Through utilization of a methodology for quantitatively assessing the performance of blinded veterans in a specific acoustic environmental analysis task, various physical and psychological parameters possibly affecting the veterans’ performance were examined. Because the high frequency components of human hearing are typically thought of as the most important in obstacle detection tasks, and this component is typically impaired with age, a comparison of the performance of blindfolded high school students and blinded veterans was undertaken. No significant differences in performance were found and no significant correlation between the ages of the individual veterans and their performances was seen. Pure-tone audiometric testing disclosed no significant relationship between any tested frequency and performance on the experimental task. These data and laboratory analysis of the auditory cues present in the test environment comprising sounds in the low-to mid-frequency range of human hearing, strongly imply that high frequency hearing is not a necessary condition for successful obstacle detection. This finding has important ramifications in the acoustic training of older visually impaired individuals.

A comparison of the performance data and the veteran’s visual impairment, educational level, and WAIS (Wechsler Adult Intelligence Scale) verbal I.Q. indicated no significant relationships. Striking correlations between performance and MMPI (Minnesota Multiphasic Personality Inventory) and CPI (California Personality Inventory) scale scores were found. Results indicated that blinded veterans who perform better in the experimental task exhibit more adequate emotional and interpersonal adjustment. The MMPI scales related to performance were hypochondriasis, depression, hysteria, psychopathic deviate, and schizophrenia; all correlated negatively at significant levels. The CPI scales of well being and achievement via conformance and intellectual
efficiency were found to be positively correlated with performance.

A training technique was evaluated in which discrete acoustic samples, recorded with an artificial head in the actual test environment, were presented to blinded veterans in a two-alternative forced choice comparison task. A significant improvement in performance after 300 seconds of training was obtained. This training methodology will undergo further evaluation. Hopefully it will prove a valuable contribution to the area of sensory training of the blind.

A conference concerning acoustic environmental assessment and the blind is currently planned for the Fall of 1974. The intent is to have researchers from various disciplines examine the data and report on more global aspects of similar phenomena. The proceedings of this conference will be published, and if warranted, further tutorial sessions may be held. Dr. William De l’Aune will chair the meeting.

INDICATORS OF BLINDED VETERANS’ CAPACITY TO USE TIME COMPRESSED SPEECH

A rationale is being developed for evaluating blinded veterans for possible issuance of time-compressed-speech devices. Veterans are tested for comprehension of the Negro Heritage Test Series at various compression rates through the use of multiple choice questions. Maximum useful compression rates obtained for each subject will then be correlated with variables such as MMPI scores, CPI scores, WAIS verbal I.Q. scores, audiological results, level of education, past history of talking book use, and major medical problems. Those listener variables having significant correlation with maximum useful compression rates will be used to construct an indicator profile for applicants for time-compressed-speech devices. Although all the data have not been collected, preliminary findings indicate that 96 percent of the veterans were able to comprehend the material at the original reading rate (194 w.p.m.), 93 percent at 1.5 × original rate (291 w.p.m.), 80 percent at 2.0 × original rate (388 w.p.m.) and 50 percent at 2.5 × original rate (485 w.p.m.). From these results it is concluded that compressed speech machines have broad applicability for use by blinded veterans. Significant relationships have also been found between maximum compression rate and scale scores on the Flexibility (Fx) and Psychological mindedness (Py) scales of the CPI. Age was also a significant variable with the younger veterans performing at a higher level. None of the other variables was found to be significantly related to performance.

RELATIONSHIP OF VELOCITY TO EXTENT OF VEER IN SIGHTLESS AMBULATION

This study was concerned with two problems. The first was
methodological in nature and involved the need for a technique to measure the extent of veer from a straight path, ongoing correction capabilities being present. The technique is for use in evaluating acoustic training procedures involving use of parallel traffic cues to improve outdoor mobility performance. Second, it has long been anecdotally noted that velocity of travel appeared to be negatively correlated with the amount of veer in sightless travel. Measurements of veer could be used to verify this anecdotal information.

Sixteen subjects, all having some experience with travel without sight, were blindfolded and asked to walk a 50-ft. straight path bounded laterally by ropes positioned at a height of 3 ft. and spaced 3½ ft. apart. The time to traverse one direction of the course and the number of rope touchings were recorded. Each subject was required to walk the route 10 times. The subjects were to align themselves with the rear wall surface before the start of each trial, and were restrained from impact with the final wall surface by a peripatologist.

A positive correlation between time of travel and number of rope touchings was found to be significant at the .01 level. This would support the previous observations that velocity of travel was inversely related to the extent of veer.

EVALUATION OF THE MOWAT SONAR SENSOR

The instrument is intended as a secondary mobility device. Pocket-sized, the hand-held device utilizes pulses of high frequency sound to detect objects. The housing vibrates when an object is within range. Frequency of vibration is determined by the distance from the object and is inversely related to this distance.

The evaluation of the device was limited because of malfunctions. The Sensor appeared inconsistent, but the source of the inconsistencies was difficult to determine because of intermittent operation. The device did not indicate the presence of a wall when its angle of incidence to the wall was more than 23 deg.

On the positive side, the small size of the device and the relative simplicity of its output information about both the direction and distance of objects should prove useful for some travelers if the problems of consistency can be resolved.

CORRELATES OF ADJUSTMENT RANKINGS BY BLIND REHABILITATION SPECIALISTS

Blind Rehabilitation Specialists from the Eastern Blind Rehabilitation Center were asked to rank randomly selected groups of 16 former clients in terms of their adjustment. Average adjustment rankings were
than analyzed for possible relationships with physical and psychological variables as well as consistency between rankers.

Initial analysis indicates that the staff rankings were very consistent. Psychological test results indicating self-sufficiency and independence appeared to exhibit the strongest relationship to average staff adjustment rankings.

PATIENT SATISFACTION WITH ADJUSTMENT-TO-BLINDNESS TRAINING

This study is an investigation of the presence and interrelationships of various aspects of patient satisfaction with adjustment-to-blindness training. A short questionnaire consisting of both multiple-choice and open-ended items will be sent to all patients who were at the Eastern Blind Rehabilitation Center 3 months or longer. Items will sample perceived adequacy of training in mobility, manual skills, communications, braille, social work and psychological services, low-vision programs, and techniques of daily living skills. Also included will be measures of overall life satisfaction, employment history, vocational training, living arrangements, extent of current blindness, as well as relative demographic data. The project will also attempt to answer a number of instructional issues, such as the usefulness of blindfold training for the partially sighted, importance of sensory training, relevancy of some traditional aspects of blind skills, and optimal length of program. The data will be analyzed in terms of responses to individual items, indices based upon a combination of questions, including the development of a global Satisfaction Index, demographic items, and the relationships between these variables. Characteristics of both highly satisfied and greatly dissatisfied patients will be noted and suggestions for procedures whereby the overall level of satisfaction might be increased will be advanced.

EVALUATION OF PARAMETERS AFFECTING SUCCESSFUL PRISM USE BY VETERANS WITH VISUAL FIELD RESTRICTIONS

The use of high-powered press-on Fresnel prism optics to displace the view of objects toward the patient's usable field of vision, so that he may detect their presence significantly sooner, is becoming more common. The purpose of this project is to evaluate various parameters possibly involved with successful prism use by visually impaired veterans. Factors such as prism power, placement of prism, lens prescription, age, sex, educational level, acuities, visual pathology, and psychological data obtained from personal histories and psychometric testing will be examined for possible relationships with functional improvements resulting from the use of prisms. These improvements will be assessed by both
objective techniques and subjective reports from the veterans using the prisms and their mobility instructors.

EVALUATION OF VARIABLES INVOLVED IN EFFECTIVE USE OF LOW-VISION AIDS BY VETERANS

An evaluation survey is being conducted to determine the effectiveness of prescribed low-vision aids once the veteran returns to his home environment. The crucial test of a low-vision clinic is the ultimate daily beneficial use of the devices offered. It is hoped that information gained from this study will provide a greater understanding of factors underlying the actual use of low-vision aids by visually impaired veterans, and will provide baseline information for evaluation of specific devices.

STUDY OF FACTORS RELATED TO EFFECTIVE USE OF ELECTRONIC READING MACHINES BY VETERANS

A correlative project, currently in progress, is investigating possible relationships between language skills, verbal I.Q., physiological skills and personality traits, and successful learning of electronic reading devices such as the Optacon and the Stereotoner. Through such knowledge more efficient screening and training of applicants are anticipated.

NORMATIVE PERSONALITY DATA FOR BLINDED VETERANS

Compilation of scores on various psychological tests (MMPI, CPI, and WAIS Verbal I.Q.) for a large number of blinded veterans is currently underway. The result should provide substantial normative data for blinded veterans, against which individual data can be more meaningfully compared.

PSYCHOLOGICAL EVALUATIONS FOR CENTRAL NERVOUS SYSTEM DYSFUNCTION IN BLINDED VETERANS

Most psychological testing for brain damage has relied on examining vision and visual motor function, systems inoperative or ineffective in persons with sight impairment. Studies by the investigator have suggested that other sensory-perceptual mechanisms can be evaluated and deficiencies in these related to brain damage. The findings may result in a scale which will yield a quantitative measure of extent of organic dysfunction in the blind.

TYPE FONT PARAMETERS AFFECTING READING DEVICE USE

An extensive survey of various publishers of magazines and books was
carried out to determine if any patterns of type-font selection could be conveyed to the users of reading devices. Various facets of the fonts in use were evaluated and teaching schemes were developed for use with students. Evaluation of the success of the techniques is currently underway.

**GENERAL REFERENCES**