight years our company's national advertising has emphasized the importance of prompt and proper medical care. Now, as a result of a survey, we're logically extending the campaign to drive home the fundamental truth that prompt and proper medical care can represent one of the really big bargains of your life in terms of health, happiness and peace of mind.[16]

Referring to the educational aspect of the new series Mr. Sickels said, "Ninety-three percent of the doctors interviewed suggested that educational pharmaceutical advertising could be based on the cost of medical care, self-medication, and related subjects."[17]

LIFE, SATURDAY EVENING POST, AND TODAY'S HEALTH have been used to promote the new Parke, Davis program. And the copy underneath the dialogue illustrations appears something like this:

> Under the onslaught of sulpha drugs...and now the antibiotics...pneumonia has steadily

16 Ibid.
17 Ibid.

lost ground. Now, uncomplicated cases clear up in four or five days. And instead of losing 33 out of 100 cases, the doctor saves all but a very few.

Just as striking as the cut in deaths and disability is the cut in the cost of curing pneumonia. More and more patients can now be cared for at home. As a result, the average case of pneumonia may cost no more than $100...including the loss of income, the doctor's visit and the expensive new medicines.[18]
(see appendix C for the complete copy of this advertisement)

II. ELI LILLY AND COMPANY

Unlike the Parke, Davis organization, Eli Lilly and Company of Indianapolis, Indiana has no formal advertising program of any kind to the consumer public. The bulk of the Indiana pharmaceutical house's public relations and advertising material goes to (1) pharmacists, (2) physicians.

At special times during the year, however, i.e., company anniversaries, educational messages are prepared for the consumer public. When asked to comment on this situation, company public relations officials have stated that pharmacists and doctors have always been their best means of communication to consumers and have aided them in sales and the establishment of good customer relations.

Here, however, is the type of message the company prepared for the consumer public during an anniversary period:

(*Indianapolis Star*, September 27, 1953)

From the research laboratories of the universities and the laboratories of such

[18] *Ibid.*

> pharmaceutical houses as Eli Lilly and Company came discoveries that led to a large array of new medicines. One after another a host of killer diseases was tamed.
>
> In 1922, Banting and Best announced the isolation of Insulin as a tool to control diabetes. Pernicious anemia, once as deadly as cancer, began yielding in 1928.
>
> With the advent of the sulphas and antibiotics the death rate of a number of killer diseases declined sharply. Pneumonia, meningitus, influenza, and septicemia were no longer the terrors of old.
> (see appendix D for entire copy of this educational advertisement)

Although the Lilly organization has no formal advertising program geared for consumers directly, they do have an inclusive list of public relations objectives. Further, these objectives underlie the thinking expressed in the advertisement enclosed in appendix D.

Mr. R. C. Clark, Staff Associate, Public Relations, has outlined the consumer public relations objectives in the following manner:

1. Recognition of the name Eli Lilly and Company as a producer of quality medical products backed up by scientific research and subject to rigid inspection and control.

2. Acceptance of Lilly products with confidence when prescribed by professional people.

3. Association of the Company name with friendly, dependable people in all areas of the business.

4. Realization of Eli Lilly and Company's genuine interest in the public welfare.

5. Understanding of the industry's contribution to good health and longer life.

6. Acceptance of the fact that drug manufacturers do have the public interest in mind and are doing the best job possible at reasonable cost to the public.

(Lilly Public Relations Office: 10/14/54)

It was on the basis of the above Lilly objectives, and the main Davis objective - "keeping the people aware of the importance of prompt and proper medical care" - that the questionnaire on female attitudes toward the drug industry was constructed.

CHAPTER IV

THE SURVEY

What does the consumer retain after reading an educational advertisement? Is there a difference in two groups' ability to retain certain informational material? How does a group react to the non-informational or attitude forming appeals underlying a good portion of educational advertisements?

I. THE TWO GROUPS CHOSEN FOR STUDY PURPOSES

Of the forty female subjects chosen, twenty were from the Graduate Schools of Boston University and twenty from "Roosevelt Towers" - a low cost housing project in East Cambridge, Massachusetts. (See appendix F for a discussion of the two groups chosen.)

Here are the reasons why B.U. and Roosevelt women were chosen for the survey:

1. Graduate women may not now be significant consumers of drugs and medicines but represent future consumers and opinion leaders. Their influence, moreover, will be felt in such areas as education, government, and community affairs- all vital to the growth and well being of the pharmaceutical industry.

2. High school level housewives whose husbands make below $5,000 per year represent a group significantly different in background than the B.U. group. Further, their collective purchasing power for drugs and medicines is sizable.

3. The two groups were the most suitable for interviewing because of their centralized living patterns. (See appendix F)

II. THE SURVEY METHOD CHOSEN

Due to the small number of subjects it was felt that a survey of an EXPLORATORY nature would best suit the purposes of this study.[19] Neither simple nor stratified random sampling was attempted. Under the conditions, i.e., a one -man survey team, any attempt at randomization would have been impossible. What was used, however, was a simplified method of choosing the first twenty members in the Boston University and Roosevelt universes who were willing to be interviewed. Fortunately, a great deal of bias was eliminated because of the significant differences in the backgrounds of the forty interviewees.

III. THE PILOT STUDY

The material found in the Davis-Lilly advertisements (see appendices C and D), and the objectives of the Eli Lilly Company (see Chapter III, page 10) piloted the objectives and

[19] Lack of personnel and funds equals ability to interview only a small number of cases. It was hoped that the information gathered in this EXPLORATORY study would prompt a good-sized research team to investigate in the same manner but with a greater number of cases.

hypotheses of this study. This was for two reasons: (1) the Davis-Lilly advertisements contained informational material which could be used as experimental factors in BEFORE-AFTER retention tests; and (2) the Eli Lilly objectives contained attitudinal-forming material which could be used in experimental opinion-attitude testing.

IV. THE SURVEY PROCEDURE

The two groups - B.U. and Roosevelt - were sub-divided into groups of ten each. Ten of the Boston University women were placed in the B.U. DAVIS group (those who would read only the Davis advertisement) while the remaining ten were placed in the B.U. LILLY group (those who would read only the Lilly advertisement). Then, the Roosevelt women, the less educated group, were similarly divided, with ten placed in the Roosevelt DAVIS group and ten in the Roosevelt LILLY group.

The sub-groups were asked a total of twenty-four questions in the pre or BEFORE questioning period. Of the twenty-four questions there were nineteen informational and five non-informational.[20] At the conclusion of the BEFORE period, which was an oral testing one, each group was asked

20 <u>INFORMATIONAL</u> question: "Who discovered the sulpha drug?" <u>NON-INFORMATIONAL</u> question: "How much confidence do you have in the companies that manufacture your medicines?"

to read a piece of literature concerning the pharmaceutical industry. Interviewees or subjects in the DAVIS groups individually read only the Parke, Davis advertisement; those in the LILLY groups (B.U. and Roosevelt) read only material from the Eli Lilly advertisement. At no time did a DAVIS sub-group read or see a LILLY advertisement. And at no time did a LILLY sub-group read or see a DAVIS advertisement.

When the reading period was completed, each interviewee received an individual (written) post or AFTER test. The twenty-four questions asked on the BEFORE test, placed in different order, were used for testing the AFTER reactions of the four groups.

At no time did the interviewer make the implication that there was any type of test going on. When asked, "What type of test is this one?", the interviewer claimed he was only interested in extracting opinions, not knowledge. The fact that they were informed there was only an interest in their opinions was helpful in putting the interviewees more at ease, thus eliminating potential bias.

V. THE PRE-TEST

Five female graduate students from Harvard University and five housewives from the Central Square area of Cambridge, Massachusetts were interviewed in the pre-test period. The responses for the majority of questions came through fairly well but the interviewer noticed that at times, it took a while to get the interviewee conditioned for thinking about the pharmaceutical manufacturing industry. This problem was partially solved with a warm-up question of "Will you please name some companies for me that manufacture drugs and vaccines?"

When observed that the BEFORE, READING, and AFTER questioning periods were consuming more than ten minutes each, the interviewer deleted two questions of a non-informational nature which had not been getting good response.

VI. THE SURVEY

The "unstructured" or "open-ended" questioning technique was used when probing for the INFORMATIONAL answers. On the other hand, the "structured" or "closed-ended" questioning technique was employed when probing for the NON-INFORMATIONAL answer.

Forty female subjects were interviewed over a five week period. The results were obtained from a total of twenty-four questions.

LIST OF OBJECTIVES UNDERLYING THIS SURVEY

1. To ascertain the pre-existing (informational) knowledge of the B.U. and Roosevelt groups concerning public health information pertinent to the pharmaceutical industry.
2. To ascertain the post (informational) knowledge of the B.U. and Roosevelt groups after introduction of an experimental factor, i.e., Davis or Lilly advertisement.
3. To ascertain the attitudinal level of the B.U. and Roosevelt groups before and after the experimental factors, i.e., Davis or Lilly advertisements were introduced.

LIST OF HYPOTHESES UNDERLYING THE SURVEY

1. The B.U. group would be more familiar with the public health (informational) knowledge than the Roosevelt group.

2. The B. U. group would answer more of the post (informational) questions correctly than the Roosevelt group.

3. The B.U. and Roosevelt groups would have fairly similar pre-existing attitudinal responses regarding the non-informational type of questions.

4. The Roosevelt group would have a more favorable attitudinal response than the B.U. group after the introduction of an experimental factor, i.e., Davis or Lilly advertisement.

VII. RESULTS OF THE SURVEY

Table I. Ten questions of an INFORMATIONAL nature were recorded in this table. All data is based on MEAN scores.

An example of how the data was gathered is as follows. A question was asked, i.e., No. 6, "What in your opinion was the amount of deaths out of one hundred cases of pneumonia twenty years ago?" Since this is a question taken from the Parke, Davis advertisement (see appendix C for Parke, Davis advertisement) and only the DAVIS groups, or those who saw the advertisement in the READING period read the material, they should logically come closer to the right answer than the ones who "didn't see the ad." or the LILLY groups.

In Table I, all questions except No. 1 were taken from the Parke, Davis advertisements. Therefore, the LILLY groups, or those that "didn't see the ad" were so named on every question except No. 1.

Table I results. Questions (1), (2) and (3) point up the fact that the introduction of the Lilly advertisement for question (1) and the Davis advertisements for (2) and (3) were not significant factors.

In fact, both the B.U. and Roosevelt women answered close enough to the true MEAN answer on the BEFORE and AFTER tests to state that they were quite familiar with material related to a) life expectancy and b) duration of hospital stay for pneumonia patients.

In questions (4) and (5), all groups in the BEFORE testing period except the Roosevelt LILLY women felt that the cost of curing pneumonia patients was higher twenty years ago than it is today. But a closer look shows that the difference, contrary to the true difference, was slight. For example, the BEFORE answers for the B.U. DAVIS women, or those "who read the ad" were $397.00 twenty years ago and $267.00 nowadays. Actually, the Park, Davis advertisements claimed that the cost was $1,000.00 twenty years ago and $100.00 today. A look at the AFTER responses for questions (4) and (5) brings out that the B.U. DAVIS women had a much more significant change to the right answer than the Roosevelt DAVIS group. This was attributed to more skill at testing procedures and a hesitancy on the part of the Roosevelt women to believe the material in the Parke, Davis advertisement.

The results of question No. 6 signifies that the B. U. DAVIS group were, as in questions (4) and (5), closest to the true MEAN answer than all other groups.

Questions (7), (8) and (9) bring out that the introduction of the Parke, Davis material was not highly significant. DAVIS and LILLY groups' MEAN scores on the BEFORE test were close enough to the Parke, Davis answer not to cause any significant change.

The Roosevelt DAVIS women nailed down the correct answer to question (10) before the Parke, Davis advertisement was introduced. The B.U. readers moved considerably well to the correct answer on the AFTER test, missing the correct answer by two days.

The clustering tendency of the BEFORE answers around the right answer made it hard to ascertain the effects of the experimental factors for this phase of the testing period. But where this wasn't the case, the B.U. DAVIS group, or those that read the advertisement, came closest by MEAN score to the correct answer in the AFTER test.

TABLE I

MEAN SCORES
FOR INFORMATIONAL QUESTIONS

(B = BEFORE)
(A = AFTER)
(ANSWERS CARRIED OUT TO .5 ONLY)

1. SCIENTISTS A WHILE BACK SAID THAT A NEW BORN BABY WOULD LIVE AN AVERAGE OF 47 YEARS. WHAT WOULD YOU SAY THAT FIGURE IS NOWADAYS? (ANS. 68 YEARS, FROM ELI LILLY AD.)

	Saw Lilly Ad		Didn't see it	
	B	A	B	A
B. U. women	68	68.5	64.5	65.5
Roosevelt women	72	71	69	70.5

(answer in years)

2. WHAT IN YOUR OPINION WAS THE AMOUNT OF WEEKS A PERSON LOST FROM WORK FOR THE AVERAGE CASE OF PNEUMONIA 20 YEARS AGO? (Ans. 3 to 6 weeks, FROM PARKE, DAVIS AD.)

	Saw P.D. Ad		Didn't see it	
	B	A	B	A
B. U. women	6.5	4	5.5	6
Roosevelt women	7	6	7	4

(answer in weeks)

3. WHAT IS THAT FIGURE NOWADAYS? (ANS. ONE WEEK, FROM PARKE, DAVIS AD.)

	Saw P.D. Ad		Didn't see it	
	B	A	B	A
B. U. women	2.5	1.5	1.5	2
Roosevelt women	3	1.5	2.5	1.5

(answer in weeks)

4. WHAT IN YOUR OPINION WAS THE ENTIRE COST FOR CURING THE AVERAGE PNEUMONIA PATIENT 20 YEARS AGO? (ANS. $1,000, FROM PARKE, DAVIS AD.)

	Saw P.D. ad		Didn't see ad	
	B	A	B	A
B.U. women	$397	$865	$638	$693
Roosevelt women	$385	$496	$146	$ 92

5. WHAT WOULD YOU SAY THAT FIGURE IS NOWADAYS? (ANS. $100, FROM PARKE, DAVIS AD.)

	Saw P.D. ad		Didn't see ad	
	B	A	B	A
B. U. women	$267	$197	$322	$293
Roosevelt women	$322	$293	$183	$129

6. WHAT IN YOUR OPINION WAS THE AMOUNT OF DEATHS OUT OF 100 CASES OF PNEUMONIA 20 YEARS AGO? (ANS. 33, TAKEN FROM PARKE, DAVIS AD.)

	Saw P.D. ad		Didn't see ad	
	B	A	B	A
B. U. women	36	35	42.5	40
Roosevelt women	57	43	40	40

(answer in persons)

7. WHAT IN YOUR OPINION WAS THE AVERAGE AMOUNT OF DAYS A PATIENT STAYED IN THE HOSPITAL 20 SOME ODD YEARS AGO? (ANS. 14 DAYS, FROM PARKE, DAVIS AD.)

	Saw P.D. ad		Didn't see ad	
	B	A	B	A
B. U. women	15.5	18.5	20	20.5
Roosevelt women	24	21.5	23	27.5

(answer in days)

8. WHAT DO YOU THINK THAT FIGURE MIGHT BE NOWADAYS? (ANS. 9 DAYS, FROM PARKE, DAVIS AD.)

	Saw P.D. ad		Didn't see ad	
	B	A	B	A
B. U. women	7.5	8	8.5	7.5
Roosevelt women	9	7.5	7.5	11

(answer in days)

9. TWENTY YEARS AGO, A HERNIA OPERATION KEPT A PATIENT HOSPITALIZED 21 DAYS. WHAT DO YOU THINK THAT FIGURE MIGHT BE NOWADAYS? (ANS. 7 DAYS, FROM PARKE, DAVIS AD.)

	Saw P.D. ad		Didn't see ad	
	B	A	B	A
B. U. women	6.5	6	7.5	6
Roosevelt women	9	6	7	10.5

(answer in days)

10. AN APPENDICITUS OPERATION NOW KEEPS A PATIENT HOSPITALIZED 5 DAYS. WHAT DO YOU THINK THAT FIGURE MIGHT HAVE BEEN TWENTY YEARS AGO? (ANS. 21 DAYS, FROM PARKE, DAVIS AD.)

	Saw P.D. ad		Didn't see ad	
	B	A	B	A
B. U. women	14	19	14	15
Roosevelt women	21	21	16	18

(answer in days)

Table II. Nine informational questions were recorded in Table II. Unlike Table I, the answers were recorded on a right-wrong basis rather than a mean score basis.

Questions (1) through (8) were taken from the Eli Lilly advertisement and all Lilly groups, i.e., those who read the LILLY advertisement, are grouped under "Saw Lilly ad."[21]

All answers were based on the number of women out of ten who answered correctly. In other words, question No. 5 which reads, "Do you know the name of the person who discovered the sulpha drug?", was recorded as zero out of ten B.U. LILLY getting the right answer in the BEFORE test, and three out of ten getting the answer right on the AFTER test, which was a matching test.

Before presenting the information in Table II, however, a percentage breakdown of the number of times each group answered correctly will be given. (All answers based on eighty chances to score the right answer or eight Lilly questions times ten subjects in each group.)

1. B. U. LILLY group (correct answers)
    a. BEFORE (36) times or (33) percent of the time.
    b. AFTER (54) times or (67) percent of the time.

[21] Question (9), which was taken from the Parke, Davis advertisements, was kept isolated from this analysis to avoid confusing it with the eight other Lilly questions.

2. <u>Roosevelt LILLY</u> group (correct answers)

   a. BEFORE (20) times or (26) percent of the time.

   b. AFTER (22) times or (27) percent of the time.

3. <u>B. U. DAVIS</u> group (correct answers)

   a. BEFORE (29) times or (36) percent of the time.

   b. AFTER (36) times or (45) percent of the time.

4. <u>Roosevelt DAVIS</u> group (correct answers)

   a. BEFORE (24) times or (30) percent of the time.

   b. AFTER (23) times or (28) percent of the time.

TABLE II

INFORMATIONAL SCORES RIGHT-WRONG

1. DO YOU HAPPEN TO KNOW WHO ALEXANDER FLEMING IS? (ANSWER: From Eli Lilly advertisement - discovered penicillin.)

	Saw Lilly ad		Didn't see it	
	B	A	B	A
B. U. women	2	7	2	4
Roosevelt women	0	3	0	1

(number of women out of 10 who answered right)

2. DO YOU HAPPEN TO KNOW WHAT INSULIN IS USED FOR? (ANSWER: From Eli Lilly advertisement - diabetes.)

	Saw Lilly ad		Didn't see it	
	B	A	B	A
B. U. women	9	10	6	6
Roosevelt women	7	5	8	7

(number of women out of 10 who answered right)

3. DO YOU HAVE ANY IDEA WHO DISCOVERED INSULIN? (ANSWER: From Eli Lilly advertisement - Banting and Best.)

	Saw Lilly ad		Didn't see it	
	B	A	B	A
B. U. women	1	2	1	2
Roosevelt women	0	1	0	0

(number of women out of 10 who answered right)

4. DO YOU HAPPEN TO KNOW WHAT BARBITUATES ARE USED FOR? (ANSWER: From Eli Lilly advertisement - sedative.)

	Saw Lilly ad		Didn't see it	
	B	A	B	A
B. U. women	6	8	6	6
Roosevelt women	7	4	9	7

(number of women out of 10 who answered right)

5. DO YOU KNOW THE NAME OF THE PERSON WHO DISCOVERED THE SULPHA DRUG? (ANSWER: From Eli Lilly advertisement - G. Domagk.)

	Saw Lilly ad		Didn't see it	
	B	A	B	A
B. U. women	0	3	1	2
Roosevelt women	0	1	0	2

(number of women out of 10 who answered right)

6. WHAT DOES THE NAME ELI LILLY MEAN TO YOU? (ANSWER: From the Eli Lilly advertisement - founder of a famous drug company.)

	Saw Lilly ad		Didn't see it	
	B	A	B	A
B. U. women	7	7	4	5
Roosevelt women	2	0	1	1

(number of women out of 10 who answered right)

7. DO YOU HAPPEN TO KNOW WHAT THE WORD ANTI-TOXIN MEANS? (ANSWER: From Eli Lilly advertisement - immunity against disease.)

	Saw Lilly ad		Didn't see it	
	B	A	B	A
B. U. women	10	9	7	7
Roosevelt women	4	5	6	5

(number of women out of 10 who answered right)

8. DO YOU HAPPEN TO KNOW WHO PAUL EHLICH IS? (ANSWER: From Eli Lilly advertisement - discovered arsephenamine.)

	Saw Lilly ad		Didn't see it	
	B	A	B	A
B. U. women	1	8	2	4
Roosevelt women	0	3	0	0

(number of women out of 10 who answered right)

9. WHAT DOES THE NAME PARKE, DAVIS MEAN TO YOU? (ANSWER: From Parke, Davis advertisement - makers of medicines.)

	Saw P.D. ad		Didn't see it	
	B	A	B	A
B. U. women	6	9	7	7
Roosevelt women	6	5	5	4

(number of women out of 10 who answered right)

Table III (NON-INFORMATIONAL DATA). There were four NON-INFORMATIONAL questions on the questionnaire, i.e., "How much confidence do you have in the companies that make your drugs and medicines?"

Question (1) was the only question of the four which was derived from the Eli Lilly advertisement. The other three were taken from the Parke, Davis advertisement.

In question (1) there was a strong BEFORE and AFTER feeling that the drug and medicine manufacturers played an important part in increasing life expectancy.

Question (2) points out that the experimental factor, i.e., Parke, Davis advertisement, was not an important enough factor to stave off the unpleasant feeling about high prices charged for drugs and medicines on the BEFORE and AFTER tests.

There was little BEFORE-AFTER change for question No. 3. The Roosevelt women, however, felt more favorably toward the industry than the more educated Boston group on this matter.

Question (4) points up the fact that both groups - B. U. and Roosevelt had confidence in drug companies, with little BEFORE-AFTER change observed.

TABLE III

NON-INFORMATIONAL QUESTIONS

1. IN YOUR OPINION, WHAT PART, IF ANY, HAVE THE DRUG AND MEDICINE MANUFACTURERS PLAYED IN INCREASING THE AMOUNT OF YEARS WE ARE NOW EXPECTED TO LIVE? (Highlighted in Eli Lilly advertisement.)

	Saw Lilly ad		Didn't see it	
	B	A	B	A
B. U. women	7	8	6	10
Roosevelt women	9	9	10	9

(number of women out of 10 who felt contribution was important)

2. IN YOUR OPINION, WHAT FEELING DO YOU HAVE ABOUT PRICES CHARGED FOR DRUGS AND MEDICINES? (Highlighted in Parke, Davis advertisement.)

	Saw P.D. ad		Didn't see it	
	B	A	B	A
B. U. women	2	3	1	1
Roosevelt women	4	4	4	6

(number of women out of 10 who felt prices were not too high)

3. IN YOUR OPINION, WHAT PART DO YOU FEEL THE DRUG AND MEDICINE MANUFACTURERS PLAYED IN SHORTENING THE AMOUNT OF DAYS PATIENTS NOW STAY IN THE HOSPITAL AS COMPARED TO 20 YEARS AGO? (Highlighted in the Parke, Davis advertisement.)

	Saw P.D. ad		Didn't see it	
	B	A	B	A
B. U. women	8	8	6	8
Roosevelt women	10	10	8	8

(number of women out of 10 who felt contribution was important)

4. HOW MUCH CONFIDENCE DO YOU HAVE IN THE COMPANIES THAT MANUFACTURE YOUR MEDICINES? (Highlighted in both advertisements.)

	Saw Lilly ad		Saw P.D. ad	
	B	A	B	A
B. U. women	10	10	7	8
Roosevelt women	8	10	9	10

(number of women out of 10 who felt favorably)

In summation, Table I points up the fact that the introduction of the experimental factor in every case but questions (4), (5) and (6), where the B. U. women who saw the material fared better than all other groups, was not the determinate factor in the answers. Questions (1), (2), (3), (7), (8), (9), and (10) have BEFORE answers too close to the correct answers to make a conclusive statement about the experimental factors in their case.

Table II, the results from the matching phase of the questionnaire, presents a different picture than Table I. In this phase of testing, the B. U. women who saw the correct answers in the form of the Eli Lilly advertisement scored correctly sixty-seven percent of the time, while the less educated Roosevelt group who saw the Lilly advertisement scored correctly only twenty-seven percent of the time in the AFTER test. The fact that the B. U. group who didn't see the Lilly advertisement scored correctly more impressively than the Roosevelt group under similar circumstances, i.e., forty-five percent to twenty-eight percent on the AFTER test, leads the interviewer to believe that examination technique - a skill graduate women have over high school level people or lower - was one of the factors which played a part in spread of the two major groups' scores. Moreover, a higher intelligence level, better testing conditions, and greater intensity of belief in the creditability of the material, made for better quality in the B. U. scores.

Table III. The non-informational scores pointed out that the Roosevelt LILLY and DAVIS groups had a more favorable opinion-attitude level than the B. U. women on the BEFORE and AFTER testing periods.

The Roosevelt women felt favorable toward the industry 62 times or seventy-seven percent of the time on the BEFORE test as compared to only 47 times or fifty-seven percent of the time for the B. U. women.

The AFTER test results also favor the Roosevelt women. There they were favorable 67 times or eighty-three percent of the time while the B. U. group was favorable 56 times or seventy percent of the time.

VIII. THE SURVEY RESULTS HOW THEY COMPARE WITH PRE-THESIS HYPOTHESES

I. The Boston University women would be more familiar with public health information pertaining to the pharmaceutical industry than the Roosevelt women. (Answer to be based on the BEFORE test.)

A. The B. U. women were more familiar with the informational items listed in Table I page 19 than the Roosevelt women but by a slender margin. Out of ten questions asked, the B. U. group answered more correctly (or closer to the true mean answer) seven times to the Roosevelt two. Both groups tied on one of the questions.

B. The B. U. women answered the eight additional questions (Table II, page 24) correctly 65 times out of 160 chances (eight Lilly questions times twenty subjects) or forty percent of the time. The Roosevelt group, meanwhile, answered correctly 54 times out of 160 chances or thirty-three percent of the time.

II. The Boston University women would answer a greater percentage of the informational questions correctly on the AFTER test than the Roosevelt or less educated women. (Based on the results of the AFTER test only.)

A. The B. U. women came closer to the correct mean answer in six questions out of ten for the items listed in Table I page 19. On three occasions, however, the Roosevelt, or less educated women, were closer to the correct answer. And once there was a tie answer.

B. The B. U. women answered correctly 90 times or fifty-six percent of the time in the questions listed under Table II, page 24. The less educated group did not do well, answering correctly only 45 times or eighteen percent of the time.

III. The Boston University groups would have fairly similar attitudinal responses to the non-informational questions. (Based on the results of the BEFORE test only.)

A. Out of eighty chances to answer favorably (Four questions times twenty subjects) toward the pharmaceutical industry the B. U. groups did so 47 times or fifty-eight percent of the time. The Roosevelt women, on the other hand, were favorable 62 times or seventy-seven percent of the time, considerably higher.

IV. The Roosevelt group would have a more favorable attitudinal response to the non-informational questions. (Based on the results of the AFTER test.)

A. The Roosevelt group answered favorably 66 times or eighty-two percent of the time, and the B. U. group, as was expected, answered correctly 56 times or seventy percent of the time.

CHAPTER V

RECOMMENDATIONS AND CONCLUSIONS

It was felt that the reader could more easily grasp the recommendations and conclusions of this study if they were grouped as one.

The public relations practitioner when analyzing the results of this study must realize the following: (1) the results are based on information gathered from a small group of cases; (2) the intention of the writer was to view the problems of pharmaceutical communications from an exploratory vantage point only. Because of this, the writer cautions others to judge the results with a sense of restraint, realizing that the writer's intention was to probe mainly into communication areas which could at some future date absorb the interests of a well-manned survey team.

Pharmaceutical houses are aware of the major problem facing their public relations officials. Indeed, the explanation of the high costs of a scientifically made product is a full-time assignment. To combat ill-feeling about high prices, however, the industry has developed a doubled barreled theme which has been (1) that the industry has improved our health to a point where we now live healthier and happier lives and (2) that the prices we pay for medicines are negligible compared to the results.

Tailor-made to fit an educational context, the messages have also built good-will for their organizations by recommending useful health tips to consumers.

But awareness of a problem and licking it are not the same thing. True, over the years, the consumer educational advertising plans along with the explanations of costs by doctors and druggists have improved customer relations considerably. Thanks to the latter cooperative team a great deal of consumer confidence in pharmaceutical products has been established. On the other hand, newly created ideas must continue to flow throughout the communication channel from manufacturer to consumer. With the rapid pace set by medical science there must be coupled with the advances, convincing messages which further explain high costs and the overall contributions the pharmaceutical industry is making for mankind's betterment. There must be no relaxation because the basis of customer displeasure has been discovered.

I. RECOMMENDATIONS TO ELI LILLY AND COMPANY

In future attempts at consumer advertising more care should be taken to consider the reader's ability to understand and pay attention to the material. In face to face observation of those women who read the Eli Lilly advertisement it was noticed that a struggle to finish reading the message was encountered in all of the Roosevelt cases and at least one quarter of the Boston University cases. Interviewees complained openly about the big words and amount of complex factual material.

Just fourteen of forty women had ever heard of Eli Lilly and Company before the Lilly advertisement was shown. This was poor considering the fact that every one of the Lilly public relations objectives listed in this study pointed towards consumer acceptance of Lilly products.

It is recommended that care be taken in the preparation of future consumer advertisements to make them more appropriate for readership. The Lilly advertisement (see appendix D) was placed in a newspaper format. The writer did not consider his audience, because his words, sentence structure, and concepts were pitched over the heads of his viewers.

It is recommended also that a committee be delegated to investigate possibilities of advertising in mass-media magazines so that the consumer receives Lilly information first hand rather than through the medium of busy physicians and pharmacists.

II. RECOMMENDATIONS TO PARKE, DAVIS AND COMPANY

Davis consumer advertisements have been in mass-media magazines for the past twenty-eight years. The consumer program, well established, is handled by Young and Rubicum, a nationally known advertising agency.

Personal observation during the READING period (Davis advertisements) pointed up the fact that readers read through the sentences with ease, and rarely complained about the heaviness of words and sentence form.

There is one recommendation at this time, however. Attention and retention spans of readers viewing advertisements are important factors in the success of an advertisement. And Parke, Davis officials, aware of this concept, have guarded the gates against an onrush of many-syllabled and many-lettered words. But there is another factor as important as attention-retention and it is the believability factor. It was here that the Davis message was somewhat weak.

One out of two women in the less educated group were hesitant to believe certain informational material claimed in the Davis advertisement. In fact, many had their own theories on "how long it took to cure something" and found it hard to swallow the Davis claims.

It is recommended that future advertisements which explain the costs of medicines and duration of stay for hospital patients be presented in a more dignified manner than was exhibited in appendix C. The reader unconsciously looks for a status symbol when viewing material of an important nature. Plainly clothed figures (see appendix C) do not represent a status or authority symbol to him. On the other hand, if Davis officials would investigate the possibilities of sketching in scenes from hospitals or doctors' offices for this type of communication, it is felt that the ultimate objective - creating a feeling which would help the reader gain confidence in the advertiser - would be enhanced. In brief, recent Davis educational advertisements are indistinguishable from routine product advertisements. If an organization expects to present material of a prestige nature, utmost care should be taken to supply the layout form with distinguishable prestige symbols.

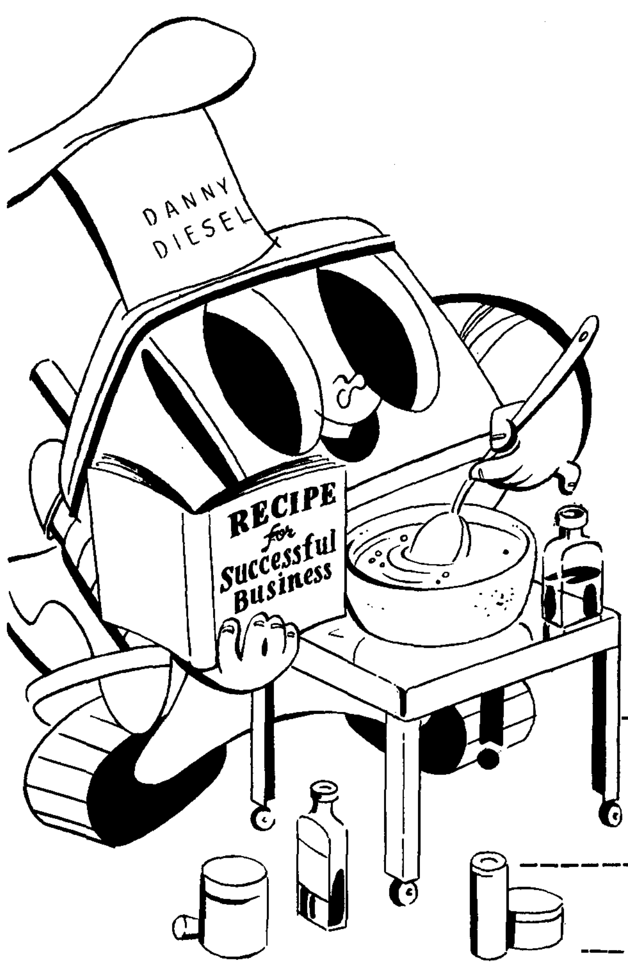
In conclusion, there has been an attempt in this study to investigate consumer reaction to a specialized public relations media technique - the educational approach to advertising. The results have uncovered that (1) the groups studied had a considerable amount of confidence in pharmaceutical houses with or without the introduction of slanted pharmaceutical literature; (2) the introduction of slanted pharmaceutical literature designed to explain the reasons for the high costs of drug products had little effect on the two groups' contention that prices were too high; (3) the more educated group - the Boston University women - answered a greater percentage of the INFORMATIONAL questions correctly than the less educated women on the BEFORE-AFTER test; and (4) the less educated or Roosevelt women felt more favorably toward the pharmaceutical industry than the Boston University group BEFORE and AFTER the introduction of planned pharmaceutical literature.

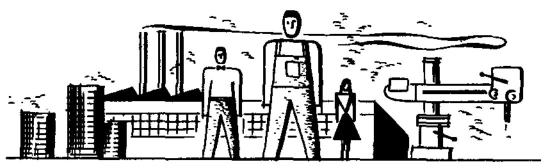
It was hoped that the specific and general results of this study would be of aid to those who are (1) unfamiliar with pharmaceutical public relations; (2) interested in reader reaction to public relations advertising; and (3) interested in continuing a study of reader reaction to pharmaceutical communications.

INSTITUTIONAL ADVERTISING
(Persuasive)

APPENDIX A

What makes the Best Recipe?





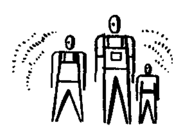
▶ Here at Caterpillar, as in industry generally, there are three important ingredients in the recipe that makes a successful business. Those three ingredients are "folks, facilities and finances" . . . people, plant and money on which to operate.

It would be hard to say any one of these was more important than the others. Folks, of course, can't do without plant facilities or finances. Buildings and tools won't operate by themselves. But, surely it is the *people* who are really important for good manufacture calls for hundreds of kinds of skills and abilities . . . and certainly wisdom in management is vitally important.

So . . . a lot of things keep Caterpillar ticking . . . and this series (of which this is the first) will talk about them. Here are some subjects:

FOLKS

Caterpillar people and their importance.
The 19,000 people who make these jobs possible.
Who really writes the ticket?
What does management do to maintain Caterpillar leadership?



FACILITIES

The plant and its physical properties.
Where do Caterpillar products go?

FINANCE

$74,000,000 paycheck.
A $12,000,000 local market basket.
Where does the money come from . . . and go?

Some things you should know about **reducing your weight**

No. 211 in a series of messages from Parke, Davis & Co. on the importance of prompt and proper medical care.

IT is an accepted medical fact that excess weight can impair your health and efficiency, and possibly shorten your life.

One person's proper weight may be quite different from another's however—even though their height and age are approximately the same. A large-boned, muscular person, for instance, should weigh considerably more than a small-boned person of the same height and age.

How much you should weigh is something to leave up to your doctor Only your doctor can accurately judge whether your weight is within normal limits, or whether a loss or gain in weight is medically advisable.

If your doctor tells you that you weigh more than you should, it's just good sense to do something about it under his supervision. *To undertake a weight-reducing program without proper medical guidance is a foolish, and often dangerous, thing to do.*

It would be pleasant if there were some simple pill which would automatically and safely reduce your weight with no effort on your part. Unfortunately, *no such remedy exists.* So-called "reducing pills," taken without a physician's advice, are usually valueless and may be dangerous.

One type of pill, for instance, will cause you to lose weight—but only for a day or two! Its action is to remove water from body tissues, thus lowering your weight. But as soon as the water is replaced, the extra pounds return.

Another thing to beware of, in an effort to lose weight, is any sort of faddist diet.

A liquid diet may often be just as fattening as a normal one. A diet which concentrates on a particular food, and excludes most other foods, may deprive you of nutritive elements essential to the maintenance of good health.

SEE YOUR DOCTOR. Let him decide whether you should lose weight, how much you should lose, and how quickly. Let him tell you how you can do it without starving yourself, without risking your health.

He can recommend a well-balanced diet. He can advise you about exercise. If he thinks medication will be helpful in your case, follow his instructions about dosage *exactly.* His advice is the only advice you can trust in matters that concern your health.

Makers of medicines prescribed by physicians

PARKE, DAVIS & CO.

Research and Manufacturing Laboratories, Detroit 32, Mich.

Ad No. 14-A
1 page—4 colors
Parents—June 1948
3-25-48—C-W-N

EDUCATIONAL ADVERTISING
(Instructional)

38.

APPENDIX C

39.

YEARS AGO when the physician fought to bring a patient through a siege of pneumonia there was little he could do but help conserve the patient's strength, make him comfortable and hope for the best.

In fact, the doctor sadly signed death certificates for 33 out of every 100 pneumonia patients he treated. For those who survived, recovery was slow and expenses were high. The cost of an average case was about $1,000, including three or four weeks' time lost away from work.

Happily, this grim picture has changed. Under the onslaught of sulfa drugs *and now the antibiotics* pneumonia has steadily lost ground. Now, uncomplicated cases clear up in four to five days. And instead of losing 33 out of every 100 cases, the doctor saves all but a very few

Just as striking as the cut in deaths and disability is the cut in the *cost* of *curing* pneumonia. More and more patients can now be cared for at home. As a result, the average case of pneumonia may cost no more than $100 including loss of income, the doctor's visits and the "expensive" new medicines!

Today, more than ever before, an investment in prompt and proper medical care may well represent one of the biggest bargains of your life.

PARKE, DAVIS & COMPANY
Research and Manufacturing Laboratories Detroit 32, Michigan

Makers of medicines since 1866

Ad No. 532-A
Fourth Cover—B&W
Today's Health—February, 1956
12-14-55—S-W-N

When your pharmacist hands you a small bottle of one of the "new" medicines and tells you the cost, it may seem like a high price to pay for a prescription.

But when you consider what these new medicines your doctor prescribes can do—in getting you well quicker, back on the job, earning money again—you realize what good value you're getting.

Due to the constant advances in medical science and the development of more potent drugs, a siege of sickness costs a person less today than ever before in history.

Twenty years ago, for example, hospital patients stayed an average of 14 days, as compared with 9 days average now. An appendicitis operation used to mean a hospital stay of 3 weeks—now it's usually 5 days. Hernia cases were usually hospitalized 21 days—now they're often home in a week. And pneumonia patients, if they survived, had to stay 3 to 6 weeks. Now they're usually home in a week—if they leave it at all!

Any way you look at it—in terms of saving days of hospital time, the fewer visits needed from your doctor, or your return to income-producing work much sooner—the money you spend for prompt and proper medical care can well turn out to be one of the really big bargains of your life.

PARKE, DAVIS & COMPANY
Research and Manufacturing Laboratories Detroit 32, Michigan

Makers of medicines since 1866

Ad No. 534-A
4th Cover—B&W
Today's Health—April, 1956
1-31-56—CWN

APPENDIX C

APPENDIX D

REPRINT OF THE ELI LILLY ADVERTISEMENT

(Indianapolis Star-September 27, 1953)

HER HERITAGE FROM A HALF A CENTURY
An extra twenty one years to live.

Three years old Mary was born at mid-century. Like thousands of other little Americans, she came at birth into a great inheritance. It was not money or wealth of any kind. Rather it was what money cannot buy - twenty one extra years to live! For the life expectancy of babies born in 1950 was at birth sixty eight years as compared with forty seven years for infants born in 1900. Those extra twenty one years are the legacy from fifty wonderful years of progress in medicine and health.

At three, little Mary takes a lot of things for granted. In her world there are few wonders. Jet planes, 3-D movies, television, and radio are commonplace. Lively, healthy, and happy, she is likely to stay that way because of medicines older persons have called "wonder drugs". They hold no wonder for Mary. To her they are as ordinary as dial telephones and air-conditioners.

It is good that new generations accept their inheritance from the past with certain casualness. It is good that youth has its eyes on the future. Therein lies progress.

But, in time, youth will be best served if it understands the source of its inheritance, if it appreciates the hard work, the heroic sacrifice, and the genius that have created this heritage of knowledge and longer life.

Little Mary has never heard of Paul Ehrlich, who more than forty years ago discovered arsephenamine and heralded the era of chemotherapy - the direct attack on disease causing organisms by chemicals. Nor does she know of Gerhard Domagk, who twenty five years later opened the door to sulpha drug therapy.

(LILLY CONT'D.)

Someday she may read with some excitement the story of Alexander Fleming, a British bacteriologist, who in 1929 reported a strange thing he had seen: A mold in a contaminated bacteria culture was giving off a substance that seemed to be killing the micro-organisms! Sixteen years later this half-forgotten observation won a great victory with mass production of life-saving penicillin. In the new age of the antibiotics, mankind's battle against the ravages of disease advanced with seven-league boots.

The fifty years brought showers of blessings as well as the scourge of wars. The standard of living in the United States doubled. With that came better health education, broader public and private health services, expansion of sanitation systems, more hospitals, better housing. Men lived longer, healthier lives in a more healthful environment.

The fifty years saw the medical profession making strides on many fronts. Great surgeons invented and mastered new techniques. Some of their new operations were astounding even to a shock-proof world. Men "died" and were restored to life by the cardiac massage. "Blue babies" were made whole, able to laugh and play like other youngsters. Surgeons dared to operate within the living, beating heart while life hung in the balance on slender threads of hope and faith.

The advances in medical knowledge meant little unless they were brought to all the people. That was the role of the family doctor. From the penthouse to the isolated farm he brought the skills learned in medical schools to the people in the most intimate of the professional relationships. He ushered life into a world he helped make better. With new medicines he prolonged and eased the declining years of life, so that for many more persons they became golden years of satisfaction and happiness.

From the research laboratories of the universities and laboratories of such pharmaceutical houses as Eli Lilly and Company came discoveries that led to a large array of new medicines. One after another,

(LILLY CONT'D.)

a host of killer diseases was tamed. In 1922, Banting and Best announced the isolation of Insulin as a tool to control diabetes. This brilliant achievement in hormone therapy, when made commercially available by Lilly to the hundreds of thousands of diabetics, virtually reduced diabetes from a fatal disease to an inconvenience. Pernicious anemia, once as deadly as cancer, began yielding in 1928, when the liver extracts started moving from the Lilly plant to physicians throughout the world. In time, other hormones and vitamins were isolated and became tools for treating a variety of ailments.

The fifty years saw venereal diseases cured rapidly. Vitamins were discovered and synthesized. Toxins and antitoxins helped give immunity against such diseases as diptheria and such infections as gas gangrene. New vaccines, such as that for whooping cough, joined the armamentarium of medicine.

With the advent of the sulphas and antibiotics, the death rates of a number of killer diseases declined rapidly. Pneumonia, meningitus, influenza, and septicemia were no longer the terrors of old.

Over the years the test tubes brought many improvements, among them better analgesics, sedatives, and hypnotics - the morphine analogues and barbiturates.

Yet, Eli Lilly and Company and other pharmaceutical houses must do more than discover new medicines. They must devise the means of large-scale production, must produce their medicines by processes of absolute sterility and absolute accuracy, and must see that their drugs are quickly available in all corners of the world.

This is a great task and a great responsibility. It is a challenge and an opportunity. In its seventy-seven years, which more than span the era of scientific medical practice, Eli Lilly and Company has been proud to participate in this task as a key member of the medical team. We honor all who have helped make life healthier, happier, and fuller for every American - the physician, the dentist, the research scientist, the nurse, the laboratory tech-

(LILLY CONT'D.)

nician, the wholesale druggist, the retail pharmacist. The record of their accomplishments may well be measured by the yardstick of longevity - for every American baby twenty one extra years of life expectancy!

We are happy for little Mary and all the other Marys and Johnnies and Billies, that they have been born in a great century with a great heritage.

APPENDIX E

THE CHANGE SCORE EXPERIMENT

Charts I through VI represent data from a change score system which gives a composite account of each subject's informational response to the experimental factors, i.e., Davis-Lilly advertisements.

Chart I is the change score total of the B.U. LILLY group and their change reaction to questions taken from the Eli Lilly advertisement. Chart II, a record of the B.U. LILLY group also, is based on questions taken from the Parke, Davis advertisements.

Chart III is the record of the B.U. DAVIS group, or those who read only Parke, Davis material. The questions in the latter chart were taken from the Davis advertisements. Chart IV is a compilation of the B.U. Davis group's change reaction to all Eli Lilly advertisement questions.

Charts V-VIII are the change reaction records of the Roosevelt people, or the less educated group. The order they are placed in is Davis groups first, followed by Lilly groups.

The experiment was not devised to test the quantity of correct answers as was the case in the previous experiments in the overall study. What was the objective, however, was an attempt to view the amount of individual change reactions after the introduction of the experimental factors, i.e., Lilly or Davis advertisements.

The rating systems. A plus one quantity was placed under B (BEFORE) for all correct answers, and a zero quantity under A (AFTER) for all wrong answers in Charts I-VIII.

The EDUCATION major (subject #1) in Chart I scored a plus 3 (three questions answered correctly) in the BEFORE test. On the AFTER test, a quantity of plus six (six correct answers) was awarded this woman.

When the BEFORE-AFTER change score for the EDUCATION major was combined, she was awarded a plus three change score or (B,3 from A,6 leaves plus 3). Conversely, if the EDUCATION major had a plus six in the BEFORE test and a plus three in the AFTER test, she was given a change score of minus three or (B,6 from A,3 leaves the negative quantity of minus 3).

In brief, credit is always lost when a subject gets an answer right on the BEFORE test and then gives a wrong answer on the AFTER test. Moreover, a wrong answer on the BEFORE and AFTER test loses no credit but gains none either, (B,0 from A,0 leaves 0).[22]

It should be remembered that all groups are labeled in the same manner as has been done throughout the study, i.e., DAVIS groups (those who read only DAVIS material); LILLY groups (those who read only LILLY material).

22. See appendix G for copies of questionnaire: BEFORE and AFTER.

CHART I

B.U. LILLY GROUP: QUESTIONS TAKEN FROM ELI LILLY ADVERTISEMENT ONLY (LILLY GROUP READ MATERIAL USED TO MAKE UP THESE QUESTIONS)

(1 equals right answer)
(0 equals wrong answer)
(B equals before answer)
(A equals after answer)
(S equals subject or interviewer)

S Question #	2	4	7	8	9	14	16	18	25	Total Gain
	B A	B A	B A	B A	B A	B A	B A	B A	B A	
1.(Ed.major)	0 1	0 1	0 1	0 0	0 0	0 0	1 1	1 1	1 1	(3)
2.(Law ")	0 1	1 1	1 1	0 1	1 1	0 1	1 1	1 1	0 1	(4)
3.(Ed. ")	0 0	0 1	1 1	0 0	1 1	0 0	0 0	1 1	0 0	(1)
4.(Music ")	0 1	0 0	1 1	0 0	0 1	0 0	0 0	1 1	0 1	(3)
5.(Ed. ")	1 1	0 0	1 1	0 0	0 1	0 0	1 0	1 1	0 1	(2)
6.(Nursing major)	0 0	0 1	1 1	1 1	1 1	0 1	1 1	1 1	0 1	(3)
7.(Social Worker)	1 1	0 0	1 1	0 0	1 1	0 0	1 1	1 1	0 0	(0)
8.(Ed. ")	0 1	0 1	1 1	0 1	1 1	0 1	1 1	1 1	0 1	(5)
9.(Soc. ")	0 0	0 1	1 1	0 0	1 1	0 0	1 1	1 1	0 1	(2)
10.(Theol.")	0 0	1 1	1 1	0 0	0 0	0 0	0 1	1 0	0 1	(1)
										24

CHART II

B.U. LILLY GROUP: QUESTIONS TAKEN FROM PARKE, DAVIS ADVERTISEMENT ONLY (LILLY GROUP DID NOT READ MATERIAL USED TO MAKE UP THESE QUESTIONS)

S	Question #	5		6		10		11		13		19		20		21		22		Total Gain
		B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	(0)
2		0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	(-1)
3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0)
4		0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	1	1	(0)
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0)
6		0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	1	1	1	(1)
7		0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	(0)
8		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	(0)
9		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	(0)
10		0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	(-1)
																				-1

CHART III

B.U. DAVIS GROUP: QUESTIONS TAKEN FROM PARKE, DAVIS ADVERTISEMENT ONLY (DAVIS GROUP READ MATERIAL USED TO MAKE UP THESE QUESTIONS)

	5		6		10		11		13		19		20		21		22		Total Gain
S Question #	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	
1 (Speech major)	0	0	0	0	0	0	1	1	0	0	0	1	0	1	0	1	0	0	(3)
2 (Speech major)	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	1	(3)
3 (Ed. ")	0	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	1	1	(5)
4 (Fine Arts ")	0	0	0	0	0	0	1	1	0	1	0	0	0	0	1	1	1	1	(1)
5 (Nursing ")	0	1	0	1	0	1	0	1	0	1	1	1	0	0	1	1	1	1	(5)
6 (Sociol. ")	0	0	0	1	0	1	1	1	0	1	1	1	0	0	1	1	0	1	(4)
7 (Music ")	0	0	0	1	0	1	1	1	0	1	1	1	0	0	1	1	1	1	(3)
8 (Pub. Rel. ")	0	0	0	0	0	1	0	1	0	1	0	1	0	1	0	1	1	1	(5)
9 (Pre. Med. ")	0	0	0	0	0	1	0	1	0	1	0	1	0	1	0	1	1	1	(5)
10 (Ed. ")	0	0	0	1	0	1	0	1	0	1	1	0	0	0	0	1	0	1	(5)
																			40

CHART IV

B.U. DAVIS GROUP: QUESTIONS TAKEN FROM THE ELI LILLY ADVERTISEMENT ONLY (DAVIS GROUP DID NOT READ MATERIAL USED TO MAKE UP THESE QUESTIONS)

S	Question # 2		4		7		8		9		14		16		18		25		Total Gain
	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	
1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	(0)
2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	(0)
3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	(0)
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	(1)
5	0	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	(0)
6	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	(0)
7	0	0	0	0	1	1	0	0	1	1	1	1	0	0	0	0	0	0	(0)
8	0	0	0	1	1	1	0	0	1	1	0	0	1	1	1	1	0	0	(1)
9	0	0	1	1	1	1	0	1	1	1	0	1	1	1	1	1	0	1	(3)
10	0	0	0	1	1	1	0	0	1	1	0	0	0	1	1	1	0	1	(3)
																			8

CHART V

ROOSEVELT DAVIS GROUP: QUESTIONS TAKEN FROM THE PARKE,DAVIS ADVERTISEMENT ONLY (DAVIS GROUP READ MATERIAL USED TO MAKE UP THESE QUESTIONS)

S	Question #	5		6		10		11		13		19		20		21		22		Total Gain
		B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	
1	(H.S. grad.)	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0)
2	(H.S. grad.)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	(0)
3	(H.S. grad.)	0	0	0	0	0	1	0	1	1	0	1	0	0	0	0	0	1	1	(2)
4	(8th grade)	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	(1)
5	(H.S. grad.)	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	1	1	1	(1)
6	(H.S. grad.)	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	1	1	(2)
7	(H.S. grad.)	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	(1)
8	(H.S. grad.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	(1)
9	(H.S. grad.)	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	1	1	(1)
10	(H.S. grad.)	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0	0	(1)
																				10

CHART VI

ROOSEVELT DAVIS GROUP: QUESTIONS TAKEN FROM THE ELI LILLY ADVERTISEMENT ONLY (DAVIS GROUP DID NOT READ MATERIAL USED TO MAKE UP THESE QUESTIONS

S	Question #	2		4		7		8		9		14		16		18		25		Total Gain
		B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	
1		0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	(-2)
2		0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	(-2)
3		0	0	0	0	1	1	0	0	1	1	0	0	0	0	1	1	0	0	(0)
4		0	0	0	0	1	1	0	0	1	1	0	0	0	0	1	1	0	0	(0)
5		0	0	0	0	1	1	0	0	1	1	0	0	0	0	1	1	0	0	(0)
6		0	0	0	0	1	1	0	0	1	1	0	1	0	0	1	1	0	0	(1)
7		0	0	0	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	(1)
8		0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	(0)
9		0	0	0	0	1	1	0	0	1	1	0	0	1	1	1	1	0	0	(1)
10		0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	(1)
																				0

CHART VII

ROOSEVELT LILLY GROUP: QUESTIONS TAKEN FROM THE ELI LILLY ADVERTISEMENT ONLY (LILLY GROUP READ MATERIAL USED TO MAKE UP THESE QUESTIONS)

S	Question #	2		4		7		8		9		14		16		18		25		Total Gain
		B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	
1	(10th grade)	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	(0)
2	(H.S. grad.)	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	0	1	(3)
3	(H.S. grad.)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	(-2)
4	(11th grade)	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	1	0	1	(3)
5	(H.S. grad.)	0	1	0	0	1	1	0	0	1	1	0	0	1	0	1	1	0	0	(0)
6	(10th grade)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(1)
7	(H.S. grad.)	0	0	0	0	1	1	0	0	1	1	0	0	1	0	1	1	0	0	(-1)
8	(Coll.grad.)	0	0	0	1	1	1	0	1	1	1	0	1	0	0	1	1	0	1	(4)
9	(H.S. grad.)	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	(-2)
10	(8th grade)	1	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	(0)
																				6

CHART VIII

ROOSEVELT LILLY GROUP: QUESTIONS TAKEN FROM THE PARKE, DAVIS ADVERTISEMENT (LILLY GROUP DID NOT READ MATERIAL USED TO MAKE UP THESE QUESTIONS)

S	Question #	5		6		10		11		13		19		20		21		22		Total Gain
		B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	
1		0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	(1)
2		0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	1	(1)
3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	(1)
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	(1)
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	(-1)
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	(1)
7		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	(-1)
8		0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	(0)
9		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	(-1)
10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	(0)
																				2

APPENDIX E (CONT'D.)

Fisher's "t" test for testing the significance of a difference between the means of two small uncorrelated samples was employed for the presentation of the material in this appendix.

Derived from the overall (INFORMATIONAL) MEAN change scores from those of Charts I through VIII, the internally compared MEANS of the change score experiment were used as a tool to show if the samples taken, i.e., B.U. DAVIS v. Roosevelt DAVIS, etc., differ enough to state with any confidence that they are independent of each other. In other words, is the MEAN change score of the B.U. DAVIS group significantly different from the Roosevelt DAVIS women to state with confidence that the two samples are independent of each other or don't come from the same population.[23]

THE AFTER OR CHANGE SCORE MEAN RESULTS

I.	GROUPS	B.U. MEAN	RSVL'T. MEAN	"t" EQUALS
	Davis	4.5	.8	12.0 (s)
	Lilly	2.3	.7	6.16 (s)

s- probability is only five chances in one-hundred that an absolute value as large as answer could occur on the basis of chance, therefore s equals significant or two samples are independent of each other.

23. G. Milton Smith, Simplified Guide to Statistics, (Rinehart, New York) pgs. 69-70.

II.

GROUP	RSVL'T. DAVIS MEAN	RSVL'T. LILLY	"t" EQUALS
Roosevelt	.8	.7	.13 (n.s.)

n.s. - probability is too great that a value as small as answer will occur more than five chances in one-hundred on a chance basis, therefore answer is not significant or two samples are not independent of each other.

III.

GROUP	B.U. DAVIS MEAN	B.U. LILLY MEAN	"t" EQUALS
B.U.	4.5	2.3	1.20 (n.s.)

n.s. - probability is too great that a value as small as answer will occur more than five chances in one-hundred on a chance basis, therefore notsignificant or samples are not independent of each other.

APPENDIX F

A DESCRIPTION OF THE TWO GROUPS CHOSEN FOR THE SURVEY

Boston University Graduate Women. Twenty graduate women living in a graduate center adjacent to Charlesgate under-graduate Dormitory were interviewed. Although the students were not randomized, they were a fairly representative group of the graduate divisions supported by Boston University. A list of their schools in the graduate division should establish that considerable bias was eliminated without randomization.

(1.) Education (2.) Speech (3.) Music (4.) Law (5.) Pre-medical (6.) Nursing (7.) Public Relations (8.) Theology (9.) Sociology (10.) Fine Arts.

The mean age level for the Boston University was 26 years.

Domiciled in one dormitory, they created an interview relationship which allowed the one man survey team to centralize the interview operation rather than expend time and energy interviewing throughout the University.

The interviewing conditions were excellent. A large room was used in the main part of the downstairs section of the dormitory and each subject was able to answer questions and read the advertisements in considerable peace. All interviewees and/or subjects were advised not to divulge any of the happenings of the interview period. This was done so that subsequent interviewees should not know what type of interview they would have, thus eliminating elements of interview bias.

Roosevelt Housing project women. Twenty housewives living in a low cost project in the Inman Square section of East Cambridge, Massachusetts were interviewed. Although they were not randomized, they too were a fairly representative group of the entire Roosevelt project. Of the twenty there were (14) high school graduates, (2) eighth grade level, (2) tenth grade level, (1) eleventh grade level, and (1) college graduate.

The mean age level for the Roosevelt women was 25, a year lower than the Boston University women.

Income level information was not granted by the authorities but it was estimated by the interviewer that it was below the $5,000 a year level. Homes were furnished with shoddy furniture. The large screen television set and no rug on the floor typified the living pattern of the twenty families.

The interview conditions were not as good as the Boston University conditions. Interviewed during the day (the only time available for the interviewer because of other night time survey commitment) the housewives were nagged by children, and were impatient at times when they remembered a household chore had to be done.

However, there were many times during the course of the Roosevelt interviews that interviewees became much more interested in the problems of public health than was ever demonstrated in the course of the Boston interviews. The interviewer attributed this to the immediate concern for the family, something the Boston group is not now concerned with.

APPENDIX G

PART I (ORAL) BEFORE TEST

1. Will you please name some companies for me that manufacture medicines, drugs, and vaccines?

2. Scientists a while back said a new born baby would live an average of 47 years. What would you say that figure is nowadays? ( )

3. In your opinion, what part, if any, have the drug and medicine manufactures played in increasing the amount of years we are now expected to live?

   a. highly important ( )
   b. important ( )
   c. somewhat " ( )
   d. not very important( )
   e. not important at all ( )

4. Do you happen to know who Alexander Fleming is?

5. What in your opinion was the amount of weeks a person lost from work for the average case of pneumonia some 20 years ago? (wks.)

6. What do you think that figure might be nowadays? ( )

7. Do you happen to know what insulin is used for?

8. Do you have any idea who discovered it?

9. Do you happen to know what barbituates are?

10. What in your opinion was the entire cost for curing the average pneumonia patient 20 yrs. ago? This would include doctor, hospital, and medicines! ( )

11. What would you say that figure is nowadays? (   )

12. How much confidence do you have in the companies that manufacture your medicines?

a. a great deal (   )   d. not too much (   )

b. a good deal (   )   e. none (   )

c. a fair amount(   )

13. What in your opinion was the amount of deaths out of 100 cases of pneumonia 20 years ago? (   )

14. Do you happen to know the name of the person who discovered the sulpha drug?

15. In your opinion, what feeling do you have about prices charged for drugs and medicines?

a. way too high (   )   d. somewhat low (   )

b. somewhat " (   )   e. low (   )

c. reasonable (   )   f. quite " (   )

16. What does the name Eli Lilly mean to you?

17. The drug and medicine manufactures have reduced the cost for curing sickness:

a. a great deal (   )   d. not too much (   )

b. a good " (   )   e. not at all (   )

c. a fair amount(   )

18. Do you happen to know what the word anti-toxin means?

19. What in your opinion was the average amount of days a patient stayed in the hospital 20 some odd years ago?

20. What do you think that figure might be nowadays?( )

21. Twenty years ago, a hernia operation kept a patient hospitalized 21 days. What do you think that figure might be nowadays? ( )

22. What does the name Parke-Davis mean to you?

23. In your opinion, what part do you feel the drug and medicine manufactures played in shortening the amount of days patients now stay in the hospital as compared to 20 years ago?

a. highly important ( ) d. not too important ( )

b. important ( ) e. not important at all( )

c. somewhat " ( )

24. An appendicitus operation now keeps a patient hospitalized 5 days. What do you think that figure was 20 years ago?

25. Do you happen to know who Paul Ehrlich is?

PART(I) AFTER TEST

1. Because of the advances made by science, a new born baby is now expected to live how many years? ( )

2. How long is a hernia patient now hospitalized? ( )

3. What is your feeling about prices charged for medicines and drugs? Are they: (check one only)

a. way too high ( )	d. somewhat low ( )
b. somewhat " ( )	e. low ( )
c. reasonable ( )	f. quite " ( )

4. What was the entire cost (doctor,hospital,medicines) for curing the average pneumonia patient 20 yrs. ago? ($)

5. What is that figure nowadays? ($)

6. How much confidence do you have in the companies that manufacture your medicines? (check one only)

a. a great deal ( )	d. not too much ( )
b. a good " ( )	e. none at all ( )
c. reasonable ( )	

7. How many pneumonia patients out of 100 died from it 20 years ago? ( )

8. What part, if any, have the drug and medicine manufacturing companies played in shortening the amount of time patients now stay in the hospital? (check one only)

a. highly important ( )	d. not too important ( )
b. important ( )	e. not important at all ( )
c. somewhat " ( )	

9. What was the average amount of time a patient stayed in the hospital 20 years ago?

10. How long do they spend nowadays?

11. What part, if any, have the drug and medicine manufactures played in reducing the cost for curing sickness? (check one only)

    a. highly important ( )

    b. important ( )

    c. somewhat " ( )

    d. not too important( )

    e. not important at all ( )

12. How long a period of time was the average appendicitus patient kept in the hospital 20 years ago?

13. What part, if any, have the drug and medicine manufactures played in increasing the amount of years a new born baby is now expected to live? (check one only)

    a. highly important ( )

    b. imporatnt ( )

    c. somewhat " ( )

    d. not too " ( )

    e. not important at all ( )

14. How much time away from work did a person lose from an average case of pneumonia 20 years ago?

15. How much time do they lose from work nowadays?

~~16~~. Please list as many drug and medicine manufacturing companies' names that now come to your mind?

(turn to next page)

PART II. (PLEASE MATCH COLUMN A WITH B; PLACE THE NUMBER FROM A ALONG SIDE OF THE BEST WORD OR WORDS IT MATCHES IN COLUMN B)

Column A	Column B	
1. Alexander Fleming	arsephenamine	( )
2. insulin	immunity against disease	( )
3. Eli Lilly	sulpha drug therapy	( )
4. barbituates	makers of medicines since 1866	( )
5. Paul Ehrlich	founder of a famous drug company	( )
6. Parke Davis	fights diabetes	( )
7. anti-toxin	penicillin	( )
8. Gerhard Domagk	sedative	( )
9. Banting & Best	discovered insulin	( )

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