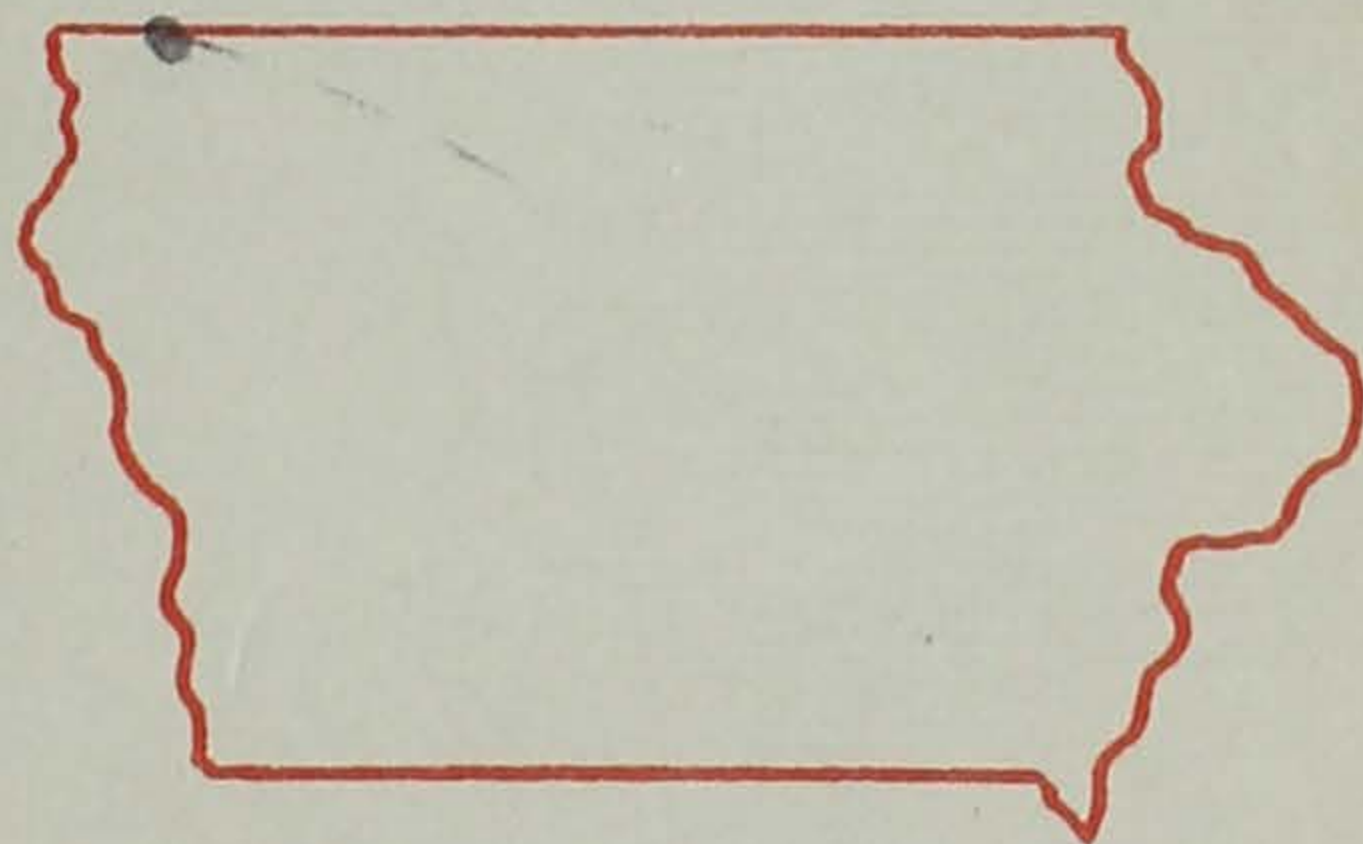


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Proceedings
of the
Conference on
Pre-Vocational
Activities

AT IOWA CITY, IOWA

APRIL 19-21, 1960

edited by

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PREFACE

The materials developed for and during the conference were judged, by the participants, to merit publication and distribution to rehabilitation workers over the country. In their opinion the material would contribute to a greater understanding and appreciation on the part of professional rehabilitation personnel of the contribution of pre-vocational activities in the evaluation of the handicapped individual's interests, abilities, and aptitudes. They believed that this publication would also be of value to university students in the rehabilitation professions.

The Office of Vocational Rehabilitation, through a research and demonstration grant, not only made it financially feasible to conduct this conference, but also through the leadership of Henry Redkey, Willman A. Massie, and Dr. James F. Garrett, gave impetus and guidance to the creation of this meeting.

The objectives and the basic program plan for the meeting were developed by a Planning Committee which met in Washington, D.C., January 20-21, 1960. The major advisory role was undertaken by three leading rehabilitation workers: Dr. William Gellman, Jewish Vocational Service, Chicago, Illinois; Willis C. Gorthy, Director, Institute for the Crippled and Disabled, New York, N.Y. and Robert A. Walker, Supervisor of Vocational Counseling, University of Minnesota Rehabilitation Center, Minneapolis, Minnesota. Dr. William D. Coder and the editor represented the State University of Iowa. Mr. Redkey and Mr. Massie were co-chairmen of these sessions. The substantial contribution of this committee to both the initial planning and the resolution of key pre-conference problems is gratefully acknowledged. Deep appreciation is also accorded Dr. Coder and Mr. David Livers, his assistant, for their untiring efforts in the co-ordination and management of the numerous details involved in providing accommodations for the conference.

Those who contributed papers as well as those whose contribution remains anonymous do not regard the materials which follow as a definitive statement for the pre-vocational activity area in rehabilitation today. They do, however, see it as complementary to Henry Redkey's earlier writings on this subject, and indicative of the "state of the art" and the challenging problems which face those who wish to push out the frontiers of research and program development in pre-vocational activities.

J. E. MUTHARD
August 1, 1960

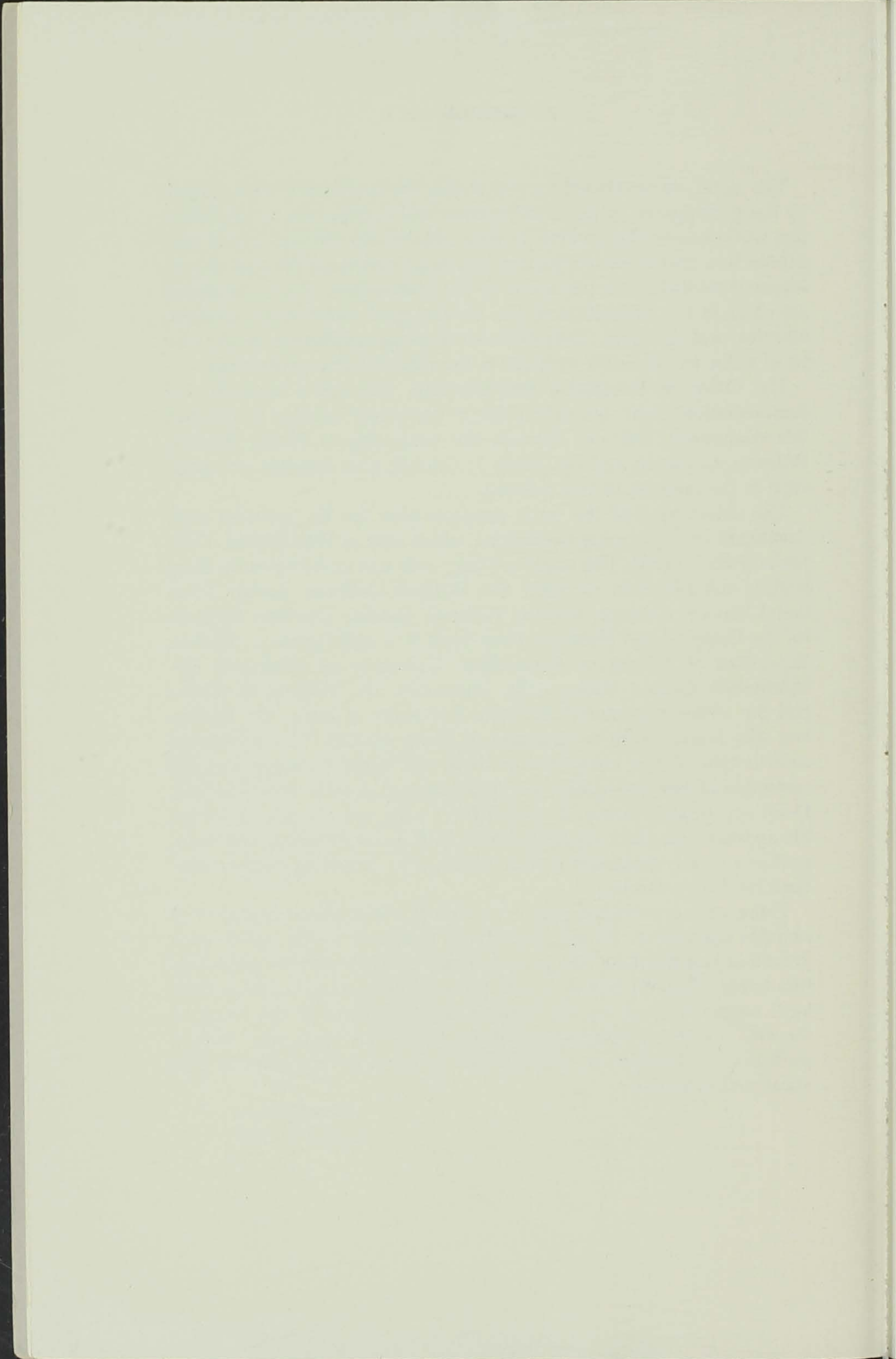


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FOREWORD

While the term pre-vocational may have had its widest use in a facility setting as a result of the 1954 amendments to the Hill-Burton Act which, for the first time, provided Federal assistance in the construction of rehabilitation facilities, it should be recognized that it has other connotations and has been used for many years prior to that. It is intended that these facilities should provide comprehensive programs, specifically that they should include evaluation and services in the medical, psychological, social and vocational areas. As part of the program in the vocational area it was necessary to provide pre-vocational activities in addition to vocational counseling. Other vocational services were optional. Since under the Hill-Burton Act this was a construction program, aims needed to be translated into space requirements. Consequently the concept of the pre-vocational unit was evolved to give meaning to the requirement that pre-vocational activities be provided.

The history of the term in this specific context (Hill-Burton) clearly marks it as a vocational service, not a combination of many rehabilitation services. It provided a kind of laboratory for the vocational counselor and others concerned with evaluation of work potential, but it was not intended to imply that such a laboratory was the only resource for determining work potential. Finally and most importantly, the language used, "pre-vocational activities," was intentionally so broad as to allow the utmost initiative, flexibility and inventiveness in devising programs for this area so long as they were vocational in nature and emphasis.

As was hoped, there has now been considerable experimentation, and significantly a splashing out of the term to describe work evaluation in other settings, particularly the sheltered workshop. Sheltered workshops are now being incorporated into Hill-Burton rehabilitation facilities for their pre-vocational contribution. A promising development has been the various research projects financed by the Office of Vocational Rehabilitation which seek to provide new knowledge on this aspect of the rehabilitation process.

Because of this history and the current very interesting developments it seemed timely for both those engaged in research and those engaged in operations to come together to try to lay down the benchmarks for future research. Progress has been made at this conference sponsored by the State University of Iowa.

As a reading of the papers will show, research in this area is complex and difficult. It is not surprising, therefore, that final answers were not forthcoming or that operators must for some time to come continue to plan their programs on an empirical basis with limited means for validating their methods.

Handicapped people are here today, however, and their problems will not wait. Pre-vocational programs will, of necessity, continue as a practical laboratory approximation of actual work that can be incorporated into a rehabilitation facility. From research, however, can ultimately come the precision necessary for accurate prediction which will improve them greatly.

HENRY REDKEY

PROCEDURES AND PRACTICES IN PRE-VOCATIONAL EVALUATION:
A REVIEW OF CURRENT PROGRAMS

MARTIN G. MOED

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New York, New York

Pre-vocational evaluation, since 1954, has been the most rapidly developing phase of vocational rehabilitation. Redkey indicated that this movement was the result of two deep currents which merged and found expression in the Federal Legislation of 1954. The first current was recognition that rehabilitation, particularly of the severely disabled, required close integration of all rehabilitation specialities. The second current lies in public acceptance of rehabilitation and the demand that services be made available to larger numbers of disabled persons many of whom are severely disabled.

Pre-vocational evaluation may be divided into three major components. These are: realistic vocational appraisal, appraisal of behavioral dynamics in a work situation, and a therapeutic work experience which helps the individual gain a better understanding of himself as a worker. The aims of pre-vocational evaluation are relatively clear and are accepted by most rehabilitation facilities. But, procedures and methodology vary widely. For example, pre-vocational units are usually housed in one of three different environments: a separate unit where only this activity is carried out, in the occupational therapy department, or in the sheltered workshop.

These units may be in primarily medically or vocationally oriented centers. In the medically oriented setting, the prime concern may be developing work tolerance, as well as to serve as a place where the patient begins to see himself as a productive individual. Of most importance, it indicates to the patient that there is concern about his vocational-economic as well as his medical problems. The vocationally oriented center concentrates upon the later phase of rehabilitation, when the physical problems become less acute and the patient is better able to devote his attention to training for an occupation. Such a center seeks the full exploration and development of whatever vocational potential the patient possesses, and its program is designed to elicit this information and act upon it.

Staffing patterns and vocational appraisal media also vary from facility to facility. In the medically oriented center, whether the evaluation is carried out in O. T. or an attached sheltered workshop, the staff of the unit usually consists of occupational therapists. In the vocationally oriented center, whether a sheltered workshop or a comprehensive facility, staff usually consists of industrial arts teachers, vocational counselors, or persons with general industrial experiences. The staffing pattern seems to reflect a change in emphasis in the patient's program; as it becomes more vocationally oriented, the tendency is to staff units with persons who have vocational counseling or industrial training.

Variations are also found in vocational appraisal media. The most widely used method is the work sample approach. Another is the use of sub-contract production in a sheltered workshop. Some facilities use both the work sample technique and performance in a workshop. Another method is psychometric evaluation, either especially standardized or not standardized, for the handicapped. Still another employs the use of industrial engineering techniques. One other approach is to have evaluations done in nonprofessional departments of the rehabilitation facility or hospital.

METHODS OF PRE-VOCATIONAL APPRAISAL

The Work Sample

The work sample, as you all know, has its value in that it is directly related to the vocational activity from which it is drawn. As a predictor of vocational potential, the work sample gives the evaluator an opportunity to compare the handicapped client with the performance of a successfully employed person. The types of recommendations tend to go from the general to the specific, the most general being a judgment that the individual is employable rather than unemployable. A specific judgment would be concerned with predicting future performances in one particular job level within a particular trade.

If the range of the work samples is large and representative of jobs found in the community, theoretically it should be possible to determine a client's employability with reasonable success. It should also be possible to determine whether the client shows enough skill and appropriate behavior to be considered capable of sustaining the production standards and emotional pressures of a job situation. By the nature of the work sample, as a reality or situational test, its usefulness as a predictive device for this type of recommendation should be relatively accurate.

The next step, in the general to the specific range of information obtainable, is the prediction of success in a specific job category in

which the individual displayed most ability. In other words, the prediction of success is made on the assumption that the person will work in a job situation which was duplicated by the work sample. Here again we would expect the adequacy of the judgments to be high, but probably not as high as a straight employability-unemployability recommendation.

Becoming more specific, the next step is a prediction of the skill level which the individual is capable of achieving within a particular activity. As an example, if we find that a person has potential for costume jewelry work, it should be determined if he has capacity to be a designer or model maker or at the lowest level a simple solderer or buffer. This is important information, since it helps the counselor and the client decide whether it is worthwhile spending the time in training in order to realize the client's potential skill level. You can see, with this information available, the goal of vocational rehabilitation can go beyond just helping the client find a job. The counselor can assist the client to find ways to fully maximize his vocational potential.

To meet this need, the work sample constructor must build a series of simple and complex samples representing a number of jobs in a particular occupational area. These samples should indicate the client's capacity to perform at a simple level and determine his potential for more complex activities encountered at high skill levels. On what basis can the latter judgment be made? In part, by the performance of the client as compared with industrial standards, but this is not enough. It is extremely difficult to duplicate a single job performed by a paid worker in industry which can be used to evaluate capacity for obtaining greater skill levels. Something else has to be built into the criteria. It might also incorporate the opinions of employers and instructors representing a specific trade, as to the manner in which the handicapped individual has to perform in order to have a reasonably good chance of obtaining certain skill levels. Since the criteria are based on the opinions of experts, we would expect the validity to be less than if these criteria were based on actual industrial standards. It is relatively easy to see why the accuracy of skill level prediction would be less than when we try to predict employability or successful performance on a specific job. Skill level predictions are at best difficult, and should be validated through follow-up studies as soon as an experimental population is obtainable. The purpose would be to compare the level of functioning originally predicted by the work sample with the level achieved by the person, after he has been on the job for a specific period.

The work sample technique is also used for making recommenda-

tions concerning a client's ability to perform a job that is related to, but not exactly duplicated by, the sample in the unit. This is usually called job family prediction. The rationale, of course, is that operations in related trades require similar mental ability, dexterity, skills and/or tool usage. It is probably reasonable to assume that the closer the related job is to the one the sample duplicates, the better will be the basis for the recommendation. Exactly how good, is still an unanswered question. We are in a young speciality, and I'm certain that these questions will be investigated. In fact some studies in this area are already planned. However, on a practical basis, such predictions based on empirical evidence have to be used, until more sophisticated information is made available.

A review of agencies using the work sample technique indicates the use of the following basis for making recommendations. The value of these methods as predictive devices is based on the degree to which they have been substantiated by research. They are predictions made: upon the results of follow-up studies, on industrial standards, on opinions of experts, on standards determined by the performance of evaluators themselves, and on evaluator judgments based on their own experience.

Sheltered Workshop Work

Another approach is the assessment of potential through performance on sub-contract work in a sheltered workshop. The strength of this technique lies in the opportunity to observe the client's performance in a test situation which is as close to employment as we are capable of achieving. The client is motivated by money for work produced. In a work sample situation a client may take a twenty minute break for a cigaret. He might not if he felt he was going to lose money. The large number of handicapped persons with debilitating emotional problems and those with primarily psychiatric disabilities, make this approach a much needed service. The work performed is specifically related to a job in industry with the industrial rate set by the firm giving the contract. As such, in this type of setting, the prediction of employability vs. unemployability should prove to be accurate. The prediction of success in an area related to jobs performed within the workshop should likewise be accurate. Because the number of jobs available in the workshop are few, this technique limits the possibility for exploration into a wide range of job activities, as well as the capacity to achieve certain skill levels. The need to meet industrial commitments may also limit the amount of time the evaluation can or cannot allow the client to work on any type of operation.

Another technique used is a combination of work sample evaluation

and performance in the workshop. This approach offers the possibility for assessing a wide range of job areas as well as skill level potential as it relates to a specific occupation or job family. It also allows for observation of the client's behavior in a wage-earning situation. Another advantage is the possibility of observing improvement of performance with repetition.

Psychological Tests

For many years much has been said about the unsuitability of aptitude tests for the handicapped. In the past few years, experiments with psychometrics for the handicapped have been under way. One such study is being carried out by the Occupational Research Center of Purdue University. They are working on a method to validate and extend known methods of psychological assessment of blind individuals. Another objective is to construct new approaches to the measurement of specific skills of the blind. They have developed instruments measuring three areas: intelligence, manual dexterity and personality. They are validating these tests on blind individuals at various levels and types of employment. The author states, "The results reported thus far indicate great promise since it can be shown that the tests measure systematic differences in ability level between criterion groups."

A group at Highland View Hospital in Cleveland is also working in this area. They have created an instrument which is designed to appraise cognitive-motor functions relative to jobs performed in a sheltered workshop. The authors state the following, "in order to eliminate subjectivity of vocational appraisals of disabled individuals and to provide a base line for meaningful interpretation of such results, *Thomasat*, a performance scale originally constructed to evaluate psychomotor skills of the upper extremities was devised." The test appraises eye-hand coordination, the ability to grasp, hold, stabilize, and manipulate objects according to size, color, and shape. The standardization is based on a chronically disabled population at Highland Hospital, and as such, it appears to be a valid predictor of performance in a sheltered workshop catering to the needs of the chronically ill. Using this population, they reported an extremely high (.94) correlation between the *Thomasat* and performance scores in a work sample testing situation. As yet the authors have not reported attempts to predict vocational potential for the type of handicapped population seen at most rehabilitation centers.

Since 1958, the Institute of Physical Medicine and Rehabilitation has been working on a study designed to correlate standardized tests

with conclusions reached through the use of work samples. The final report of this study is now being written. In a personal communication Dr. Morton Zivan, the Director of this Project, reported the following observations which have not yet been substantiated statistically. When aptitude test scores are high, performance on the work samples tend to be parallel, but low aptitude scores are not necessarily reflected in poor work sample performance. He felt that the work sample evaluation tended to give much more meaningful information. A second observation was that test anxiety plays a much bigger role in aptitude testing than it does in a work evaluation. The results of this study should be of considerable interest.

Engineering Approach

Acker and others at Stanford Medical Center are experimenting with a new approach to vocational appraisal. In a personal correspondence, Acker has indicated that their major effort is the development of a work sample system based on the most common physical motions involved in typical semi-skilled jobs, industrial and clerical work. The levels of difficulty of the jobs are being described in physical and engineering terms. At this point, the descriptions are based on the amount of force or physical pressure necessary for the performance of the job. They have divided these jobs according to low, medium and high levels of complexity, and physical difficulty. The engineering aspects of the work sampling are worked out reasonably on the basis of an engineering approach and technique called "Methods, Time, and Measurement." Acker hopes that this method will provide units of evaluation which are comparable from job to job, irrespective of the product being produced on the job or the kind of materials handled.

Obviously there are other dimensions in the work evaluation, relating to work and worker relationships. These, the engineers feel, do not fall specifically within their domain, and for these evaluations they are asking psychologists and sociologists to participate in the study. Although many of the engineering techniques have been worked out, Acker feels many problems still exist before the usefulness of this technique can be confirmed. It would seem that this method is a new departure, certainly different than psychometrics and work evaluation as we know it today.

Patient-Employee Evaluation

Another pre-vocational method which seems to be meeting with success in some general hospitals, provides for exploration in various nonprofessional services of the hospital. Usually the patient spends one or two weeks in a pre-vocational unit in Occupational Therapy

and is then assigned to a department such as accounting, maintenance, bakery shop, etc. The supervisor is instructed to appraise the patient's abilities, interests, and aptitude for the work being performed in the department. The supervisor is also asked to observe work tolerance and behavior. It would be interesting to analyze how the supervisors arrive at their judgments regarding a client's capacity to perform a specific type of work.

Massachusetts General Hospital in Boston and Long Island Jewish Hospital in New York are two examples of hospitals that are using this approach. Massachusetts General Hospital reported that 41 of 44 consecutive injured worker referrals, who averaged 23 months post-injury, completed the evaluation and work therapy program. Thirty-one or 75% of the 41 patients were successfully rehabilitated. These programs are of great interest and their effectiveness should be carefully evaluated.

PRE-VOCATIONAL PROGRAMS

Thus far, this paper has attempted to discuss the use of the evaluation techniques. All with the exception of psychometric assessment, encompass the three components suggested for a pre-vocational unit. I would now like to discuss programs in which the work sample technique and workshop evaluation approaches are in operation. I have tried to select agencies with the most experience in each method, as well as those agencies that are adopting these techniques to fit the needs of special disability groups. I will try to point out the procedures followed as they pertain to setting, aims, and methodology.

The Tower System

The leading exponent of the work sample method conducted in a separate unit is the Institute for the Crippled and Disabled. They have employed the work sample technique for over 20 years. In 1957 their work sample evaluation method became known as the TOWER System. The word TOWER stands for Testing, Orientation, and Work Evaluation in Rehabilitation. The methods and procedures used in the TOWER System were published in 1957 and are in use in more than 70 pre-vocational evaluation units in a wide range of rehabilitation centers in the United States and to a limited extent in Canada. The TOWER System includes a series of 130 job sample tests in 13 job areas varying from fine hand skills to equipment operation and from stenographic and typing skills to routine office and industrial work.

The organization of the TOWER System is designed to provide an effective method of judging client performance. Work samples are pre-

sented to the client in a series of tests which explain the task to be performed and the required client response. The evaluator is provided with detailed printed criteria and other aids for rating client performance. Criteria for each of the 130 tests include "quality standards" and "performance rate" which are divided into five rating levels ranging from superior to inferior. Forms are provided to record results achieved by the clients on the work sample as well as the evaluator's observations of the client's potential. These results lead to recommendations for a specific training and placement area or for further pre-vocational assistance.

Each client spends three weeks in the evaluation unit. In addition to evaluation appraisal, each individual is carefully observed for work habits, work tolerance, and learning capacity.

The ratio of staff to client is usually maintained as one evaluator to every ten clients. The evaluators employed at the Institute are trained industrial arts teachers. The unique combination of teacher training plus experience and skills in many trade areas equip them to function as evaluators. However, vocational counselors, occupational therapists, and persons without formal preparation but with knowledge of many trades, have also been successfully employed as TOWER evaluators.

A study of 534 clients who successfully completed the three week TOWER Evaluation during a five year period will be published soon by Usdane and Rosenberg. In this group there were 402 clients who were recommended for trade training and 132 for direct placement. The results indicate 88% agreement between vocational evaluation recommendations and trade training success. Eighty-five per cent of those who were recommended for trade training programs were placed in outside jobs in fields pertaining to their training. Of the clients who were recommended for direct placement immediately following vocational evaluation, 70% were placed in job areas related to the vocational recommendations. A study of the validity of the TOWER System as used by ten centers across the country will be started in July 1960.

Another pre-vocational evaluation unit, specifically for the cerebral palsied, was set up at the Institute. This was done because it was felt that tasks used in the TOWER System did not appraise adequately the vocational potential of the cerebral palsied. Using the work sample techniques, a system of 100 job samples were set up covering the elemental service, unskilled, clerical, and semi-skilled activities. The evaluation lasts seven weeks or more than twice the time allotted for TOWER Evaluation. The staff ratio is one evaluator to five persons

which is one-half of the staff-client ratio employed in the TOWER System. The staff consists of two vocational counselors who have had considerable job placement experience with the handicapped. They both have a wide knowledge of community resources and employment opportunities. Of perhaps greater importance, they are capable of making judgments based on their experiences when the criteria for a particular job sample does not completely clarify the level of a client's performance. As an OVR sponsored research and demonstration project it has been duplicated in seven other cities. When the OVR grant terminates in June 1960, the unit will continue functioning as part of the TOWER System.

Vocational Adjustment Center

The leading exponent of the evaluation workshop method is the Jewish Vocational Service of Chicago which maintains a vocational adjustment and evaluation center. The evaluative workshop technique is used, according to Gellman, "when the pattern of work behavior cannot be ascertained through other techniques, or when we wish to observe selected aspects of a client's vocational pattern. The vocational evaluation workshop is built upon the use of a true work situation. Various components of the work, environment, wages, conditions of work, pressures, interpersonal relations, and work incentives are manipulated to determine their effect upon workshop behavior. In contrast to the other diagnostic methods, the workshop is concerned with the client as a functioning worker and attempts to secure a picture of the client's behavior in a work situation. It provides a means of determining whether changes in working conditions will result in improved performance." This program is also an OVR project which has been duplicated in five cities.

The client is given a two-week work evaluation program and an eight-week guided work adjustment program. While in the shop each person functions as part of a work group of 25 individuals who work on sub-contracts secured from private industry. Clients are paid from 50 to 75 cents per hour. Shop supervisors, who are professionally trained vocational counselors function as shop foremen.

Through the technique of biweekly case conferences, supplemented by a continuous daily record of performance and behavior in the shops, the workshop staff attempts to appraise the progress made by the client in relation to such areas as interpersonal relations, the use of abilities, derivation of work satisfaction, adjustment to work pressures and concept of self as a worker. From this information a final evaluation of employability, placeability, and recommendations for possible

areas of employment are made. A very comprehensive follow-up study conducted by Gellman and his staff indicated a high degree of agreement between their employability prediction and stability of employment. For the most part the employed group in the study had such unskilled jobs as stock clerk, messenger, or routine clerk. A small number had worked in line production or assembly tasks. Other clients had performed domestic work in hospitals or other institutions.

Combination Programs

There are facilities whose pre-vocational units are a combination of both the work sample evaluation and the evaluative sheltered workshop technique. Such an approach is used at the May T. Morrison Center for Rehabilitation in San Francisco. Their evaluation consists of a medically supervised program which includes a physical capacity evaluation, work sampling, and workshop performance. The program extends for a two-week period. The medical review and physical capacity evaluation usually last one day. The client then spends two or three days in the work sampling program and the remainder of the 11 days in the workshop. The function of work sampling is the same as described above, when this technique was discussed. The tasks to be performed by the client are medically prescribed in a conference after a thorough review of the client's medical, social and previous vocational history. Administration of tasks is done by registered occupational therapists in a "clinical laboratory" situation on a 1 to 1 ratio. Work sampling is done in six major occupational areas ranging from sub-professional technical to elemental work of a light, medium and heavy nature. The organizational structure of these tasks are based on Part IV of the Dictionary of Occupational Titles. Through the workshop performance an attempt is made to assess the appropriateness of clients work habits and work behavior. In addition, the ability to improve job performance with extended practice is evaluated.

The combination approach to pre-vocational evaluation is also used in a program conducted by the Association for the Help of Retarded Children in New York City. This program is of interest because it demonstrates pre-vocational evaluation with a special disability workshop.

A series of seven work samples are administered to each new client during his first seven weeks in the workshop. These samples were selected as evaluation tests from five hundred contract jobs that had been performed in the workshop over the years. These work samples tap a variety of aptitudes, abilities, and skills usually required in simple industrial operations. These are: folding table cloths, sorting but-

tons, lacing display cards, pistol key chain assembly, puzzle assembly, packaging poker chips, and packing for electroplating. An important aspect of this evaluation is repetition. Their annual report states, "it is relevant in the evaluation of readiness for work to investigate the effect of repetitive learning experiences on efficiency and productivity." The retarded client does each of the seven work samples three times. Detailed records are kept of the time taken to complete the task at successive sessions. An average three-day interval between trials of the same tasks are arranged. Individual rates for initial learning (first trial performance), rate of improvement (second trial performance), and ultimate efficiency (third trial performance), are computed. Observations made during the evaluation include work discipline, productivity and self-direction, initiative and appearance, etc. Also the ability to use public transportation, handle money, and use the telephone is observed. Since very few clients are referred for competitive placement, the evaluation is informally continued as part of the personal adjustment training program which usually follows the regular evaluation. This program determines whether the client has the potential ability to justify some type of unskilled service job such as messenger or bus girl activities. The ratio of evaluator to client ranges from 10 to 12 clients to one evaluator. The evaluators are not required to have any specific college training, but are hired on the basis of personality and exposure to industry.

The validity of their recommendations for employment in competitive industry has not been ascertained because of the relatively small number of clients who are capable of regular employment. However, they found a high relationship between hourly earnings and performance in the evaluation. This project is also an OVR sponsored research and demonstration project which has been duplicated in 17 cities.

The Pre-Vocational Evaluator

As I described the various approaches to pre-vocational evaluation, you have noted almost completely different staff patterns. Solid arguments or rationales for each pattern have been advanced. The vocational counselor brings to the rehabilitation center a knowledge of industrial methods and community resources. He is best able to integrate evaluation findings with the vocational counseling process. The industrial arts person brings a teaching background and experience in industrial processes. The occupational therapist brings an understanding of medical conditions, dynamics of illness and, in addition, is trained to interpret and report what he sees. He is also familiar with

the medical limitations of various handicapping conditions. You have also heard that some agencies feel that formal college training for a specific profession is not necessary, because they believe that personality and experience in industry is the prime requisite for a good evaluator. Who is the pre-vocational evaluator? He is a composite of all the persons mentioned. No matter what the discipline of the evaluator is, he will have to learn some skills from the others. From these observations, I cannot support the argument of any single professional discipline claiming that only they have the background and experience which uniquely qualifies them to be pre-vocational evaluators.

One other observation. For the most part, practically all of the programs reviewed have the work of the unit closely tied in with all phases of medical, psychological, and social aspects of rehabilitation. That the pre-vocational unit has not become a substitute for vocational counseling but, in most instances, is thought of as an effective tool of the counseling process is particularly gratifying.

SUMMARY

Although differences in approach exist (which is, of course, desirable) as a result of the work of OVR and the Institute's work on TOWER System, a movement toward standardization of procedures is under way. As mentioned earlier, the programs conducted at ICD, JVS of Chicago, and the AHRC of NYC have been duplicated in whole or in part in approximately 110 facilities. By the use of such research and demonstration methods, vocational rehabilitation has been able to meet rapidly the tremendous influx of the severely handicapped seeking services as a result of the 1954 Federal Legislation. As this need is being met, we must now evaluate ourselves. We are at a point where continued accomplishments must be guided by careful assessment of our existing methods. However, explorations that will bring a better life to the people we serve must not be discouraged.

PROBLEMS IN MEASURING CAPACITY AND PERFORMANCE

DONALD W. FISKE, PH.D.

Professor of Psychology
University of Chicago

I believe it was Conant who said that science progresses by asking the right questions. If this conference is able to formulate pertinent questions, we can view it as successful even though we cannot at this time provide definitive answers to the problems we identify.

There is one question which I do not intend to ask: What do we mean by "pre-vocational"? I shall assume we know what it means. I wish to consider with you today some of the problems in measuring capacity and performance during pre-vocational activities.

What are we trying to measure? We want to measure how well a client will do on the job, in the real world, after he has been rehabilitated. But it is impossible to foresee the future. The best we can do is attempt to predict future performance on the basis of present performance: given this client as he is today, how well will he do on the job tomorrow or next month or next year?

To be more precise, our measurement of the client's capacities today usually has one of two objectives: we want to determine what the client is now capable of doing on a real job or we want to predict what he will be able to do after some course of training. The general nature of the problem is essentially the same in the two cases—in the second case, we are attempting to predict before training or other rehabilitation what our prediction of job performance will be after such training. This is a more difficult prediction because there are more unknown factors which can interfere, but it is still a prediction.

THE CRITERIA PROBLEM

The most important and the most neglected component in psychological prediction is the criterion, that which is being predicted. To evaluate any rehabilitation activity, be it evaluation, training, or counseling, we need some index of the adequacy of the client's subsequent vocational performance. This problem, in much simpler form, has been confounding personnel psychologists in industry and the armed services for decades. The problem is many times more difficult in the rehabilitation field where the concern is not with getting the best people

for a particular job but rather with getting the best job for a particular person.

How should we measure actual performance on a job? It is surprising but true that we are not interested in *actual* performance, but only in the adequacy of the interaction between the job and the client. This interaction has two sides to it: what is the adequacy of the client's performance as evaluated by the foreman or supervisor? To what extent does the client find the job adequate to his needs for pay, for feeling able to carry out a job, for being respected as a person? Thus we are interested in the satisfaction of the employer and the satisfaction of the employee. (This structuring of the problem may not fully handle the special case in which the employer and client are both satisfied but the rehabilitation worker is not, because the client is obviously not working near the limit of his capacity and consequently is not contributing as much as he could toward the support of himself and his dependents.)

The satisfaction of the client can, in most cases, be determined in a fairly direct manner by asking him tactfully. From one point of view, the important index is the pragmatic one: does the client stay on the job or does he quit (or get himself fired)?

The satisfaction of the employer can also be estimated by a single factual index: does he keep the client on the job or does he discharge him? This is not a perfect measure because it is influenced by various irrelevant factors such as the state of the labor market.

As a first approximation, then, whether or not the client stays employed is a fairly satisfactory measure of the adequacy of the job-client interaction. It is satisfactory because it involves the subjective reactions of both employer and employee. Note that we have made no reference to objective measures of the quality or quantity of the client's performance. These may be involved in the supervisor's satisfaction, but I believe that for many jobs, objective measures are not the sole, nor even the predominant factor. Instead, it is the supervisor's *impression* which is crucial.

My distinction between the client's actual productivity and the foreman's perception of it may seem a trivial one. I think it is not, because even though the absolute error in the foreman's judgment may not be large, the direction of the error is important. It is quite clear, both from general observation and from recent experimental work, that people tend to perceive things as they want to perceive them. A foreman will tend to see a client's performance as better or worse than it actually is, depending upon his general reaction to the client. Thus his judgment about the client's productivity may be influenced by the

other factor in his satisfaction with the client; that is, by the extent to which he finds the client acceptable.

Acceptability may play a surprisingly important role, even under conditions where we would imagine that productivity was more relevant. By acceptability I mean adjustment to the job and to the total work situation, as evaluated by his foreman or supervisor. One way of stating this might be as a question: Does the worker's behavior conform to the role of worker as the supervisor sees it? More than a dozen years ago, we inquired of a number of clinical psychologists as to why people were fired from jobs as clinical psychologists. From the reports that we gathered, and this was a quite informal survey, it was our impression that clinical psychologists were much more likely to be fired because they could not get along with or they were not liked by the other professional people, than because they were judged to be inadequate in their professional work. This may of course have been because there were then (as now!) no adequate objective criteria for performance as a clinical psychologist, in spite of the fact that most clinical psychologists have their own strong subjective convictions as to which of their colleagues is good and which is not. I do not think that is the whole explanation, however. I think that people are fired because of the presence of negative characteristics, not because of the absence of sufficient ability and skill to do a job. Thus the head of the psychological clinic can be much more certain that one of his staff members is an unlikable person who irritates other professional people and in fact may get his section into trouble with other parts of the organizational hierarchy, than he can be certain that the person's professional work is not adequate. To take an example from an entirely different sphere, I believe that it was Viteles who was working on the problem of selecting operators for electrical substations in the early days of industrial psychology. He found that such operators were not fired because they were not doing their technical jobs adequately, but were fired because they had failed to sweep out the substations.

In recent years, there has been increasing recognition of the importance of acceptability. In a broader context, the general trend has been one of paying more than lip service to the fact that behavior is a function of the person, the environment, and their interaction. A major theme in Stern, Stein, and Bloom's book, *Methods in Personality Assessment*, is the argument that the assessor should study the situation in which the person will be functioning with the same effort and attention as he studies the person himself. It is futile to try to predict how well a person should be able to do on a job with no consideration of what the job situation will be like and how it will affect his perform-

ance. The assessor must also consider how the supervisor will be making his evaluations. These are aspects of the classical criterion problem.

Criteria are like the weather: everybody talks about them but nobody does very much about them. Criteria have not been worked on as much as they should be for two reasons: one is that psychologists have been so busy concentrating on the development of tests that they have had little energy left to devote to the problem of the criterion. The other is that the psychologist has control over testing procedures and the design of tests but has relatively little influence upon criteria. Frequently he must accept the criteria provided by the world, for better or for worse. In vocational counseling, the problem is one of determining what foremen and supervisors want. One way to do this is to use the critical incident technique which Flanagan has developed. In this technique supervisors are asked to provide examples of very successful performance and very unsuccessful performance. These examples are analyzed to determine the kinds of aptitudes and traits are required for success on the job.

Up to this point, we have been considering the criterion that which is being predicted. Now let us turn to the predictor measures.

PREDICTOR MEASURES

Prediction involves using one sample of behavior to estimate what a future sample will be like. If we cannot use a predictive sample occurring in exactly the same surroundings as the behavior we want to predict, and if the client's past history provides no closely relevant samples, we must develop our own sample. We call such a sample a "test" but it is still just behavior; a segment of behavior from which we estimate directly, or as directly as possible, what the future behavior will be like.

As a general rule, the best prediction of what a person will do in a given situation is that he will do what he did last time in that situation. So the best way to find out how a person will do on a job is to try him out on it. This point may seem obvious but we frequently overlook it. Or rather, we frequently and appropriately utilize this principle without fully recognizing what we are doing.

Problems in Prediction

Let me digress a minute to consider the problem of predicting performance in graduate school. This would seem like an easy job. At the very least one can use performance in college. But when each applicant comes from a different school, and one has not even heard the name of many of the schools before, it is difficult to compare the grade records

of the different applicants. Furthermore, graduate school requires a different set of skills and motivations than college, a fact that many students unfortunately do not know. And intellectual ability itself makes a surprisingly small contribution to graduate school success. Our brightest students frequently have poor work habits or motivational conflicts that prevent them from doing acceptable work, and students with limited ability often amaze me, not only by working efficiently but also by having a good idea or two, which are rare phenomena in anyone's experience! I am gradually coming to the conviction that the best we can do is to accept students with good ability and good college records, and weed out the poor bets after they have had a year or two to demonstrate their capabilities. This is regrettably costly of staff effort and student welfare, but I see no feasible alternative.

The problem is further complicated by the fact that each graduate department must work out its own goals, its own standards, and must empirically determine the usefulness of any selection tests or techniques that it employs. I bring up this whole matter to show you that even psychologists, who should be able to predict performance as well as anyone, have real difficulties right in their own front yard.

In rehabilitation work, it is not feasible to try clients out in real job situations. There are few employers who would be willing to give a client a few weeks' work just to help determine his capacity to do a given job. And one would need many such opportunities to get a fair picture of any one client's profile of capacities.

In other placement situations, it is often possible to utilize past performance as a basis for prediction. In rehabilitation evaluation this is only rarely possible, the usual case is one in which something has happened to the client so that past performance is of little predictive value except to set an upper limit to probable future performance.

Limitations of Conventional Tests

In thinking about this conference, and about why situational and work-sample procedures were being emphasized, I wondered why conventional aptitude tests were receiving less attention. It may be that they are so much better known that there would be little to be gained from discussing them. It seems more likely that the planners implicitly assumed or believed that such tests are not adequate for the task required for successful rehabilitation work. Or perhaps they are useful in some cases but are not sufficient for the whole task.

I would agree with what I see as their implied position. I can see that aptitude tests may have some value, especially in determining

what kind of training to give a client but, even here, preliminary training itself would seem of greater predictive value.

Why are such conventional tests of limited value in rehabilitation work? Their very strength is their limitation. They are ordinarily designed to estimate an abstract quantity, the individual's maximum capacity for a specific function. Like standard tests of abilities, such as intelligence tests, they are given under circumstances which maximize the subject's performance. The instructions and the testing situation are designed to elicit the best work on the given materials that the subject can do. They are ordinarily kept brief, in large part, to avoid the effects of fatigue or declining motivation. As a consequence they are well suited for their special function, but are poorly suited to providing an estimate of actual job performance. The very conditions which are carefully minimized or eliminated in this kind of testing are the conditions which are critical in the evaluation process during rehabilitation.

Nature of Performance

Performance on any task or, more broadly viewed, success in any coping activity, is some complex function of (1) capacity to carry out the task, (2) appropriateness of direction of effort, and (3) effort itself. A person cannot accomplish a goal however trivial unless he has the ability to reach the goal, directs his energies appropriately, and applies himself. Capacity, the first of these three requirements, is relatively easy to measure by itself. What we are concerned with is assessing appropriateness of motivation and availability of the requisite energy or general drive. Standard tests estimate capacity, we need tests which assess the other components.

Or rather it would be nice to have such specialized techniques. However, we do not know how these three components should be combined to maximize prediction. I believe the function is multiplicative; it is not additive because a deficiency in one component cannot be compensated by an excess in another component. One does not do one job while trying hard to do another, and capacity is useless without effort. Instead, each part increases the contribution of the other two parts.

Since we do not know the function, and since it probably varies from person to person, the simplest thing is to measure the product, to determine actual performance under conditions which resemble the future situation as closely as possible.

Strategies for Prediction

At this point, two strategies are open to us. We can take the position

that capacity carries the most weight, and set ourselves the task of determining the profile of the client's potentialities. On the other hand, we can decide that the motivation to work and the drive to implement this motivation are the primary concerns. For clients who appear to have sufficient ability to carry on skilled work, the former may be more appropriate. For other clients, the critical problem may be to get them into the labor market. Their psychological and economic state may make it imperative that they get a job, any job, as soon as possible. For such persons, the second approach may be the relevant one. Ideally, we should not have to choose between these strategies, but practical considerations will usually make it necessary to stress one at the expense of the other.

The first strategy involves finding out what the client can do, presumably so that he can take a job, or be trained for a job, that will give him maximum personal and economic satisfaction. It is based on the policy of utilizing to the fullest the potential of each handicapped person, just as the armed services attempt to fit the manpower potential available to them into the job classifications set up to execute the military mission. Such a policy is difficult to implement, as the personnel psychologists working for the armed services will be the first to admit. It requires the development of tests for each job classification, the validation of such predictive devices, and the intricate matter of assigning personnel on the basis of the service's need and the differential capacities of the persons in the manpower pool.

In practice, we should have validity data for each test on each of the jobs for which it will be used predictively. Such a program is difficult even under the authoritarian and standardized conditions in the military services. It is almost insuperably difficult with the limited resources of evaluators in the rehabilitation field.

Two types of study might be attempted. If it is possible to develop a reasonable criterion (in spite of the problems discussed earlier), one could correlate performance on relevant tests with performance on the job. Again, one might attempt to estimate the minimal ability required to carry out each job, but this would require having some clients try the job even though their test performance was low, and such a course may not be practical.

I believe the TOWER System is based on this strategy. The book outlining this approach is, from a technical viewpoint, disappointing with respect to evidence on the empirical validation of its tests. It gives data on percentages of tested clients who were successfully placed, but has no comparison figures by which one can estimate the

contribution of the testing. It also provides figures on the agreement between the evaluator and the training instructor, but these also cannot be appraised without additional data—in this case, the actual evaluations on all other clients.

The biggest problem with this approach is the impossibility of having tests for all, or even most, types of work. For the foreseeable future, it will usually be necessary to infer, on the basis of face validity, that performance on one test is pertinent to performance in a particular job. Such validity is often called faith validity, and with some reason!

The second strategy is less concerned with evaluating the client's aptitudes and abilities but more concerned with evaluating available drive and energy resources on the one hand, and the appropriateness of the direction in which the energy is applied on the other hand. This strategy seems to be the one underlying diagnostic workshops. In these the goal is to make the situation as similar to actual employment as possible, so as to permit observation of such matters as the client's interest in real work, capacity to sustain his application to the task throughout a day or even a week, and even his ability to improve his performance by learning on the job.

In principle, one could try a client out on many different kinds of work, but the resources are usually too limited to permit giving the client an opportunity to work at more than a very few jobs. In effect, this approach is concerned with answering the question: "Is this client a good workman, a good employee?" rather than, "What can this man do?" or even, "What can this man do best?"

The rating scale for employability which is being developed and tested at the Chicago Jewish Vocational Service is oriented toward this approach. It has several sections, only one of them dealing with "functioning level of ability in (the) work situation." The others are concerned with ability to mobilize and direct energy in the work situation; capacity to tolerate and cope with work pressures, tensions, and demands; and interpersonal relations with co-workers and foremen.

I have talked about these two strategies as though they were quite distinct. In actual practice, the two are probably more alike than different. The evaluation in the TOWER System involves not only specifying the adequacy of the client's work in each of the various occupational areas in which he was tested, but also a series of ratings on broader aspects of work performance such as work habits, work tolerance, dexterity, ability to comprehend instructions; and ratings on personal characteristics, including attitudes, appearance, and re-

relationships with others. On the other hand, a diagnostic workshop is obviously interested in making some estimate of the client's ability to do certain basic types of tasks. Thus the main difference appears to be in emphasis, not in general orientation.

Some of you may have noted an apparent inconsistency between the view of performance that I have just taken (that is, performance as a product of capacity, effort, and direction of effort), and my earlier argument that we were interested not in actual performance but in performance as seen by the client and by his supervisor. The apparent discrepancy stems from our inability, at the pre-vocational stage, to tell what the supervisor will be like. The most we can tell is how people in general seem to react to the client. At the very least, we need to make some estimate of the likelihood that the client will be found to be so objectionable that his supervisor will discharge him.

The other side, the client's evaluation of his own performance, is less important for most clients but we can do more about assessing it. It should be possible to determine whether the client is likely to feel that the type of work he is most likely to get (when he gets a job) is too hard for him, or too conflictful. In rare cases, I would guess that a client might be unrealistic and feel that a job was beneath his dignity even though it was the best job he could get. Such over or under estimations of his own capacity should be detectable in the workshop or in the counseling interview, and could be used to improve the estimate of future maintenance of employment.

SITUATIONAL TESTING

A diagnostic workshop such as we were discussing a few moments ago provides a sample of the client's work. More broadly viewed, it is a special kind of situational test.

Rationale

The rationale underlying situational testing is somewhat as follows. Behavior is a function of the person and the total environment in which the behavior occurs. There are a multiplicity of factors determining behavior. Therefore, no one test measuring a single factor, whether it be in aptitude or a personality tendency, can be expected to predict behavior with more than limited success. In principle it should be possible to combine a series of tests, each measuring a separate function, in order to predict performance in a particular situation. In practice this has not been found to be more than moderately successful. One of the major reasons is that the contribution of the different components, the aptitudes or dispositions, to performance in a

particular situation varies from person to person. For example, we have all seen the situations in which one person performs well because he has high ability, even though he does not try very hard, whereas another individual performs pretty well with much less ability but with a much higher level of motivation and energy output. The theoretical advantage of a situational test is that it allows the several determinants of behavior to interact and combine in the manner in which they typically do for each individual subject. Thus, instead of attempting some rational combination of predictive factors for each individual we let the subject combine them for himself.

On the argument presented above it follows, that the more similar two situations are to each other the more similar the behavior that we observe in them. The more similar two tests are to each other, the more similar the methods involved in two tests, then the higher the correlation between the scores on them. On the other hand, the greater the dissimilarity the less the correlation found between the observed behaviors. Even within a single type of situational test, the leaderless group discussion, a correlation between rated leadership in one test with that in a second test may vary from .90 to .39, depending upon the similarity between the conditions involved in the two tests. Note that the same general condition is involved here in both test and re-test. In similar fashion, we find low correlations or no correlations among diverse measures of the same general personality traits. There is considerable evidence that the concept of rigidity should be broken down into several discrete forms of rigidity, or to state the matter differently, that rigidity in one area may be unrelated to rigidity in another area of personality. In recent years there have been a number of studies intercorrelating several measures of rigidity. These measures show zero, or at the most only very low correlations with each other. Similar, but not so clear-cut, pictures appear to hold for other psychological traits.

A situational technique is one in which the total context of the subject's behavior is as life-like as possible. Instead of giving the subject a task which he would rarely if ever encounter in everyday life the subject is given a job which is more or less realistic and practical. In order to minimize the artificiality of the situation, it is necessary to make the surroundings, the setting in which the task is placed, as realistic as possible. The purpose of using such a context, instead of the context of the psychological examination, is to obtain as natural a sample of the subject's behavior as possible. Although the subject is well aware of the fact that he is being tested, he is presumably somewhat less concerned with this aspect of the situation than he ordinarily

is in a typical psychological examination. Equally important is the notion that the setting makes such demands on the subject that he has little opportunity for modifying his behavior to make it as acceptable as possible to the examiner. Moreover, he usually does not know exactly what the examiner is seeking to assess.

Leaderless Group Discussion

One common type of situational test is the discussion test or, as it has sometimes been called, the leaderless group discussion. In this technique several subjects are brought together around the table and presented with a problem which requires them to exchange ideas with each other and reach some resolution of the problem or some recommendations for solving it. Another class of situation tests are physical problems, where a group has to accomplish some task involving movements in physical space. An example of this type of test is the Brook Test, which we used in the Office of Strategic Services assessment program during World War II. A group of five or six subjects would be taken to the edge of the brook and told to imagine that they were confronted with a raging, bottomless stream which the whole group had to cross as rapidly as possible. Certain materials such as boards and ropes, and certain features of the landscape such as a tree, were available for their use. There were a number of possible solutions, including tying the boards together to form a bridge, and using the ropes and the tree to swing across the brook. More pertinent for our present purposes are the situation tests which are actual work samples or very close approximations. Examples might include a typing test for stenographers, in which a standard set of materials is given to the candidate; clerical tests which involve either distinct and separate clerical functions, like checking whether two names are the same or different, or a test which involves classification and filing; and finally, the field performance test for combat infantrymen which has been developed for the Army—in this test, the soldier has to proceed through a course as rapidly as possible, firing at targets that jump up at him and carrying out other military activities as called for by the nature of the situation.

Other Examples

Situational techniques are not new. It has been claimed that they date back to Biblical times. There is the account of Solomon's method of determining which of two women was the true mother of the child. You undoubtedly recall that, after each woman had claimed that the child was hers, Solomon announced that the child would be cut in two and divided between the two women; and one woman was will-

ing to accept Solomon's proposed action but the other woman said, "No, give the child to the other woman!" Solomon thereupon announced that the woman who was willing to give up all of the child to the other woman was the true mother. There is also the account of how Gideon was instructed to select a special force of 300 from among a larger number of soldiers. He brought them down to the water to drink and everyone who got down on his knees and put his face on the water was rejected, but those who took water in their hands to their mouths were selected. The rationale for the criterion used in this selection is not made explicit, but presumably the better soldiers would be those who were in a position to see what was going on around them.

The evaluation of performance in situational testing may be done in many ways. One of the most unusual ways is said to have been followed in one of the British War Office Selection Boards. The story involves a dog. It may have been a shaggy dog, but I have the story from many different sources, including one man who claimed to have been the protagonist. In checking up on the success of the predictions made by their selection boards the authorities discovered that one board seemed to be relatively successful, distinctly more successful than other boards. They therefore sent a man out to visit the board and try to determine the basis for its success. The man found that the commanding officer of the board was a man of considerable practical experience but of limited professional training. The visitor observed the board for a week, but was unable to notice anything unusual about its procedures. With the feeling that he had been quite unsuccessful, he sat down the last evening of his visit to have a glass of beer with the commanding officer. After that glass, and several others, the commanding officer finally turned to him and said, "You came up here to find out why we do such a good job of selection, didn't you?" The visitor admitted that this was the case. "But you didn't find out, did you?" The visitor again assented to this. The commanding officer then said, "I wasn't going to tell you, but my dog has taken a liking to you so I have decided that you must be a good fellow and I will tell you how we do our selection. A long time ago I decided that my dog knew more about studying people than I did. So any time my dog makes up to a person, I know he is a good person. So we pass the candidates that my dog likes and reject those that he doesn't." Now there may be something to this technique but think of the technological unemployment among psychologists which would result if it were more generally applied!

This story illustrates a highly significant matter. There is a natural tendency, human as well as canine, to react to a person as a whole, rather than to see the person in all his complexity. Osgood, in his work on *The Measurement of Meaning*, has found that the predominant component in all meaning is the evaluative factor. We tend to think of things as good, or bad, or somewhere in between.

We also tend to think of people this way. This is perhaps a kind of "principle of least effort." It is easier to think of a person as a fairly good worker than it is to see him as good at work requiring close attention, provided he gets support from his foreman, and poor at work with a possible competitive element, and so on.

This inherent tendency is recognized in the recommendation forms used by part of the Federal Civil Service. They ask for ratings on each of the major functions in the position which is open, and then have a space for free-response comments. But the situation is highly structured for the recommender. In each of several areas, such as technical skills, administrative ability, personality, and relationships with others, the recommender is asked to indicate the applicant's strong points and weak points. This form requires a considerable amount of effort on the part of the recommender, but as Clyde Coombs has wisely pointed out, the harder the judge or evaluator works, the more valuable and discriminating his ratings.

How can this idea be applied to the evaluation of performance in situational tests or work samples? The rater should be specifically required to report the client's major assets and major limitations. This has to be done by explicit instructions. Even professionally trained raters using a multi-item rating scale tend to make ratings which are highly correlated with each other, which contain a single large general factor, the classical "halo" tendency.

If you think back over your personal experience in interviewing applicants for a job, I think you will find the same thing that I have observed repeatedly. The material about the applicant gleaned from the interview and any other available sources often gives somewhat indistinct hints of weaknesses which are easy to overlook at the time but which turn out later to be the person's chief shortcomings. I grant that such consistency is easier to see in hindsight, but there is reason to believe that these deficiencies can often be recognized in advance if a special effort is made to identify them.

In the long run, negative aspects of performance will often prove of greater practical significance than the positive ones. A person may be

fired because of one specific bad work habit, or he may quit because of a particular personality trait, regardless of how able he is or how suited he is for a given job in every other respect.

EFFICIENCY OF EVALUATION

The problem of evaluating performance will always be with us. We will continually find ourselves in a position where we must predict how well a person will probably do on one job or on each of several jobs. We should certainly do all that we can to improve the accuracy of such predictions. But in setting up procedures for evaluation, we must consider the costs. The expenses of evaluation must be compared to the value received. There is a very significant but not widely known monograph on this problem: Cronbach and Gleser's *Psychological Tests and Personnel Decisions*. While it is highly technical, it makes a number of points which can be readily grasped without working through the complex developments of the technical arguments.

It is oriented toward the question of maximizing the practical utility of the information gained from tests or other evaluation procedures. For example, abstract validity coefficients may be of less value than estimates of the contribution of evaluations to the correctness of the administrative decisions which must be made concerning clients.

Among other matters, they discuss the range of information obtained from a procedure as compared to the dependability of the information. For example, an individual intelligence test gives highly reliable information about intellectual potential, and very little else. In contrast, an interview gives a rough idea of the subject's intelligence and also gives leads or hints about personality characteristics, basic problems, and attitudes. The same notion can be applied to the evaluation of rehabilitation clients. A series of specific standardized tests should yield reasonably precise data on a client's capacity to perform each of a limited group of tasks, but very little information on ability to learn with extended practice, on capacity to stick at a monotonous task all day, and on many other potentially relevant characteristics. A wide-range procedure may provide suggestive information about a great variety of topics, but be unable to offer highly dependable data on any one point.

But in addition to the question of how best to utilize a given limited set of resources, there is the more basic question of the maximum expense which should be devoted to the evaluation of any one client. This decision requires a balancing of cost against utility. It must be made by each administrator in view of the specific situation confronting him. I do not wish to make any general suggestions on this matter

except to point out the necessity for weighing the utility against the cost. As an example of a situation where this principle is not being followed, there is a VA installation in which psychodiagnostic testing is routine even though it does not contribute to any practical administrative decision—all patients are routinely started in psychotherapy. Moreover the therapists, even the psychologists, make little use of the diagnostic work-up. They typically prefer to start the therapy sessions without reading the report, and refer to it only later if they run into particular problems which they feel unable to resolve with the information they have obtained from the therapy sessions themselves.

SUMMARY

In summary, the evaluation procedures used in pre-vocational rehabilitation activities must be as realistic and life-like as possible. They should be designed so that the client will provide a sample of his work which is highly typical of how he will later perform on the job, so that the results will have maximal utility for the decisions to be made about him. The evaluation of his work should take cognizance of the way in which his subsequent job performance will be evaluated, and should utilize techniques which will provide the wide range of information necessary for efficient rehabilitation work.

RESEARCH ISSUES IN VOCATIONAL EVALUATION

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I

To many people in recent years research has become something of a holy word, conveying a sense of mysterious rituals performed by white-suited acolytes who are surrounded by glittering and oddly-shaped glassware in vast, if rather poorly-lit buildings. If we are currently more than a little uneasy at the powerful forces which scientific curiosity has released for our command, then many of us are ready to endow the research scientist with more mystery and power than he does, in fact, possess. And also, we may attribute to him more responsibility for good and evil than he should, in fact, bear. Nevertheless, this is the Age of Science and, for better or worse, our kind of society is committed to a program of finding out more and more about the world, with the implicit hope that we shall thereby be able to live better and better.

Now if we are to grasp the significance of what research means in our field, at this particular moment in time, we shall have to grapple with two sets of phenomena. First, we shall have to know something about the status of research methods in the behavioral sciences generally. Second, we shall have to know something about how these methods apply to our particular tangled skein of behavioral problems. Let us first consider the status of research methods.

THE ROLE OF SCIENCE

It is characteristic of the human brain that it enables man not only to investigate the world but also to speculate about it. While to the modern mind speculation seems a quite different activity from investigation, this has certainly not always been the case. In fact, it could be argued that the motivation of both is the same: to help us understand the world in which we live, and thus to master it. For many thousands of years, however, reliable knowledge about the world seemed so hard to come by, was so scanty and meager, that it was necessary to fill the void through speculation. Just as nature abhors a vacuum, so man appears to abhor uncertainty. While primitive man

must have learned a great deal about the actual movements of the animals he hunted, there appeared to remain a great many mysteries and unknowns about the entire process. So men speculated about what caused animals to appear or disappear in a hunting ground, or what caused arrows to find their mark or be mysteriously deflected. They invented the Bear Spirit or the Buffalo Spirit. They felt it was as necessary to control, propitiate or fool these spirits as to manufacture a sharp spear or a true-flying arrow. Thus, along with the development of the skills of the hunt—obtained through investigation—came the development of animism and magic, obtained through speculation.

Now it is probably a fair statement that for most of man's stay on earth, he did not differentiate very sharply between understanding of the world gained through investigation and understanding gained through speculation. In fact, if we listen to the philosophers and the great religious writers of the past, we should believe that men have had little confidence in empirical investigation of the world but rather placed their reliance in speculative thought. My private opinion is that this is simply a professional bias, that professional speculators have a natural investment in what is, after all, their own *raison d'être*. It seems to me that the magical beliefs and superstitions of the earliest period, and the speculative philosophies of later periods, were simply understandable efforts by man to supplement his empirical knowledge of the world through speculation about the many unknowns and apparent unknowables which surrounded his small core of knowledge on every side. And we should add that his need to speculate has not prevented man from busily investigating everything in sight to learn more about it. It is true that there have been periods when a heavy investment in a speculative system has slowed down or diverted man's insatiable curiosity about the world in which he lives, but in the long run the investigatory impulse has broken through and the speculative system has had to loosen its hold over men's minds.

It is hardly more than three centuries since men first began to apply the methods of empirical investigation to the mysteries of the physical world, and the resultant achievements have been so impressive that modern philosophers have relinquished to physicists the task of theorizing about the nature of the physical universe. It is less than a century since men began to attempt to apply these methods to the study of human behavior, and we must confess that the results have been somewhat less than impressive. Nevertheless, the dazzling success of natural science has led to the hope that the secrets of human behavior will be revealed by the same techniques, despite the greater complexities involved.

What is the essence of the technique of science? Basically, this boils down to the *controlled observation*. Men have been thinking about things and observing them for thousands of years, but it was not until they began to devise special precautions to determine the dependability and reliability of their observations that we are prepared to talk of the scientific method. The fundamental issue, therefore, which faces us in this field is: Can we *control* our observations of the behaviors involved in the rehabilitation process so that the statements we will make have a determinate degree of dependability and reliability? I think that the greatest single innovation of the modern period has not been any particular invention or discovery—such as the telegraph or the automobile or atomic energy—but rather the invention of the scientific method itself, the concepts of research design. For without the slow development of scientific method, it would never have been possible to determine the nature of observed phenomena at all. The basic problem of our field, therefore, is how we can use the methods of science to find out whether this or that procedure is as useful to our clients as we think it should be.

THE ESSENCE OF SCIENTIFIC METHOD

It may be wise to stop at this point and consider what we mean by the scientific method. Are we referring to the classical model of the manipulative experiment, in which we hold constant all the conditions of a phenomenon except one, systematically vary the latter, and observe its effects on the event in question? I suppose we have to include this as a scientific ideal, but we should also recognize that this is by no means the only method of science. It should be noted that there are many quite respectable sciences—astronomy and geology are examples—where experimental manipulation cannot be the primary method of data collection. There are many phenomena, even in the natural sciences, which we are capable only of *describing*—where manipulation of the event may either be impossible because it is no longer present in time, or inaccessible because it is too far away in space, or of such a nature that manipulation will change its character. Nevertheless, the methods of guaranteeing accuracy of description are just as basic to science as the experimental methods. As Feigl, and other modern philosophers of science have pointed out, the accurate description of an event is as much a part of the enterprise of science as its experimental manipulation. In fact, if this were not so, it would be nonsense to talk of research in vocational rehabilitation since the classical experimental model may be of precious little use to us in trying to under-

stand better the extremely complex situations which we daily face in our work.

A second issue of scientific method on which we should comment is that of predictability. Is an event scientifically defined only when we can predict it? A moment's reflection will convince us that there are many kinds of phenomena which are unpredictable yet are subject to scientific observation and understanding. We cannot predict the appearance of a new island by volcanic action, but we are certainly capable of describing the event accurately and discovering the conditions which led to its appearance. Much legitimate scientific activity takes place after an event, not before. It is becoming increasingly evident that even in the natural sciences a good many of the derived "laws" are probabilistic rather than exact.

A third issue of scientific method has to do with measurement. The tough-minded among us have seemed to insist that we should study only those events that yield to quantification. As a result we often see the greatest effort and ingenuity expended on examination of the most trivial aspects of behavior, while vital matters are ignored because they seem unsusceptible to measurement. We should remember that quantification is only one form of the description of an event, and not always the most basic. For example, it was scientifically desirable for biologists to be able to describe the structure of a cell—the familiar features of a membrane, the cytoplasm, the nucleus—before they could begin to consider issues of measurement of its dimensions.

I have discussed these issues because of their apparent relevance to the problems of research in vocational evaluation. We deal with extremely complex phenomena, in which it is most often quite unrealistic to desire to set up an experiment of the classical model. Secondly, the events with which we are concerned are imbedded in such variable sets of conditions that the effort to predict seems unrewarding. Thirdly, our available measuring instruments are of such indeterminate accuracy and dependability that huge uncertainties appear to be introduced by this fact alone. Fourthly, both the observers and the subjects are human beings, and we are uneasily aware that the very procedures introduced to guarantee accuracy of observation may materially change the behavior being observed.

Shall we give up, then? Not at all! I think that the overwhelming present necessity in most of the behavioral sciences is the need for accurate description. Before we can think of teasing out the factors that govern an event, we have to know what it is. What kinds of people do we attempt to help? What are the specific problems that

have prevented a vocational adjustment? What precisely are the procedures we have established to help these people? What changes, if any, take place in those individuals who move toward a vocational adjustment? What, exactly, are the outcomes? What are the acceptable criteria of vocational adjustment? An examination of the service literature in our field—and I plowed through a stack of progress reports about two feet high in preparing this paper—convinces me that we are pretty seriously in need of accurate description of what we are doing. In the next section of this paper, I want to attempt to pin-point the problems that need a descriptive effort, before we can imagine research of a more explanatory or experimental nature. First, I shall want to look at the kinds of people we are trying to help; second, I want to examine the methods we have devised to help them; and third, I want to study the outcomes of the process.

II

WHOM ARE WE TRYING TO HELP?

One of the tricky problems which needs much descriptive research is concerned with the clients who receive rehabilitative services. My own experience as director of a rehabilitative workshop, and the reading of many service reports and proposals, has convinced me that we need much more information about those whom we are trying to help. Consider the mentally retarded, for example. When we read the better service reports we are confronted with pages of actuarial information about the client population: age and sex distributions, I.Q. ranges, years of education, numbers of individuals with complicating symptomatology, such as cerebral palsy, epilepsy, emotional disorders, etc. Now, I do not want to dismiss the usefulness of such general information. It may be instructive to know, for example, that retardates with I.Q.'s of from 40 to 59 are poorer bets for rehabilitation than others with I.Q.'s of from 60 to 80. But this merely poses a deeper research problem. The actual individuals are lost in the shuffle. A little experience with the mentally retarded convinces one at once that there are retardates and retardates. A recent study suggests that there are at least six kinds of retarded individuals, if we look at them from the point of view of their global behavior in the rehabilitation setting. There are the well-trained and socially conforming, the hostile and acting-out, the withdrawn, the anxious, the suspicious, and the non-achievers. While these are the broadest and roughest kinds of characterological descriptions, the writers insist that the groups differ among themselves in the degree to which they can benefit from rehabilitation procedures and in the success of the outcome. Even this paper, however, consists

merely of impressions. We are not told actually how many of each group succeeded.

Consider the cerebral palsied client. In reports of rehabilitation programs that have dealt with this disability category, we are often told a good deal about physical problems encountered. We are told how many clients can ambulate, or have limitations of mobility, whether the manual involvement is mild, moderate or severe, whether there are difficulties of communication. But what of the individual who has these disabilities? Is he motivated? What are his reactions and compensations? Is he a part of a family which will do everything to assist his adjustment, or is the family indifferent, or actually impeding? Who, because of personal factors, will struggle toward a success, and who, with the same physical disability, will accept failure? Many who work with the cerebral palsied believe that such things play a role in the outcome. The point is that we have to begin to look for evidence which will cause us to buttress this belief, or discard it.

The case is even more severe when we examine efforts to rehabilitate the emotionally disturbed. Elizabeth Herzog, in a very recent and excellent monograph titled, "Some Guide Lines for Evaluative Research," states that "a review of 1,500 articles and books dealing with schizophrenia has identified 'some 40 factors for which a consensus exists regarding their prognostic value.'" She concludes by asking: Who is to be changed by psychotherapy, and from what to what? In the agency in which I have worked for the last dozen years, we have had notable successes with patients who have resided in a mental hospital for 15 to 20 years and notable failures with patients who were never hospitalized at all. It is not enough to know that a patient has had a particular diagnostic label, that he has been hospitalized for "x" number of years, that somebody has said he is in a given state of remission, that he has a given age, a given sex, and a given work history prior to his illness. We need to know what kind of individual he is, vis-à-vis the rehabilitation process. After all, we are told that two-thirds of mental patients get better whatever therapy is attempted, and even if nothing at all is done. This rather cynical estimate should make *us* uncomfortable too, since it is the kind of figure that many rehabilitation workers report about the success of their own programs.

The point of all this is that there is a considerable research area related to obtaining much more pertinent and useful descriptions of the client populations we serve. We should remember that they constitute a highly selected population, in the first place. They had to be found somewhere, among the population at large. They had to meet the rather vague and greatly varying feasibility criteria of the particular

rehabilitation counselors. They had to be referred to, and actually get to, the particular service agency which will do the rehabilitating—and they were screened by this agency as well. Such persons may, or may not, be typical at all. We need much more reassurance than we now have of the representativeness of our samples and the manner of their selection. Once selected, we need to know a great deal more about the kinds of clients who may actually benefit from what we offer them. And finally, we should be paying much more attention to the reasons for failure.

I want to close this section on *whom we serve* by a kind of open confession. The rationale of the kind of rehabilitative workshop which I have helped to develop (the Vocational Adjustment Center of the Chicago Jewish Vocational Service) is that the clients we serve cannot make a vocational adjustment without *this* particular technique, that the traditional methods of vocational guidance—testing and counseling—will not suffice. The condition of entry is “apparent unemployability,” as verified by the fact that intensive placement efforts have been made, without success. Yet many of our clients are people concerning whom no very serious placement effort was made before they were referred to our particular program. One is entitled to wonder what the outcome would have been if we had been able to turn some of our skilled manpower loose on these people before they presented themselves for the workshop experience. I hasten to add that, in connection with a new workshop process we have developed for the chronic mental patient, we are going to do precisely what we should have done before—that is, we are going to apply intensive counseling and placement techniques to comparable groups of patients, with or without a workshop. We may thus begin to gain some information as to who needs a workshop, and who does not.

To conclude this section, I want to urge that we will never be able to evaluate the efficacy of this or that service offered unless we are told a great deal more than we are now about the kinds of people served. For all we know now, rehabilitation successes may take place in spite of, rather than because of, the particular treatment offered. If this seems like a strong statement, let me assure you that the cries of alarm in our sister field of the evaluation of psychotherapy are even more violent, and they have been studying their techniques for a longer period and more intensely than we have.

WHAT METHODS ARE EFFECTIVE?

I think we should start by stating, with all due modesty, that a great deal of resourcefulness and ingenuity has been displayed in the last

decade in devising new techniques for helping the handicapped toward a vocational adjustment. To cite only a few examples, we have the elaborately developed TOWER System devised by ICD; we have the simulated production workshop, pioneered in by such agencies as Epi-Hab in California, AHRC in New York and JVS in Chicago; we have intensive efforts to develop specialized testing programs, as exemplified by the group at Highland View Hospital in Cleveland. But I think we should have to admit that there has been far less energy and effort devoted to appraising the efficacy of these programs than has apparently been expended in devising them. Of course, I am aware that this sequence of events is inevitable. We cannot evaluate a methodology before we develop it. But the time may be ripe to begin to find out what we are doing, before we continue to invest vast amounts of money and professional energy in methodologies that are of undemonstrated usefulness.

In confronting the problem of the effectiveness of current rehabilitation methods, I will not attempt to be exhaustive. I want simply to list some of the more important issues involved in thinking of appraisal, confining myself to problems that seem readily researchable. I shall list these problems numerically, but there is no suggestion of order of importance in the numerical order.

(1) *What, exactly, is the method?* Of late, for example, there has been a great rash of workshops all over the country. What, precisely, goes on in these shops? We are, of course, given information on hours of work, rates of pay (if any), general kinds of work performed, standards of output, and so on. But there remain unanswered questions. What does the client actually do during the working day, and what is done to him? What is the quality of supervision offered, and how does this influence outcome? How does the workshop staff operate with the client? How do they evaluate? What data do they use and how is the data used? Are rating scales used; if so, what is their reliability and their predictive efficiency? How are decisions made which lead to extension or termination of service? That we are aware of our ignorance is indicated by the fact that a committee of the National Association of Sheltered Workshops is working to study standards of workshops. But we need great amounts of descriptive data before we know what a workshop process *is*, let alone what it *does*.

(2) *What techniques of vocational assessment are available?* Since we are all involved with practical service programs, where decision-making about clients is a daily chore, we feel the need for supporting these decisions by some objective information about the client. Since

many of us also feel that the traditional psychological tests are not useful when applied to our special client populations, we have experimented widely with new assessment techniques. These may range from the simple judgment of a workshop foreman that a client is ready for placement, through a global assessment arrived at by a staffing process, to such elaborate scaling techniques as ICD's TOWER System, or the Employability Scales being developed by Chicago JVS. But in addition to the usual complex problems of reliability and validity—which are headaches in themselves—there are the problems arising from the fact that these methods have been developed upon the behavior of particular client samples seen in particular settings. They may well lack generality. There is the most pressing need for the widest cross-validation of our assessment techniques, both in other agencies and with other populations. It is also my impression that we are not reporting our data fully enough. Correlation coefficients are all very well in themselves, but we should like to know much more about the shapes of the distributions they reflect. Our populations are so highly selected that distributions are rarely normal in form; more often they are sharply skewed, or even U-shaped or W-shaped. In understanding the meaning of a given score on a given scale, it would be much more helpful if we could see how people distribute over the scale in question. This is especially the case because data are reported in actuarial form, but the practical problem is to make an evaluative judgment and decision on the single individual. It doesn't help us much if we are told that there is a correlation of .40 between a given scale and employment outcome. This may simply reflect the fact that high scorers have good outcomes, but the shapes of the distributions may be such that there is no definable relationship in the middle range. We need more attention paid to item-analysis techniques and cut-off scores.

(3) *What about control groups?* It is characteristic of our field that the use of control groups to demonstrate the value of a particular rehabilitative method is rare, indeed. Of course, we all are aware of the very serious difficulties in using control groups for the study of human behavior. Not only is it practically impossible in the usual service program to deny service to some clients in order to use them as controls on others, but there are also very serious problems lying in the way of the usual assumption of comparability of groups. Not only is matching on more than two or three variables seldom feasible, but we do not know enough about the factors influencing vocational rehabilitation to know what to match. A suggested alternative method—to use clients

as their "own-control" by studying them during the period they wait to enter a service—is subject to other difficulties: clients drop out during the waiting period, things happen to them during the waiting period, etc. An additional problem is that an experimental group may show differences from an untreated control group simply because some professional attention was paid to the former; we are then not demonstrating the value of the particular method, but merely that deprived people may benefit from any kind of attention paid to their problems. Because of this dilemma, it has been suggested that we have to treat *both* experimentals and controls, but administer two *kinds* of treatment. We can then at least compare treatment methods. Of course, we would have to be sure that one kind of treatment is not more efficacious for one kind of case than another—and this is often the moot point at issue. Nevertheless, despite these very difficult problems—and I have only indicated a few of the difficulties surrounding control groups—we need control groups if we are to have any confidence at all in the relative usefulness of rehabilitative methods. Much work needs to be done in this area.

In closing this section on *What Methods Are Effective*, I want to urge that I have picked three of the knottier problems. There are others of almost equal difficulty. I want now to discuss the issue of criteria of success.

WHAT ARE THE OUTCOMES?

There is a real babel of tongues among rehabilitation services as to what are acceptable criteria of success. One program will accept only placement in the open labor market, another will include sheltered work as an acceptable outcome. One well-known rehabilitative workshop uses two outcome criteria: placed-not placed and maintenance of employment, both only in relation to the open labor market. In an effort to validate an employability scale this agency is developing, it is studying *four* different outcome criteria. There are many rehabilitation services which appear to close their cases when it is reported that a job placement has been made, with little attention being paid to whether the job was kept or not. Periods of follow-up, in various efforts, vary from a few months to two years, and there are some who argue (especially where we are dealing with psychiatric patients) that follow-up should last five to ten years. Inadequacy of reporting is such that we cannot tell, in the case of some service programs, whether *any* follow-up has been made or how long or intensive it was.

In considering the entire question of the outcome of a rehabilitation process, there are a number of interrelated problems: (1) what *should*

be the criteria of success or failure; (2) how are these criteria to be estimated or measured; (3) what procedures shall we use to gather the requisite information; (4) what confidence can we have that the outcome group is representative of the population served; (5) can we safely attribute the results to the treatment offered; (6) what is the meaning of the changes found. In this paper I shall confine myself only to the issues of outcome criteria and the adequacy of follow-up.

(1) *Criteria of success.* Since we are all workers in the field of vocational rehabilitation, it has been taken for granted that the most desirable outcome of our efforts is that the client is enabled to find—and hold—a job. We have, therefore, something of an advantage over our brother tillers in the vineyards of psychotherapy, in that we appear to have an objective criterion of success. After all, we do not have to worry about such subjective and difficult-to-judge things as “reduced anxiety,” “strengthened ego,” or “increased mastery of the self”; all we have to do is to determine that a person who was persistently unemployed prior to a rehabilitative process is now able to perform productive work. Let me stress that I believe it is a great asset in our field that we possess an objective standard of appropriate vocational behavior. Nevertheless, some perplexing questions remain. Will any job do, or does it have to be commensurate with the work potential of the individual client? Will we accept only full employment, covering all 12 months of a calendar year, or should we more realistically conclude that a handicapped person with marginal skills is first to be fired and last to be hired anyway, and that some employment is better than none? If the best we can do for a particular client is prepare him for permanent sheltered employment, is this a success or a failure? Furthermore, as our sophistication increases, are we ready to accept a wider spectrum of vocational outcomes? If we enable a housewife to resume the duties of a homemaker, is this vocational rehabilitation? If we are able to arrest a deteriorative process in an older person by finding him volunteer work, is this a favorable outcome? The point is that we may be able to help people in a variety of ways, even where gainful employment is not a foreseeable goal. But we need to define our goals more concretely than is frequently the case now.

(2) *Follow-up.* Adequate follow-up is often the weakest and most troublesome aspect of rehabilitation programs. According to Maxwell Jones, who surveyed rehabilitation agencies in Europe and America for the World Health Organization, “no adequate follow-up inquiry has been done by the various centers and there is at present no way of testing the value of the different rehabilitation procedures em-

ployed." While this quite strong statement was made seven years ago, and must be modified in the light of more recent work, it is a fact that the bulk of our programs spend most of their time and money on service, leaving very little of either to evaluate the results of our efforts. This condition is in process of being corrected. I know that OVR is keenly interested in follow-up efforts and will support adequate studies.

Even where we want to conduct an adequate follow-up and have the time and staff to carry it out, there are a number of problems of research design of which we should be aware.

First there is the issue of at what interval or intervals follow-up should take place. Certainly, one year is not too long a time, and it might be desirable to make quarterly checks during the first year to see if we can detect any trends.

Second, there is the issue of locating the sample to be followed. If we intend to follow-up all the cases, we can be sure that there will be some losses, and we want to guarantee that the cases we cannot locate are not such as to materially influence our results. If we intend to follow-up only a sample of the client population, we want to be sure that the sample is representative. We must gain as much information on failures as on successes.

Thirdly, we want to be sure that the follow-up activity itself does not influence the results. An inactive client may be stimulated to job-seeking activity merely because he is seen by a follow-up worker. Or a client may demand further service and if it is extended to him this may diminish the clean-cut nature of the results.

Fourthly, there is the question concerning whom to interview. The client? Family members? The employer? For different purposes, any or all of these might be desirable.

Fifth, there is the issue of who does the following. Some experts feel that only mature and well-trained interviewers should carry out this function, since there are many pit-falls to be encountered.

To conclude the issue of follow-up, I have a suspicion that we will only be able to settle on adequate criteria of success if we improve the quality of our follow-up surveys. There is still very meager information, in most cases, concerning what happens to people after they leave our programs. The dictum that accurate description is a prerequisite for any explanatory research is nowhere more evident than in the case of the outcome of our programs.

III

After this rather long tour through the areas of evaluative research that I consider crucial, it may be proper to ask where we stand.

It will be noticeable that I have not bothered to distinguish between "pre-vocational" and "vocational." Perhaps this is because I cannot make too much sense of the distinction between these terms, perhaps because I hope that the discussion of the last two days will have clarified the distinction, assuming one exists. I have, however, confined my remarks to those methodologies and services which seem to be implied by the definitions offered to the Conference by Gellman, Gorthy and Muthard. I have tried to consider the researchable problems in connection with those (hopefully) more reality-oriented techniques with which we have, most recently, tried to supplement the traditional methods of testing and counseling.

I think I should also add that while the title of this paper refers to "vocational evaluation," I am assuming that my remarks refer just as well to "vocational training," again under the assumption that I am talking about the reality-oriented techniques. As a matter of fact, the line between these processes is shadowy, and we are most often doing both while we are ostensibly concentrating on one or the other.

Having made this obeisance to conceptual clarity, let me again ask where we stand.

In appraising the status of research into the outcome of psychotherapy, Herzog offers a set of definitions which might be useful for us here. She suggests that there are three kinds or levels of evaluative research:

(1) *Ultimate evaluation*, which provides "evidence of the degree to which the practice or service under examination helps the people it serves." Herzog contends that we are not yet ready for this kind of final research, that many questions need to be reformulated and sharpened before we can seek "ultimate" answers.

(2) *Pre-evaluative research*; this is needed to clarify our understanding of what we are attempting to evaluate. It involves the attempt to obtain more precise definitions of diagnostic classifications, treatment goals and methods so that we can have agreement as to what we are studying.

(3) *Short-term evaluation*; this means gaining properly qualified answers to properly qualified questions about the effectiveness of treatment or service by a *specific* agency . . . with a *specified* population. Such answers lack generality, of course, but they supply badly needed information which can ultimately contribute to more general statements.

I think that Herzog's definitions make a good deal of sense from the point of view of research strategy in our field. We certainly can proceed

along lines (2) and (3), even if ultimate evaluation of the effectiveness of our methods must be deferred to some future time. In fact, what I have been describing as "descriptive research" appears to be pretty much what Herzog is referring to when she talks of pre-evaluative and short-term research. It is this sort of consistent descriptive effort—which allows us to accumulate knowledge on whom we are trying to help, what we are doing, and what are the outcomes of our efforts—that is the most pressing general research need in vocational rehabilitation. If this sounds like I am hoping for an ant-like empirical accumulation of facts as opposed to a broadly-conceived theoretical approach, I can only say that I have done my share of theorizing about vocational matters and do not intend to stop. But the essential difference between scientific theorizing and other forms of speculative activity is that the former requires that, sometime along the line, we test our theories against nature. We have, for example, a theory that it will help a handicapped person to adjust to work if we allow him to test the reality of what it means to work in a contrived work situation. We have a theory that work samples will provide us with a better technique to evaluate vocational potential than is afforded by interviewing or testing. These two theories flow from a more general conception that the closer we come to grips with reality, the more we will know about it. Although beginnings have been made in the effort to test this conception, there are some very complicated problems we must solve along the way. Thus we need a great deal of what Herzog calls "pre-evaluative" and "short-term" research, what I have called descriptive research.

If the moral of this sermon is properly drawn, we will hence forward pay a great deal more attention to three areas: (1) who, exactly, are our clients; (2) what, exactly, are the methods we are using; and (3) what, exactly, happens to people after they leave our programs? If we accumulate adequate information in these areas, we will then be better able to draw inferences about such basic research issues as: what helps who, and how does it help. Finally, if I seem to be narrowing our research effort down to an intelligent kind of counting, I can only say that we must learn to count before we can reckon.

SUMMARY OF SMALL GROUP DISCUSSIONS

A considerable amount of conference time was set aside for small group discussions. Prior to the conference a moderator and recorder was designated for each of the three discussion groups. Careful provision was made for the participants in each discussion group to include practitioners, teachers, researchers and administrators of pre-vocational programs so that varying points of view would be brought to bear on the key conference questions.

Each discussion group was assigned the primary responsibility of directing its attention to the formulation of answers to two of the six key conference questions sent to all participants in advance of the conference. The questions are listed as a group on page 74. Below each question are summary statements regarding it, developed by the small groups.

I. *What progress has been made in more sharply defining the term pre-vocational?*

The pre-vocational unit is composed of many pieces—separate, yet bearing a relationship to the whole and to one another. The group did not wish to circumscribe “pre-vocational” by a definition, nor did they suggest that it is undefinable, or better left undefined. The point did seem clear, however, that each rehabilitation setting has some responsibility for defining the process within its own setting.

In general these following points were developed:

A. Theoretically

The idea “pre-vocational” functions within two processes: the learning-therapeutic process and the counseling process. In the first type, pre-vocational activities appear to bring about, through an undetermined process, a change in patterns and habits. It becomes a specialized extension of experiences that non-handicapped people have and it permits the client or patient to have an opportunity to fail where the results of that failure are not catastrophic.

In the latter type, it was generally agreed that pre-vocational is a non-definitive part of the counseling process, and the specific pre-vocational activities are selected as needed through counseling. The client is helped to integrate that which he learns or experiences. He is followed by the counselors from the abstract to the concrete in a work situation which, in turn, is related to the real world of work.

1. One of the groups thought “pre-vocational” a misleading and unfortunate label and suggested substitution of the term comprehen-

sive rehabilitation evaluation. Others immediately objected to the substitute as being too broad and suggested that the new label really described the total evaluative function of a rehabilitation center. They contended that the pre-vocational unit was properly a part of the vocational resources in a center and that as such contributed to the total evaluation of the client, but it was in no sense its equivalent. The group suggesting the change of label thought there are two ways of looking at "pre-vocational":

a. As description of behavior from a developmental point of view: as the development and mastery of behaviors, skills, attitudes, etc., relevant to the life stage when preparation for employment is appropriate. (This view focuses on the behavior of the individual.)

b. As a description of agency process and services for the determination of the next level and progression of services. These subsequent services usually follow a comprehensive integration of evaluative information and the formulation of a rehabilitation goal or plan.

2. The comprehensive rehabilitation evaluation process commonly includes all or any combination of the following depending upon the objectives of the agency.

Evaluations of:

a. Physical capacities

b. Learning ability

c. Aptitudes and specific skill potential

d. Ability to achieve and maintain adequate social relationships

e. Ability to meet demands of conditions of work, e.g., repetitive operations, pressures of production quotas, noise, etc.

During this process the object is to evaluate "the whole person" and to involve him actively.

The comprehensive rehabilitation evaluation emphasizes assessment although assessment is not confined to this period alone. It may also include direct or indirect ameliorative services.

3. The purpose of the vocational unit is to assess the client's vocational potential which is defined as:

a. Aptitudes, skills, interests, and capacities

b. Emotional adjustment to a work setting

This unit should be an actual or simulated work setting defined by space, services and staff. There must be a basic physical unit and extensions for use of resources available locally or in the community. The unit should be staffed by at least one member who is competent in

vocational evaluation and may use other services in the community to help arrive at an assessment of vocational potential.

B. Operationally

For the most part, general agreement was achieved that "pre-vocational" involves the following:

1. It is determined by the a) type of population (e.g., physically or emotionally handicapped), b) needs of the individual, and c) services or equipment available in the facility.

2. A goal is established (through counseling).

3. The pre-vocational activities are entered through various avenues: e.g., referral by the counselor or medical staff, or by returning to the facility from an unsatisfactory employment experience.

4. Readiness of the client (or patient)—an enter-withdraw pattern is occasionally necessary.

5. It can be conceived of in terms of guidance (i.e., leading to employment of a specific kind) or in terms of selection (i.e., leading to work, specialized treatment, or non-employment.)

6. It can be conceived of as a three-step procedure: a general broad evaluation and exploration; more specific, expert evaluation; vocational training. (Often the pre-vocational activity in itself leads directly to placement.)

7. In general: exploration, evaluation, personal adjustment, and work adjustment, constitute much of the process leading to placement. (A distinction made between personal and work adjustment suggests the latter includes the former, except when employment is not the goal.)

Each facility appears to have adapted the above points to its own organization.

8. In addition, a possible research problem arises in considering the contribution of work adjustment to personal adjustment, i.e. the therapeutic value of work. As a corollary, the personal contribution of the counselor or evaluator to work adjustment may merit study.

II. *Can we obtain agreement on working definitions for the following terms: Job sampling, work adjustment, work conditioning?*

Suggested definitions:

Job sample tests—These are controlled duplicates of work activities, designed to elicit behavior relative to potential for employment, that are performed in the fields of work usually in or near the client's community.

Work adjustment—can be viewed as a goal and *work conditioning* as part of the process toward the attainment of this goal.

Work conditioning—The process a client goes through to meet the demands of industry or work; it may have psychological elements in it.

III. *What are the characteristics of a good pre-vocational evaluation system?*

A. In considering the characteristics of a good pre-vocational evaluation system, a preamble statement was formulated to emphasize the role of the client. It was: "In the evaluative scheme of pre-vocational study, the client must be recognized as an integral participant. It is important that those who work with the handicapped be constantly aware of the fact that rehabilitation is not a process of doing something to a client but with a client."

The specific characteristics recommended include:

1. The evaluation system should be reality-oriented
2. The evaluation system should be related to observed standards and requirements of competitive industry
3. The program should be geared, in breadth of coverage, to the potentials of clients and the work communities
4. The evaluation should include factors which make up the "work personality"
5. It should incorporate an organized system of recording and reporting client progress in areas of medical, social, psychological and vocational information bearing on the client's work potential.

B. The kinds or types of clients needing diagnostic and/or ameliorative services are:

1. The "untried", inexperienced or immature
2. Those that are faced with the necessity of making an occupational shift
3. The vocationally maladjusted
4. The apparently unemployable.

These four classifications do not necessarily embrace all the clients that should undergo an evaluation. In practice, the experience and background of the individual counselor determines who is referred to the pre-vocational unit.

C. Diagnostic or ameliorative activities associated with a pre-vocational unit may include:

1. Work experience
2. Personal adjustment
3. Work adjustment
4. Counseling
5. Physical conditioning
6. Basic academic skills—reading, arithmetic, and writing

7. Work training
8. Evaluative procedures
9. Development of productive speed to meet the demands of competitive industry.

There was general agreement that some of these activities overlap into "vocational services," in varying degree, but could rightfully be classified under the heading of pre-vocational activities. It was also agreed that some of the techniques or procedures are primarily diagnostic and some primarily ameliorative, but for practical purposes these factors cannot be separated.

All diagnostic or ameliorative activities are not required by every client, and every pre-vocational program is not geared to provide service in all areas.

D. Consideration was given to specific types of diagnostic or ameliorative activities that should be considered minimal in the pre-vocational unit in a Hill-Burton facility. The suggested minimum included counseling and evaluative procedures. The term evaluative procedures refers to techniques supplementary to those traditionally offered by counselors and psychologists (e.g. job samples).

IV. *To what extent have research projects made a contribution to pre-vocational programming?*

A. Exploratory research has resulted in the development of the preliminary techniques and practices which are being utilized in the diverse pre-vocational programs in practice today. There is a need for more cross validation of the research findings; and the incorporation of new knowledge in the on-going programs.

B. These specific recommendations were made:

1. Research centers for rehabilitation, on a regional or sectional basis, should be encouraged for the purpose of supplying consultation and assistance to institutions having minimal research resources.
2. Conferences should be held regularly to bring together the researchers and practitioners who have leadership responsibility in the pre-vocational area.
3. The Office of Vocational Rehabilitation should arrange a conference in the near future on research methodology and technique. No specific recommendations as to research priority were suggested.

V. *What should be the future goals for research in this area and what specific line of inquiry should be encouraged?*

The following topics were listed as research needs:

A. The assessment of the value of the particular pre-vocational system with reference to:

1. The predictive value of decisions that must be made about a particular population.
2. The type of setting.
3. The role or contribution of the face-to-face evaluator in the pre-vocational evaluation process.
4. The cost, relative to the particular population, of the system.

B. The extent a specific work sample can be shown to predict success throughout a job family.

C. Appropriate techniques and methods to evaluate effectiveness of any rehabilitation activity, particularly pre-vocational.

D. What is the role of a state vocational rehabilitation counselor in relationship to a rehabilitation facility with a pre-vocational unit? Is it changing? If so, in what direction? In what direction should the change occur?

E. What are the differences in the kind of clients seen as needing pre-vocational services by the state V.R. counselor, the insurance carriers, other community agencies, and the pre-vocational evaluators?

F. What are the problems that limit adequate use of the pre-vocational services by the rehabilitation facility, the various purchasers or referral sources, and the client?

G. What is the value of the application of pre-vocational services to the mentally ill, the mentally retarded, and the epileptic with special reference to location, e.g., the institution, community facility, etc.?

H. Which is more effective, within a facility or community, the single disability or multiple disability approach?

I. To what extent can success in a pre-vocational unit be predicted on the basis of psycho-social-biographical data (e.g., the family attitude toward work).

J. Development and testing of criteria of work adjustment, specifically directed toward determining the unique contribution of the pre-vocational services in the changes presumably in the patient in the total rehabilitation process.

K. The study of the factor of patient "readiness" in the whole rehabilitation process, specifically relating to pre-vocational.

L. General recommendations

It was suggested:

1. That this conference be repeated at a later date with the same

individuals now participating for the purpose of evaluating the effect of this conference.

2. That O.V.R. investigate the possibilities of establishing an effective means of collecting and disseminating descriptions of the work and progress of the various existing pre-vocational programs.

VI. *Which findings of this workshop should be incorporated in our training programs?*

A. Mr. Martin Moed's formal paper should be made available to all rehabilitation related training programs as essentially describing the state of the art (pre-vocational).

B. It was also suggested that the formal papers of this conference, the short program reports (as edited), the findings of the discussion groups (as edited) and a brief comment regarding the setting of the conference be published and disseminated.

C. The development and publication of a directory of existing pre-vocational programs was also urged.

APPENDICES

Program Descriptions Presented at the Conference

The conference Planning Committee selected the facilities which were invited to describe their pre-vocational programs to the meeting. Summary descriptions were submitted and duplicated prior to the conference. As the conference program indicates, each facility had about 40 minutes to present the highlights of their program. Several had slides to accompany their talks and one brought some sample pre-vocational tasks with him. The following reports reflect only the papers submitted by the facilities and do not incorporate any of the discussions arising from these presentations. All of the reports were edited with the object of presenting a fairly comprehensive picture of the activity within certain space limits. Readers who wish to know more detail regarding a particular program should write directly to the sponsoring rehabilitation facility.

THE TOWER SYSTEM

The Tower System for Determining the Vocational Potential of Handicapped Persons

Institute for the Crippled and Disabled
New York, New York

"TOWER" stands for "Testing, Orientation and Work Evaluation in Rehabilitation." The TOWER System was originated and developed by the Institute for the Crippled and Disabled and is now in wide use throughout the United States and in several other countries.

TOWER is a system of reality testing which utilizes the work sample in a simulated work environment. TOWER may be used alone or in conjunction with standardized aptitude test batteries. TOWER's utilization of scientifically evolved and tested work tasks, and its simulation of work conditions, makes it particularly useful for evaluating the vocational potential of handicapped persons.

Range of Evaluation

At present, The TOWER System consists of 13 broad areas of vocational evaluation. They are: Clerical, Drafting, Drawing, Electronics Assembly, Jewelry Manufacturing, Leathergoods, Lettering, Mail Clerk, Optical Mechanics, Receptionist, Sewing Machine Operating, Workshop Assembly and Welding. Each one of these areas of testing applies to a number of related occupations. The 13 areas of testing total more than 100 individual work tasks or tests. For each one of these there are specific qualitative and quantitative criteria which have been developed in accordance with the industrial requirements to which the testing areas relate. The vocational evaluator who administers the Tower System is provided, where appropriate, with transparent plastic scoring aids and other devices to facilitate his determination of client performance levels. Also where appropriate, the TOWER System includes response sheets for client use.

Components of TOWER System

Physically, the TOWER System is organized into three major components. One is a book entitled "Testing, Orientation and Work Evaluation in Rehabilitation" which sets forth the theory and evolution of

vocational evaluation and its integration in comprehensive rehabilitation. This book also describes the organization, administration, physical plant, judgment of client performance and record keeping for the TOWER System. The second component is a looseleaf Evaluator's Manual which contains copies of all TOWER tests, response sheets and criteria, together with the plastic scoring aids, general orientation for the Evaluator and detailed descriptions of the employment possibilities related to each category of testing. The third component is a specially designed one-drawer file cabinet which contains multiple copies of tests, response sheets and related items for client use. Space is also provided in the TOWER file cabinet for the maintenance of records and examples of client's past performance.

Use of the TOWER System

The TOWER System is designed for use by a vocational evaluation unit which may function either as an integrated part of a rehabilitation center program or as a separate entity. In either case, the results achieved through the use of the TOWER System may be applied in establishing vocational and related phases of a client's rehabilitation either within the rehabilitation center or through the utilization of other resources within the community. The TOWER System functions best when used by a vocational evaluation unit within a vocationally oriented center; that is, one which takes the initial view in each client's case that ultimate vocational goals should be established. Vocational evaluation through the use of the TOWER System then either confirms the appropriateness of an ultimate goal, indicates the advisability of establishing a less ambitious goal, or points up the inadvisability of having the client pursue a vocational objective.

After suitable orientation by the evaluator, the client is issued the first in a series of TOWER tests. The work task involved is explained to him. He is provided with the necessary tools, equipment and materials and shown to an appropriate work area within the evaluation unit to do the work required. Upon completion, the client is provided with the next test in the category he has undertaken, this one calling for application of the techniques involved in the first test as well as additional and somewhat more advanced requirements. Through the use of qualitative and quantitative criteria, his performance is evaluated in terms of the finished product and in terms of his personality and work characteristics as observed by the evaluator. The client completes as many work tasks in each TOWER testing category as are within his capacities. The evaluator uses his discretion as to the number and nature of TOWER testing categories applied to each client, taking

into account the client's disability, aptitude, the availability of training, and local labor market conditions. The average time requirement for evaluating a client's vocational potential through use of the TOWER System is three weeks. Upon conclusion, a standardized vocational evaluation report, including summary and recommendations, is prepared and circulated to rehabilitation personnel concerned with the client's case. This report serves as a basis for the evaluator's recommendations regarding the client's vocational future.

Frequently, the TOWER evaluation area serves as a clinical laboratory for medical, psychosocial, and other vocational rehabilitation personnel to observe the capabilities and limitations of handicapped persons as they are revealed in work situations.

Other Tests Under Development

The Institute for the Crippled and Disabled is currently engaged in the development of additional categories of evaluation as part of its TOWER System. These will reflect the expansion of employment opportunities for the handicapped and progress in treatment and training services for the disabled which will enable them to attain higher levels of vocational achievement.

TOWER Training

The Institute for the Crippled and Disabled conducts five-week training courses for vocational evaluators in the use of the TOWER System. To be eligible for this training, a person must have a specific assignment with an established agency or facility for the conduct of a vocational evaluation program. U.S. Government grants and stipends covering tuition and certain other costs related to attending these courses are available to citizens of the United States. Enrollees who are citizens of other countries are required to pay costs of tuition, transportation, living expenses and a complete unit of the TOWER System. The course tuition fee is \$150.00.

CEREBRAL PALSY WORK CLASSIFICATION
AND EVALUATION PROJECT

Institute for the Crippled and Disabled
New York, New York

Office of Vocational Rehabilitation Research and Demonstration

Demonstration and Research Goals

Demonstration: To deal in a practical fashion with the immediately pressing vocational problems of the cerebral palsied adult awaiting service. To attempt to establish a standardized operating procedure designed for the observation and evaluation of each individual in a work setting which would be of practical value to other communities throughout the country.

Research: To start developing a broad work classification system based on the individual's generalized motor organization, including hand and finger control, visual motor coordination, speech, special senses, intelligence, emotional functioning, and vocational performance in the work setting.

Procedures

The Cerebral Palsy Work Classification and Evaluation Project is a coordinated community effort. The evaluation lasts seven weeks; the hours are 9:15 a.m. to 3:30 p.m., five days per week. In addition to vocational evaluation, each client receives a complete medical, psychological, and speech examination. One of the parents is also seen at the beginning of the evaluation period and at least once more during the seven weeks. At the conclusion of evaluation, a case conference is held.

Vocational Evaluation: The work sample technique is the principal method of assessing vocational performance. Jobs duplicated in the evaluation unit include activities found in the clerical, semi-skilled, unskilled, and service occupations. There are over 100 work samples which are directly related to trades taught in vocational schools or specific jobs available within the community. Standards for achievement are based on expected performance of paid entry workers, opinions of experts, and judgments of the evaluators.

Staff: The evaluation staff consists of two vocational counselors who have had considerable job placement experience with the handicapped. Ten clients are evaluated together on a class basis.

Follow-up Findings

Follow-up data from 168 clients has been secured. After completing the evaluation, 66% were referred for direct placement or vocational training and 34% were found to be unable to function in competitive employment.

Of the 111 found to have potential for competitive employment, 47% were employed for three months or more, earning \$1.00 or more per hour. Nineteen are doing unskilled work, 11 are doing semi-skilled work, and 16 are doing clerical work. (One client is employed in sales.) Twenty-eight of the 111 did not find, or hold a job, for three months or more.

Research Findings

An attempt was made to determine which of 32 variables would be significantly related to employability of the participating clients. Gait, transportation, vocational adjustment, handwriting, activities of daily living in O.T. and P.T., and three jaw chuck for large and fine material were related to employability at the 5% level of probability. Sex, the ability to pack glass frames, and the ability to place pins quickly showed a tendency to be related to employability.

Further Research and Demonstration Suggested by the Experiences of the Project

Experience with the Cerebral Palsy population has suggested the need to experiment with two types of rehabilitation programs. They are in the areas of vocational planning with children and sheltered workshop planning. The techniques developed in the prototype are being duplicated in six other cities.

TRAINING CENTER AND WORKSHOP

Association for the HELP of Retarded Children, Inc.
116 East 27th Street, New York 16, N.Y.

Project Objectives

1. To discover and describe the major factors inhibiting success in the rehabilitation of mentally retarded young adults.
2. To discover and provide services necessary to overcome these factors.
3. To try to develop procedures whereby we may be able to predict the degree of success that we may expect in the rehabilitation of mentally retarded young adults.
4. To discover and cope with the problems that may be peculiar to the operation of a sheltered workshop for the mentally retarded.

Population

Mentally retarded young adults of both sexes, minimum age of 17, maximum IQ of 75. The project serves 60 to 70 young adults (trainees) at any one time and about 100 each year. Our sample represents a population of those retardates residing in the community who require vocational rehabilitation services in preparation for a) competitive employment, or b) sheltered employment.

Procedures

Since our major project objectives involve the obtaining of empirical findings, our primary method is the study of our sample with respect to their characteristics at admission, during the course of the rehabilitation program, and after leaving the workshop.

Services of the workshop program are designed to elicit, stimulate, reinforce, and integrate those adult behaviors relevant for personal, social, and vocational competence. Assisting the individual to achieve and sustain optimum levels of functioning is the over-all objective. Services include:

1. Admission and intake: for determination of eligibility, preliminary assessment of trainee, family, social, medical, educational, vocational history.
2. Evaluation: a seven-week period including try-out on standardized work samples, experience on paid work, psychological evaluation, directed observation to provide diagnostic aids for indi-

- vidual programming. Try-outs include bench assembly tasks, floor work, packing and receiving, porter, messenger, bus boy, etc.
3. Training: this is essentially personal adjustment training via paid work activities to develop or modify work habits, attitudes, self-concept, motivation, interpersonal relations, etc. Specific vocational training is provided in porter, messenger, and bus boy activities to enhance employability of those trainees who have potential for competitive employment.
 4. Placement service in both sheltered and competitive employment is provided by a workshop staff member, the rehabilitation counselor, who carries the primary responsibility but also uses existing community resources.
 5. Follow-up: this is an active, preventive approach. It continues as long as the need exists and is designed to anticipate and uncover job adjustment problems before they become critical.

Findings

1. The most significant, general finding has been the demonstration of the efficacy of the sheltered workshop as a rehabilitation facility for our client group and for the state rehabilitation service.
2. About one-third of all state rehabilitation referrals (non-terminal trainees) have been placed in competitive employment after an average stay in the workshop of about one year.
3. Long-term to terminal trainees have improved their levels of functioning as indicated by increasing earnings, usefulness and acceptability in the home, improved interpersonal relations, more appropriate and adult behaviors, etc.
4. A model for a sheltered workshop has been developed which serves as a guide to other communities, state rehabilitation programs, and parents associations.

Pre-Vocational Evaluation

In working with the mentally retarded young adult any distinction between pre-vocational and vocational evaluation and training tends to become blurred. Since deficiencies in so many areas of functioning characterize our trainees our evaluation procedures have been developed accordingly. For example, we must be as concerned with the individual's self-concept, his self-care activities, travel skills, etc., as we are with his manual dexterity, reading ability, measured intelligence, etc. We are interested primarily in assessment of total functioning and in improving the level of total functioning so that distinctions between pre-vocational and vocational are of minor significance for our population. Our experience has indicated, however, the impor-

tance of the home and school, particularly in developing those trainee attitudes and behaviors which are pertinent to vocational adjustment.

Research Needs

The experiences of the project to date have pointed to the need for further exploration of:

1. Methods of determining maximum and optimum levels of functioning of mentally retarded young adults.
2. Development of categories of work activities and operations suitable for retardates.
3. Development of training methods geared to individual differences.
4. Refinement of diagnostic, evaluation, and prognostic methods and procedures.
5. Determination of optimum time periods of training.

AN INVESTIGATION INTO THE VOCATIONAL POTENTIALS OF HOSPITALIZED PATIENTS WITH CHRONIC DISABILITIES

Sheltered Workshop Research Project

Department of Physical Medicine and Rehabilitation
Highland View Cuyahoga County Hospital
Cleveland, Ohio

The Research Grant

The Highland Shop research project is a five-year investigation whose major financial support comes from funds made available by the Office of Vocational Rehabilitation. Partial supplementary financial aid also derives from Cuyahoga County, Ohio.

The general purposes of the research are to investigate the degree to which and the conditions under which the severely disabled chronically ill can be vocationally productive within the setting of a sheltered work situation. Four major research objectives have been defined: 1) To discover those individual characteristics of our clients which further vocational rehabilitation—factors of intelligence, aptitudes, emotionality, physical capacity and social history; 2) To discover those business practices which further vocational rehabilitation—practices involving business contacts with commercial industry, methods of organization of production as a sheltered shop, and personnel practices with severely handicapped workers; 3) To conduct research in the training of both professional personnel and rehabilitation clients in order to further the total vocational rehabilitation process; 4) To improve the efficiency of services to the client so as to further the general process of rehabilitation—services of an evaluating, consulting, training, and coordinating nature. These broad objectives are distinct only for purposes of presentation; in practice, they are of necessity overlapping and interdependent.

The methods of data-collection which are used in achieving these research objectives range from the observational methods of the field study to the objective data-gathering of the controlled experiment. Wherever possible, quantitative methods of analysis are used, but data are not thrown away simply because they may not be susceptible to quantitative analysis.

Population Served

The group includes in-patients whose major diagnostic classifications were hemiplegia, fractures, amputation, paraplegia, and alcoholism. They range in age from 18 to 88 years with a mean of 53.54 and have an education mean of 8.00 years with a range of 0 to 18 years. On the occupational dimension, their former jobs range from unskilled labor to the professions, the vast majority of them falling into the unskilled category. Other typical characteristics include loose family organization, financial support from a welfare program, and intellectual capacity in the dull-normal to low average range.

Services Provided

The sheltered workshop provides employment from industrial sub-contracts only. The work areas are organized so as to facilitate shop placement according to abilities. Although transitional and terminal employment are offered, most of the clients are candidates for the latter. Other services include counseling, job evaluation, research evaluation, screening for community agency referral, and limited industrial placement.

Significance of Project to "Pre-Vocational" Evaluations

We think that in this setting *all evaluations* used in determining vocational goals are in fact *vocational evaluations*. The workshop program is such that clients are selected and classified for various industrial activities with respect to ability. It has been possible to conduct this program as a result of research findings on the work sample approach. On the basis of these findings, we have been able to use a battery of individually administered tests to select clients for a variety of vocational endeavors in both sheltered and competitive employment.

Summary of Research

During the early part of the project the research naturally was largely exploratory in nature.

One of the earliest reports of the research dealt with the prediction of shop performance of the severely handicapped. It was discovered that the quality of the work performed in the shop was somewhat related to the intellectual status and perceptual-motor behavior of the clients. Quantity of work was not found to be significantly related to these factors but was assumed to be more affected by motivational (variables).

A Guidance Test Class Unit was also established. This unit, based primarily upon samples of actual jobs, was designed to measure different aspects of the work: the ability to learn, the ability to produce,

visual-perceptual organization and work habits. Total performance on these statistically treated tasks was correlated with quantified ratings of job performance. The resulting coefficient was highly significant and indicated that the scoring of clients' work capacities was possible by objective methods.

A study was undertaken to investigate the relationship between intelligence and some aspects of manual functioning as found in this physically handicapped population. This study was prompted by earlier findings which suggested a significant relationship between these variables in our population although in non-disabled groups non-significant results are usually found. The findings of this study indicated that when relatively pure measures of manual skill are utilized, manual functioning is not correlated with intelligence.

In order to reduce the time and expense in the vocational processing of clients the *Thomasat*, a performance scale designed to evaluate psychomotor skills, was devised. The test was designed to appraise eye-hand coordination; the ability to grasp, hold, stabilize and manipulate objects according to size, color and shape; and tactile discrimination. These functions were found to be important in the ratings of work performance and related to other measures of intellectual and motor behavior. Hence, this test eliminated the Guidance Test Class.

In addition, the *Thomasat* was used to investigate the possibility of differential performance between two groups of patients with hemiplegia and a group without diagnosed organic pathology. Within the limits investigated, the groups were not different. The interaction of visual organization and motor action in learning new functions appears to be affected by those psychomotor skills which show malfunction due to the hemiplegia and those affected by deterioration due to aging. Within a similar context, preliminary work was begun on investigating the character of age changes with respect to simple and complex motor functions.

THE DEVELOPMENT OF WORK SAMPLING TESTS AT
MAY T. MORRISON CENTER
San Francisco, California

Work sampling tests have been used to supplement the information already available; to supply additional information specifically needed; to pinpoint a recommendation as to training, work experience or placement.

For clients referred for work sampling we usually have pre-admission information covering factual information as to name, address, age, etc.; medical history; physical disabilities; and social, educational and vocational histories. In some cases the results of psychological and psychometric testing may also be available, and also the recommendations of an evaluation team.

Preliminary Survey

In an effort to concentrate first on job areas where tests were most needed we made a study of current hiring in the area by occupational groups using data furnished by the California State Department of Education.

In our study such figures were broken down into individual occupations and for each occupation we considered whether it was one in which we would be likely to be having handicapped workers for evaluation.

Three General Approaches

In setting up work sampling tests we followed one of three general approaches. The first involved a study of each job to isolate the various abilities required and then providing tests for each separate ability or trait. The second was to simulate the job in a test combining all traits, abilities, and skills required for it in one test. The third was related to needs for special information in such areas as response to repetition, learning curve, work tolerance, frustration tolerance, etc. Each of these three approaches has been followed in setting up some of our various work tests.

In following the first approach, we find for a certain job that abilities A, B, and C are required. Therefore, we set up a test to find out if the client has ability A; a test to find out whether he has ability B; and another test to find out whether he has ability C. We think these tests can be used for a great variety of jobs. The test for ability B, for instance, can be used to test this client in combination with A and C for

this job, somebody else in combination with F and G for some other job. Since each test is meant to assess a particular ability, we attempt to exclude from it any material which calls for other abilities.

The second approach is to combine in one test all of the traits that are needed for a job. If you're going to have a person do filing work, for instance, what are all the traits that are involved? The client must be able to walk, to stand on her feet, to handle cards, to reach up into files; some physical traits and some mental traits. You can set up a work sampling test that will combine all of these things and give her this one test, and if she passes this test you know she is probably going to work out on this job. But what a different philosophy from the other. So this method involves testing of skills, too. The other method should not involve testing of skills.

The third approach is followed when it is necessary to find some special qualification that is necessary; for instance, how does this person react to monotony in his work? How does this person learn by repetition? Does he take a little quick jump in the beginning and then improve no more or does he gradually keep improving and improving? By such observation you can learn a great deal about what's going to happen to this person on the job. So, many of our work sampling tests call for timings not simply at the beginning and ending, but also include a series of timings throughout the whole test. Some of the tests are set up to provide quite a long period of work, very different from an ordinary work sampling test which is compressed into fifteen or twenty minutes. In addition, we may need to test how this person will stand up under frustration and emotional strain.

The Importance of "Explanation"

In every Test Kit instructions are given to the evaluator (test administrator) as to what explanation is to be made to the client. These instructions explicitly describe the test materials, the procedures and methods the client is to use, and the limits of the help the evaluator may give the client.

The Need to Teach a "Method"

Early in our study it became clear that small differences in the method followed by client could make significant differences in the time taken and the resulting score or rating. We found that if we allowed the client to determine for himself the method to be followed, high ratings would go to those clients who were more ingenious in setting up efficient methods, and in the case of most of the tests we were not trying to measure ingenuity. To avoid this error we provided,

wherever necessary, to teach a "method", giving detailed instructions, motion by motion, as to the method to be followed.

"Norm" the Basis of Comparison

To start using the tests right away, we had to find some way to establish the basis of comparison without reference to any accumulation of records. We therefore used the well established concept of the Industrial or Methods Engineer that there is a fairly well defined rate of production that may be variously labeled "standard production," "task performance," "levelled performance," or in a number of other ways, which represents the average performance of good workers adequately trained for the work performed.

With norms set this way we express relation to norms as "Percentage of Norm Rating." Thus actual production rate divided by normal production rate gives "Percentage of Norm Rating." It must be realized that with the norm based on high performance rates attained in repetitive production, it is not expected that even a good client would show a 100% rating the first time a job test is performed, because there has been no time for achieving a rhythm and working up speed. Therefore, on many tests a percentage of norm rating of 70 or even 60 or 50 may be a very good rating for that test. We therefore never give out the raw rating figures in our reports on a client, but rather interpret test results adjectively as showing good or excellent, promising, poor or unsatisfactory performance.

In summation we would urge anyone who plans to set up a system of work-sampling tests to keep in mind the following considerations:

1. Tests should be provided only where available tests are not adequate.
2. Care should be taken to guard against test results being affected by factors other than the one for which the test is designed.
3. Tests should be related to the performance requirements of competitive industry if that is where it is hoped clients will be placed.
4. Care should be taken to guard against misinterpretation of test scores by persons not familiar with their true significance.

Finally, we feel it is important to warn that setting up a battery of accurate and significant tests is an undertaking calling for skill, much time, and expense; a task that should not be undertaken without first counting the cost.

THE VOCATIONAL ADJUSTMENT CENTER PROGRAM

Jewish Vocational Service

1 South Franklin

Chicago, Illinois

I. *Program Goals*

The main objective of the Vocational Adjustment Center is to facilitate the transition to employment of vocationally handicapped persons suffering from emotional, mental, physical, or social disability. This is achieved by a workshop which adheres closely to factory conditions and regulations of work routine but, importantly, is modified so that work serves as a diagnostic tool for our rehabilitation staff and as a therapeutic milieu for handicapped clients. The program emphasizes the development of the client's adjustment to work by overcoming the "psychological barriers" which in an individually significant way prevent him from assuming the role of an acceptable worker.

II. *Clients Served*

Clients accepted by the Vocational Adjustment Center are extremely marginal workers in terms of the current labor market, and usually are considered unemployable by vocational guidance, placement, or rehabilitation agencies. Their unemployment is associated with a diversity of presenting problems: those which are non-vocational in origin such as the mental retardations, epilepsies, physical disabilities, and emotional disorders and those presenting problems which have some degree of vocational autonomy with respect to vocational acculturation, interpersonal relationships, and vocational patterns.

III. *Procedures and Operations*

1. *Intake.* In addition to obtaining medical and social information from referral agencies, the following steps are taken:
 - (1) Intake interviews on all prospective clients and family members, where advisable, are conducted by a rehabilitation counselor assigned to this function. A case history and the counselor's form of the CJVS Rating Scale of Employability is prepared.
 - (2) Testing of all clients includes as a minimum the WAIS, the Wide Range Achievement Test, the Purdue Pegboard, and the

Rorschach and/or selected TAT pictures. A clinical appraisal of the client's mental status is made, and the results are summarized on the psychologist's form of the CJVS Rating Scale of Employability.

- (3) A staff conference of interested parties plans each client's VAC program.

2. *Workshop Structure and Procedures*

- (1) Induction and orientation is carried out on Mondays to start the working week (8:30 a.m. - 3:15 p.m., Monday through Thursday; 8:30 a.m. - 12:30 p.m. on Friday; a fifteen-minute morning break; and a half-hour period for lunch).
- (2) The program consists of a two-week diagnostic period, followed by an eight-week therapeutic period. Extensions are possible. Clients are terminated after two weeks or an initial adjustment period of six weeks if they are considered employable, or if further progress toward the goal of employment is deemed unlikely.
- (3) Salary is at the rate of 50c per hour during the first two weeks with regular increments thereafter so that a top of 75c is earned during the last four weeks.
- (4) The VAC has a maximum capacity of 23-25 clients; and a client supervisor ratio of about 5:1.
- (5) The staff consists of: Supervisor, Assistant Supervisor, 4 Foremen, 2 Rehabilitation Counselors, 1 Clinical Psychologist, a Secretary, and a Stock and Shipping Clerk. Minimal requirements for professional staff, including foremen, is a master's degree in one of the social sciences.
- (6) Staff conferences for evaluation and planning are conducted by the rehabilitation team for each client at bi-weekly intervals. A meeting of the foremen and shop supervisor is held after each workday to plan the production line-up for the next day.
- (7) Each client has one foreman to whom he is responsible. The foreman serves in an industrial capacity and manages only the client's reality problems of working. However, the foremen do assume consistent roles which provide different forms of supervision for diagnostic and therapeutic purposes.
- (8) Each client has a rehabilitation counselor who does the intake, sees the client once a week, and carries out job placement activities and a one-year follow-up.
- (9) The VAC is a social situation in which supervision, type of

task, group and co-worker relationships are controlled or varied for diagnostic and therapeutic purposes.

IV. *Results*

1. Predictions of the employability of handicapped persons which are based upon the VAC are moderately accurate.
2. We have the strong impression from our clinical evaluations and from our follow-up studies that clients change in degree (i.e., a lessening of anxiety, an increase in confidence, a quieting of affects, a renewal of object relationships) though their personality structure remains the same. Moreover, clinically at least, these positive changes are often associated with later job success.
3. Using a reasonable criteria of successful rehabilitation we have consistently found that the VAC leads to the employment of 40-60% of its clients.

V. *Significance for Pre-Vocational Evaluation*

1. The VAC is an OVR prototype project and the same or similar programs are being instituted throughout the country and abroad.
2. This type of workshop is versatile and is being adapted for special groups (i.e., the aged, retardates, psychotics, etc.).
3. A shift is occurring in evaluation which is tied to the meaning of work commitments, as well as the traditional approach via aptitudes and skills.

VI. *Research and Demonstration Needs*

A new area of research and demonstration, utilizing productive work as its core for both diagnostic and therapeutic purposes, is being explored at Chicago JVS. Some research needs suggested by our work are:

1. Demonstration of other applications of the VAC.
2. Continued studies of work as therapy and its relationship to other therapeutic procedures. As a first step, process studies could be encouraged.
3. Analysis of relationship between personality structure and dynamics and work adjustment.
4. Studies of the relationship of the family to productive activities of its members: the problem of roles.
5. Further analysis of criteria by means of which we support all of our research designs.

Summary Descriptions Submitted and Distributed at the Conference

The planning committee reviewed the list of current OVR research and demonstration projects to select those which should be invited to submit summary descriptions to the conference. Each facility was requested to prepare a three-page description of their pre-vocational program. The materials submitted were duplicated for the conference participants, but it was decided to abstract them for inclusion in this report. More complete statements and related materials can be secured on request from any of the facilities represented below.

Goodwill Industries of Greater Kansas City Occupational Training Center for Mentally Retarded Adults

The chief purpose of the project is to demonstrate "the feasibility of preparing mentally retarded young adults for gainful employment through means *including* a sheltered workshop." The clients who receive service in this project are referred by the D.V.R. and are evaluated as to intellectual level, academic achievement, social maturity, vocational aptitudes, work tolerance, ability to socialize and ability to perform in specific job operations. These factors in a single, comprehensive report are then transmitted to the appropriate D.V.R. counselors with recommendations as to training necessary and other services which may be needed.

Training is divided into 1) personal adjustment training, 2) general skills, 3) specific skills, and 4) on-the-job training. In addition to these training programs the total program includes: social casework, family casework counseling, psychological testing and counseling, boarding home facilities, recreational programs, psychiatric consultant services, employability training, and self-care training. During the first 15 months 90 clients were evaluated. From the total group, five obtained sheltered employment, 24 entered competitive employment, 24 were still in training, and 31 were terminated not feasible.

MacDonald Training Center Tampa, Florida

- I. Evaluation of potential for vocational rehabilitation of mentally retarded youth.
- II. Development of a vocational capacity scale for use in a sheltered workshop with young adults handicapped by mental retardation.

The first study was designed to study methods and problems involved in the evaluation, training, workshop employment, and competitive employment of young adults handicapped by mental retardation. After collecting data in six areas (physical, mental, social, emotional, vocational, parental-environmental) factor analysis showed three significant factors related to vocational success: a general factor involving ability to understand and interpret directions and visual stimuli; a motor co-ordination factor; and what appeared to be a "reasoning" factor. In addition, a Predictive Index was constructed from the weighted scores on three tests: measured performance intelligence, disc assembly, and visual achievement. Perfect agreement between the judge's ratings and the Predictive Index was obtained in 77% of the cases.

The second study, now under investigation, concerns approximately 45 variables and it is hoped that a method can be developed to permit a relatively easy assessment of a client's vocational assets, limitations, and potential.

Vocational Guidance and Rehabilitation Services
Cleveland, Ohio

An Investigation into Methods of Obtaining and Using Actual Job
Samples in a Work Evaluation Program

This investigation, based upon a "need to refine and improve work evaluation procedures to the point where they can be continually adjusted to correlate significantly with actual working conditions in the local community," hopes to: 1) identify procedures for selecting, obtaining, and using a variety of job samples of high predictive value for local establishments, 2) demonstrate methods of setting up these job samples, and 3) develop methods for recording and reporting the results.

A group of 104 firms, representative of Cleveland business and industry, was surveyed regarding their employment of the disabled. Seven firms have supplied job sample materials which are being prepared for use in the work evaluation setting.

New York University-Bellevue Medical Center of New York University
Department of Physical Medicine and Rehabilitation
New York, N.Y.

This research program was designed to demonstrate the effectiveness of the pre-vocational unit in a comprehensive rehabilitation

center. The objectives for the project were: 1) to determine aptitudes, interest, and abilities, 2) to evaluate motivation and readiness to plan vocationally, 3) to assist the patient in developing positive attitudes toward work, 4) to determine work tolerance, and 5) to contribute to the greater reliability and usefulness of occupational recommendations. The results of the data collected in the above areas will be utilized to answer the following questions: 1) How do pre-vocational tests compare with standard commercial tests? 2) How do pre-vocational tests compare with intake evaluations by the psycho-social team? 3) How do all the measures; i.e., clinical evaluations, commercial tests, and pre-vocational work samples, compare with post rehabilitation employment status?

Currently, the project staff is tabulating the results of a follow-up questionnaire sent to those patients who have had pre-vocational services at the Institute and a 10% sample of all former Institute patients.

United Cerebral Palsy Association of Los Angeles County, Inc.
Los Angeles, California

Pre-Vocational Evaluation Program

This three-year program of research, now completed, was focused on determining the effect on the adult cerebral palsied of the rehabilitation program with "total push" team approach. The goals were: 1) rehabilitation in the narrow sense of employment, and 2) other client activities of a physical, social, creative nature which could be implemented. The résumé deals primarily with the role of the Occupational Therapy department and that of a part of the department of Vocational Training—labeled Job Reality Testing—in this research. One function of the two departments mentioned was to evaluate the "general trainability" of the client. Areas related to this evaluation were: 1) activities of daily living, 2) manual dexterity testing, and 3) pre-vocational job sample testing (sorting, inspection, clerical, etc.). Performance in these three areas was recorded on specially devised forms which produced an over-all index.

The results of this particular aspect of the total study were utilized to help answer some specific questions. For example, how related are ADL skills with employability? How valid are standardized manual dexterity tests in assessing performance of the CP's hand skill? Their results were interpreted to indicate that "an occupational therapy pre-vocational testing program which combines measures of ability in ADL, manual dexterity, pre-vocational skills, as well as ratings of performance characteristics, can provide a valid index of general trainability."

Jewish Vocational Service of Essex County, New Jersey
Essex County Overbrook Hospital

New Jersey Rehabilitation Commission

"A study of the contribution of workshop experience in the vocational rehabilitation of post-hospitalized schizophrenic patients."

This study, involving three agencies—a mental hospital, a state rehabilitation commission and a private workshop—will investigate the contribution of a workshop experience to the total rehabilitation program of post-hospitalized schizophrenic patients. Several related questions which it will consider are: 1) What characteristics of schizophrenic patients are related to success in a vocational rehabilitation program? 2) What are the behavioral characteristics of schizophrenic patients who can profit from a workshop experience? 3) What is the nature and process of change in those receiving a workshop experience? The major method of collecting data and interpreting results is intensive case study using psychiatric, psychological (including standardized tests), social, and workshop evaluation data.

The project has eight cases under study in the workshop group and seven in the non-workshop group at present.

CONFERENCE PROGRAM

Monday, April 18

7:00-9:00 p.m. Registration

7:30-9:00 p.m. Pre-conference meeting of group discussion leaders and recorders

Tuesday, April 19

8:30 a.m. Greetings from the University
Dean E. T. Peterson, College of Education
State University of Iowa

Pre-Conference Remarks

Henry Redkey, Director, Rehabilitation Facilities
Division, Office of Vocational Rehabilitation

9:00 a.m. Presentation

Chairman: Dr. Nathan Glaser, Chief Clinical
Psychologist, Jewish Vocational Service,
Chicago, Illinois

Speaker: Dr. Donald W. Fiske, Professor of
Psychology, University of Chicago
"Problems in Measuring Capacity and
Performance"

10:45 a.m. Small Group Discussion Sessions

Discussion Leaders:

Mr. Henry Redkey
Mr. William Massie
Dr. Gilbert Moore

Recorders:

Mr. Waldo Hansen
Mr. William Herrick
Mr. Leonard Miller

12:30 p.m. Lunch

1:30 p.m. Brief Demonstrations and Presentations

1. Institute for the Crippled and Disabled
Mr. Willis Gorthy and Mr. Martin Moed
2. Jewish Vocational Service, Chicago, Illinois
Dr. Nathan Glaser

3. Association for the Help of Retarded Children
New York, New York
Mr. Max Dubrow, Project Director
4. Highland View Hospital, Cleveland, Ohio

- Mr. Charles W. Thomas, Acting Director
Sheltered Workshop Research Project
5. May T. Morrison Center for Rehabilitation
Mr. Pat Crouse, Project Director

Wednesday, April 20

8:15 a.m. Presentation

Chairman: Mr. Willis Gorthy, Executive Director
Institute for the Crippled and Disabled
New York, New York

Speaker: Mr. Martin Moed, Director
CP Work Evaluation Unit
Institute for the Crippled and Disabled
New York, New York
"Procedures and Practices in Pre-
Vocational Evaluation"

10:00 a.m. Small Group Discussions

12:00 noon Lunch

1:15 p.m. Presentation

Chairman: Dr. Leonard Wendland, Chief Clinical
Psychologist, Rancho Los Amigos
Hospital, Downey, California

Speaker: Dr. Walter Neff, Jewish Vocational
Service, Chicago, Illinois
"Research Issues in Vocational
Evaluation"

3:00 p.m. Panel Discussion

Chairman: Dr. John E. Muthard, Associate Professor
College of Education
State University of Iowa

Panelists: Dr. Fiske, Mr. Moed, Dr. Neff, Mr.
Redkey, Mr. Massie, and Dr. Moore

Thursday, April 21

8:00 a.m. Small Group Discussions

10:00 a.m. Small Group Discussions

11:00 a.m. OVR Staff Presentation

12:00 noon Lunch

1:15 p.m. General Session: Conference Summary
Distribute reports of small groups

Planning Committee Materials

To provide the Conference participants with some of their thinking and a tentative framework for the small group discussions, the committee decided to distribute the following materials at the beginning of the Conference.

Suggested Definitions of the Term Pre-Vocational

Pre-vocational programs are designed to facilitate the entry into the labor market of the individual whose capabilities cannot be assessed by non-situational techniques or who requires reality-oriented techniques to develop the work personality and skills which permit him to function in a work setting. Their emphasis is upon assessing and removing barriers to normal vocational development and functioning. In a pre-vocational facility, provision is made for a controlled situation which permits observing, assessing, and modifying work behavior, work environment, and factors contributing to the individual's functioning in a work situational setting. William Gellman, Ph.D., Jewish Vocational Service, Chicago, Illinois.

The pre-vocational process involves the vocational development of the disabled individual and attempts to prepare him for entrance into the labor market or field of work. To assist the disabled individual to function in a work situation, pre-vocational programs encompass a broad area including assessment and remedial activities designed to deal with those individuals who require exposure in a reality-oriented situation as a major emphasis in the counseling process. Willis Gorthy, Executive Director, Institute for the Crippled and Disabled, New York City.

Pre-vocational training and evaluation is a vocational rehabilitation service which evaluates and develops the client's vocational potentials, interests, work habits, etc. As an integral part of the client's rehabilitation program it provides the client with experiences which are not available through conventional interview, observational, or psychological test procedures. It increases the client's self-understanding of his potentials and strengthens and develops his work potentials. This service would be available to and suitable for selected clients. It would have as its objectives assessing the client's resources and increasing

his employability. John Muthard, Ph.D., Associate Professor, College of Education, State University of Iowa.

Key Conference Questions

The primary purpose of the Conference is to answer these questions. It is anticipated they will form the basis for the structure of the Conference proceedings.

1. What progress has been made in more sharply defining the term pre-vocational?
2. Can we obtain agreement on working definitions for the following terms:
 - a. Work adjustment
 - b. Work conditioning
 - c. Pre-vocational unit
 - d. Job sampling
3. What are the characteristics of a good pre-vocational evaluation system?
4. To what extent have research projects made a contribution to pre-vocational programming?
5. What should be the future goals for research in this area and what specific lines of inquiry should be encouraged?
6. Which findings of this workshop should be incorporated in our training programs?

General Questions on Pre-Vocational Activities

There are many currents and cross currents in thinking as to the intent and accomplishments of the pre-vocational program in rehabilitation facilities. The following questions are intended to help each participant sharpen his thinking before the Conference. It is also hoped that they will be used throughout the Conference by discussion groups as they attempt to answer the six basic questions, listed elsewhere, which constitute the central focus.

1. What is the scope of pre-vocational activities?
2. At what point in the rehabilitation process do pre-vocational activities begin?
3. What is the relationship of the pre-vocational unit to the rehabilitation process?
4. How in the initial program of pre-vocational activities for each client determined?
5. What orientation should the client receive before beginning his pre-vocational program? How should this be provided?
6. What are the factors that determine the duration of the pre-vocational phase of the client's rehabilitation?

7. How often or under what circumstances should the client's progress be reviewed by staff?
8. How are the findings of the various members of the rehabilitation team co-ordinated?
9. What elements should be included in the summary of the findings of the pre-vocational evaluation?
10. What happens to the client after he completes the activities in the pre-vocational unit?
11. What contributions do each of the following personnel make to the pre-vocational process?
 - a. Counselor
 - b. Psychologist
 - c. Psychiatrist
 - d. Physical therapist
 - e. Occupational therapist
 - f. Social worker
 - g. Work evaluator
 - h. Shop foreman and supervisors
 - i. Industrial engineer in the workshop
12. What job activities are involved in the work of the evaluator?
13. What specific skills and knowledges should the work evaluator possess?
14. What are the desirable personality traits of the evaluator?
15. What are the sources for recruitment for evaluators?

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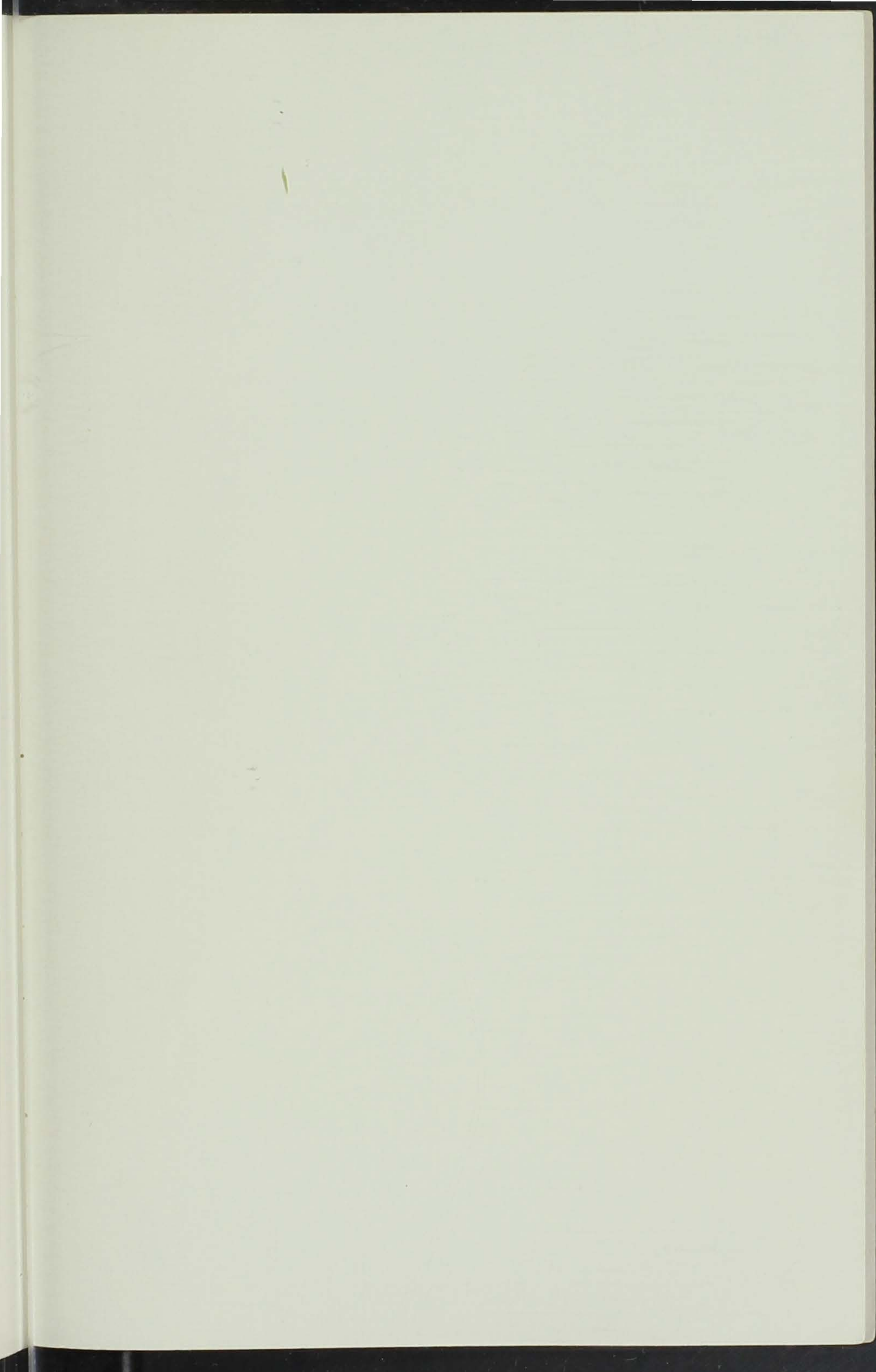
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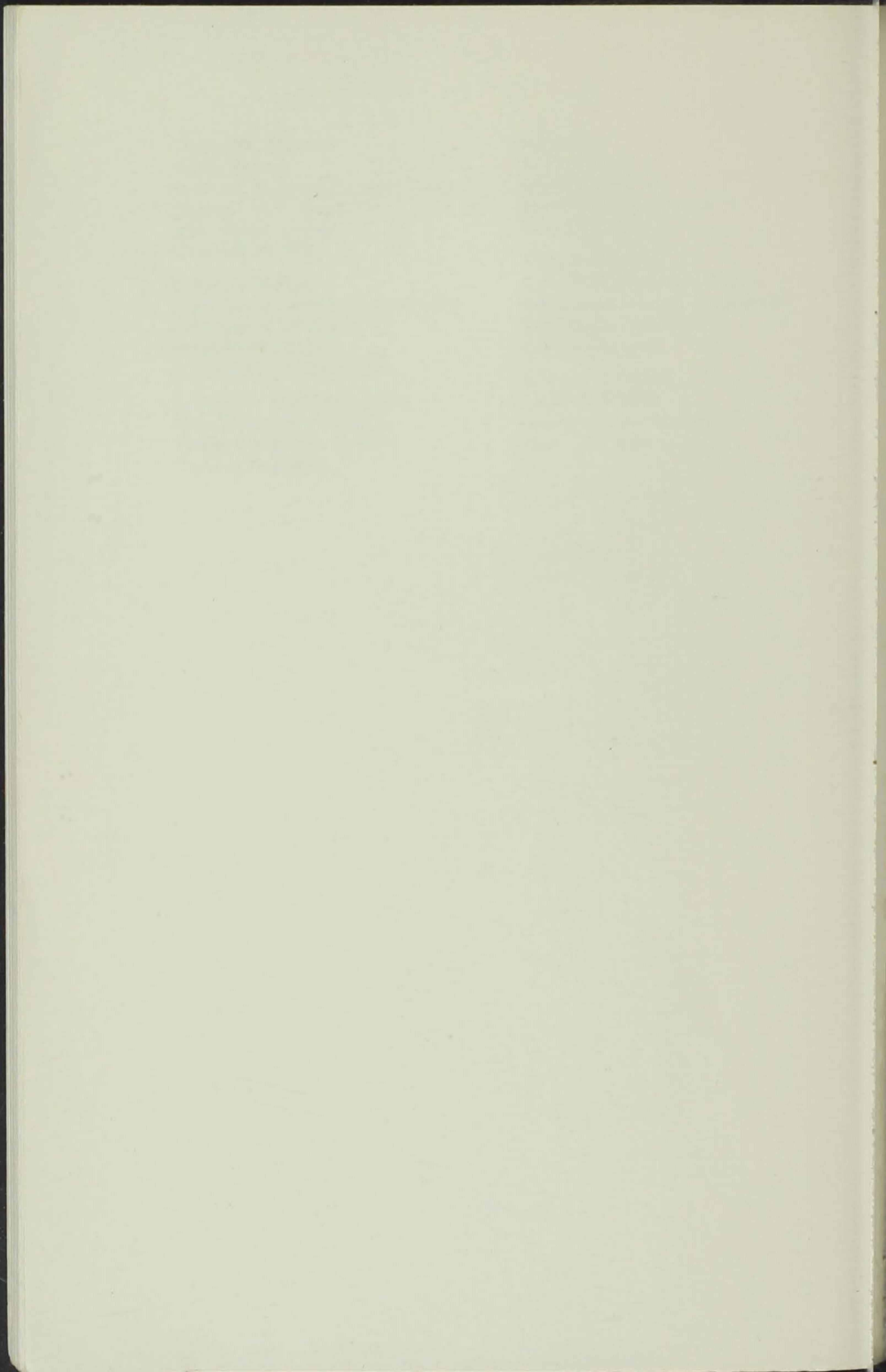
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