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Learning to Use Hearing Aids

A STUDY OF FACTORS INFLUENCING THE DECISION OF CHILDREN TO WEAR HEARING AIDS

REPORT OF THE SUBCOMMITTEE
OF THE COMMITTEE ON PROBLEMS OF DEAFNESS
OF THE NATIONAL RESEARCH COUNCIL

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I. Introduction

THE purpose of this study was to determine the nature of the influences affecting children's choices between using or not using individual hearing aids, and the nature of the educational or guidance activities which are essential to enable a child to use the hearing aid most effectively.

This study is a follow-up of the investigation[1] carried on from 1940 to 1943 by the subcommittee of the Committee on Problems of Deafness under the auspices of the National Research Council to determine the value of individual hearing aids for hard-of-hearing children. Of the 104 such children who were subjects in that study, fifty-two had been given hearing aids. In order to study the various factors influencing the decision of the children either in their continued use of the hearing aid or in their rejection of it, the subcommittee proposed the compilation of individual case histories of those children equipped with hearing aids. Inasmuch as the previous study had been completed in July, 1943, none of the children had had any contact with the psychologists or case workers in that investigation for over a year, and therefore their decision concerning use of the aid was relatively free from the direct pressures previously placed upon them as participants in a research study.

Of the group originally given hearing aids, it was possible to secure thirty-eight detailed case histories. The initial attempt to secure the cooperation of both parents and children and to rekindle their interest in the project was made through correspondence. The purpose of the follow-up study was explained in detail in a letter to the parents and their cooperation was requested. They were informed that each child would be given a thorough otological examination by Dr. Edmund Prince Fowler in the course of the study, so that they could tell if any change had taken place in their children's ability to hear. Forty-two parents responded and agreed to

[1] Rudolf Pintner and Arthur I. Gates. *The Value of Individual Hearing Aids for Hard of Hearing Children.* National Research Council, Report of the Subcommittee of the Committee on Problems of Deafness, 1944.

cooperate. One letter was returned, unopened, and nine parents did not answer. Two further attempts were made to elicit some reply from these nine parents, but with no success. Two of the parents who said that they would participate did not cooperate in the end because their children were no longer wearing their hearing aids and, in fact, had returned them as early as 1942. One boy came for his otological examination but would not be interviewed or tested, and one boy was attending a school for the deaf and was not available.

In all, thirty-eight children, twenty-one girls and seventeen boys, were studied and detailed case histories of them are recorded. The method of gathering the data included extensive interviews with each child, administration of intelligence and personality tests, parent interviews, and school visits. In addition, each child was examined by Dr. Fowler and an audiometric record made of his hearing loss.

PLAN OF THE STUDY

The following plan was set up for gathering information and observing behavior. Each child was given the option of being interviewed either at Columbia University or in his own home. All but two of the children preferred to come to the worker's office. After adequate rapport had been established, the child was encouraged to talk about his attitude toward his hearing aid, his reasons for his acceptance or rejection of it, his likes and dislikes, his problems, his home and school adjustment, and his social adjustment. During these conversations, a controlled interview technique was used so that uniformity of pertinent information could be obtained. The interview was structured so that all areas under investigation were covered with each subject even though the form of the questions varied depending upon the direction of the subject's conversation. Notes were usually taken during the interview after a brief explanation to the child that his reactions might prove valuable to other hard-of-hearing children by helping them to arrive at a decision to wear a hearing aid. Carefare was paid for each child in order that no financial burden would be placed on any family. The children were always encouraged to speak freely and to consider the worker as a friend. As a result, many of the chil-

dren found emotional release from their tensions and asked for further opportunity to discuss their problems. In some cases, there were three or four contacts in addition to those made for the purpose of the study, but it must be observed that these were at the request of the participant. In addition, each child was given the Wechsler-Bellevue Intelligence Scales, an individual intelligence test measuring both verbal and performance ability. Since this test takes approximately one hour to administer, a further opportunity was provided for careful observation and analysis of work habits and behavior dynamics in a test situation. Finally, as a measure of personality adjustment the Bernreuter Personality Inventory was administered.

Further information about the child was secured from either one or both parents. An effort was made to learn the parental attitudes toward the child's use of a hearing aid and to determine the extent of parental influence on the child's decision. Twenty-seven mothers were interviewed at length, either in their own homes or in the worker's office. Three of the fathers asked to be interviewed instead of the mothers, because they felt that they were better equipped to give a more impartial and unemotional picture of the child. In two cases, both the mother and the father participated in the interview, and in one case, the mother and older brother were seen. One grandmother was interviewed because the child's mother worked. In three cases, both parents were employed and found it impossible to arrange either a home or an office visit. In one case the mother said she was not interested in assisting with the investigation but she had no objection if her daughter wished to participate.

Data were also obtained on the influence of school as a factor in the decision to wear a hearing aid. Each school was visited and either the principal, guidance counselor, or classroom teacher was interviewed. In several cases, every teacher to whom the child reported was seen and the case discussed. Records were made of school achievement, the child's progress, his relationships with other children, the attitude of the administrative officers and teachers to the child and his handicap, the suitability of his school program for his needs, his participation in school and classroom activities, and his academic preparation for a vocation. The extent of the child's

use of his aid in different classroom situations was studied, as well as the purpose for which he most effectively utilized his aid.

Finally, each child was given a thorough otological examination by Dr. Fowler and an audiometric record was made of his present hearing loss. The percentage of hearing loss[2] for speech tones as a factor affecting choices in using a hearing aid was also analyzed.

DESCRIPTION OF THE GROUP

At the time that each case history was begun the group ranged in age from twelve years eleven months to eighteen years four months. Thirty-four children were still attending school, fourteen in junior high school, and twenty in senior high school. Four members of the group, three girls and one boy, had left school ostensibly to seek employment but only two were actually working. One girl was attending a school of beauty culture, and one girl stayed home. The group was quite heterogeneous as to socio-economic status. Some of them came from lower middle class families living in the poorer sections of the metropolitan area and New Jersey. A few of the children came from families having substantial incomes. The father of one boy was a physician, and several other parents were in business for themselves. One family was on relief, and in another case the mother and sister had just begun to earn a livelihood after being public charges for seven years. Some were home owners while others lived in the worst slum districts of lower New York and the Williamsburg section of Brooklyn. Seven were only children, while one girl had eleven brothers and sisters. As a whole, the group represented a cross-section of the population of the metropolitan area.

Of the thirty-eight children studied, approximately two-thirds of the group (twenty-five) were still making some use of their hearing aids. However, this "aid" group, consisting of fourteen boys and eleven girls, varied extensively as to amount of time the aid was used and the purpose to which it was put. Combined statements and observations of parents and teachers, in addition to the subject's account, furnished the basis for estimating the extent of use. Table I presents an analysis of aid use. Six children (four girls and two boys) were reported as making maximum use of their

[2] Computed according to the Fowler formula.

aids. These six put on their aids when they arose in the morning, and continued to use them, so far as could be determined, for all routine activities during the day. Their utter dependence on their instruments as stated by themselves was later verified by their parents and by the school authorities as well as by the worker's observation of the children.

TABLE I: EXTENT OF USE OF HEARING AID

	Boys	*Girls*	*Total*
For all daily activities	2	4	6
For school and specific outside activity (movies, theater, clubs, radio)	1	1	2
For school and occasional outside activity	4	1	5
For school only	4	0	4
For specific outside activity only	5	3	8
Not using aid	3	10	13

Two children who were consistent aid users in school also wore them for some specific outside activities, such as going to the movies, listening to the radio, or attending a party. Five children who wore their aids to school every day took them off as soon as they returned home, only infrequently putting them on for some outside activity, such as a special party or other social function. Four boys utilized aids in school but never wore them after school. Eight children did not make daily use of their aids, but put them on occasionally either for school or for a specific activity. Included in these eight were a girl who wore her aid for the movies only, a boy who wore his aid only when he had an examination in school, a boy who put on his aid at his employer's request, a boy who listened to the radio with his aid, and a girl who used her aid when practising the piano.

The "no-aid" group,[8] consisting of three boys and ten girls, had not been wearing their instruments since the termination of the previous study in 1943. It is interesting to observe that eleven of the thirteen children who had rejected their aids asked for permis-

[8] This group will be referred to later, for variety, as the pupils discontinuing or rejecting the use of the aids, the aid rejecters, and in other ways as well as the "no-aid" children or group.

sion to retain them in case they might require them to cope with the exigencies of the future. Two children voluntarily returned their instruments, saying that they did not want them and that some other hard-of-hearing child might be able to use them.

II. Physical Factors Affecting Use of Hearing Aids

Three areas included in physical factors that might influence the use of hearing aids were the history and physical constitution of the child, the appearance of the child, and the physical discomforts caused by the aid.

PHYSICAL CHARACTERISTICS AND HEALTH OF THE CHILD AS FACTORS

HEREDITARY DEFICIENCY AND OTHER FORMS OF DISABILITY AS A FACTOR

From the analysis of case history records indicating the cause of hearing loss, the data suggest that the cause as stated by both child and parent may be related to acceptance of a hearing aid. These records show that 80 per cent of the children who were still wearing hearing aids said that they had become hard of hearing through either a childhood illness or some other external cause, such as birth injury or early childhood accident. (See Table II.) Only 20 per cent of the cases revealed a history of hearing loss or deafness in the immediate family. Upon further investigation, however, it was learned that 34 per cent of the cases attributing their disability to adventitious causes actually had family histories of deafness. On the other hand, about 50 per cent of the group who were no longer using aids attributed their hearing loss to the fact that other members of their family were either totally deaf or hard of hearing.

Such evidence suggests that once the potential hearing-aid user and his family have accepted a specific cause of hearing loss rather than a hereditary deficiency the tendency to make an adjustment by

means of a hearing aid is likely to follow. The case studies indicated that in cases where the family is either uncertain or unaware of the cause, the difficulty of adjustment to a hearing aid appears to be increased. In those cases where the family suffers from strong guilt

TABLE II: CAUSE OF HEARING LOSS AS GIVEN IN CASE HISTORY REPORT

	Distribution of Causes According to Users and Non-Users of Aid	
	Using Aid	*Not Using Aid*
Focalized infections		
Mastoiditis	4	1
Ear abscess	4	1
Systemic diseases		
Scarlet fever	1	—
Colds	2	1
Measles	2	1
Chicken pox	—	1
Birth injury	2	1
Hereditary	5	6
Accident	1	1
Cause unknown or not given	4	—
Total	25	13

feelings because the defect "runs in the family" the child may be deprived of an opportunity to make a normal adjustment and may suffer as a result of the parents' fear that the family disability may be discovered.

This case illustrates the result of guilt feelings on the part of the parents with its concomitant penalties inflicted on the child:

The Case of Howard

Howard is a phlegmatic, stocky boy of thirteen. His speech is so poor that it is difficult to understand him, and he talks in monosyllables. The mother first noticed that Howard was hard of hearing when he was three, but a long history of deafness on the paternal side had prepared her for the possibility of deafness in her immediate family. One boy of seventeen has normal hearing. The father is a physician and the family appears to have a substantial income.

Howard has always been a problem to his parents. When he was a little boy, he had great difficulty in getting along with other children because he always wanted to be the leader. He used to quarrel and fight with children to such an extent that finally his parents placed him in a private boarding school. However, they worried so much about his being away from home and about the inability of others to understand his shortcomings that, after a year, they brought him home and placed him in a public school.

When Howard was nine years old, he was given a hearing aid through the National Research Council Study. His parents were eager to have him try it and said that they thoroughly approved of his wearing it. His mother thinks that it helps him tremendously in school. Moreover, his antagonistic behavior toward other children ceased and for the first time children began to play with him and to seek his companionship.

In their endeavor to make Howard's life a normal, happy one his parents take him along on visits to friends and relatives, and to the opera and the theater. For the past two years, Howard's mother has not allowed him to wear his aid outside of school hours. She says that she feels it is to the family's detriment if her husband's patients and their friends are constantly reminded of Howard's hearing loss. Therefore, Howard has been told to take off his aid as soon as he comes from school. His school is so far from home that he does not associate with his schoolmates after school.

During school hours, when he is wearing his aid, he gets along well with the other children and the other children make a special effort to look after him. Howard has never shown any self-consciousness about the aid in school and the other children accept it without question. His mother describes long periods of irritability and unhappiness at home, during which Howard remains in his room with a book. On the other hand, his teacher reports that Howard is a cheerful, cooperative child in school. He is at the head of his class in geography and seems to take special delight in participating in group play.

In this case, it is obvious that the boy is suffering because his parents seek to conceal from the public an awareness of what they consider a hereditary disability. Howard needs his aid and is a well-adjusted, happy youth with it; without it, he becomes irritable, morose and unhappy. As a result of such parental attitude toward a hereditary disability, the boy is torn by the conflict between parental pride and his own need for companionship.

GENERAL HEALTH AS A FACTOR

Most of the children seemed to be healthy, although the group appeared to have a general tendency toward respiratory ailments. The data indicate that the children using hearing aids enjoyed better health, on the average, than the group who were not using

them. Nineteen aid users said that they always felt well and they did not complain of any illness. Only six aid users had any illness within the preceding five years. In terms of per cent, about 78 per cent aid users reported that they usually felt very well.

The group of thirteen children who were not using their aids had quite a different story. Six said they were usually well and rarely had to stay home on account of illness, but seven (or more than half of them) reported that they often did not feel well, but suffered from headaches, colds, and other minor ailments. Although it is difficult to generalize from such meager data, it would appear that the aid users as a group did have fewer illnesses than the no-aid users. As an example, the mother of one aid user said: "Jane's health is so good that she never goes to the doctor. She used to have headaches, but she hasn't complained of them since she got her aid."

In contradistinction to the description of good health of the aid group, several illuminating statements from the no-aid users indicate the type of illness incurred by this group. One boy had a siege of pneumonia six years ago. Three years later he fell down and fractured his skull. When he came to see the worker, he carried his arm in a sling as a result of a break suffered in a recent fall. One girl had fractured her skull as the result of a fall, and her mother said she often cried in her sleep. Two of the children appeared to have some glandular imbalance, since both were noticeably obese, slow in movement, and complained of being constantly tired. In both these cases, the school principals had suggested medical treatment, but the parents had done nothing about it.

While a number of the children had speech defects, poor tonal quality and faulty articulation, there appeared to be little relationship between speech defects and wearing hearing aids. Fifty-six per cent of the aid users spoke with relatively few perceptible speech defects, while 44 per cent had marked speech defects. All had had speech instruction at some time and many were still attending speech clinics either in their own schools or at the New York League for the Hard of Hearing. Four parents of aid users said that they had noticed improvement in the speech of their children since the use of the aid, while the other parents attributed speech improvement to constant instruction. It is interesting to

observe that ten of the children who were not wearing their aids had no obvious speech defects, while three spoke in a monotone, lisped, or had a high-pitched voice.

Nine children in the total group reported that dark, rainy weather seemed to affect their hearing and that summertime improved their ability to hear. Many expressed concern over catching cold in the winter because their hearing appeared to get much worse as a result of such illness. Weather conditions did not appear to affect ability to hear with an aid, however, and to the aid users, weather made little difference. In those cases susceptible to weather changes, the children reported that they merely turned up the volume of their aids when their hearing diminished, and thus compensated for any additional loss.

TABLE III: USE OF HEARING AID AS RELATED TO PER CENT OF HEARING LOSS

Per Cent of Hearing Loss for Each Subject					
*5**	*4*	*3*	*2*	*1*	*0*
96.8	40.3	59.5	84.7	60.3	65.9
87.6	20.6	36.8	80.6	57.2	60.4
79.5		32.8	17.2	50.7	55.8
72.6		28.6	14.0	39.9	48.6
63.8		21.3		34.8	35.4
23.3				31.1	32.2
				24.0	29.8
				20.4	21.3
					20.4
					14.6
					9.0
					8.2
					0.0
N=6	2	5	4	8	13

* Extent of use:

5–Aid used at all times.

4–Aid used during school and some outside activities.

3–Aid used during school and some rare outside activities.

2–Aid used only during school.

1–Aid used infrequently.

0–Aid never used.

AMOUNT AND CHARACTER OF LOSS AS A FACTOR

A study of Table III on page 10 suggests that the amount and character of loss[4] are significant factors in determining the extent of use of a hearing aid. With one exception, the group making maximum use of aids had hearing losses exceeding 60 per cent. Their losses ranged from 63.9 per cent to 96.8 per cent. These children wore their aids because they urgently needed them in order to carry on normal daily activity.

The case of Sally is a good illustration of felt need as a reason for accepting an aid:

The Case of Sally

Sally is a pretty, dark-haired girl of sixteen, who seems to be eager to talk with people and wants to be well liked. She is quite vivacious and communicative. She wears her aid well concealed underneath her long hair, but she voluntarily displayed her instrument to the worker in order to demonstrate how cleverly she was able to hide it. She is very happy to wear it at all times and she is extremely grateful for the opportunities the aid has provided. As she expressed it, "It is much better than when I was small. I felt dumb before, but I don't feel dumb any longer."

Since she could never understand what the teacher was talking about she was very shy in school. She felt uncomfortable and conspicuous because she sat in the front of the room and the teacher singled her out for slow reiteration of the class assignments. Her poorest subjects were English and spelling. She attributed this to the fact that she did not know what the teacher said and could never hear her dictate the words during English and spelling lessons. She could hear sounds of music and singing, but could not understand speech.

She thought that she did not do as well in school as children with normal hearing, but she frankly admitted that she was unable to judge her own intellectual capacities. She said that she was not sure whether she would have done any better if her hearing had been normal because she had no indication as to what her real abilities are.

Sally was delighted when she was told that she was going to be given a hearing aid. She felt that it would present a solution to her problem of not being able to communicate with other people. She anticipated progress in school and increase in her opportunities for making friends.

After she received her aid, she began to develop many more friendships and, as a result, gained confidence in herself. For the first time she could hear everyone talking and could distinguish the sound of different voices.

[4] All losses have been estimated according to decibel loss for speaking tones at frequencies of 512; 1024; 2048; 4096 cycles per second.

She described her reactions to the aid in this manner: "I want to hear what people are laughing about. People used to laugh and I didn't understand why they were laughing. Now I'd rather wear the aid and hear everything, than not wear it and miss anything." She does not seem to be aware of other people's curiosity or inquisitiveness—"Everyone forgot about it fast." She has become accustomed to her aid and cannot bear to think of life without it.

Sally said that with her aid she heard sounds that she did not know had existed. For example, she said that she heard children laughing in the street when she was sitting in the house, and she described the thrilling experience of hearing the voices of children for the first time. She also was able to hear people moving about in the apartment above her. One of her neighbors played a saxophone, and she said it was a new experience to hear the sound of that instrument. She humorously added that during all the years she had been washing and drying dishes she had never known that they rattled.

Her school work has improved noticeably, especially in English and spelling. At present she is attending a vocational high school, where she is studying typing and bookkeeping. She assists in the school office, and her teachers speak with much pride of her ability as a typist.

Although Sally is still shy and withdrawing in her manner, she is trying to overcome this. She said that as time went on she hoped that with continued use of her hearing aid her life would be the same as that of girls with normal hearing. Occasionally she goes out on "dates" with young men, but she always tells them that she is hard of hearing and is wearing a hearing aid. She would like to work as a typist in an office and is sure that she will wear her aid when she works.

Since Sally had been unable previously to achieve any of the satisfactions that she desired because of her hearing loss, her felt need for the aid has facilitated her present adjustment to it.

All the children making maximum use of their aids have similar histories. Their losses were so marked that they welcomed the experience afforded them of overcoming their handicaps and therefore cooperated without reservation.

Three children, however, with losses as severe as those of the group mentioned above, were not making as advantageous use of their aids even though they, too, felt the need for them. In two cases the parents, because they feared public opinion, would not allow their children to wear aids outside of school hours, and the third child refused to wear an aid as a form of rebellion against his parents.

From Table III it appears that extent of use of the aid is some-

what related to amount of hearing loss. The group in general seem to be competent judges of how much they need their aids and govern their use accordingly. A trend is evident toward diminution in amount of time the aid is used as the percentage of hearing loss becomes less. It should be noted, however, that hearing aids were used by children where losses were not extreme. One child with a hearing loss of 23.3 per cent used an aid all the time; three pupils with losses of approximately 21 per cent used an aid some or much of the time; and one with a loss of 14 per cent employed the aid during school. Obviously, factors other than sheer hearing need enter into the decision to use or to discard the aid.

For those subjects, however, who make infrequent or no use of their aids, no relationship exists between amount of use and extent of hearing loss. The losses for the no-aid group ranged from no loss to a loss of 65.9 per cent. Since they were first given aids in 1941, three children had improved to such a degree that their hearing was considered normal or close to normal. The rest needed aids but were influenced to reject them by various factors in spite of their obvious need. Elimination of the three pupils whose hearing had apparently improved to a point that made the aids unnecessary gives a total group of thirty-five, divided into twenty-five pupils who made some use of the aid, and ten pupils, or 28.6 per cent, who discontinued the use of the aids or rejected them from the beginning.

EFFECT OF THE APPEARANCE OF THE CHILD AS A FACTOR

Awareness of personal appearance assumes an importance in adolescence that is usually not felt by the younger child. For the adolescent girl, any deviation in appearance which sets her unfavorably apart from other girls or prevents her from looking and acting in keeping with accepted standards of attractiveness, or which makes boys avoid her, will be considered a potential hazard. For the adolescent boy, the need for looking masculine and for doing things having prestige value among other boys, as well as wanting to be popular with girls, is of primary importance. Characteristic adolescent attitudes toward appearance must be considered as a prob-

able factor in determining children's attitudes toward wearing hearing aids.

When a girl approaches adolescence, her desire to look as attractive as possible and to be like the rest of the girls seems to outweigh in importance her need to make an adjustment to a physical handicap. In the beginning of the Hearing Aid Study twenty-one girls had been given aids. Nearly half of that number had discontinued wearing them as soon as they reached adolescence. Several girls stated that they could not wear stylish clothes because of the bulkiness of the batteries and microphone. Their mothers reported that the girls were especially sensitive about the protrusion of the microphone at a time when they were beginning to show development of the breasts. In these girls, the normal self-consciousness caused by physical maturation was increased to such an extent by wearing hearing aids that they preferred to get along without an instrument rather than be conspicuous. The mothers of these girls encouraged them in their rejection of their aids, for as one mother stated: "It doesn't look nice for a young girl to have so many bulges."

Another mother said: "I used to dress her in middy blouses and skirts, so the aid wouldn't show, but now she is a young lady and must dress the part."

A girl who had always concealed the wires of her aid under her hair complained that she wanted to pin up her hair in the latest fashion and therefore had had to discontinue wearing an instrument because the wires showed.

One girl who left off her aid after wearing it to school for several months was amazed by the questions of children as to how she had acquired such slimness overnight. As a consequence she never wore the aid again.

Mrs. N. thought her daughter had reached an age when "it is too hard for a young girl to have to wear an instrument" and encouraged her to get along without it.

Mrs. B. said that her daughter had made real progress with an aid, but that recently she had stopped wearing it. Although the child attributed her failure to wear it to the fact that she needed some new batteries, she still did not wear it after the batteries had been renewed. According to Mrs. B., "That wasn't the reason at all.

Mary is growing up and has become more self-conscious about it."

Each one of the ten girls who had rejected her aid mentioned the fact that she was influenced by her desire to improve her appearance. Some said that they were growing up, others that they were too big, still others claimed that they could not wear the kind of clothes they liked.

Of the seventeen boys who had been given aids, only three were not wearing them at all. None of these boys indicated in any way that he was at all concerned over the way the aid made him look. From their case histories, it appears that influences other than personal appearance were responsible for discontinuing the use of the aids.

It is important to note, in respect to the age factor, that as many adolescent girls continued to wear their aids as had discarded them. From such evidence, it appears that specific physical and emotional concomitants of adolescence, rather than adolescent age in and of itself, operated as deterrents to acceptance of an aid. Those girls who had rejected their aids upon reaching adolescence were influenced by the normal adolescent behavior pattern, in which they desire to make the best possible appearance. Those girls who were still wearing their aids were influenced by much stronger factors than the generally accepted adolescent urge to look their best and to avoid being conspicuous in any unfavorable way.

Eight girls, who were fifteen years old or over, had all stopped wearing aids when they were approximately fifteen years of age. It must be pointed out, however, that this age also coincided with their entrance into high school. New social pressures rather than the age, per se, may be the important factor.

To summarize, sex differences are evident in the decision of adolescent boys and girls to wear hearing aids, since approximately 50 per cent of the girls had rejected their aids as compared with 19 per cent of the boys. A contributory factor influencing the girls is their adolescent drive to look like all other girls. Because they are self-conscious about their appearance and their newly acquired maturity, they refuse to wear anything which might place them in an unfavorable light. The boys do not seem to be influenced to any degree by the conspicuousness of a hearing aid, and in their case other factors must be affecting their decisions.

PHYSICAL FEATURES OF THE AID ITSELF AS A FACTOR

Thirty-five subjects referred to some type of physical discomfort, yet ultimate acceptance or rejection of the aid appeared to be unrelated to such causes. Only three boys reported that from the very beginning they felt comfortable with their instruments. The rest went through a period of physical adjustment that took approximately two to three months. It is of importance to observe that even though physical discomfort was described by both the parents and the children as a deterrent to wearing the aid, not one subject directly attributed his failure to wear it to this cause. Although the children were conscious of the physical difficulties that wearing aids entailed, such reasons apparently bore little weight in influencing their decisions to wear them permanently.

There were no differentiating responses as to type of discomfort between aid users and no-aid users. The same dislikes were given by both groups. The heat from the batteries during the warm summer months was most frequently mentioned. Nine children said that they suffered from the heat, yet only five children stated that they had to discontine wearing aids during summer for this reason, returning to them as soon as the weather grew cooler. One child in the no-aid group said that the aid had been too hot in the summer, but did not give that reason for discarding it.

The next most frequently stated dislike was the weight of the instruments, which impeded freedom of movement and prevented the children from actively participating in games and sports. Noise, bulkiness, and fear of breakage were each mentioned four times. Dizziness and nausea were reported by two children. One girl required medical treatment for constant nausea, but after a week of bed rest, she adjusted to her aid and now finds it indispensable. Another girl who complained of dizziness and nausea said that it took her two months to become accustomed to her aid. During this period she frequently shut it off because the unfamiliar sounds confused her. She experimented until she learned that her instrument could be used most advantageously by carrying both the microphone and the batteries in a portable leather case, directed toward the speaker. She thus avoids skin irritation from the

vibration of the microphone and from the heat of the batteries. Her aid has become so necessary to her that she never ventures from home without it. One boy objected to his aid because the microphone soiled his skin. In still another case, a boy reported that at first he feared that he might get an electric shock. One girl said that she was afraid that her aid might whistle and attract attention.

Some of the frequent comments are especially revealing:

"It was uncomfortable at first and hurt me occasionally. I alternated the sides I wore the batteries on every day."

"It made me feel one-sided."

"It was too heavy."

"It was noisy and made me nervous."

"The friction of the earpiece caused a sore."

"The aid was noisy and rubbed against my skin until it was irritated. Then my father bought a strap to hold it on and it felt much better."

"The aid felt heavy and even though I heard better, it was uncomfortable. When I grew bigger, it felt much better."

"The aid wasn't comfortable—it was too heavy and the batteries got too hot. My ear hurt after I removed the earpiece. I often suffered from headaches caused by the noise. My ability to hear increased but the noises were distracting."

In evaluating the statements in regard to physical reactions toward the aids, the conclusion may be drawn that most subjects found some physical discomfort. It is significant, however, that the initial discomforts subsided within a maximum period of three months, followed by a progressive rise in physical adjustment to the aids. During this period the parents were instrumental in facilitating and overcoming the physical difficulties. The mothers cooperated in many ways. They made special garments for accommodating microphones and batteries, and kept the ear pieces clean. They encouraged the children to wear loose-fitting clothing in order to prevent irritation.

While physical maladjustment may be considered a contributory cause to rejection of an aid, since all subjects mentioned some discomfort, nevertheless no subject gave physical discomfort as a basic reason for rejection. The physical factors of size, weight, fear, or pain, although mentioned by the subjects, were satisfactorily

adjusted to within a reasonable period of time, and in no case were of sufficient importance to prevent any subject from wearing his instrument. Such evidence suggests that for this group the influence of the physical factors of the aids may be considered negligible in determining their acceptance, since adequate physical adjustment was made within a relatively short period of time and since no child gave physical discomfort as the reason for refusing to wear an aid. This does not mean, however, that attention should not be given to improving the physical features of hearing aids and improving the character and availability of information about the best possible physical adjustment to them. In many instances, better information and guidance might have greatly reduced the discomforts of the introductory stages of aid wearing.

III. Intelligence as a Factor

To study intelligence as a factor in influencing the use of a hearing aid, it was important to choose a test making minimum demand on hearing ability. The chronological age range of the group (13 years to 18 years) was also a consideration. For diagnostic as well as fact-finding purposes it was deemed desirable to secure measures of both verbal and performance ability. Because the Wechsler-Bellevue Intelligence Scale not only provides information in regard to mental status but lends itself especially well to analysis of specific abilities, both verbal and performance in nature, it was chosen as the instrument for evaluating the intellectual status of this group. The test takes approximately one hour to administer, during which time the examiner has ample opportunity for carefully observing each subject's reactions to a variety of situations. In this investigation both adolescent and adult scales were used and both performance and verbal I Q's were computed.

When a test is used on subjects differing from the standardization population from which the norms derive, the validity of the results must be taken into account. An effort was made to have every subject perform to the fullest extent of his ability. Those

children who were still using their aids were told to wear them during administration of the test. In addition, with the approval of Dr. Wechsler, the author of the test, cards were used with some children instead of the spoken stimulus. Instead of asking the subject a question, a card containing the question was placed before him. The subject was told to read the question aloud in order to be sure that he was reading it correctly. The card was then removed, and the response recorded in the usual manner. The test was given in this fashion to ten subjects who had appeared to have difficulty in understanding the worker during previous interviews. Inasmuch as testing procedure required it, the repeating digits test was always given verbally. The other tests were given in routine manner.

The Wechsler-Bellevue Scales consist of eleven sub-tests, one of which, the Vocabulary Alternate in the verbal scale, was not used. The five verbal sub-tests primarily involve abstractual, conceptual, and generalizing mental abilities. According to Wechsler each test has the following specific function:

1. The Information Test consists of questions formulated to measure the subject's range of information. In general, the items call for the sort of knowledge that an average individual with average opportunity may be able to acquire for himself.

2. The Comprehension Test might be termed a test of common sense. Success on the test seemingly depends on the possession of a certain amount of practical information and a general ability to evaluate past experience.

3. The Arithmetical Reasoning Test measures mental alertness as well as ability to handle practical calculations. The knowledge required to solve most of the problems is not beyond that taught in the first seven grades of school.

4. The Memory Span Test for Digits is used as a test of retentiveness. It involves repeating digits forward and backward.

5. The Similarities Test measures the ability to discriminate between essential and superficial likenesses, to generalize, and to think in abstract terms.

The five performance sub-tests require the subject to manipulate concrete materials and to perform certain tasks involving the visualization of spatial relations and utilization of new associations.

6. The Picture Arrangement Test consists of a series of pictures which, when placed in the right sequence, tell a story. It effectively measures a subject's ability to comprehend and "size up" a total situation.

7. The Picture Completion Test requires the subject to discover and name the missing part of an incompletely drawn picture. It is said to measure the individual's basic perceptual and conceptual abilities in so far as these are involved in the visual recognition and identification of familiar objects and forms. The subject must be able to realize that the missing part is in some way essential to either the form or the function of the object or picture. In a broad way the test measures the ability of the individual to differentiate essential from unessential details.

8. The Object Assembly Test consists of three form-boards, a Manikin, a Feature Profile, and a Hand. It is said to reveal something about the subject's mode of perception, the degree to which he relies on trial and error methods, and the manner in which he reacts to mistakes.

9. The Block Design Test seems to be a good general measure of intellectual functioning. The subject reproduces with multi-colored blocks a design on a card. The reproduction of the design involves both synthetic and analytical ability.

10. The Digit Symbol Test requires the subject to associate certain symbols with certain other symbols. The speed and accuracy he uses in the new learning situation serves as a measure of his intellectual ability.

Scores on sub-tests are converted into weighted scores which may be summated and separate verbal and performance I Q's obtained. These I Q's in turn may be combined to secure a measure of the full I Q.

Table IV presents the means and standard deviations of (1) the group as a whole; (2) the aid wearing group; (3) the no-aid group. From this table it is evident that the mean estimate of intelligence of the group is slightly above the norm of the standardization population. This is to be expected since the group is a selected sample with better than average educational opportunities. The I Q's for the total group ranged from 68 to 130. The aid group had an I Q range from 77 to 130, with six subjects having I Q's over 110. The no-aid group had an I Q range from 68 to 119, with only one subject testing over 110.

Comparing the intelligence of the aid wearers with the no-aid wearers, the results tend to indicate that the more intelligent subjects accept the hearing aid more readily than do the less intelligent subjects. The mean estimate of intelligence of the aid wearers is nine I Q points higher than that of the group who have discarded their aids.

These data suggest that there is a greater tendency for the more

intelligent hard-of-hearing person to use a hearing aid than for the individual of lesser intelligence.

TABLE IV: WECHSLER-BELLEVUE SCORES OF CHILDREN WHO ARE AID AND NO-AID WEARERS

	N	*Verbal IQ*		*Performance IQ*		*Total IQ*	
		$\overline{X}$	*s.d.*	$\overline{X}$	*s.d.*	$\overline{X}$	*s.d.*
Aid wearers	25	99.7	15.1	109.2	11.5	105.1	12.8
No-aid wearers	13	93.1	15.4	99.6	14.4	96.1	14.3
Total group	38	97.6	15.8	106.1	13.3	102.1	13.9

The results of the present investigation show that on the whole the hard-of-hearing subjects perform to better advantage with non-verbal than with verbal materials. Pintner and Lev[5] have pointed out that hard-of-hearing subjects are slightly below the normal I Q on verbal intelligence tests, but that such differences disappear when hard-of-hearing and normal-hearing children are compared on non-language intelligence tests. Both the aid and the no-aid group have higher performance I Q's than verbal I Q's. There is a greater difference, however, between verbal and performance I Q for the aid wearers than for no-aid children. For those who may contend that the no-aid children might have been penalized by their inability to comprehend the directions or to hear the examiner, inspection of Table IV shows that the performance I Q, involving no language ability, is ten I Q points higher for the aid wearers than for the no-aid pupils.

A study of the discriminatory features of the specific abilities tested by the Wechsler-Bellevue Scales was also made. First, the deviations from the norm on each of the ten sub-test scores according to each age group were computed. Then the average deviation[6] for each sub-test was computed for both the aid and the no-aid group. Table V presents the average deviations. Both groups performed most competently on the Picture Completion Test and thus demonstrated an unusual facility in differentiating

[5] R. Pintner and J. Lev. "The Intelligence of the Hard of Hearing School Child." *Journal of Genetic Psychology*, LV (1939), 31-48.

[6] This method was used in order to secure comparable measures of scatter on the sub-tests as the norms for each sub-test are not the same for each age group.

essential from unessential details in visual material. On the Object Assembly Test both groups did better than average. In this test the ability to analyze a given pattern into its parts in order to be able to reconstruct it was shown to be above average. Anticipation of a visual-spatial configuration of parts allowing for an organization

TABLE V: AVERAGE DEVIATIONS FROM THE NORM ON WECHSLER-BELLEVUE SCALES FOR AID AND NO-AID USERS

Sub-test	*Deviations Aid Group N = 25*	*Deviations No-Aid Group N = 13*	*Deviations Aid Group Minus No-Aid Group*
Information	—1.9	—11.6	9.7
Comprehension	1.1	— 5.7	6.8
Arithmetic	—5.9	—12.1	6.2
Memory Span	—2.2	— 8.5	6.3
Similarities	—3.4	— 6.0	2.6
Picture Completion	9.1	3.8	5.3
Picture Arrangement	5.5	— 3.4	8.9
Object Assembly	5.4	3.1	2.3
Block Design	— .5	— 7.1	6.6
Digit Symbol	— .7	— 6.3	5.6

of these parts into a whole is required for good performance. Apparently these children who have been dependent on visual and kinesthetic perception for comprehension and communication tend to have developed these skills to a higher degree than normal-hearing individuals within the same age range.

The Picture Arrangement Test shows comprehension of a total situation and ability to arrange in a sequentially coherent order a set of pictures that tell a story. According to results of this test, the group wearing aids has the ability to understand situations in a manner that has been referred to as "social intelligence." On the other hand, the group who has rejected aids performs slightly below the norm. Whether social competence as demonstrated by this test may be a factor in the use of a hearing aid is open to question; nevertheless, this possibility is suggested.

Similarly, on the Comprehension Test involving a measure of "common sense," the aid group is slightly better than average, while the no-aid group deviates —5.7 points from the norm.

The aid group appears to have a much larger fund of general information than does the no-aid group. In fact, the greatest difference between the two groups appears on this sub-test. The aid group is slightly below the norm, with a deviation of —1.9 points, while the no-aid group deviates —11.6 points from the norm.

Both groups receive their lowest scores on the Arithmetic Test with the resultant lowest deviations.

It is interesting to note that on the Memory Span Test for Digits, which had to be given orally, the aid group shows a relatively small deviation from the norm as compared with the no-aid group. Several points may be made in regard to such group differences. First, the no-aid users might not have heard the digits. Second, if the no-aid users depended on lip reading to comprehend the spoken word, either they were poor lip-readers or else they had poor powers of concentration. Third, they might be exerting their powers of concentration on their effort to read lips, and hence their performance of a mental function requiring close attention might be expended on physical tension. Wechsler states that low scores on the Memory Span Test are frequently associated with attention defects. He points out, however, that in cases of special defects an exception must be made. The results of this test, therefore, must be considered in the light of the group to which it was administered.

On the Block Design Test, which correlates more highly with total score than does any other test in the battery, the aid group deviates very slightly from the norm. The low scores of the no-aid group, on the other hand, show lack of synthesizing ability or loss of the "abstract approach."

The Digit Symbol Test, which involves a new learning procedure, shows interestingly enough that the aid group is more flexible than the no-aid group. In a new situation the aid group's performance is very close to the established norms in rate of speed and in accuracy, while that of the no-aid group is nearly six deviation points lower.

To summarize, these data clearly point to several conclusions concerning the intelligence of these subjects. First, the group as a whole are slightly above average in intellectual status as measured by the Wechsler-Bellevue Scales. Second, they do better on the performance part of the test than on the verbal part. Third, the

subjects perform to greatest advantage on those tests involving basic perceptual and conceptual skills. Fourth, those individuals who are wearing aids are superior in general intelligence, in verbal intelligence, and in performance intelligence to the individuals who have discontined the use of aids.

Last, the findings suggest that intelligence tends to be a factor in influencing hard-of-hearing adolescent individuals in making their decisions to wear hearing aids. On the whole, the more intelligent the individual the more likely he is to use an aid.

IV. Personality as a Factor

The appraisal of the personality of the subjects was made from parents' descriptions, teachers' evaluations, and the worker's observations. Supplementary data were secured from the Bernreuter Personality Inventory. The study of human behavior shows that all persons, whether suffering from some physical handicap or not, experience frustrations in one form or another. Consequently some mechanisms of adjustment must be set up in order to resolve their tensions. Release from emotional stress by means of some form of behavior that is satisfying to the individual may not always be socially acceptable and therefore may be considered maladjustive. Such behavior may be overt and easily recognizable; but in a group afflicted with a hearing loss there is likelihood that adjustment may assume the form of withdrawal or submission. While such adjustment may appear outwardly to be desirable, the conflicts created within the individual can have serious consequences in the ultimate development of the personality.

Variation in personality structure is the result of so many different environmental factors that no specific cause can be credited with effecting a change. In addition, personalities differ as to type and structure in their elements of stability. Consequently, a radical environmental change brought about by wearing a hearing device may modify basic personality structure in different directions. Study of dynamics of personality development must also

consider changes brought about by the growth process in adolescence. The adoption of a hearing aid may produce modification of behavior as the result of the increased ability to communicate more adequately with the external environment. While it may be assumed that such obvious personality changes can be attributed to some extent to the subject's use of a hearing aid, all factors must be considered. Finally, change desirable in one type of personality may be considered as undesirable in another. For example, an individual who had adequately controlled his aggressive qualities because of his inability to hear well, might give free reign to those characteristics once he was relieved from his inhibiting tensions. On the other hand, an individual who was normally aggressive but had used a withdrawing pattern of adjustment could easily adapt himself to a socially acceptable type of self-assertive behavior with a dominant pattern of leadership.

RESULTS OF EVALUATION OF PERSONALITY ADJUSTMENT BASED ON CASE STUDIES

In this study, therefore, the degree or amount of obvious improvement (1) in ability to get along with other people, (2) in the state of happiness or release from tensions on the part of the subjects, and (3) in socially acceptable behavior, was used to evaluate modification of behavior. Although obviously such rough measures are entirely subjective, the consensus of opinion, evident in the reports from parents and teachers, as to obvious personality changes tends to be a fairly consistent measure.

A behavior pattern characteristic of 55 per cent of all the subjects could be classified as shy, withdrawing, or submissive at the present time. Sixty per cent of the aid wearers as compared with 40 per cent of the no-aid wearers were described by their parents as being timid or shy. Since a majority of the children who are wearing the aids had previously used withdrawal techniques as defensive behavior in coping with their handicap, their obvious need and desire for wider social contacts may have motivated them to accept their aids in order to achieve more desirable social adjustment. Two factors must be considered. First, many of the children who are using aids to good advantage at present had been timid

and submissive prior to wearing them. No parent of these aid wearers said that he considered his child to have made an entirely satisfactory adjustment before he received his aid. Such statements as the following are taken as evidence of parents' concern about the personalities of their children prior to wearing aids:

"R. was too shy and was afraid of being asked questions to which he couldn't respond. As a result he kept to himself and sought refuge in reading."

"L. is shy. She has no push. She doesn't make friends easily."

"S. is not self-sufficient. He is too dependent on other people, especially me. (Mother speaking). He feels lost when he is alone and he has no confidence in his own ability."

"S. was constantly daydreaming. I was afraid that he would have a traffic accident some day when he wasn't looking."

The fact that these children were of a submissive nature may have led them to accept the wearing of an aid more readily than the children who were more aggressive and self-assertive in behavior. The findings suggest that the aggressive child needs psychological preparation before he is ready to accept the wearing of a hearing aid. Those children who had a tendency to revolt against authority in form of either parental discipline or school discipline require some kind of reassurance as to the advantages and gains before they are ready to wear an aid successfully.

Thirty-two per cent of the children who wore aids were described as nervous prior to wearing them. Their parents said that the children bit their nails, twitched nervously, cried easily, were sensitive to criticism, and were subject to temper tantrums. Two of them were stutterers. Four of them had exhibited aggressive behavior in some form.

CLASSIFICATION OF ADJUSTMENT OF AID WEARING GROUP

In many cases, the parents of the aid wearers said that their children had improved since wearing their aids, and that they now gave evidence of greater confidence in themselves. The aid wearers can be roughly classified in three groups. The first group, or 44 per cent of the aid wearers, have shown noticeable personality improvement since they began wearing aids. Their personalities ap-

pear to have undergone a transformation from undesirable withdrawing behavior and excessive timidity to social competence and in three cases to leadership. The second group, 32 per cent, appear to have made good adjustments during the last four years, but have not changed as completely as the first group. The third group, or 24 per cent, still retain some of the characteristically undesirable modes of adjustment of withdrawal or aggression employed prior to receiving aids. An actual case will be described to give a more detailed picture of the characteristics of these three groups.

The following case history presents evidence of a personality development from aggresive non-adjustive behavior to leadership and social competence, a pattern characteristic of the first group.

The Case of Richard

Richard is a pleasant-looking youth of fifteen. He wears his aid constantly and feels that it has helped him. He described his first reactions to his aid in this manner: "It was like entering a new world. There were so many new sounds and there are still so many sounds that I cannot identify them all. I keep on asking my parents where the sounds come from and what the sounds mean."

Before he received his aid, he had been extremely self-conscious of his hearing loss, which had been caused by a mastoid operation. His mother said that after his illness she had to cater to him more than she did to two older brothers and a sister. The other boys had sold newspapers and had tried to be helpful around the house but Richard has never been allowed to work because his mother feared that he might get hurt. He played with other children, but often became involved in squabbling with them. Children used to delight in boxing his ears and he seems to have suffered from more accidents to his ears than children normally do. When he felt especially sorry for himself he would stay home and read a great deal. He never had many friends and was not a good mixer. When company came to the house, he usually withdrew to his room to read. His mother was glad that they lived in a large house because Richard was able to go off by himself without interference by the other children.

He often said that he would have liked to join some group or club, but he did not have enough self-confidence to make the initial effort. He said that his hearing difficulty had made some difference to the children at school because they never asked him to play with them. If he wanted to participate in their activities he usually had to force himself into the group. The children never voluntarily invited him to participate.

His favorite activity was reading. To avoid embarrassment, he kept to himself most of the time and sought comfort in his books.

Richard's school principal said that although he had been retarded he

had never given the teachers any trouble. Outside of school, however, he was forever getting into difficulty. The children complained about him, and the people in the school district often told the principal about his escapades. The children avoided him and on the infrequent occasions when he managed to enter their games he usually got into a fight.

Since Richard has had his aid, however, there has been a noticeable change in his personality. He has begun to show an interest in art and has done outstanding art work in school. Although his academic grades have not greatly changed, he is in the upper half of his class and his marks are satisfactory. He has become friendly and cooperative so that now the other children respect and like him. He thinks that the children treat him with more attention because he wears the hearing aid, but says, "I rather appreciate this attention. The children are considerate and ask me if I want to play with them now and show some concern as to whether I hear them in the games." He attends classes at the Museum of Natural History and has also become a member of the Audubon Society. He said that he particularly enjoys the social relationships that these two groups offer him. Among them he never feels self-conscious or embarrassed. The members accept him and he especially enjoys the field trips. He always wears his aid on field trips and feels like one of the group. Through this interest, he has assumed leadership among the boys of his own age. He gets up at five in the morning on Saturdays to take a group of his friends on nature study trips. On these excursions he explains the different kinds of trees to the other boys and teaches them the names of many flowers and birds. He has also joined the Boy Scouts and takes part in all their activities.

His mother thinks that Richard has gained the respect and admiration of other boys through his knowledge of a field of study unfamiliar to them. He no longer stays home as much as he formerly did but now has friends who not only visit him but also invite him to their homes. The boys call for him much more frequently than they did before he wore his aid. He gets into fewer quarrels and he is not "picked on" as much as he used to be. According to Richard himself, he is happier now than he ever was before, and he feels that he has realized his ambition to be accepted as a member of a group.

In this case, a boy who had withdrawn from social contacts because his aggressive efforts for recognition had always resulted in frustration was able to make a satisfactory adjustment through fulfillment of the very drives which had always motivated him. He had craved social contacts, the prestige of leadership, and a feeling of social adequacy. Only his hearing loss had prevented him from developing the interests and talents which would serve as a source of prestige and gratifying experiences. As soon as he was able to circumvent his hearing loss through his increased powers of com-

munication by means of an aid, his personality adjustment became channelized into desirable outlets.

The next case, Tom, illustrates the characteristics of the second group mentioned on page 27. Tom provides an example of a boy who has been much happier since he began to wear a hearing aid, and hence may be considered to have improved his adjustment, although he still retains many of his maladjustive behavior patterns. Since he has shown improvement in some direction, the possibility is always present that he ultimately may make a more adequate personality adjustment.

The Case of Tom

Tom is a pleasant, docile young man, extremely meticulous in his dress and general appearance. Up until the time that he received his aid, he was so completely shut out from the world that most of his experiences were confined to those gained through books. As a result, he speaks in a stilted, bookish manner. His enunciation is distinct, but the construction of his sentences is rather difficult to follow. At present he is wearing his aid and gets along very well with it. According to him, it has helped him "educationally, in the movies, and conversationally." He had never been able to hear at the movies before and now for the first time he is also able to hear the radio.

When asked about his attitude toward his aid, he said that he used to be "low" about everything. "Now I have improved so much that I'm even able to try for a scholarship in college, so you can guess how much my attitude has changed."

His mother said that she had a great deal of difficulty with him before he got his aid. He depended entirely upon her. He had to read lips, and he seemed to be out of things. When the weather was bad, he showed great irritability because at that time his hearing became worse. He did poorly in school and each year barely passed. His average grade in elementary school was usually below 65 per cent. His teachers, however, always understood his difficulty and made allowances for him. He had few friends in school and always felt neglected. The other children had parties to which he was never invited. He stayed home practically all the time. In describing his social relations during this period he showed emotional stress. The only party he ever attended was at the time he graduated, but he said, "Everybody went who wanted to. I'm sure they wouldn't have invited me if the party hadn't been given for the whole graduating class."

One boy who entered school on the same day that Tom did remained his fast friend during his childhood years. The other children continually neglected him. He described this situation as follows: "They just didn't bother with me. No one talked to me. They weren't mad at me. They

just didn't pay any attention to me." It was the indifference of the other children that bothered him rather than his failure to gain their friendship.

At first he was reluctant to wear a hearing aid. He disliked the fact that it bulged, and even now he wears his suit a size too large. At first he couldn't hear at all with the aid, and the pressure from the bone conduction instrument bothered him. His mother, however, urged him to wear it. Previously she had promised to buy him an aid as soon as she could afford it. They had planned to save until they had enough money for one. To encourage him, his mother often cut advertisements out of newspapers describing the uses of hearing aids and the advantages of wearing one. Under her kindly persuasion, Tom finally consented to wear it. According to his mother, "it certainly made 100 per cent improvement in him." He seemed to grow up suddenly. There was an immediate improvement in his school work. He mingled more with other children. He liked his teachers better. He got into fewer quarrels with his older brother. He became more helpful around the house. He showed more interest in school activities. Before he got his aid, his mother had to help him with his school work every day. He brought his lessons home and she had to tutor him. This was the only way in which he was able to get through his school work. As soon as he began wearing an aid, he stopped bringing his work home. Since the first day he put on his aid, he hasn't asked his mother to help him with his work. His speech has improved also, but his mother thinks his conversation is still stilted. His school work has shown marked improvement in all subjects. He wears the aid continually and never turns it off except for gymnastics. The children no longer seem unfriendly toward him, and he is able to engage in all group activities in school. The children are careful not to push or jostle him because he has warned them against breaking his aid.

One of his teachers described him as well above average. He seems to be working to his utmost capacity. While he is not a leader in class, he is well liked by the other children. At the beginning of the term, he told his teacher that in order to get along well it was necessary for him to have someone who could interpret to him any part of the work that he was missing. One of his friends who is taking the same course has registered for the same classes as Tom. The two of them work together and Tom leans heavily on this friend for assistance. Tom does not seem to have gained enough self-confidence in his own ability to understand his teachers and to work by himself. He needs the security of knowing that someone with normal hearing is there to help him out in a difficult situation. Although the faculty decided that Tom ought to join a different group in order to take some work that might be of greater value to him, he refused and asked permission to remain where he was. He seems to be fearful about making new contacts and likes the security of a familiar situation.

Tom's mother also expressed concern over his dependence upon her. He

feels lost when he is alone and is sure the he cannot get along without assistance or the reassuring presence of someone who is familiar to him. He has no confidence in his own ability. His mother thinks he needs to develop a feeling of security and independence and that the only way he can do this is by making maximum use of his aid.

In this case, the maladjustments have become so deeply rooted in this type of personality that improving the immediate environmental influences has not provided adequate force to bring about the much needed change within the individual. However, continued use of an aid may eventually result in satisfactory adjustment. It is evident that in a case of this type the individual has made great strides in improving his immediate situation, yet his basic patterns were established during the period when he felt completely isolated and dependent on others.

In still another case, a boy who uses his aid occasionally has failed to improve because his inner tensions have prevented him from making maximum use of his instrument. He gets along well with people simply because he never bothers anyone. His rigid training and home environment have made his behavior socially acceptable and he is well liked by his teachers and a few friends. His great need is for a more adequate social life. He wants to be a member of a group where he can be sought out and respected. He broods over his feelings of isolation and insecurity and hence is thwarting the very forces essential for meeting his needs. This case illustrates the third group mentioned on page 27.

The Case of Tony

Tony is a tense, ungainly boy of sixteen. His mother, a widow, works during the day and Tony takes care of the house. He has an older sister, who also works, and a younger brother of fourteen. His mother discovered that he was hard of hearing when he was quite a young child, but he is not sure how young he was at the time. "It wasn't me that knew, it was my mother. When you are small, people don't talk much to you and it is hard to find out if you can hear or not." He attended a school for the hard of hearing but didn't like it. The slowness of the class's progress bothered him and he was finally transferred to a regular public school.

He got along well with the other children, according to his story, but he brushed tears out of his eyes as he said this. He rationalized his disability by saying that the only advantage he could see in being hard of hearing was that he could not hear the other boys when they talked and that thus he stayed out of trouble. The children have never included him

in any of their activities and he feels especially sensitive about this. He fears that if he wears his hearing aid, they will reject him entirely.

His hearing disability has made a lot of difference in his life. He gets "kind of lonely and I don't like to be lonely. I like to be with a lot of people and do what they do. Everyone else seems to be having such a good time. People talk to each other and laugh, but nobody bothers talking or laughing with me."

When he first received his aid, he was reluctant to try it. His mother encouraged him to wear it by telling him a story about a man she knows who is able to carry on a successful business by using a hearing aid. Tony described his emotional reactions in the following manner: "It was a tough job at first. I didn't know where to put it." Even though he wore it every day the children in school didn't say anything about it, but "I could tell from their faces what they must be thinking." To please his mother he continued to wear it for six months, but finally gave it up because he felt that everyone was staring at him. He wears his aid in the house, and occasionally on the street, but has not the courage to wear it to school.

He has an unusually fine school record. He is in the third term of high school and is taking a radio course. His marks range from 75 to 95 per cent and have shown a progressive improvement in the past three years. His citizenship and health education marks show a superior record. His teachers have recorded the fact that he is capable, conscientious, and quiet. He has been marked excellent in all character traits.

His mother described Tony as a "very good boy. He never gives a bad answer. He is very kind to his sister and his brother, and he is very handy around the house. He likes to do heavy work when he comes home, but he does his homework first." His sister insists that Tony has "a lot of preference in the house, because he needs it more than anyone else. Even little Vito helps Tony when necessary." His mother thinks that it is important for her to convince Tony that he must wear his aid. She said that he needs a lot of patience and help. She is sure his friends like him better when he has his aid on and that it is better for the whole family.

Tony said that he always felt unhappy, but he is sure that wearing the aid to school would only increase this feeling. He is quite willing to wear it at home in order to please his family, to whom he is devoted, but he feels that he cannot risk losing his friends by wearing it to school.

CASE STUDY CHARACTERIZATION OF NO-AID GROUP

On the whole, the aid group showed much better adjustment than the no-aid group. Every subject in the no-aid group presented some kind of behavior problem as stated by either the parent or the teacher. One-third of the no-aid wearers were serious discipline

problems in school, with the offenses ranging from truancy, stubbornness, disturbing influence, and failure to comply with school rules to minor infractions such as failure to pay attention in class. Two no-aid girls had left school. One was considered by the guidance counsellor to be an unmanageable delinquent. Even though her attendance at school had been sporadic, her guardian had refused to intervene and, as a result, she had finally been expelled. Another girl had left school because she was over age and did not fit in with the rest of the children. Four children were reported by their teachers to present serious behavior problems. One principal described such a child in his school as follows: "She is inclined to be silly and is very interested in boys. She is always noisy and loud, and is not very reliable. She requires much more attention than other children." His general impression of her is that she is a difficult student who has given much trouble. Although this girl takes the aid to school with her, she does not use it in class, but manages to attract attention by fussing with it. Both principal and teacher at the vocational high school attended by still another girl described her as silly, constantly giggling, and showing little interest in her class work. This girl is resented by her classmates for her disturbing influence. A third girl was reported by her teacher as a discipline problem because of her assertiveness and quarrelsome manner. Although she appears to be improving in her adjustment in school, after some trouble at the beginning of the term, her mother described her as unmanageable at home. She quarrels with the other members of her family and manages to get her own way by screaming until the family are compelled to accede to her wishes. A boy who had discontinued wearing his aid has a long record of truancy and his widowed mother finds that she cannot control him.

Those children who were not reported by their teachers as problems or as difficult to handle, because they were of a quiet or submissive nature in the school situation, were usually problems to their parents in the home situation. One girl who was a model pupil in school displayed stubborn, aggressive behavior at home. One boy constantly quarreled with his father about his need for independence, but was a good student in school. As a group, the no-aid wearers gave evidence of more behavior difficulties and personality problems than did the aid wearers.

One principal described the type of problem he had to cope with as follows:

The Case of Edgar

Edgar is in grade 7B and has a record in the school of being a confirmed truant. The school consists of about 150 boys who had been problem boys in other schools. They all have been sent here as a means of discipline and adjustment. The principal reports that Edgar reads lips well and seems to understand when he is spoken to. He wore his aid when he first came to school in 1942, but he didn't wear it steadily. When he did have it on, his teacher noticed that he turned it off in class.

He works at a newsstand at night and spends his time in school sleeping. The principal suspects that Edgar may be suffering from some glandular dysfunction, since he is markedly overweight. He has a record of truancy, which the principal attributes to an overindulgent mother not able to control her son. Outside of school it appears that he is associating with bad company. He seems to hate the other boys in school. He is willful and headstrong, and once he has made up his mind to do something nothing can swerve him.

To encourage him in his school progress, he has been asked to report to the principal's office every two weeks for a conference. All his teachers have been informed that he is hard of hearing and they constantly remind him to wear his aid, but he has consistently refused. He said that he prefers to be considered stupid rather than physically defective.

The mother shows great concern over her son's attitude toward her, toward his home, and toward school. She feels quite helpless and does not know how to cope with her son. His hearing disability is a minor concern to her as compared with all the other problems he presents. She seems to have rejected him for many years, for her conversation consisted entirely of criticism of her son's behavior. He stays away from home at night and even though he says that he is working, he does not give his mother any portion of his earnings. She knows that he is a truant, but she cannot exert enough influence over him to compel him to go to school.

In response to a question from the worker as to whether the mother thought that Edgar's failures in school might be attributed to his hearing loss, she replied that she did not think so, but that Edgar was just a "bad boy," and that his poor hearing had nothing to do with his being bad.

In summary, the evidence from the case studies, based on data assembled from interviews with the children, the parents, and teachers and other school officials, is (1) that the children who discontinued use of the hearing aids were less well adjusted socially than those who continued to wear them, being on the whole more aggressive and more difficult to handle, and apparently less happy

and less able to fit in the usual social groupings and (2) that those who continued to wear the aids have improved in their social adjustment during the period the aids have been worn.

To these conclusions, based on subjective appraisals of evidence given in reports of persons acquainted with the children, should be added data obtained from objective personality tests.

RESULTS OF USE OF BERNREUTER PERSONALITY INVENTORY

The Bernreuter Personality Inventory was used to obtain an objective evaluation of personality adjustment. This inventory measures six different aspects at one time. These are described by the author as follows:

1. Neurotic tendency. Persons scoring high on this scale tend to be emotionally unstable. Those scoring low tend to be very well balanced emotionally.
2. Self-sufficiency. Persons scoring high on this scale prefer to be alone, rarely ask for sympathy or encouragement, and tend to ignore the advice of others. Those scoring low dislike solitude and often seek advice and encouragement.
3. Introversion-extroversion. Persons scoring high on this scale tend to be introverted; that is, they are imaginative and tend to live within themselves. Those scoring low are extroverted; that is, they rarely worry, seldom suffer emotional upsets, and rarely substitute daydreaming for action.
4. Dominance-submission. Persons scoring high on this scale tend to dominate others in face-to-face situations. Those scoring low tend to be submissive.
5. Confidence in oneself. Persons scoring high on this scale tend to be hamperingly self-conscious and to have feelings of inferiority. Those scoring low tend to be wholesomely self-confident and to be very well adjusted to their environment.
6. Sociability. Persons scoring high on this scale tend to be non-social, solitary, or independent. Those scoring low tend to be sociable and gregarious.

Table VI gives the mean percentiles separately for boys and girls in the aid and no-aid groups. The results for the girls indicate that in all the six aspects of personality measured by this test, the mean percentiles hover about the average, but that the aid wearers

on the whole show better adjustment scores than do the no-aid children, although in some traits the differences are insignificant. The greatest difference in favor of the aid wearers is found on the measure of sociability. This suggests that the girls who wore the aids were more sociable and gregarious than those who did not.

TABLE VI: PERCENTILE RATINGS ON THE BERNREUTER PERSONALITY INVENTORY FOR AID WEARING AND NO-AID WEARING CHILDREN

	GIRLS		BOYS	
	Aid $N = 11$	*No-Aid* $N = 10$	*Aid* $N = 14$	*No-Aid* $N = 3$
Neurotic tendency	39	46	44	26
Self-sufficiency	45	51	39	38
Introversion-extraversion	39	42	41	22
Dominance-submission	52	55	51	52
Confidence in oneself	50	54	43	39
Sociability	26	50	26	14

It should be noted that the parents of the girl aid wearers had reported that the children had improved in their social adjustment, and that they had gained self-confidence in their social relationships. Thus the objective test results in this case confirm the reports of parents and school workers as well as the impressions gained in the interviews.

In the case of the boys, the results are not so clear-cut. The mean percentiles for the aid wearing boys are similar to those for the aid wearing girls in that they too hover about the average, with the same tendency to be sociable and gregarious. The no-aid pupils, however, appear to be better balanced emotionally, more extroverted, and even more outgoing. It should be kept in mind, however, that there are only three no-aid boys as compared with fourteen boy aid wearers and that in two cases the results for the no-aid boys do not confirm the observations of parents and teachers and the interview impressions. These inconsistencies force us to express skepticism concerning the value of the Bernreuter results for our purposes.

To summarize, for all groups the results on the Bernreuter Personality Inventory indicate average or better than average adjust-

ment. In the case of the girl aid wearers as compared with the no-aid girls, the aid wearers made slightly better scores on the whole with the greatest advantage in the measure of sociability.

The case for the boy aid wearers as compared with the no-aid boys is not as clear-cut, perhaps because of the small number of cases, so not much confidence can be placed in the Bernreuter results.

V. Home Environment

The effect of home environment as a factor in influencing the decisions of children in the wearing of hearing aids was studied in terms of the socio-economic status of the family, the efforts of the parents in getting the children to wear aids, the relationships existing among the various members of the family, and the familial attitude toward the child's disability and toward his wearing of an aid.

Children coming from homes of lower economic status tend to reject the wearing of hearing aids in greater number than those coming from better homes. Sixteen per cent of the aid group could be considered as coming from poverty-stricken homes, while 54 per cent of the children not wearing their aids came from comparable environments. Approximately 52 per cent of the aid group and 31 per cent of the no-aid group came from average middle-class homes. Thirty-two per cent of the aid wearers came from homes in which the parents were home-owners, members of professions, or business proprietors. Only 15 per cent of the no-aid group could be considered as coming from similar homes. Apparently children from a deprived environment tend to discard their aids more readily than do children who have environmental advantages. The fact that on the whole the home environment of the aid wearers provides richer experiences suggests that children who are accustomed to the better things of life more readily accept innovations which will help them both in adjustment and in increasing their opportunities for contacts with the outside world.

All the parents who were interviewed mentioned some efforts by

which the child had been helped in adjusting to the aid. Two parents said that they had purchased carrying cases for the batteries and microphones when they realized that their children would be too uncomfortable wearing the instruments on their persons. In this way they had circumvented the danger of the child's complete rejection of the aid. In both cases the children were now using the aids maximally and had expressed complete acceptance of their instruments. The parents had purchased loose clothing in many instances so that the children might enjoy greater freedom of movement. Some had made comfortable braces for the children to wear.

Another parent who showed astute judgment in dealing with her child reported that she never called to her son, but always stood in front of him and spoke directly to him. As a result the child was relieved from the fear that he might be missing something. Three children with severe hearing losses had been taught by their parents to keep their aids on the night table close to their beds, so that they could reach out at night and put on their instruments, if necessary. By this device, the parents felt that the child might develop a greater feeling of security about his own safety and would lose some of the feeling of helplessness that hearing loss had engendered. Many of the parents assumed the responsibility of keeping the batteries in good condition.

All such devices as providing comfortable clothing, teaching the child to use his aid most advantageously, urging the child to keep the aid close to him at all times, providing carrying cases in those instances where they are necessary aid in making the child more comfortable; but the subtle influence of attitude toward the child with the disability appears to have far greater effect on the child's reaction to his aid than do these concrete approaches to the problem. In other words, a satisfactory relationship between parent and child appeared to have far more efficacious results in the child's complete acceptance of his aid than did the specific things the parent said or did to get the child to wear the aid.

Some parents have encouraged in their handicapped children so great a feeling of independence that the children are able to travel around the city by themselves, make their own decisions, and choose their own friends. Such parents have fostered within these children a feeling of independence to such a degree that they use their aids

to help them gain greater self-sufficiency. As an example, four aid wearing girls who had hearing losses of over 50 per cent were able to come by themselves from great distances to see the worker. Their parents had encouraged them to use their aids so effectively that the parent felt the child was competent to travel about a large city alone. There appears to be relationship between the parent's confidence in the child and the child's willingness to wear a hearing aid. Some parents reported that before wearing an aid the constant attention the child demanded from the parent made him dependent and lacking in self-sufficiency. After the child began to wear an aid, the parent was less reluctant to allow the child to depend on his own resources. A feeling of relief at the child's independence as the result of wearing an aid was often expressed. Twenty-eight per cent of the aid wearers still were not allowed to travel about alone, while 50 per cent of the no-aid group showed such over-protective behavior on the part of the parents.

In those families where the child was treated as an accepted and respected member of his family group, but was not coddled because of his handicap, the child had a tendency to use the aid. Where the child was treated as "different" and given an undue amount of attention there was a tendency to reject the aid. In one case a mother who worked always took her daughter along with her on Saturdays because she was afraid to leave the child alone in the house for fear something might happen to her. In another case, the mother did not allow the girl to help with any of the housework in spite of the fact that her employed sister had to do household chores when she came home at night.

The following comments indicate the attitude of some of the parents of children still wearing aids:

"I have never spoiled H. I treat him exactly like his brother. He follows the family characteristic of being stubborn, but that is part of the family behavior and has nothing to do with his failure to hear. I do feel that a great deal of patience is required in dealing with a handicapped child, so I provide him with a variety of experiences to keep him from withdrawing into himself. We take him to the theater whenever we attend and he always goes visiting with us. Even though his brother thinks we favor H., I try to give approximately the same amount of time to both children."

"I have always been extremely concerned over J's well-being and prog-

ress. While I do not favor her, we get along well together and I am careful not to criticize her. I have encouraged her to be self-sufficient and have always allowed her to take care of herself. In order to help her overcome her handicap, I have given her advantages that her brother did not have. She has taken violin lessons, ballet lessons, tennis and swimming lessons. Such activities will help her to overcome her shyness and self-consciousness and will give her poise and assurance. Although she cannot enjoy the theater, we frequently attend the movies together, with J. always wearing her aid. I took her to the rodeo and ice show. She wore her aid and enjoyed both performances. I have always dressed her well, because I feel that she needs the security and confidence that attractive clothes can give her. As a result, she has never been self-conscious about her hearing loss."

In both these cases, as the result of intelligent parental handling, the children use their aids to maximum advantage. The relationship between parent and child is free from conflicts and tensions, and the child is eager to improve his own state, once he feels secure as a member of his family group.

Another good example of wholesome parental attitude with concomitant desirable consequences in the child's acceptance of his hearing aid is the case of Raymond.

The Case of Raymond

Raymond is a tall, well-developed young boy, almost 17 years old, with bright red hair and freckles. He is meticulous in appearance and has a well-scrubbed, wholesome look. His manner is affable and courteous. He wears his aid constantly and expressed an acute need for it. In response to the worker's question as to how he likes it, he said, "Very, very much, very much. I can't go without it."

He described his school progress as "Not so good. I just got pushed through. Mother always had to help me and my teachers helped too." (At this point, Raymond stopped and asked the worker to wait until he changed a battery, because he was afraid he might miss something. He explained that he always carries an extra battery as he cannot get along at all without his aid.) "I'd be lost, so I carry this battery just in case something should happen."

His mother always told each new teacher about his hearing handicap in order to offset any difficulties he might encounter at the beginning of each term in a new school situation. Raymond in a rather doleful manner said that he never got along with other children because "I guess I just couldn't handle conversation." He had a few friends among the children in the neighborhood, but generally felt left out. He thought that the effort the children had to make in order to talk to him was too much to expect,

so he did not resent the fact that he was not always included in their games.

When Raymond was about three years old, his grandmother discovered that he was hard of hearing after he had failed to respond to a dinner bell rung close to his head. His mother had become blind after the birth of her first child and was totally blind at the time that Raymond was born. Following an operation, she recovered the use of one eye. As a result of her own handicap, she thinks that she has been especially patient with Raymond. When he was six years old, she began to teach him lip reading. She would point to a table or a chair and then repeat the word with her lips. She said that she and Raymond used to play games when they were visiting or with other people. They would talk to each other without uttering a sound. Raymond was delighted with his mother's attention and care.

When he was about seven years old, she realized that he was suffering keenly because the other children excluded him from their games. She noticed that he stood on the sidelines and just watched the others. Although she felt extremely sad about it, there was nothing she could do. She described an incident in which Raymond showed his reaction to his hearing disability. Up to this time, he had never indicated in any way that he was unhappy over his hearing loss. One evening, a group of friends were visiting them. Suddenly Raymond arose and went into the kitchen. His mother followed him and found him crying. In response to a question as to the reason for his withdrawal, he replied that he felt miserable because he couldn't hear the jokes of the people. Everybody was laughing and having such a good time, while he was sitting there completely cut off from the camaraderie of the rest of the group. His mother related that she sat down with Raymond in the kitchen and the two of them wept together.

Shortly after this, Raymond received his hearing aid and a new world was opened to him. On the way home after he had gotten his aid, he repeated to his mother the new sounds he was hearing. He told his mother that he never knew that footsteps made a noise. When he arrived home, he rushed up to his room, and arranged his aid so that he could use it to best advantage. He placed the microphone on the outside of his jacket, adjusted the earpiece and cord, and attached the batteries to his belt. He paraded in front of the mirror so he could become accustomed to the idea of seeing himself with the apparatus. He asked his father to sit down in the living room and prepare for a surprise. Then he came downstairs and made an impressive entrance with the new aid. His mother said it was the most thrilling moment of the family's life. Immediately after they had finished dinner, Raymond asked his mother to go visiting with him to the homes of the people who had been kind to him when he couldn't hear. He and his mother visited the neighbors who "had been especially kind to Raymond and we showed off the new aid." The response of his family

and his friends to his new hearing device was of such a nature that he never had the problem of self-consciousness or embarrassment. They visited at the homes of four or five of the neighbors that evening. At each house Raymond showed the mechanism of the aid and insisted that everyone listen so that each could hear what he was hearing.

Raymond's entrance into the world of sound was a dramatic one. His environmental influences provided him with a happy experience. Instead of the idle curiosity that greets most wearers when they first put on an aid, Raymond's experience was one of great admiration and joyful sharing of a happy occasion with his family and friends.

Significantly enough, on the other hand, a hostile attitude on the part of the parents toward a child is reflected in the child's attitude toward his aid. This is seen in the case of a boy who feels great need for his aid yet wears it intermittently, because he can thus defy his parents and cause them concern. He wears it when he is away from the house, but takes it off when he comes home, even though his parents constantly scold and nag at him. The attitude of his parents is reflected in the following statement: "S. has always given us trouble since he was a baby. He fights with his brothers and is rude to me. I am embarrassed to go out on the street because the neighbors think my son is crazy. When he comes home late at night, he turns on the radio so loud that he disturbs everyone. I have absolutely no control over him. His father would like to send him away from home because he may be exerting a bad influence on the younger boys. He always had trouble in school and I got tired of going there to try to smooth things over."

In the case of one girl, the family conflicts between husband and wife resulted in the child's refusal to wear her aid except to the movies. The father is sure that the child is feeble-minded and should be institutionalized. However, her school record and intelligence test score both show that she is of low normal intelligence. During the interview the father revealed that his purpose in wanting his daughter sent away was to punish his wife who was constantly quarreling with him.

This child finds it more comfortable to avoid the tensions within her home by refusing to wear her aid when she is in the house rather than to listen to the bickerings of her parents.

In those homes where the relationship between the parent and child is satisfactory, the child is more likely to wear the aid. If the

relationship is unsatisfactory, there is greater tendency for the child to use the aid as a means of self-assertion against parental domination. In addition, when tension exists either between the parents, or between the child and one of the parents, the child presents behavior problems.

Many more difficulties were enumerated by the parents of the no-aid group. They were of a more serious nature than those of the aid wearers, but there were some parents who showed understanding and sympathy for the child. Following are some examples of the types of comment made by parents of the no-aid group:

"The family has never had to make sacrifices because of I.'s handicap. I seemed to favor her because of her handicap. In return, she likes to fuss over me and shows me more affection than does her brother. She has assumed much of the responsibility for keeping the house and I let her make the beds and go to the store, because I have to work. She shows resentment if her brother gets anything that she can't have. I have tried not to feel sorry for her, and have avoided making her feel self-conscious about her hearing loss. In fact, I am afraid that I have protected her too much."

"D. has always required more attention than other children. She cannot hear from room to room and the family is constantly shouting at her. However, she seems to hear better when talking with her girl friends than when her mother or grandmother try to make her understand. She doesn't like to help around the house, but when she grows up she will probably be able to earn a living."

"A. has been very difficult to bring up. She required more time and attention than her brother, because she has always been difficult to manage. She is extremely stubborn and would hold food in her mouth for hours without swallowing it. As a result, she is still fussy about food. I think she must learn to fight her own battles. She is too dependent on her family and me."

Parental attitude may be considered to play an important part in influencing the child to wear an aid. From the comments and case studies, it is evident that the parents reveal quite different attitudes in dealing with handicapped children. Some parents recognized difficulties engendered by hearing loss and helped the child to overcome them; other parents saw the child as a burden and made no effort to assist him in his adjustment. Instead, they increased the conflicts and tensions already existing as the result of a handicap. No subject said that he had experienced either ridicule

or embarrassment from siblings. On the contrary, the attitude of the brothers and sisters was generally that of approval, in that the family was spared the exertion of shouting at its hard-of-hearing member, making for greater harmony within the household. In only one case a boy reported that his brother preferred him to get along without an aid. When the brother was interviewed he said that he would take his younger brother into business with him so that he himself would be spared the embarrassment of having anyone know his younger brother was hard of hearing. In all the other cases, the siblings appeared to approve of any device which decreased the pressures and tensions within the home and were quite willing to have the hard-of-hearing member wear a hearing aid.

In two cases, parents felt there was a beneficial effect upon other hard-of-hearing siblings as the result of the wearing of a hearing aid by one member of the family. One parent planned to buy an aid for a younger hard-of-hearing daughter since the child who had received one through the National Research Council Study had found it so helpful. The mother felt that the younger child would readily accept hers because her sister was already wearing one. In another case, a subject's brother had purchased an aid after seeing the success with which she used hers.

To conclude, various factors within the home environment appear to influence the wearing of a hearing aid. First, the children from better homes seem to be more likely to adjust easily to an aid than do the children from deprived environments. Second, the specific efforts made by the parents to insure the child's physical comfort in wearing an aid were less significant over a long period of time than parental attitude toward the child and his disability. Good relationships within the home and between parent and child appear to be of great influence in fostering a positive reaction toward the wearing of an aid. Third, tensions that had been present within the home in many cases were relieved when the child began using his instrument, although in some cases tension within the home seemed to motivate the child to reject the aid as a means of fighting back at the unsympathetic parent. Fourth, successful use of an aid by one member of the family tends to influence a hard-of-hearing sibling also to use an instrument.

VI. Social Relationships

The social relationships of the aid wearers and of the no-aid group were studied in order to determine whether the number of friends, choice of friends, and favorite leisure time activities have any effect upon the decision to wear or to reject a hearing aid. Case studies were also analyzed for apparent changes in social adjustment which might be attributed to the wearing of an aid.

When the aid wearers and the no-aid group are compared as to number of friends, the aid wearers seem to be somewhat more popular. Fifty per cent of aid wearers were chosen as companions by other children, whereas only 41 per cent of the no-aid group were described as in demand by others.

The aid boys were more popular (64 per cent) than the aid girls (36 per cent). More boys than girls who wore aids were reported by their parents as having friends who came to the house to visit them and invited them to parties and other social functions. For example, one mother said that the children in the neighborhood invariably gather in her son's room after school; he teaches them to build model airplanes and is considered to be most skillful in producing models himself. None of the girls, however, had a focus of activity within her own home; they sought their recreation in the homes of their friends or in outside organized activities.

The companions of the large majority of boys and girls in both groups have normal hearing. Eighty-four per cent of the aid wearers and 92 per cent of the no-aid group said that their friends had normal hearing. Only two aid wearers and one no-aid boy expressed preference for hard-of-hearing companions. The former said that they preferred to associate with people who are hard of hearing because it made them feel less self-conscious about their own hearing loss. One girl felt that she always had to tell the young men who invited her out about her hearing loss in order to forestall any embarrassment. Two aid wearers mentioned hard-of-hearing friends as well as normal-hearing companions. On the

whole, however, both groups preferred normal-hearing companions. The majority of the children said that they preferred not to have hard-of-hearing friends because it made them feel self-conscious when they were with normal-hearing people. However, it appears that their choice of friends depended largely upon propinquity and that they associated for the most part with those children with whom they attended school or near whom they lived. Even though they had contacts with other hard-of-hearing children at the New York League for the Hard of Hearing, they did not cultivate them socially.

Generally, both groups chose companions of about their own age. Among the aid wearers there were two boys who chose friends older than themselves. One boy in the no-aid group stated a preference for companions younger than himself; he is immature in his emotional development and very likely would feel insecure among boys of his own age. With younger children he is able to realize his desire for domination and leadership.

The girls in both groups showed more interest in the opposite sex than did the boys. Forty-five per cent of the aid wearing girls and sixty per cent of the no-aid girls talked about "dates," whereas 36 per cent of the aid wearing boys and none of the no-aid boys expressed interest in girls. In one case, a mother said that her daughter had persistently told her that she does not want to marry anyone who is hard of hearing. She gave as her reason the fact that if there were a fire or an accident, neither one would be aware of it. With one exception, all the other girls who were thinking about their future status expressed similar desires to marry normal-hearing men. One girl expressed a preference for marrying someone who was similarly afflicted because she felt there would be less conflict if she were married to a man who had complete understanding of her handicap. It is interesting to note that four of the girls who were interviewed related that they had gone out recently with wounded war veterans; they felt that the stigma of having a handicap was diminished as a result of increased contact by the general public with war casualties.

As to group activities, proportionately fewer aid wearers belonged to clubs than did the members of the no-aid group. Forty-two per cent of the aid wearers and 47 per cent of the no-aid

group reported actual membership in organized groups. There were in both groups a larger percentage of boys than girls who participated in such activities (57 per cent of the aid wearers and 50 per cent of the no-aid group).

The aid wearing boys chose as their clubs such organizations as: Boy Scouts, neighborhood athletic clubs, the Audubon Society, Air Raid Wardens, and CDVO. The girls who wear aids reported membership in the Girl Scouts, athletic clubs, and the Red Cross. The no-aid girls belonged to church clubs, the Girl Scouts, and choir groups. The boys in this group mentioned only the Boy Scouts. It is interesting to note that two of the boys who are wearing hearing aids were patrol leaders in their Scout troops. Both of them wear aids to Scout meetings. The majority of the children have contact with the New York League for the Hard of Hearing. It may be that those children who do not wear their aids are more likely than the others to join organized groups since less initiative is required to participate in an established activity than is necessary for making individual social contacts.

With reference to the unorganized activities, all the boys and girls in the aid wearing group specified some outside interests. In the no-aid group, however, two girls and one boy mentioned that they had no special interests and engaged in relatively few activities.

The activities were analyzed to see whether they were carried on alone or involved the participation of one or more persons. For all groups these were rather evenly divided. Among the activities which could be considered of a solitary nature, reading was mentioned most frequently by the aid wearing girls. Movies were also very popular, but none of the girls ever attended alone. Dancing was the most popular group activity. The boys who wore aids talked with equal frequency of interests in model airplanes, comic strips, and reading. Among the activities involving one other person, playing ball was favored. Football and baseball led in popularity among the group activities. In the no-aid group, the girls again expressed interest in reading, movies, and dancing. The no-aid boys' interests also were similar to those of the aid wearers.

In general, the interests of the aid wearers and no-aid groups are very similar as to both type and number of people involved.

These findings reflect the usual pattern found in adolescent be-

havior as to choice of friends and activities. The girls tend to belong to fewer groups than the boys. They resort to smaller groups and to one or two friends for companionship in their activities. They choose companions mainly within their neighborhood. The boys exhibited a greater spirit of adventure in their tendency to join larger groups and to participate in more organized recreational activities. There are no apparent differences between the aid and no-aid wearers in their friends and their choice of activities, except that the no-aid wearers are more likely to join organized groups.

There were several cases that showed a noticeable change from inadequate social adjustment to increased social activity after beginning to use an aid. The parents pointed out in these cases that their children no longer resorted so exclusively to sedentary activities within their own homes, but now were able to enjoy many types of recreation that formerly had been impossible for them. An example of this is the case of Polly.

The Case of Polly

Polly is a plump, quiet, sedate girl. She likes her aid very much and feels better with it. Her speech is quite poor and is rather difficult to understand. Polly's school career was one of failures and disappointments. She could not understand her teachers and could not make herself understood. She always told her teachers that she was hard of hearing, but the special instruction that they were forced to give her did not help her to keep up with the rest of the group.

Polly is one of ten children. Her family considered her a problem because of her hearing deficiency. Her mother was very anxious to have her wear an aid because she thought it would help her to get along better with people. Her family lead a varied social life and Polly always felt left out because she could not join in when they had company or gave parties. The mother thinks she has made more friends since she began wearing the aid. Before this, she stayed at home a great deal and moped about the house. When her sisters asked her to go out with them, she often refused and preferred to stay by herself. Now she plays with other children and seems to be well liked. She often goes out with her friends and is considered a leader in sports and games. She enjoys going to parties with her parents and attends church regularly with her sister. On these occasions she always wears her aid. The mother thinks that Polly has never been favored by the rest of the family more than any of the others, but that she has a better time because she is no longer self-conscious or ill-at-ease with people. Although the mother had previously worried about letting Polly go out with her friends, now that she has the aid the mother is no longer concerned about her doing so.

Polly had experienced a long period of unhappiness because she was not able to understand other people. Living in a home that is constantly filled with visitors and social activities had made her feel her handicap keenly. She loves to be in a room full of people. She said, "I don't want my friends to think I am dumb because I don't hear, and now that I wear the aid, I have even more friends than I had before."

Her brother takes her every month to a dance given by his club. She always wears her aid when she goes because she cannot hear the music without it. She likes to dance and is usually extremely popular at these affairs. Polly said that she was quite willing to subject herself to the curiosity of other people, rather than miss the social contacts that wearing an aid makes possible. She is so interested in knowing and taking part in everything going on around her that she wears the aid constantly, from the time she gets up in the morning until bedtime.

At the convent which she attends she was described by the Sister in charge as being socially well adjusted, of affable disposition, and as fitting in well with her group. She engages in many extra-curricular activities and is particularly adept at athletics. She is a member of the basketball team and has played in competition with teams of other schools.

The Sister thinks that Polly has finally overcome her natural shyness. Her excessive timidity before she got her aid may have been caused by the fact that she was always afraid that she would not understand what was going on about her. She was completely dependent upon her ability to read lips.

In this case, a girl who was brought up in a very social atmosphere had become withdrawn and shy as a result of her inability to participate in the activities of her family and friends. Once an adequate means of communication was provided for her, she became socially well adjusted and was able to overcome her former timidity. She now leads a happy, active social life and no longer suffers from feelings of isolation. Polly's need for social participation has been fulfilled and, as a result, she looks upon the future with great security and confidence.

Gregariousness is generally accepted as a primary human urge. Once these children were able to expand their social spheres and cultivate more friends, they achieved feelings of belongingness and acceptance by their peers. Identifying themselves with a group provided them with the satisfactions which all adolescents normally crave.

It appears that the need for wider social relationships and more companions to some extent motivated the children to wear a hear-

ing aid. It seems that those children who no longer wore aids were already so insecure in their social lives that they feared to risk any stigma that they felt the wearing of an aid might incur. Their need for social acceptance was a dominating force. Their need for identification with a group prevented them from using any device which might set them apart as being "different."

From this, it may be concluded that social need in and of itself plays a primary role in the decision to use a hearing aid. This social need may take one of two directions: either the individual recognizes his need and is willing to take steps to improve his situation; or his fear of jeopardizing his status quo is of such intensity that he will do nothing that might possibly diminish his present position in the group.

VII. School Influences

A primary concern of adolescent children is their school career. Their lives have been largely centered about school and school achievement. They make their decisions in terms of their school progress, their status as members of the school group, and their achievement in school. During this period they are particularly interested in preparing for their future careers and therefore they evaluate their school achievement in respect to future success. For these reasons, the use or non-use that the children in this group made of their aids in the school situation was particularly significant. Some used their aids because they could not get along in school without them, whereas others refused to wear their aids because they felt the instruments hampered their school careers. Analysis was made of the use of aids in school in relation to school achievement, the amount of use in the school situation, and improvement as a result of wearing an instrument. In addition, the attitudes of both classmates and teachers were studied as factors influencing the decisions of hard-of-hearing children in their acceptance of a hearing aid.

Many aid wearing children showed marked improvement in

their school achievement. About 65 per cent of this group had no record of failures. Only three children, however, were performing near the top of their class. The rest of them were average or below average. On the other hand, 55 per cent of the no-aid group were retarded from one to four years. Of this number, two had left school when they had reached the maximum age requiring school attendance, even though one had not yet graduated from high school and the other had not yet finished elementary school. It must be pointed out that the parents of those who were wearing aids all felt that their children were doing much better work now than they had done prior to use of the aid. Seven parents had had to employ private tutors in order to have the children keep up with the rest of their classmates. Some parents had found it necessary constantly to help the children with homework. The daily lessons were reviewed at home and extra assistance was given these children in preparation for their examinations.

The subject most frequently mentioned as being difficult was arithmetic. Arithmetic typically involves large amounts of oral work. Spelling and English were also mentioned as giving the children much trouble. The chief problem in spelling was that the children could not understand the words dictated by the teacher. Many of them had failed in this subject because they had written the wrong word rather than mispelled the word. Their best subjects were reading and geography. The children preferred and did their best work in those subjects that made fewest demands on hearing ability. They liked to write compositions which gave them an opportunity for self-expression and they liked also those subjects that involved handwork of some kind. As an indication of these preferences, the majority had chosen to attend vocational high schools and were taking commercial or machine-shop courses. One girl was studying homemaking and two boys were preparing to enter technical colleges. Two of the children were attending a high school of industrial art. The specific subjects that proved stumbling blocks to them were foreign languages and shorthand. Those who had attempted to cope with these subjects, which depend largely on auditory acuity, had failed and had been forced to drop them. The girls showed aptitude for typing and clerical tasks while the boys excelled in machine-shop studies and aviation trades.

Although the boys realized they could never be pilots, they were fairly skillful in airplane mechanics.

The children wearing aids varied in the use they made of them in the school situation. They always wore them in classes where there was a maximum amount of oral recitation. Three of them said they turned them off when they wanted to concentrate—for example, during examinations and during study periods. Some of them turned them off when classes were changing because the noise in the halls bothered them. Approximately 50 per cent of this group found the aids a burden during gymnasium classes. Instead of removing the aids, they preferred to be excused from class. Only two children were able to wear their aids while attending gymnasium. The rest took them off or did not take gymnastics. The boys preferred to take off their instruments or to turn them off during shop work. Several of the teachers remarked that they considered it dangerous for the boys to wear aids in those classes that required the use of movable machinery.

The aid wearing group always wore their instruments to assembly. For too long they had been deprived of an opportunity to enjoy assembly programs. All of them said they felt that they had missed so much during the auditorium periods that once they had received their aids they were eager to learn what they had been missing all that time.

Six of the children who had been reluctant to wear aids in junior high school found that they could not meet the competition in senior high school unless they wore their instruments. One boy especially had always done good work in elementary school and had graduated with honors. His first three months in a technical high school were a series of repeated failures. His need to keep up with the rest of his group became so great that he asked his mother to have his aid repaired. She had had much difficulty with him up to this time and was amazed that he wanted to use his aid. As soon as he began to wear it again, his school marks improved and he was able to assume the position in his class in high school that he had held in elementary school.

Those children who were already in high school at the time they received their aids said that their period of adjustment might have been less formidable if they had begun wearing them much earlier.

The critical period so far as can be determined appears to be at the beginning of junior high school. Only one parent suggested that his child might have been better off if he had begun to wear his aid at approximately six years of age. In spite of the fact that early schooling had been difficult for these children, the parents were not of the opinion that earlier use of an aid would have helped. They felt that the adjustments before junior high school could be made without a hearing aid. Once a child entered junior high school, however, the auditory demands of the classroom situation became too great for the hard-of-hearing child to cope with unaided.

In adjusting to the wearing of an aid the child is acutely conscious of the reactions of those around him. The children felt that their comrades in junior high school quickly overcame their initial curiosity. After the first flurry of interest the children showed at the strange sight of a hearing aid on one of their group, they quickly accepted it and then forgot all about it. Generally, the children reported that their classmates paid little attention to them after the first week or two. Their self-consciousness at wearing their instruments in so public a situation as a school classroom was largely their own reaction and was not caused by either the comments or the behavior of the other children. In fact, several of them said that their classmates showed them even greater consideration and kindness than before. Two reported that the teachers spoke to them in a louder tone of voice and gave them special instruction. The aid wearing group profited from this attention and felt that they were able to get along much better, not only because of their aid but because of the fact that their disability was no longer concealed.

So far as the attitude of the children in high school was concerned, apparently no one paid any attention to the aid wearers. One boy said that in order to satisfy his own curiosity as to the reactions of other boys toward his wearing a hearing aid, he used to walk through the halls and watch their faces when he came close to them. He added that he always felt a little ridiculous at his own behavior because no one seemed to notice him or his aid. Only one child felt that he had been prevented from wearing an aid because of the curiosity of other children.

The majority of the children were attending New York City high schools. A few of them were still in elementary school and two of them were in high schools in Jersey City. The administrators and teachers in these schools gave valuable assistance in this study. Even though these schools for the most part had several thousand children in attendance, the majority of the school authorities knew these particular children well. Too much emphasis cannot be placed on the intelligent guidance and sympathetic attitude of the school officials. They knew the handicapped children, had carefully followed their progress, and had made real effort to help them adjust to a difficult school situation. Eighty per cent of the guidance counselors and principals knew that the children in this investigation wore hearing aids. Their records showed this fact, and careful follow-up of these youngsters had been carried out. Not all the teachers, however, knew of the hearing losses. Some administrators felt that there was no advantage in informing the teachers about the physical disabilities of the children. Other administrators made a point of telling all the teachers of each handicapped child the specific nature of the child's disability so that they could watch carefully and help the child overcome any difficulties he might encounter in the classroom. Only 20 per cent of the schools had no record that the child was hard of hearing or that he wore an aid.

The administrators and the guidance counselors in the schools had given special attention to these children in planning their programs. No child wearing a hearing aid had been encouraged to take any courses that would be too difficult for him; for example, aid wearers were discouraged from taking foreign languages or stenography.

Some teachers in their desire to be helpful and to encourage the child in his wearing of the hearing aid used methods that made the child feel even more conspicuous than before. One teacher asked a boy to go to the front of the room and explain to the class the mechanics of his aid. The boy said he refused to accede to her request and that he ignored her. He resented her obvious interest in him and her desire to be helpful. Three children felt that they had been influenced to wear their aids more extensively because they had been assigned to aid-wearing teachers. A number of teachers

asked the children about the aids when the other children were not in the room. In this way, they were assured of a friendly interest on the part of the teacher but were not subjected to any discomfort or embarrassment.

Several teachers told the worker that they had admonished the children in the classroom not to make the aid wearing child feel self-conscious by asking questions or by referring to it in any way. This device apparently had far greater effectiveness in relieving the aid wearing subject of feelings of embarrassment than any other method that had been used. One principal reported that at the beginning of the year she held an assembly during which she explained the necessity of kindness and consideration on the part of all the children in her school for any classmate suffering from some disability. She also said that she encouraged the children in her school who had physical disabilities by calling on them for special errands and tasks. This increased their esteem and prestige in the eyes of the other children and helped the handicapped to develop feelings of adequacy and self-reliance. Three teachers who were interviewed reported that they found the intense concentration of hard-of-hearing children who were dependent on lip reading extremely disconcerting. They encouraged the children to wear their aids because they themselves felt uncomfortable at the child's continual watching of their lips.

The aid wearers to some degree were motivated to wear their instruments in school in order to appear less conspicuous. The children had become accustomed to taking seats in the front of the room at the request of either their parents or themselves. They had, however, grown tired of sitting in a conspicuous position and welcomed their opportunity to move to the back of the room once they began wearing aids. The seat in the classroom may not be of particular importance to the normal-hearing child; but the fact that a handicapped child has had to sit close to the teacher or in a position that made him feel removed from the rest of his classmates assumes great importance in personality development. He feels detached from the rest not only in his failure to observe what is going on behind him but in his feeling that he may be missing some of the work and fun. Many such children said

that they were eager to wear aids in order to be able to sit at the back of the room in comfort and ease.

Two of the children used their aids as attention-getting devices. They brought them to school, played with them, and tried to distract other children by putting them on and off. Both wore the aid but kept it turned off. Both were discipline problems and one was finally asked to leave school.

The need for participation in school activities may also be considered as a motivating force in inducing these children to wear their aids. Generally, they had been reluctant to participate in class recitations. About 60 per cent took a much more active part in recitations once they began to wear their instruments. One girl had been able to take part in the school play. She wore her aid deftly concealed by her hair and had been complimented on her skillful performance. On the other hand, a boy who showed keen delight in dramatics gave up his part in the school play rather than wear his aid in public.

A good example of a boy who made maximum use of his aid in the school situation is that of Carl.

The Case of Carl

Carl is an alert, well-adjusted boy who has made great effort to overcome his hearing disability. He wears his hearing aid at all times and thinks "it is wonderful." He said he did not know how he got along before as now he finds it indispensable. He is much better able to hear his teachers and he is not as nervous as he used to be. He doesn't have to strain to hear and this has helped "my general irritability and nervousness." His superior intelligence has prevented him from failing in school but he always had to exert supreme effort in order to maintain the standards which he set up for himself. According to his description of his school progress, he has always gotten along well but "I do not know why that is so." At the request of his mother, his teachers allowed him to sit in the front of the room. He had many school friends who never seemed to mind the fact that he had difficulty in understanding them. Carl said that he did not cultivate the few children who became impatient with him when he asked them to repeat. His favorite school subjects were mathematics and English grammar. In answer to a question as to whether he got along in school as well as children with normal hearing, he said that he got along almost as well but "my marks were not at the top although there were not many in the class that got marks better than I did." He could never hear an assembly program and had to rely on his friends to keep him informed as to what was going on. He was particularly annoyed

when he could not hear everything. His alert attitude and keen awareness of his surroundings made him discontented and unhappy if he thought he was missing something.

At first he was quite unhappy over wearing a hearing aid but he said that he would make it do. "Although I did not want anything sticking out of my ear which would attract attention to me, I thought it was better to wear it than to ask people for special favors." For the first time he was able to enjoy the assembly exercises. He had expected the aid to help him in school particularly and "it certainly did that." He remembered that he was so self-conscious when he first put it on that it seemed as if everyone were looking at him.

His high school specializes in training boys for entrance into engineering colleges. They are a selected group and are required to pass a difficult admission examination. He ascribed the lack of curiosity on the part of the boys in his school to the fact that they were older and more mature than most and therefore understood things like wearing a hearing aid much better than would younger children. In grammar school the children used to ask why he had to wear it. He showed them how it worked and often even let some of them listen to it. He was so self-conscious when he first put it on that he wore earmuffs in the wintertime so that no one could notice it but now he feels much too grown up for this type of concealment and has no qualms about wearing his aid on the street. His work has improved in every subject. His desire to keep up his scholastic record overcomes any self-consciousness and any dislike that he previously had for his instrument. He continually volunteers in class and stands up to recite with no attempt to conceal his aid. His mother said that he used to have difficulty in junior high school, where the work is departmentalized. He found that he could not easily understand the different voices but after a time he became accustomed to them. He told his mother a short time after he got his aid that he had always been tense in school but now he could sit back and relax. For the first time he was able to concentrate on his school work. He graduated from junior high school at the head of his class and took several prizes.

His mother thinks that he could not have done as well as this if he had not had his aid during this period. Now in high school, he is able to work more rapidly than ever before and school is a greater challenge to him. He still is doing honor work. According to his mother, "He loves his aid. He pats it lovingly every night before putting it away as if it were a cherished friend."

In an interview, Carl's guidance counselor revealed that he has superior grades in English and history and high marks in technical skills. There was nothing on his school record to indicate that Carl is hard of hearing or that he wore a hearing aid. Carl's woodworking teacher was eager to discuss his progress. He stated that Carl was independent and had a pleas-

ant personality. He had observed at the boy's first entrance into his class that he wore an aid but this in no way set him apart from the other boys in his group. He is admired and liked by all of them and takes part in all group activities. His work in class is above average, and on an examination in which the questions were given orally to the students Carl received a mark of 100 per cent. The worker observed him during a class period. The boys were busily engaged in group projects and he was discussing his project with one of his classmates with much interest and enthusiasm. His teacher stated that at the beginning of the term he had asked the children if there was any one who could not see or hear well, in order that he might seat the boys to best advantage. Carl raised his hand and volunteered the information that he could not hear very well but showed no undue concern over it. Although he is aware of his superior abilities and outstanding record as a student, Carl has never given any evidence of conceit or arrogance. The other boys in the class show no curiosity about his aid and treat him as a member of the group. Even though his group is intellectually superior, Carl has always remained close to the top. His mathematics teacher reported, "He is a nice boy and gives no trouble. One would not even know that he is hard of hearing. He takes part in class recitations, answers questions, volunteers, and has never required any special instruction or attention." The instructor felt that Carl need not be singled out for special attention even in a class as large as his. It has never been necessary to make any special provision for him because he is able to hold his own with the rest of the group. His teacher described him as a normal, extremely intelligent, well-adjusted boy. He plans to be an electrical engineer and is preparing to enter college.

In summary, the aid wearing group had a better academic record than those who discontinued use of the aid and a marked improvement was apparent during the time they had used the aids. Difficulties in using the aid in certain school activities such as gymnasium and shopwork were apparent. The aids are more indispensable in junior high school than in lower grades, and in certain activities, such as foreign language work or auditorium activities, than in others in which more reading and less oral work is involved. Apparently other school children respond sensibly and helpfully to the child wearing a hearing aid. The teacher and other school officers do much to make the use of the hearing aid profitable and socially acceptable. Several illustrations of good and poor teacher management were offered.

VIII. Vocational Interests and Plans

Most adolescents are profoundly interested in the matter of vocational choice. For this reason, the interests of the aid wearers and the no-aid group were studied with respect to vocational aspiration, work experience, plans for further academic training, ideals and ambitions, and special abilities.

The group wearing aids show more perspicacity and foresight in choice of vocations. They have definite plans for the future and are going through a period of training which will equip them for the vocations they have chosen. Sixty-four per cent of the aid wearing girls hope to do some sort of office work. With one exception, they are now taking courses in preparation for their chosen work; the one exception plans to further her training by attending business college after graduation from high school in order to get technical training in the operation of standard business machines. The majority of the girls expect to get positions as file clerks or typists. One plans to go to college to study accountancy. Other vocations mentioned were those of ballet dancer, teacher of the deaf, and interpreter. Two of the girls had no specific vocational plans but expected to continue their academic education.

The aid wearing boys show a greater variety in vocational choice. The majority have taken into consideration their hearing handicap and the fact that they would have to wear aids in their future careers. Thirty-six per cent chose some mechanical trade. Two boys hope to be physicians. Other occupations mentioned are those of aviation pilot, artist, naturalist, chemical engineer, architect, dental mechanic, and engineer. Thirty-six per cent are already taking courses in high school to prepare themselves for their chosen vocations.

Twenty per cent of the aid wearers have had some work experience. One girl had worked for a brief time as a file clerk, while another works after school as a store clerk. One boy works for his father as a delivery boy, another has had several jobs, including

working in a drug store, working in the post office, and tending furnaces, and one boy devotes one week every month to clerical work. The remainder of them, however, have never been employed. Two of the parents reported that their children had sought employment but no employer would hire them after they had mentioned the fact that they wore hearing aids. On the other hand, the boy who is employed at clerical work related that his employer insisted upon his wearing his hearing aid at the office.

Both the boy and the girl aid wearers appear to be realistic in their choice of vocations and precise in their planning. They show a tendency to choose careers within the limits of their intellectual and physical resources. They choose the kind of work that will not tax their ability to hear nor be hampered by the use of a hearing aid. Their school programs have been planned to prepare them for the kind of work they want to do and the guidance counselors in all cases felt that these boys and girls had made wise choices. It may be that the apparent wisdom shown by these children in choice of a career is the result of consultation with guidance counselors, who helped them plan their programs and make their decisions for future careers in the light of their physical handicaps.

The no-aid girls appear to have a less realistic approach to the problem, both in degree of planning and in choice of vocation. A greater number have no plans or are vague as to what they hope to do in the future. In some cases, their present academic training is not the type to prepare them for the careers they say they would like to follow. Two of the no-aid girls had no plans and one of the parents reported that her daughter's aspiration was to be married. Among the vocations mentioned by the girls in this group were those of dressmaker, typist, bookkeeper, costume designer, interior decorator, and beautician. Although 30 per cent of the group are taking courses to prepare themselves for their chosen vocations, others are taking work entirely unrelated to their vocational choices and have made no plans for acquiring the necessary skills. For example, one girl who is taking a course in industrial design hopes to be a typist.

All of the boys, however, are realistic in their approach to this problem. One boy who does not like to wear his aid because of his self-consciousness plans to study scientific agriculture. His parents

are saving so that they can buy him a farm where he can carry out scientific farming. His mother stated that he would be happier removed from an urban environment to surroundings that would make fewer demands on his hearing. Another boy hopes to be either a carpenter or a printer; both choices seem to be possible as he is taking a program of work to prepare himself for either career. A third boy wants to be a mechanic but has been turned down by a trades high school because of his hearing loss. Inasmuch as he would prefer to choose a vocation where he will not need his aid, his father has offered to set him up in business as a garage mechanic. He recognizes the fact that he will have to get some technical training before he realizes his ambition.

Four of the no-aid boys and girls have had some kind of work experience. One girl did clerical work in an office and the other girl was an usher in a movie house. One boy worked on a newspaper truck and the other was a delivery boy for a neighborhood grocery store. It is significant that three of these children said that they gave up their jobs because they found it necessary to wear aids at work. They preferred to give up the jobs and face unemployment rather than be subjected to the curiosity of their fellow workers because they wore hearing aids.

The no-aid girls have not planned as well or as carefully as the aid wearers. Judging from their statements as to future careers, they tend to choose work which will not be impeded by their failure to wear an aid. Their school programs do not show careful planning and preparation, and they seem to have chosen courses rather indiscriminately. The few who have had work experience show an inability to make the necessary adjustment to their physical handicap and none of them has been able to hold a job for any length of time. The boys, on the other hand, seem to have a clearer idea of their potentialities and have planned accordingly.

As a group, both aid and no-aid wearers appear to have no clearly defined ideals or ambitions except those pertaining to vocations. Among the ambitions that were mentioned were owning an automobile, and marrying a normal-hearing girl on a higher social level than the subject. One boy said he would like to be a ball player. Two girls mentioned marriage and family as a goal. One boy desired to improve his social and financial status. They all desired

some form of financial independence and security, but showed no great concern about attaining their goal. None of them seemed to doubt his own ability to earn a living. Both aid wearers and no-aid wearers were sure that they would be able to overcome any difficulties in securing employment.

No outstanding abilities were evident among the subjects, with one exception. One boy who is using his aid to maximum advantage gave evidence of superior intellectual ability. He plans to study engineering and shows much promise of future success in such a career. Three of them had a flair for drawing, but their teachers felt they lacked sufficient talent to earn a livelihood as artists. They lacked the necessary ability to become designers, copyists, or stylists. Approximately 50 per cent had had musical instruction of some kind but showed no outstanding ability in this direction. None of the others gave any indication as to outstanding qualities which would make him potentially superior in any field of endeavor.

In general, the aid wearers have exercised better judgment concerning the choice of school subjects, the types of high school courses, and their vocational careers than have the no-aid children.

IX. Summary, Conclusions, and Recommendations

This study was undertaken to determine the nature of the influences which affected children's decisions to use or not to use individual hearing aids. The educational and guidance activities were also considered in relation to their effectiveness in enabling a child to use an aid to best advantage. The subjects were thirty-eight children who had been given hearing aids in connection with the National Research Council Study carried on by the subcommittee of the Committee on Problems of Deafness to investigate the value of individual hearing aids for hard-of-hearing children. They ranged in age from twelve years eleven months to eighteen years

four months. Thirty-four were attending either junior or senior high school and four had left school.

The case history method was used for gathering the data. In addition, the Wechsler-Bellevue Intelligence Scales and the Bernreuter Personality Inventory were given and the results analyzed. All the children received otological examinations and recordings were made of their hearing losses by means of an audiometric test.

SUMMARY OF FINDINGS

Following is a summary of the main findings:

1. The tendency to use a hearing aid successfully appears greater for those subjects who could attribute the hearing loss to some cause other than a hereditary deficiency. In the cases where the family is either uncertain or unaware of the cause, there appears to be difficulty in adjusting to the use of an aid. In families in which a hereditary hearing deficiency was evident, there was a marked tendency to refuse the hearing aid, since to wear the aid would advertise the family defect.

2. Children wearing hearing aids seemed to be enjoying better health, on the average, than those children who have refused to wear their aids.

3. Neither parents nor children felt that any speech improvement had resulted from wearing a hearing aid. Improvement in speech during the last four years was attributed to causes other than wearing an aid.

4. For the aid wearing group, the data suggest that the children were good judges of the extent of use of their aids. Those with the severest hearing losses tended to use their aids more extensively and more advantageously than the children with losses of less severity. The no-aid group, however, were influenced by factors other than their need for a hearing aid in their decision to reject it. Some of the children who rejected the hearing aid were suffering marked hearing losses.

5. An acute concern over personal appearance seems to motivate many adolescent girls to reject the wearing of an aid. Although as many adolescent girls continued to wear their aids as had discarded

them, the reason given by the no-aid girls for discarding them was invariably the fact that the aid detracted from their appearance. Relatively fewer adolescent boys discontinued wearing aids and those who did give them up did not consider the factor of appearance as important.

6. Physical discomfort encountered in the use of an aid seemed to bear little relationship to the ultimate acceptance or rejection of the instrument. The aid wearing group overcame physical discomfort within a three-month period while none of the children who had discarded the instruments gave physical discomfort as of primary importance in affecting his decision to reject his aid. It was evident, however, that many children needed guidance concerning ways of overcoming the several types of physical discomfort caused by wearing the aids.

7. The results of the Wechsler-Bellevue Intelligence Scales indicate that the total group is slightly above the average as compared with the norms for their age range. The aid wearers are five points higher than the norm while the no-aid wearers are almost five points lower. There is a difference of nine I Q points between the aid wearers and the no-aid group. These data suggest that even though the magnitude of the hearing loss is a factor in influencing these children to wear their aids, there is a greater tendency for the more intelligent child to adapt himself to the aid and to make helpful use of it than there is for the less intelligent.

8. The group functioned at a higher level on the performance part of the Wechsler-Bellevue Intelligence Scales than on the verbal part of the test. They performed to best advantage on those tests involving basic perceptual and conceptual skills.

9. Judging on the basis of interviews with the child, his parents, his teachers, and other persons, it would seem that the aid wearers have fewer personality maladjustments than do the children who have discontinued the aid. The better the adjustment, the more likely the child is to accept the wearing of a hearing aid. Parents and teachers reported a greater number of problems and behavior difficulties for the no-aid group than for the aid group.

10. The results of the Bernreuter Personality Inventory analysis suggested, but did not prove, the existence of better adjustment in the case of the aid wearing than in the case of the no-aid children.

The evidence was more dependable for the girls than for the boys.

11. The kind of home from which the child comes seems to bear some relationship to the child's decision to wear an aid. The socio-economic status of the aid wearers was slightly better than that of the no-aid group. A greater number of children who had rejected their aids came from deprived environments.

12. Although all the parents indicated that they had made some concrete effort to help the child make a satisfactory physical adjustment to the hearing aid, it appeared that variations in this type of help were not crucial.

13. The parental attitude toward the child and his handicap was of great importance. The data suggest that a good relationship between parents and child exerts great influence in fostering a positive reaction toward the wearing of an aid. The overprotected child and the rejected child alike tend to refuse to use the aid. Discord between parents exerts an unfavorable influence.

14. The attitude of brothers and sisters toward the hard-of-hearing child seems to exercise little if any influence over the tendency to use a hearing aid.

15. In particular, socially insecure children are inclined to refuse to use hearing aids because they fear that the admission of a physical defect will further weaken their social status.

16. There was a greater tendency for the children to participate in group activities after using a hearing aid. There was some indication that the no-aid pupils belonged more frequently to organized groups than did the aid wearers. This would suggest that the former found realization of social needs in those groups which had been automatically established and which were not closed to them through the choice of any member of the group. On the other hand, the aid wearers were able to meet their social needs through contacts with friends of their own choice. The activities the whole group preferred were similar to those most liked by normal adolescents.

17. The aid wearing groups showed consistent improvement in school achievement as soon as they began to wear the aid. For the most part, they used their instruments to best advantage in the school situation. The teachers noted improvement in attention and ability to concentrate and the parents, as well as the children, re-

ported that wearing aids relieved the children from tension. Many children found it no longer necessary to secure tutoring and assistance outside of school. The aid wearing group reported fewer failures and less difficulty in coping with the school situation than before they had begun to wear their aids.

18. The aid wearing group nevertheless tended to choose those subjects in high school which make a minimum demand on hearing ability. For example, they tended to take subjects requiring mechanical and technical skills, and to avoid foreign languages and stenography, both of which depend greatly upon oral classroom activities.

19. The attitude of the classmates of the aid users did not prove to be an obstacle since most of the children felt that the normal curiosity of the others was brief and for the most part sympathetic. In fact, they felt that they gained greater consideration from both teachers and schoolmates after they began wearing the aid. In some instances, the use of aids enabled pupils to feel less conspicuous, as, for example, in the case of the pupil who was no longer required to sit in a front seat.

20. Teachers can do much to help the pupils use the hearing aids fruitfully. Although teachers sometimes make serious mistakes in dealing with pupils when they first appear with hearing aids, they are usually wisely helpful. The evidence is that the school may become even more helpful to children venturing to use hearing aids.

21. The school courses of study planned by the guidance counselors and the teachers of these children indicated consideration of the child's disability and preparation for the types of occupation open to him in the future. Most of the children were receiving excellent guidance which would assure them of success in their chosen occupations. Although this guidance was sound, the pupils who had rejected the aids showed a greater tendency to flounder and to be less decisive in their plans for the future than did the aid wearers.

22. The aid wearers were more realistic in their choice of vocational interests than were the aid rejectors. They planned to engage in those occupations which would make fewest demands on hearing ability and which would not interfere with the wearing of a hearing aid. The aid rejectors were vague as to what they

wanted to do and some of the occupations they mentioned appeared to be beyond their capacity.

CERTAIN MAJOR CONCLUSIONS

From the foregoing array of relatively specific findings several general conclusions of special educational and social significance will be stated for further consideration.

First, it should be reemphasized that considerable social significance must be attached to the fact that approximately one-third of the pupils provided with hearing aids had discontinued them and for a long time had not used them at all and that others used the aids only occasionally. It is important for society to determine why children should refuse to take advantage of an instrument which had proved so beneficial to other hard-of-hearing children in many vital phases of life.

Although the hearing aid often produced a certain amount of annoyance and discomfort when first used, the testimony was overwhelming that the mechanical difficulties of wearing the instrument were rarely, if ever, the reasons for discarding the device.

Nearly all the children testified that when they first appeared with the hearing aid they were confronted with a new and critical problem in social adjustment. The wearing of a hearing aid was almost invariably regarded as a threat to their social security and prestige and to their acceptability to other children. Those who continued to wear aids were those who were successful in effecting a satisfactory adjustment. They were the ones who felt that their social status had not been lowered at all or at least not sufficiently to offset the advantages which use of the aid provided. Others, however, either did not succeed in making a happy adjustment or else were convinced that their social status or acceptability had suffered enough to more than outweigh the advantages of wearing the aid. In brief, the crucial question in attempting to wear a hearing aid is whether or not one can make the social adjustment.

A comparison of the children who continued to wear the hearing aid with those who discarded it shows fairly clear-cut differences. In general, the pupils who continued to wear the hearing aid appeared to be superior in constitutional equipment and in social and

economic status. These children on the whole also enjoyed a superior type of encouragement and help during the period of learning to use the hearing aid. They showed, in general, a fuller appreciation of their problem and a better understanding of the positive values of the hearing aid. For example, many of these children said that they believed they could not have graduated from elementary school without the aid, and most of them felt sure that they could not have gone on to high school without the instrument. These children thus revealed a desire to do good school work and were realistic in their recognition of the value of the hearing aid in contributing to that end.

These aid wearers as a group felt a great need of companionship and wider social relationships and were eager to wear hearing aids in order to be included in the social activities of their peers. The aid provided them with the confidence and self-assurance that lack of communication had denied them and, in many cases, the added security helped them overcome their shyness and timidity.

It is of first importance to recall the fact that in this group there was found, to a much greater extent than in the group who discontinued the aid, a tendency for the parents to be understanding and helpful in their relations with the children. When the parents had tried to develop a feeling of independence in the child and were not over-solicitous or over-anxious about the child's ability to take care of himself, the children exhibited a tendency to accept an aid readily and to make maximum use of it. The attitude of the parents in respect to the position of the child in the family group motivated many children to use an aid. For example, when the parents arranged family activities, such as attending the theater, visiting friends, going to church or having parties as a family unit, and having specific chores for the pupils to perform in the home, the children were usually eager to wear an aid in order to participate more fully. Aid wearers mentioned the fact that they were no longer cut off from delightful family contacts. Many mentioned their need for humor and fun. Many of them said that one of the impelling forces that made them wear an aid was the ability to hear family jokes and to comprehend those situations which brought forth laughter from the other members of the family group. In the aid wearing group, such evidence of good family relationships

was much more frequently found than in the group of children who had discontinued using the aid.

From the findings of this study, it appears that the child who will readily accept a hearing aid is one who is psychologically and emotionally prepared for it by having achieved a feeling of security within his family group, and by being properly advised and directed during the period of trial in using the aid.

Of the pupils who discontinued using the aid, half lived in decidedly inferior environments. All these pupils were slightly lower in intelligence than the aid wearing pupils. They were more frequently described as disciplinary problems either at home or at school. As a group they were more aggressive in their social relations than were the aid wearers.

Most of the children in this group could be classed in a home situation following one of three patterns: Either the parents showed indifference toward the child and his handicap; or severe tensions were present between the child and his parents; or friction was evident between the parents themselves. None of these children could be considered as very happy or emotionally well adjusted. Although they described many instances of social failure and embarrassment as a result of the hearing loss, they uniformly remained unconvinced that wearing a hearing aid would assist them in making a satisfactory adjustment. They were afraid that the device would be taken as evidence of physical inferiority and that this would reduce their social security and prestige below its existing level. They were less realistic than other children and were disposed to view any observation of their aid or comment on it as evidence of disapproval. Their sensitivity can be illustrated in connection with the adolescent girls' sensitivity to the way the hearing aid affected their personal appearance.

These girls were at an age when they were acutely conscious of their physical appearance, especially the style and character of their clothing. They were very anxious to be dressed in a manner that made them acceptable to other girls and attractive to the boys. Many of them rejected the hearing aid because they felt that it detracted from their physical attractiveness. They were quite willing to sacrifice school achievement in order to maintain their status quo among their peers.

In general, it was the conclusion of the study that the boys and girls who rejected the hearing aid were characterized by a feeling of insecurity in their social relationships. Most of them had a few friends who did not know that they were hard of hearing. Their need for their friends overwhelmed their desire to overcome their hearing handicap. They were apprehensive of jeopardizing their social status in any way. Most of them complained that they wanted more friends and wider social activities, just as the aid wearing children did, but they were convinced that the use of the hearing aid was too great a risk to the status quo for them to take in a dubious hope of securing a better social status.

In general, the authors of this report believe, although they admittedly cannot prove it objectively, that more information for these children and more tact and intelligence in directing them would have resulted in enabling them to learn to enjoy the benefits of the hearing aids.

SOURCES OF RECOMMENDATIONS FOR IMPROVEMENT IN THE USE OF HEARING AIDS

In the preceding section it was concluded that reaching the stage of using a hearing aid extensively and happily represents a considerable achievement in social adjustment. Although the advantages of using a hearing aid are numerous and important many difficulties are encountered by the child when he undertakes to use the apparatus. Certain difficulties in the form of physical discomfort or distress are encountered. Although these are usually not crucial, it is possible that improvements in the apparatus may make them still less important. Much more formidable and serious are the difficulties involved in making a new adjustment in the family life and in various other social groups in and out of the school. Indeed the crux of the matter seems to be whether the child believes that the use of the hearing aid makes him more or less socially acceptable. If he is convinced that appearing with the hearing aid increases his social status or at least leaves it unchanged, he is likely to continue to use the apparatus. If, on the other hand, he feels that wearing the aid results in a loss of social prestige, he is likely to discontinue its use either in certain social settings or in

all situations. It is evident, moreover, that the child's decision is based in part on his own intuition, which is sometimes faulty. Proper psychological preparation might have led him to a different decision. His decision, furthermore, depends greatly upon the advice, comments, and attitudes of other persons, such as his parents, his teachers, and other children. It seems plain that all of these persons might be advised and managed in such a way as to increase the child's satisfaction in using the instrument. For these reasons, it seemed advisable to write a last section in which various suggestions growing out of the study, which might conceivably be of value in making hearing aids more acceptable and more useful to children, would be offered.

It should be pointed out that few of the suggestions contained in the following pages can be said to have been verified by objective evidence secured in this study. Many of them represent suggestions made by the children who wore or refused to wear the aids, and by parents, teachers, and others who have had contacts with children of both groups. Some of the suggestions are made by the authors of this study. In some instances they are partly supported by facts unearthed in the study. In others they are surmises based on observations during the study or on psychological facts and principles familiar to students of this science. Many of them perhaps will prove in the end to be of little or no value. Many suggestions are offered, some of them obviously very speculative, in the hope that aid manufacturers, parents, teachers, investigators, and other persons concerned with the welfare of the hard-of-hearing child may try them out in practical or in scientific settings.

SUGGESTIONS FOR IMPROVEMENTS IN THE APPARATUS AND METHODS OF WEARING AN AID

Several suggestions can be made for improvements in the convenience and appearance of the apparatus itself. Most of the children mentioned difficulties due to the weight and bulk of the instrument. While the children did not actually state that the clumsiness of the instrument prevented them from making use of it, nevertheless the first impact of the weight and bulk came as a shock to many of them. It is therefore probable that an aid with a smaller earpiece and smaller batteries and microphone might

overcome the user's initial distaste. More widespread use of colored plastic earpieces and colored cords was recommended by two of the boys. One boy said he would be glad to wear an instrument if the black earpiece were not so conspicuous. A wide range of colors to blend with the wide range of complexions would give the wearer the opportunity to choose the aid that he considers the least conspicuous for his specific coloring. As to the size of the microphone and the batteries, the smaller they are, the better. It is suggested that it might be possible to manufacture the batteries in a flatter shape, so that the bulk might be more easily concealed.

Many of the children were not adequately taught how to wear a hearing aid and had to depend on their own imagination or on suggestions provided by parents or other inexperienced persons. Printed diagrams for both boys and girls showing several different ways of attaching both the microphone and the batteries to the body could be provided. The use of additional appliances to keep the instrument comfortably strapped to the body could be shown. Suggestions for eliminating the discomfort caused by the heat of the batteries and friction of the microphone should be given in advance—such as the use of a small strip of felt or satin plush attached to the back of the microphone to prevent rubbing against the skin and to insulate the instrument against bodily temperature changes. Expert advice at the time of making first use of the instrument and help in making the physical adjustment to it would ease the initial physical and psychological impact.

The hearing-aid manufacturers might issue bulletins, such as many department stores send to their customers, showing adaptation of the latest styles to the needs of aid wearers. Among the psychological reasons for rejecting an aid is the desire of young women to wear the current fashions. Therefore their interest in fashion and their identification with normal-hearing individuals would be enhanced by demonstration of the fact that they, too, could wear clothes in keeping with current trends. As an example of this, the type of dresses that are most suitable to aid wearers could be shown in pictures with some information as to where such clothes are sold and the size and price range. If the feminine hearing-aid wearer could anticipate getting her monthly or semi-annual fashion magazine, she probably would not consider her aid as serious a detri-

ment to her personal appearance. To encourage further such an aid wearer, current fashions in hairdressing and in hats could be shown through the use of photographs or sketches. Adaptations of such fashions to skillful concealment of an aid would bolster the confidence and increase the feeling of security of the aid wearer. Once these girls are convinced of the fact that they can be as attractively groomed and dressed as girls with normal hearing, there is greater likelihood that they will accept the aid.

Although the boys as a rule showed much less concern about the conspicuousness of their instruments, they would profit by useful advice. To illustrate, one boy mentioned the fact that usually when purchasing clothing he bought the jacket one size larger than the trousers of the suit. In this way he was able to conceal the bulkiness of his instrument. He suggested, furthermore, that the pockets of the suit in which the microphone is carried might be made slightly larger.

Bulletins informing purchasers of improvements in the use of an aid might arouse their interest and renew their appreciation of the advantages of wearing an instrument. The stimulation of printed material showing aid improvements and adjustment of clothing to wearing an aid must not be underestimated. It appears that some aid wearers need reassurance at frequent intervals.

SUGGESTIONS FOR GUIDANCE IN MAKING SOCIAL ADJUSTMENT WHEN WEARING AN AID

Since many of the children who neglected their instruments showed personality difficulties, the need for guidance in such cases is apparent. Some provision should be made, perhaps, by the hearing-aid companies, for a guidance service to all purchasers of the instruments. A trained counselor who can discuss with the parents and the child the psychological problems involved should assist in the adjustment of the hearing-aid users. Such a service might be offered for a period of one year to all purchasers of instruments. The need for such advice was apparent during the Hearing Aid Study. In a number of cases after the parents had been interviewed and the cases were considered closed by the worker, the parents continued to call to ask for advice about the child. The following are examples of the type of advice these parents needed in dealing

with their children: One parent was concerned about the selection of the college to which to send her son because she felt hearing-aid users would be at a disadvantage at certain schools. Another parent asked for reassurance that his child's difficulty was caused by hearing loss rather than by mental deficiency. Another parent sought advice on a second child in her family using an aid. Still another parent asked for recommendations as to specific physical activities in which her child could engage. In all these situations it is apparent that the family recognized the problems involved in wearing a hearing aid and that they needed guidance in dealing with the wearer.

The children themselves are in need of some direct counseling service. A number of children wrote or called for interviews after investigations of their cases had been concluded. These children actually needed someone to talk to them and discuss their problems with them. They felt they were different from other children and they needed reassurance and guidance in order to continue wearing an instrument.

While the guidance counselors in schools were able to handle many of the cases, the position of these children was unique in that their adjustment was of a nature quite different from that of the normal-hearing child. A person specializing in the use of hearing aids and the social adjustments involved in adopting them is needed. Some service is needed that would provide these children with the opportunity to discuss the problems they meet in their everyday life, such as what social groups they would best fit in with, what physical activities they are able to undertake, what musical instruments they can play, when they should and when they should not wear their aids. These are all problems that require solution through conferences with a competent specialist trained in dealing with the subtle psychological aspects of the auditorially handicapped.

Because many of these children feel isolated or "different," it is suggested that group therapy techniques be used with them. Some provision should be made during the first year of wearing an aid for a child to meet other aid wearing children of his age group in order to discuss the problems and difficulties which beset them all. Once the child becomes reconciled to the fact that other children

have similar problems and a like handicap he will more readily make an adjustment to it. If the children are given an opportunity to talk about the experiences encountered when the hearing aid is first worn and to discuss such difficulties with their peers, they are likely to become more confident that an adjustment can be made. Successful users would have much to offer the reluctant user. Such group therapy under skillful guidance would be of great value to the aid user.

Adjustment to social life by aid users must be a gradual process and must also be a part of the learning process. The aid user cannot be thrust out upon the world to make his own social adjustment as soon as he has been given his aid. He must be taught how to use the aid in social situations. It is suggested, for example, that frequent dances be held for these people to which normal-hearing people are not admitted. These dances might be preceded by a short period of instruction as to the best way to adjust the instrument to dance music and the best way to wear the instrument while dancing. In this way, awkwardness or discomfort in a social situation would be prevented and the adjustment to a similar situation with a normal-hearing group would be much easier. Movies might be provided that show the various activities of aid users. Once the aid user or potential aid user is convinced that he can engage in a wide range of normal activities, the adjustment to the aid will be made much easier. Such activities as hiking, movie-going, theater-going, playing baseball (for the boys), playing tennis, and playing golf, might be shown. The best way of adjusting an aid for various specific situations should be demonstrated in the movie. Many children stated that it was a long time before they were able to find out the exact place in the movie house where they could hear to best advantage. Instruction on such points as these would have eased the adjustment period.

SUGGESTIONS FOR PARENTS

Since the attitude of the parent appeared to be of great importance in the child's decision to wear an aid, the desirability of developing the proper attitude by the parent is evident. The parent must be convinced of the fact that his child can enjoy a wide range of normal activities once he has overcome his hearing diffi-

culty. Parents should be shown the types of family activities which children appreciate and how to enable the hard-of-hearing child to enter them more fully and enjoyably when they wear a hearing aid. Parents must be persuaded not to penalize the child merely to conceal the fact that the family includes a hard-of-hearing case. Timidity and fear on the part of the parent seem to do the child more harm than does actual difficulty resulting from his loss. The parent must be told that he should not pamper his child but that he should help him lead a normal life. The parent-child relationship is one which requires wise guidance and, in some cases, some form of therapy. Again, a trained counselor would be of great use to the parent seeking guidance. Without some effective education of the parents, numerous children will not succeed in learning to use the aid.

SUGGESTIONS FOR THE SCHOOL AND TEACHERS

The school should make preparations to receive and assist the child wearing a hearing aid. A visiting teacher might go in advance to the school to discuss such problems as seating arrangements, the ability of the child to take physical training, the subjects in which the hard-of-hearing child needs special coaching, his participation in group activities, and other problems. In time, this special information should be familiar to all teachers. The manufacturer might have an expert to prepare special material for teachers and to give them guidance on particular problems. To send a child into a classroom entirely unequipped to cope with the problem is unfair both to the teacher and to the child and his classmates. Preparation of some kind must be made and pertinent up-to-date information concerning the needs of the hard-of-hearing child should be available in some form.

In those schools where the teacher had discussed with the other members of the group when the child was not present the fact that the child was wearing a hearing aid, the results were uniformly good. In such schoolrooms the aid wearing child may still arouse curiosity; but such curiosity can be easily satisfied without harm to the aid wearer if the pupils are properly forewarned and advised. If the teacher presents the fact that the child needs an aid in order to carry on the daily tasks and must not be subjected to ridicule

or embarrassment, the other children usually rally to the child's support. When the situation has not been openly discussed, some children may taunt and humiliate the aid wearer. He need not be treated as a special case. He should be given the same duties and responsibilities and be held to the same standards as the other members of the class. Some aid wearers stated that they had been embarrassed by well-meaning teachers who asked them questions about their instruments in front of the whole class. Other children expressed gratitude that their teacher had discussed their difficulty with the class when they themselves were not present. The teacher should be able to judge the children in her classroom and their reactions to such a situation. The teacher should probably hold a private conference with the child and settle several matters of policy. For example, the teacher can find out in a private conversation in what part of the room the aid wearing child would like to sit. Children appreciate the sincere interest of their teachers and react favorably to such attention and thoughtfulness. The teacher should be a well-informed and dependable friend to whom the aid wearing child may go for help in any of his difficulties.

In general, it may be said that the one child in three, aproximately, who refuses to continue to wear the hearing aid is the child who is not well informed about its uses and values and who is not wisely treated and advised by his parents, teachers, and companions when he begins to use the instrument. When proper information and guidance are made available to these persons as well as to the child himself there will probably be only a few who fail to enjoy the real advantages of a modern hearing aid.