THE DEAF-BLIND AND THEIR REHABILITATION SERVICES IN INDIA

P. Rama Mohan Babu, N. Rathna

A deaf-blind child is one whose sense of hearing is non-functional for the ordinary purposes of life with or without a hearing aid and whose vision is non-functional for the ordinary purposes of life with or without correcting glasses.

Also "A deaf-blind is one whose average hearing loss in the speech frequencies (500, 1000 and 2000 HZ) exceeds 82 dB and whose central visual acuity is 20/200 or less in the better eye or a peripheral field contracted to 20 degrees".

Questionnaires (Form —A) were sent to 92 schools for the deaf, 96 schools for the blind and 22 schools for the deaf and the blind. Questionnaires (Form — B) were also sent to the secretaries of the social welfare departments in all states and to the National Associations for the deaf and for the blind. The questionnaires were accompanied by a covering letter giving our definitions of the Deaf-blind and the reasons for conducting the survey.

The response from 230 questionnaires was very poor in the first instance in that only 46 (20%) replies were received. However after a reminder was sent another 101 (44%) replies came to make a satisfactory return of questionnaires. The responses are tabulated and discussed in Table 1.

Table 1. Shows the details of the responses received

SI. No.	Questionnaires sent to	Number sent to	Number registered	Percentage who responded out of 147
1.	Schools for the Blind	96	77	52.3%
2.	Schools for the Deaf	92	51	34.7%
3.	Schools for the Blind and the Deaf	22	7	4.8%
4.	Associations and Social Welfare Departments	20	12	8.2%
	Total	230	147	100%

Of the 147 replies received 22 were rejected as being invalid because they gave the details of their own school without ever referring to the problem of deaf-blind.

Dr. N. Rathna is Director-in-Charge and Professor of Speech Pathology at A.I.I.S.H.
Mr P. Rama Mohan Babu, is a M.Sc. Internee at A.T.I.S.H.

Out of the remaining l25 replies 120 or 96% said they are not having any rehabilitation services for the deaf-blind or any information about them. Of the remaining 5 or 4% (three form A and two form B questionnaires) only one school (Deaf, Dumb and Blind School, Indore) reported that it is training one deaf-blind child. One school (The Stephen School for the Deaf, Bombay) reported that it is training three partially seeing deaf persons and another (Industrial Home for the Blind Women, Bombay) reported that it helped in rehabilitating (vocationally) a hard-of-hearing blind woman. The National Association for the Blind, Bombay gave considerable insight into the problems of the deaf-blind in India by giving a detailed report of what it has been doing towards rehabilitating them. A social welfare department sent a report which throws light as to the general lack of interest and understanding of the problem.

Deaf, Dumb and Blind School, Indore gave the following details. "Now there is one deaf-blind child on our rolls. We are going to keep the admissions open for the deaf-blind even in the future. The allowable age range of admission is 6 to 16 years. Grades taught are from preprimary to elementary. There are no trained teachers for the deaf-blind but a teacher who is trained to teach both the deaf and the blind is teaching the deaf-blind child."

The Stephen school for the deaf which is teaching three partially seeing deaf children gave the allowable age range for admission as 2 to 3 years. Kindergarten to SSC were the grades taught. However, there was no specially trained teachers to teach the deaf—partially blind children. Neither of the schools mentioned above are providing any vocational guidance to the deaf-blind or deaf-partially blind children respectively.,

Table 2. *Analysis of the results of reasons given for not enrolling the deaf-blind were as follows :*

Sl. No.	Reasons given by us	Yes	No	Unanswered	Total
1.	Lack of trained personnel	55%	8%	37%	100%
2.	Lack of equipment and facilities	54%	12%	34%	100%
3.	Lack of funds	52%	8%	40%	100%
4.	Not interested in them	22%	36%	42%	100%

It is necessary here to point out that more than one reason was given usually by a school for not admitting the deaf-blind children.

To the question "Is there any other reason, besides the four we have listed, for not enrolling the deaf-blind children in our school ?"—the following were the replies received in the decreasing order of proportion.

1. No deaf-blind applicants have applied so far.
2. Ours is a school for the blind only.
3. Ours is a school for the deaf only, and
4. Lack of policies and so a lack of funds.

When requested to give any suggestions that they have which may help in the rehabilitation of the deaf-blind, the following were offered by the majority :

Provide us with funds, equipment and trained staff, accommodation and hostels and then we will educate the deaf-blind. However, a few have suggested rightly that they should be provided, in addition to the above, with deaf-blind children and then they will start educating them.

Population of the Deaf-Blind in India

No register is maintained and no statistical data regarding the number of deaf blind children or adults in India or atleast in state, district, city or village level are available. So the biggest hurdle in the rehabilitation of the deaf-blind appears to be locating the deaf-blind persons itself.

The efforts made by the National Association for the Blind to start a unit for rehabilitating the deaf-blind show how very serious the problem is. The executive officer of the association Suresh C. Ahuja gave the following account:

"Early in 1970, the National Association for the Blind had drawn up plans for the establishment of a small unit for the education of deaf-blind children. Recognising that no services are available for the deaf blind in India, it was felt that a small beginning be made with the establishment of such a unit. The Perkins School for the Blind, U.S.A. had offered to train teachers for the deaf-blind. A philanthropist in Bombay had offered to provide the funds for this unit. It was hoped that a unit with 2-4 children between the ages of 4 and 8 could be established as a start. As a first step, it was therefore decided to take measures to locate such children. Letters to the editors of several newspapers in Bombay in English, Hindi, Marathi and Gujarati, were sent and published. Circulars calling for information regarding such children were also sent to schools for the blind and the deaf and hospitals and clinics in and around Bombay. It is interesting to note that although several enquiries were received as a result for the training of blind or deaf children, no enquiry was received in connection with a deaf-blind child. To date we have not been able to locate any deaf-blind child in and around Bombay. This does not mean that there are no deaf-blind children in this region, but, it perhaps does mean that there are very few such children much fewer than one would normally expect, and also perhaps it means that many such children have not been recognised as deaf-blind but are perhaps languishing in homes for the mentally retarded. This could be true, but on the other hand, we did receive a large number

of enquiries from parents and relations of deaf or blind children, so the indication is that the information did percolate through."

We have on our records at the AIISH the instance of one deaf-blind person coming to us in 1968. However, later attempts to locate him have failed. Then there is the case of another deaf-blind child reported by the Deaf, Dumb and Blind School, Indore. Our questionnaire has brought home the gross inadequacies in our methods of registration or a total lack of them. Unless the deaf-blind are properly registered at the Central as well as State, City and Village levels no plans can be drawn, policies made and funds provided for their rehabilitation.

How can the deaf-blind be located and registered? The following methods may help in locating the deaf-blind as well as other handicapped persons.

Statistical data may be obtained if provision is made for the inclusion of an item for the presence of a deaf-blind person in a family during the national census. Though the coverage is very good, as there will be no medical examination as such, identification of the deaf-blind may be difficult. People may not be aware that their child is deaf-blind and hence may not report. Providing information to all the census takers, as to who a deaf-blind may help. This atleast will provide us with a rough estimate of the deaf-blind.

Doctors and other hospital staff are very likely to come into contact with the deaf-blind when he or she is brought for treatment either to private clinics, hospitals or government hospitals. These personnel should know about the deaf-blind and they should be requested to send all the details about such persons to the National unit for the deaf-blind. However there is one limitation in that not all deaf-blind come for consulting the medical personnel.

Medical workers, social workers, health visitors and munsifs and patels are some of the people who come into contact with almost every family starting at the village level. These people have a good potential to report about the deaf-blind in their villages or towns. For this, public education is necessary. (Refer Rama Mohan Babu and Satyendra Kumar, 1971; An analysis of 1,000 consecutive cases seen at A.I.I.S.H., J. AIISH).

Register of births should be maintained, more thoroughly at the village, town or city level. This will enable us to keep track of every child born in that city or village and find out if he is handicapped. The parents must be advised to report immediately to that center where registration is made if their child is found to have any handicap. From these centers statistics could be made available to the policy making bodies for the rehabilitation of the deaf-blind.

Random surveys of the population in a district or city or a group of villages are also likely to provide information about the case load of the deaf-blind.

In addition to sending of letters to the editors in the leading newspapers in all Indian languages, circulars should be sent to various schools for the deaf, for the

blind, for the deaf and blind and for the mentally retarded and to various institutions and organizations engaged in the rehabilitation of the handicapped. Who a deaf-blind is and where they should refer him to or what can they do to him should be let known to all these bodies.

We are of the opinion that the deaf-blind because of their severe communication disabilities are being mistaken to be either for the mentally ill or for the mentally retarded and are probably sent to the hospitals for the mentally ill or institutions for the mentally retarded. The National association for the blind seems to be thinking so too ! It should help if all these hospitals and institutions mentioned above are informed about the deaf-blind and requested to refer them to the National unit for the deaf-blind.

"Who is going to do all this work that requires a great deal of planning, understanding and enthusiasm? We are of the opinion that a National unit for the deaf-blind must be started to look after and organize the work in this field of deaf-blindness. This unit for the deaf-blind in collaboration with other National associations, various social welfare departments and private organizations that are ready to help the handicapped, should carry out the rehabilitation services for the deaf-blind. The work done by the National Association for the Blind is a good example of how a beginning could be made in this regard. As the National Association for the Blind has already started working for the welfare of the deaf-blind, though on a moderate scale, until such time as a National unit for the deaf-blind is started the National Association for the Blind itself should carry on this work with the deaf-blind. We suggest that any individual or institution coming across a deaf-blind person should write to the National Association at the following address giving particulars of the age, sex and address of the deaf-blind person.

The address : The National Association for the Blind,
Jehangir Wadia Building,
51 Mahatma Gandhi Road, Bombay-1.

The failure of our initial efforts to contact the deaf-blind may mean atleast three things. One is that the message might not have reached the parents, guardians or friends of the deaf-blind for which the solution is intensification of public education. The second is that though the message was received by them since they were not aware that their child is deaf-blind they did not report. For this also solution will be public education as to who is a deaf-blind. Finally, it may be that the deaf-blind are just dying out at an early age for various reasons like lack of communication and rehabilitation, among others. Deprived of all sorts of contact with the external world excepting by touch and smell, may be they are not able to satisfy their basic needs and thereby slowly whithering away. We only hope that this is not the case. Anyway, all these things point to the gravity of the

situation and to why rehabilitation services are to be provided for the deaf-blind preferably at an early age. Case finding is the first step towards rehabilitation. Instead of complaining about lack of funds and policies let us start with locating the cases.

We at the All India Institute of Speech and Hearing, Mysore, are also willing to provide any deaf-blind person, his parents, guardians or friends with information about the rehabilitation of the deaf-blind, how communication between him and the outside world could be made possible. As a follow-up of our survey we **are** planning to contact the various institutions for the mentally ill and the mentally retarded also, to know about the deaf-blind who came to those institutions and/or those who are in those institutions at present.

Rehabilitation of the deaf-blind

It is difficult to have a sympathetic understanding of deaf-blindness, because of the lack of a means of communication. We can place ourselves in the position of the blind, and that of the deaf, for we communicate with them readily. But as Peter J. Salmon (1958) Executive Director of the Industrial Home for the Blind points out "Deaf-blindness is not just two disabilities in the same person. It is **a** separate disability, whose treatment requires a special kind of understanding, enduring patience, and a workable means of communication."

"Deaf-blind persons are not different from others except for a handicap whose effects may be reduced. So long as the deaf-blind person has intelligence, so long as his other physical facilities remain, there seems to be the greatest optimism that many of the hopes of the deaf-blind can be realized. It is properly emphasized that the greatest needs are for patience, for persistence and for understanding."

The number of deaf-blind persons in any given geographic area is so small as to be unmeasurable percentagewise. In England and Wales where a register for the deaf-blind is maintained the population of the deaf-blind is 3,600 out of a total population of 44 million (1959). Comparatively in U.S. there will be about 6,000 deaf-blind (1959) and in India they approximate about 50,000.

In view of this relatively small population are rehabilitation services for the deaf-blind in India justified ? The answer for this will be a definite 'yes'. All those points that justify the rehabilitation services for the deaf, the blind and the other handicapped children hold good for the deaf-blind also. These include points such as:

1) Ours is a democratic country in which equal opportunities should be given to all including the deaf-blind. 2) It is a humanitarian act. 3) They will become an asset to the country by becoming independent earning members (and so tax payers) instead of being a liability and living on the taxes of the people. And 4) Even our religions preach communication as being essential for attaining salvation. This could be achieved only when the deaf-blind can communicate.

Rehabilitation services for the deaf-blind are almost nonexistent in India. The following reasons given by E. J. Waterhouse (Director, Perkins School for the Blind, USA) explain the situation in India also. "Fortunately, the number of deaf blind persons is relatively small. This good fortune is for the many who have been spared the loss of these two senses, for the very smallness of the group intensifies the problems of those within it. If there were as many deaf-blind persons as there are deaf or blind or crippled, then programs, both of services and research, comparable to those that exist for these larger groups would no doubt have long since been established for the deaf-blind also. When numbers are below a certain level in a community, organized programs of services are scarcely feasible."

We feel it is appropriate here to mention how the first steps towards rehabilitating the deaf-blind were taken at Perkins with Laura Bridgman and Helen Keller and later at Industrial home for the Blind and other institutions.

Perkins school for the blind was interested in the rehabilitation of the deaf-blind from the beginning. It has provision for training the teachers for the deaf-blind also. Some of the deaf-blind persons graduated from Perkins are Laura Bridgman, Helen Keller, Robert J. Smithdas and Richard Kinney among others. Perkins schools for the blind is actively engaged in providing rehabilitation services for the deaf-blind even now under the directorship of Dr. E. J. Waterhouse.

Industrial Home for the Blind, U.S.A. is one of the oldest (1893) established agencies for the adult blind in America. A department for the deaf-blind was inaugurated on June 27, 1945, Helen Keller's birthday.

The first deaf-blind person to be educated was Laura Bridgman. She was taught by Samuel Gridley Howe at Perkins School for the Blind.

Helen Keller, born a normal baby, lost her senses of vision and hearing through an attack of scarlet fever before she was two years old. When she was eight years old she was admitted in the Perkins Institute. Anne Sullivan, who later became Mrs John Macy, was sent to teach her. Helen Keller had occupied herself with work for the blind and the deaf, lecturing and writing. Several of her books have become well known. They show the wide range of her culture, knowledge, and reveal her nature as essentially happy and spirited. Chief among her works are "Optimism", "The Story of My Life", "The World I Live in" and "My Religion".

Robert J. Smithdas is another deaf-blind who is very well adjusted to normal life. He is the first deaf-blind person to "earn" his M.A. He wrote few books and several poems.

It is true that the few names mentioned were of those who have been successfully rehabilitated along with so many others. However, it should be remembered that not every deaf-blind person may be all that successful. The reason why we have mentioned these examples here is that we do not want any one to become so pessimistic at the very mention of deaf-blindness. We want such persons to realize

that with patience and persistence most of the deaf-blind parsons can be rehabilitated.

As it is true with the other handicapped persons the goals of rehabilitation in the case of the deaf-blind are same as that of the others; that is an objective of providing services for the disabled that will help them to help themselves to their fullest potentialities for whatever satisfaction they want in life, and are able to attain. In general terms the objective of rehabilitation should be to enlarge the entrances to opportunity for the deaf-blind to reach their goals.

Otological, opthalmological, audiological and psychological examinations must be made available for the deaf-blind. Social, Vocational, Medical, Audiological and visual rehabilitation services should also be considered for the deaf-blind.

Hard-of-hearing blind persons and partially seeing Deaf persons

Though the survey was originally intended for the deaf-blind it has thrown much light on the state of the hard-of-hearing blind persons and partially seeing-deaf persons.

What is the prevalence of hearing loss in the blind ? and vision loss in the deaf? The figures are not available for the population in India. However, some studies were conducted in U.S. to study the prevalence of hearing loss in the blind. The following are the results obtained in the studies reported by Industrial Home for the Blind and the New York Association for the Blind (Light house).

Category 1: Maximum hearing levels not more than 20 dB at 500 HZ and not more than 30 dB at 2 KHZ and 4 KHZ (Hearing is considered adequate for Communication Purposes).

Category 2: Maximum hearing levels not more than 30 dB at 500 HZ and 40 dB at 2 KHZ and 4 KHZ (Mild hearing loss).

Category 3 : Maximum hearing levels greater than in category 2. (Moderate to severe hearing loss).

One of the recent studies conducted in U.S. to find the frequency and educational consequences of visual impairment among deaf persons is by Rosslyn et al. (1968). They noted that "visual impairment in deaf children is frequently uncorrected. In this group of already handicapped children failure to provide maximal correction, observed much too frequently in the group studied, can be an interfering factor to educational and social development." They also observed that "the literature on vision screening and testing of deaf children shows, without exception, a higher impairment ratio (58%) than 20 to 30% visual impairment considered normal among hearing children. IHB study shows that about 50% of the blind have mild to severe hearing losses in one or both the ears. Light house study puts the figure at 37%. As the results of our survey points out, less than 30% of the schools for the blind est the hearing of the children they admit. The details are not available as to the

Table 3. *Shows distribution of hearing level categories in surveys conducted by the 1HB and New York Association for the Blind (Light house)*

Sl. No.	Hearing level category Left ear -- Right ear Right ear — Left ear		IHB N -1000 (in percentages)	Light house N - 600 (in percentages)
1.	1	1	49.9	63
2.	1	2	6.2	5.7
3.	1	3	6.6	12.0
4.	2	2	6.9	1.0
5.	2	3	6.8	3.3
6.	3	3	23.6	15.0
Total			100.00	100,00

nature of testing done but it appears that excepting in a few instances, full audio-logical evaluation is not done as part of testing the child before admission and afterwards at regular intervals. Less than 20% of the schools for the deaf have reported that they do test the vision of the hearing impaired deaf children they admit. Only one school (The Stephen School for the Deaf) reported that it admits deaf-partially blind children. Then what about the fate of the hearing impaired blind children and vision impaired deaf children? Are our conventional methods of testing adequate for these people. Atleast in the case of hearing impaired blind children we do not think the methods to be adequate. In the case of vision impaired deaf persons also there is much to be done.

A certain percentage of the deaf population have progressive vision loss and the blind population have progressive hearing loss. Should these be treated on par with the deaf and blind respectively? We do not think so. We feel that special techniques for testing these people should be provided and in addition special techniques of teaching also should be used. So all the deaf and blind children should be tested for their vision and hearing acuity at the time of admission and later at regulor intervals. If vision and hearing problems could be corrected either by medicine or surgery they should do so. If a child is found to have hearing loss or vision loss in addition to blindness or deafness respectively— the methods of teaching him should be modified as to take the additional handicap into consideration. If the problem is severe and progressive it may be useful if the methods used in teaching the deaf-blind are used with these people also. So with this back-ground in mind we are giving the methods of testing the hearing impaired blind persons and methods of teaching the deaf-blind. This, we hope, also answers those who ask "Is it not premature to talk about the testing procedures and teaching methods for

the deaf-blind in view of the fact that we are not even in a position to locate the deaf-blind?" If persons are found to be having hearing loss or vision loss in addition to blindness or deafness respectively they should be helped with hearing aids and auditory training or correcting glasses and vision training, as is the case. It is pertinent here to emphasize the role of the prevention of serious deafness or blindness and the conservation of residual hearing or vision.

Testing of hearing impaired blind persons

Moe Bergman suggested the following procedure to be used with hearing impaired blind persons.

A) *Orthodox Procedures:* The evaluation should begin with an interview conducted by the audiologist, to explore the client's communication needs. The audiologist then administers a battery of auditory tests, generally including the following Monaural (earphone) tests.

1. Pure-tone thresholds by air conduction and bone conduction.
2. Speech audiometry consisting of:
   (a) Speech-reception threshold.
   (b) Discrimination test.
3. Additional orthodox audiological tests such as loudness recruitment (ABLB), tolerance thresholds, and so forth as needed.

   Sound field (Loud speaker) tests :
   (a) Speech-reception threshold test.
   (b) Discrimination test.

B) *New Audiologic Procedures:* The following two additional tests were developed as a part of the audiological battery for persons with major loss of vision.

1. Localization: Following the conventional audiological evaluation, the client was seated in the center of the test room, surrounded by eight loudspeakers set at 45 degrees angles from the client's position. He was told that he would hear a sound at any point around him, and was instructed to turn bodily toward the sound, facing it as directly as he could. The test signal was whitenoise activated in the control room by the audiologist and delivered to each of the eight loudspeakers in a random order. As the client turned, the metal headband, placed over the client's head and attached to an overhead self-synchronous motor, caused a remote motor in the control console facing the audiologist in the adjoining room to turn exactly as the client turned his head. Two exposures were presented from each loudspeaker in random order, for a total of 16 exposures, and a record was kept of the correct responses. Routine tests of localization ability were performed at an SPL of 48 dB. If this low level resulted in slow or absent responses by the client, the test level was raised. When the test was repeated with hearing aids, the test level was 48 dB SPL.

2. Fusion: This test became part of the routine test battery employed in the evaluation of stereophonia in each client. A signal was presented identically through two loudspeakers, one at 45° to the left of the point 5 feet in front of the subject, the other at 45° to the right of the same point. At a low test level, the stimulating sound is perceived as emanating from the point directly in front of the listener if his hearing is 'balanced', although equal sensitivity is apparently not required. If 'balance' is absent, the stimulating signal is perceived as coming from one or the other loudspeaker. This test is especially helpful when binaural hearing aids are employed, as it indicates whether the relative gain control positions of the two instruments are, in fact, providing 'balanced' hearing. Fusion tests were routinely performed at a level of 45 dB re-audiometric zero. A simple test without equipment involved talking to a client from a point either directly in front of or directly behind him, making certain that he could not see the talker. If the client reported that the sound appeared to come from either the right or left side, the gain controls of the hearing aids were adjusted until a central localization was reported."

Where blindness exists, hearing becomes the primary perceptive faculty, the primary channel of communication, and the primary source of physical orientation and perspective; and therefore, it takes on such significance and importance as to require attention beyond that of the population without visual impairment. So the use of binaural hearing aids, when possible and testing for localization and fusion become important in auditory rehabilitation of the hearing impaired blind persons.

Educational needs of the deaf-blind

Which is the best place to educate the deaf-blind? Special schools for the deaf-blind in various cities were suggested by many. They point out that Schools for the deaf or blind or both deaf and blind cannot cope with the requirements of the deaf-blind. Some have suggested that special sections should be started in the existing schools for the deaf and blind. This, they argue, results in economy. A few more argue that instead of starting a series of special schools it is advisable to start one central school which later will develop schools in other cities as the need arises. This, they argue, prevents duplication of costly equipment and personnel. However, the disadvantage with a central school seems to be its accessability to persons in various parts of the country. However as a first step we suggest that one central school should be established on the basis of which other schools or sections for the deaf-blind can be started in course of time. The results of our questionnaire show that about 80% of schools for the deaf and blind prefer to have special schools for the deaf-blind.

What are the minimum requirements by way of staff and equipment in a school for the deaf-blind ?

1. *Staff:* The IHB recommends that a school for the deaf-blind should have an opthalmologist, an otolaryngologist, trained teachers of the deaf-blind, Speech Pathologist, Audiologist, Social Case Workers, braille instructor, Clinical Psychologist and travel orienters. However, we are of the opinion that trained teachers of the deaf-blind are the minimum requirements and depending on the availability the rest of the staff may be had on an honorary basis.

2. *Equipment:* Braille boards, alphabet plates, alphabet gloves, talking discs, tell-a-touch machine, braille telephone, tactaphone, viberadio are among the many suggested for use with the deaf-blind. We feel that the most important equipment that a teacher of deaf-blind should have is imagination. An imaginative teacheT can provide as much help to the deaf-blind, with a knowledge of braille and manual alphabets than an unimaginative teacher with a series of gadgets. We would like to make it very clear that we are not against the use of such gadgets but we are very much against those who refuse to start working with the deaf-blind until they are provided with costly equipment.

Tactileceptor, an apparatus which converts oral speech into tactile signals has been developed by Sokolysanskiy ". . . . experiments indicate, oral speech perceived by the skin can be perceived quite clearly with the aid of a high quality translator like tactileceptor" Sokolysanskiy (1968, p. 223).

Communication for the deaf-blind: "The nature of the problem posed by blindness and deafness is dissimilar to that posed by malfunctioning of other parts of the body. Several studies indicate that between 80 to 90% of the sensory stimuli in the non-handicapped person are visual and auditory. The person who loses both his sight and his hearing must take the senses which the non-handicapped use to carry less than 10 per cent of the information they receive, and develop these comparatively little used avenues into his sensory experience. It is toward assistance with this process that much of the specialized service with the deaf-blind should be directed" so says Dr. E. J. Waterhouse of Perkins Institute.

Lenneberg (1967) in a discussion pointed out that "It is quite clear now that blindness, in addition to deafness, constitutes only a relatively minor obstacle to language acquisition. The problem is to get signals into these patients but once this is accomplished through establishment of some appropriate signaling system, say a tactual one, then the particular mental activity . . . seems to be all present. The machine can start, certainly all the major aspects and principles of language are established under the circumstances".

The results of various studies have clearly shown that deaf-blind persons have the capacity to communicate their own needs regardless of how minimum their vocabulary content may be. If words fail to reach the worker, the deaf-blind man or woman will, through gesticulation, make his wants vividly clear. It is in the

return from the worker to the deaf-blind person that communication breaks down more often.

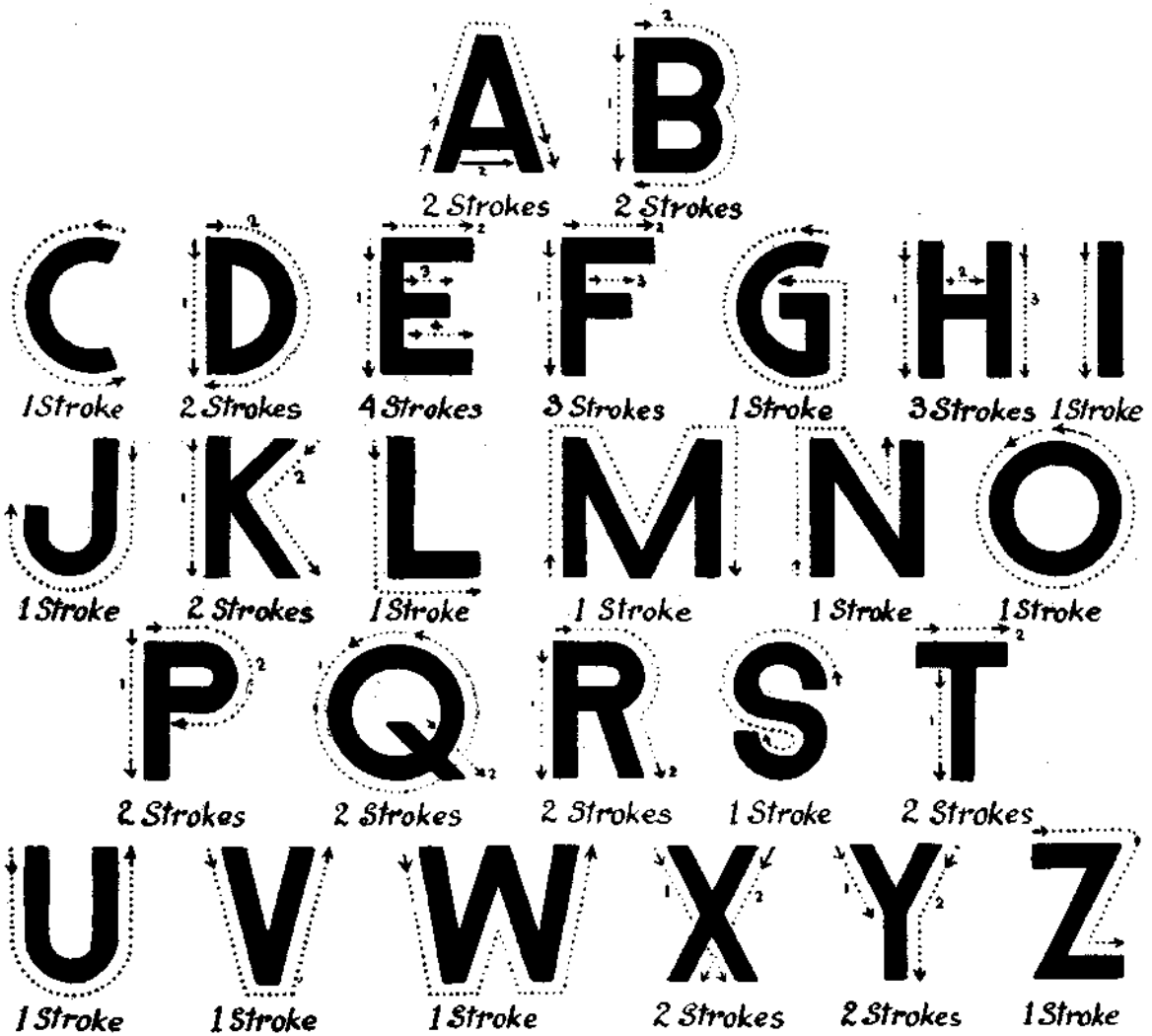
The time Of onset of deafness and/or blindness will make an enormous difference in the ability of the client to communicate. It will also make a difference as to his familiarity with usual methods of receiving messages. If the client has had hearing during his early years and youth, his understanding of speech will still be strong through memory. If on the other hand his deafness is congenital, or came on at a very early age so that he has no memory of speech or hearing and if in addition, he has been educated as a seeing deaf child, gradually signs replace words and with the loss of sight and the necessity of introducing manual methods of communication into his palm, words too, lose so much of their significance as to require the use of the most elementary vocabulary.

1. *Alphabet chart:* The most common tool of communication available to the deaf-blind person is a simple use of 'block letters' printed on the palm of the hand with firm bold strokes. The alphabet chart shown in Figure 1 was developed for deaf-blind persons for use by those who would communicate with them and who are unfamiliar with their more complex and rapid methods. It has been recommended for international use by the committee on services for the deaf-blind. It has already been introduced in all parts of the world where the Roman alphabet is in use. You will note that each of the letters has dotted lines and arrows indicating the position of the letter on the palm and the direction in which the lines must be drawn for clarity. It also indicates the number of strokes for each letter that make for simple reading by the deaf-blind person. If your deaf-blind client knows this alphabet, you will be able to communicate with him clearly and immediately, if slowly. There is an urgent need for standardization and preparation of alphabet charts in our Indian languages.

It, should be strongly emphasized here that throughout this period the only contact the deaf-blind person will understand is a physical one.

2. *Manual alphabet:* In the American one hand manual alphabet, the hand of the reader (the deaf-blind person) must follow and confirm to the formation of the fingers of the writer, requiring from the reader a high degree of perceptive skill. Because of the rapid movements required by the American one-hand manual method, the committee on services for the deaf-blind decided it did not adopt itself to the requirements set forth in the criteria and it was, therefore, decided to use a new system based on the British manual alphabet for the deaf-blind and the Lorm alphabet used in Europe.

On the basis of the criteria laid down by the committee on services for the deaf-blind we must develop immediately a manual alphabet suitable to our languages.


A
2 Strokes
B
2 Strokes
C
1 Stroke
D
2 Strokes
E
4 Strokes
F
3 Strokes
G
1 Stroke
H
3 Strokes
I
1 Stroke
J
1 Stroke
K
2 Strokes
L
1 Stroke
M
1 Stroke
N
1 Stroke
O
1 Stroke
P
2 Strokes
Q
2 Strokes
R
2 Strokes
S
1 Stroke
T
2 Strokes
U
1 Stroke
V
1 Stroke
W
1 Stroke
X
2 Strokes
Y
2 Strokes
Z
1 Stroke

3. *Braille :* Bharati Braille used in India for communication with the blind can be used by the deaf-blind also.

Special methods of communication

1. *Speech* : The teaching of speech is an arduous but essential process and has drawn much attention. The approaches are several.

2. *Speech Reading (Visual) :* Deaf-blind persons who are left with some central visual acuity will be benefited by speech reading (visual).

3. *Speech Reading (Tactual) :* This method of reading lips is almost exclusive to those who have been educated as deaf-blind children. It is one of the most highly developed sensory procedures known to man. This method requires the reader (the deaf-blind person) to interpret the movements of the lips, the larynx and the muscles of the jaw into the words which you form, by his touching these parts with his thumb and fingers

4. *Tadoma method*': (Similar to the above method). The vibration method of teaching speech and speech reading was first used in Norway in the 19th century. It was rediscovered in the U.S. by Sophia Alcorn and renamed Tadoma method, and, beginning in 1932, was used exclusively to teach the deaf-blind at Perkins Institute. Using this method, the teacher shows the pupil how to place thumb and fingers on the speakers face and neck to get the maximum tactual clues. The method can be tailored to suit the needs of children who have varying degrees of residual auditory and visual handicaps. A keen kinesthetic sensitivity is necessary for tactile development, which eventually leads to speech reading and the production of speech.

Rehabilitation services for the deaf-blind in the Netherlands and Switzerland

The deaf-blind department of the Institute for the deaf in St. Michielsgestal, Holland, was started in 1960. Children are accepted into the institution provided the possibility of communication is present, either by sign language or by some form of speech. The social maturity test (Doll/Maxfield—Buchholz) is very useful in this connection. In doubtful cases, the decision is for provisional acceptance.

Home training : Children under four years are not admitted but are instructed at home. For this purpose, a team of specialized social workers visits homes regularly, and in the case of the older children their education is carried out in the institute itself. One of the social workers also visits the parents of deaf-blind children. This home training has proved very effective. The rehabilitation services for the deaf-blind at this institute are actively carried out under the guidance of Van Dijk.

Van Dijk summarized his experiences with 41 rubella effected deaf-blind children as follows: "Although the hearing impairment is often not lower than of partially hearing children, hearing is not used sufficiently because of the visual

handicap. The tactile-kinesthetic and olfactory senses are predominant which results in behaviour similar to that of autistic children, though not on a cerebral basis but on a basis of sense impairments."

Rehabilitation services for deaf-blind in Switzerland are carried out on similar lines as in the Netherlands. So much for what has been going on in other countries. Before proceeding to give some of the immediate steps that should be taken toward rehabilitating the deaf-blind we are tempted to draw your attention to a complete lack of understanding of the problem of deaf-blind by some people in India. As one completed questionnaire from a state government official of a social welfare department shows reportedly about 100,000 (one hundred thousand) or 0.5% of the total population of that state are estimated to be deaf-blind. These are reported to be the estimates of medical department. Obviously there must have been a mistake somewhere. As pointed out earlier a better understanding of these handicapped persons could be achieved only through public education.

What are the immediate steps that should be undertaken towards rehabilitating the deaf-blind in India. First thing first: the deaf-blind should be located on a national basis. For organizing this activity, if a National unit for the deaf-blind is required, it should be started otherwise the National Association for the blind should be allowed to carry out this responsibility. (2) A school for the deaf-blind should be started. (3) Alphabet Charts, manual methods should be developed in our languages. (4) Testing the vision and hearing of all the deaf and blind persons should be made compulsory before admitting them into the schools for the blind or deaf. (5) Such of those children who are found to have either a severe progressive hearing loss or vision loss in addition to an already present blindness or deafness respectively should be tested and rehabilitated by using some of the special methods suggested earlier in this paper.

It is our hope that you who read this paper will be able to apply some or all of our findings to your programs.

Acknowledgement

We are;grateful to all those who made our survey a success by sending us the completed Questionnaires and their valuable suggestions.

REFERENCES

Alcorn S. (1945). "Development of the Tadotna method for the Deaf-blind". *J. Except. Chiln.* 11.

ASHA monograph No 12 (1965) *Auditory rehabilitation for hearing impaired blind persons.* Washington, ASHA.

Cruickshank, William (ed) (1955) *Psychology of exceptional Children and Youth,* New York Prentice Hall.

Davis H. and Silverman S. R. (ed) (I960) *Hearing and Deafness,* New York, Holt, Rinehart and Winston.

Dinsmore, Annette B. (1953) *Methods of Communication with Deaf-blind people,* New York, American Foundation for the deaf-blind.

Ewing, R. and Ewing, A. W. G, (1938) *The handicap of deafness,* New York, Longmans, Green,

Howe, M and Hall, F. H (1904) *Laura Brid?man,* Boston, Little, Brown.

Keller, H. (1954) *The story of my life,* New York, Double day.

Lenneberg, Eric H. (1967) *Discussion in Brain mechanisms underlying speech and language,* p. 82 (ed) Darley, F. L., New York, Greene and Stratton.

Rossylyn et al (1968) visual impairment among deaf children—frequency and educational consequences, *Volta Review,* 70, 31-37.

Smithdas, Robert J (1958) *Life at my fingertips,* New York. Double day.

Sokolyanskiy, A. (1968,1 On the perception of oral speech by Blind-deaf—Mutes with aid of the cutaneous analyzer in *Russian translations on Speech and Hearing* (ed) West, Robert W , 220-227, ASHA, report No 3.

US office of vocational Rehabilitation and the Industrial Home for the Blind (1958-59). *Rehabilitation ofdeaf-blind persons,7*vols. A report of a joint project, Washington, D.C. Government Printing Office.

Utzinger, A. (1968). Care of the deaf-blind in the Netherlands, *dsh Abstracts* 8 (3) 222.

Van Dijk (1967) Some remarks about children with both an acoustic and a visual handicap caused by rubella of the mother in pregnancy, *dsh Abstracts,* 7 (4), 365.

Van Dijk (1968) The deaf-blind child in Switzerland, *dsh Abstracts,* 4, 289.

Vivian, Rose M. (1966) The Tadoma method, *Volta Review,* 68.

Warburg, M. (1968) Norrie's disease, *J Ment. Defic. Res.* 12, 247-251.

Waterhouse, H. J. (1957)' Helping the deaf-blind to face the future" *J. Rehabilitation,* XXII, 6.