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A program of vocational education and guidance for the mentally retarded in secondary school

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The Need for Vocational Education and Guidance.

There has been a shifting in the opinion of educators as to where the emphasis in the education of the feeble minded should be placed. The feeble minded are recognized to be a grave social and economic burden with 6,500,000 of them at large and 1,000,000 institutionalized. Too, mental deficiency is recognized to carry with it a predisposition to such social evils as delinquency, illiteracy and dependency.

Therefore, the solution to the problem was sought in improving the opportunities for better social development of the group. The importance of social participation was stressed.

The members of the White House Conference held in 1932 recommended that the feeble minded be given equal social opportunities with the normal. They advocated training for social competency. Experiences with materials and things; experiences in meeting social situations, in getting along with people; exploration of the environment. These were considered the factors upon which the curriculum for the mentally deficient was to be based.

The Advisory Committee on Education appointed by the President found, in 1936, that "a new social attitude had found expression concerning handicapped children." As late as 1938 social participation for the feeble minded was con-
sidered to be the most important factor. Joseph Enders (22) in a report to the National Education Association listed the following goals: "first to develop and train the personality of the child so that he will be socially acceptable; second, we must plan to give him vocational skill so that he will be able to perform duties incidental to his employment; third, we must help to adjust him in employment. Of course, we are concerned chiefly with the first goal in special education."

In 1940 however, the Conference on Children in a Democracy expanded the concept of training merely for social participation to include equal economic opportunity and capacity for cooperative living.

As the amount of research done in the field of special education grew, it became apparent that the mentally deficient need not be as great a social and economic burden as they had been; that it is possible to train them not only for social participation but for complete socialization. This training for complete socialization must include training for economic participation. As R. Hungerford, the Director of Special Classes in New York says (30): "the motivating factor behind special education today is one of contribution to society rather than pure participation." The emphasis in special education has been shifted from the training of not only "good" citizens but of "independent" citizens.

Evidence is constantly growing to prove that since
there are so many different levels of social and economic achievement, the mentally deficient can, with little help find their natural level of achievement, and become good citizens socially and independent economically. The school has indeed, offered the feeble minded very little help in gaining this economic independence. The importance of vocational and occupational education and guidance for the normal has been recognized, and provisions made by school systems to offer increasingly better opportunities along these lines. Vocational education and guidance have been, except for a very few instances wholly neglected in the training of the feeble minded. At present only the large cities have established "centers" for vocational education. There is no vocational education for the large majority of special class pupils throughout the country.

Results of research quoted here show to what extent the feeble minded have become independent citizens in spite of the fact that schools have offered so little training. They have attained this degree of independence with great difficulty to themselves and certainly with very great expense to the community. They have done it the hard way - many have gone to jail first.

Arthur B. Lord (35) studied a group of the mentally deficient to determine the need for social supervision of children under 21 years of age who formerly attended special
class. He compared results obtained from a group of 230 children who had left the special class against results from 219 still in school. He found that 73% of the out-of-school group had made adequate vocational adjustment; 22% were found to have made good adjustment, but at the time the survey was made opportunities were lacking for the type of work for which they were trained.

In her work with the feeble minded Elizabeth Woods found many who, with very limited mental ability successfully supported themselves and their families. Many women with mental ages of 8 and 9 were found to be supporting themselves. In her report on 94 subnormal girls in adjustment classes who were 15 - 16 years of age and were unable to complete grammar school, Theodora Abel (1) found 55% capable of employment in industry. Charlotte Graves (27) found that 53% of the mentally deficient who had attended the Woods school were well adjusted in every way. The United States Department of Labor reported in 1932 that of the mentally deficient children studied 77% had an intelligence quotient lower than 70, and that after leaving school 90% of this group were employed.

Other studies bring out the fact that the mentally deficient becomes increasingly better adjusted as he becomes older - i.e. as he gains in experience and contacts made, even if these contacts were made and experiences gained in a penal institution. Baller (8) found that 86% of the group
he studied were law abiding, and that 50% of those who had criminal records had no additional records. Lord found less delinquency among the out of school group (18%) than among the in school group (21%). He found that only 42% of the out of school group needed guidance as compared with the in school group of which 70% needed guidance. Similarly the in school group showed a much greater need for vocational education and guidance than did the out of school group.

A crime survey done in Cleveland (35) revealed that delinquency among the feeble minded children in regular classes was ten times as great as among the feeble minded in special classes.

Studies done in New Jersey show that the percentage of feeble minded among reformatory cases was only half as great as among juvenile delinquents and adult offenders.

A study of 300 inmates of a large eastern reformatory showed no correlation between the degree of mentality and success on parole, but a relation between success on parole and the influence of the family.

Meta Anderson investigated delinquents in Norfolk Juvenile Court and came to the conclusion, that mental deficiency was not an outstanding cause for delinquency, for there were just as many normally intelligent among the group studied as there were feeble minded. Here is the distribution according to I. Q. levels as reported by Miss Anderson:
16.9% with an I.Q. of 61-70
35.1% with an I.Q. of 71-80
27.0% with an I.Q. of 81-90
18.9% with an I.Q. of 91-100

Doll(2) states that less than 5% of the feeble minded ever reach public institutions. The remaining 90-95% are not all social failures, even tho their success may be only on a low level.

The importance of stressing vocational education and guidance in the special education program becomes still more imperative as we also consider the following:

1. Vocational education and guidance are a very definite way of lessening the tremendous cost to the community of the upkeep of the feeble minded in institutions - penal or otherwise.

2. By neglecting to provide vocational education and guidance, we are neglecting to prepare for utilization a huge reservoir of human resources. For there is only a very small percentage of the feeble-minded (idiots and imbeciles) who can truly be considered useless to society; and even they, when institutionalized and working as a group, can make some little contribution to society. As Dr. Watson in an article written for the Child Research Clinic states (58):

"Failure in the educational system and in the social order to discover and to use the best possibilities of unusual
individuals is one of the major sources of waste in the world today. I know of no way to calculate in dollars what we all lose because there are at least ten million persons in our society (Dr. Watson was referring here to all of the exceptional persons, not only the feeble minded) who are treated as though the difference between their pattern of abilities and the common run signifies that they are innately incompetent, good-for-nothing and social liabilities. The social loss may not be as great as that which results from failure to provide exceptional opportunities for the highly talented, but either loss is regrettable and preventable. Our society has not yet placed an adequate value upon its human resources."

Dr. Watson mentions too, as characteristic of the political and economic systems of Fascist Italy and the U. S. S. R., that an Italian psychologist set out to demonstrate that 10% of a group of unemployed metal workers in a certain locality were unemployable; whereas the Russian conducted a study to find what useful work could be done by microcephalics. The Italian's job seemed to be to justify unemployment while the Russian endeavored to find a new group of potential workers.

3. If we believe in the democratic ideal of equal opportunities for all, then it will become apparent that vocational education and guidance must be provided for the mentally deficient as well as for the normal. The Washington
Conference of 1940 underscored this need by pointing out that no other but training for social competency can give the feeble minded equal social opportunities which under democracy we strive to give to all.

4. "Vocational education and work experience is a part of growing up, a part of the psychological process known as maturation." So states the General Report of the American Youth Commission. Since preparation for their life's work naturally satisfies a normal need on the part of adolescents, the introduction of vocational education and guidance should reduce disciplinary problems in school and should be an answer to the problem of "what to do with the mentally deficient in secondary schools."

5. Vocational education and guidance should help to solve the personnel problems involving the mentally deficient in industry. Harold E. Burtt in "The Principles of Employment Psychology" reported on the relationship between intelligence test scores in his concern, the stability of workers, and the relationship between intelligence and dissatisfaction with the job. The turnover was always higher for the brightest and dullest workers than for the average. He found the most dissatisfaction in the tool department where the work is quite complex among workers who are most retarded. On the other hand, the mentally retarded worker showed himself to be the least dissatisfied on inspection jobs for instance where
the work is repetitive and monotonous. Burtt claims that there should exist in a concern a hierarchy of intelligence levels which pretty well match the hierarchy of job titles.
II.

Identifying the Mentally Deficient Who Can Profit by Vocational Education and Guidance.

Results of a general intelligence test alone are not sufficient either in identifying the mentally deficient for special education, or for choosing those who can profit by vocational education and guidance. In both cases we proceed to do a progressively more accurate job as it becomes possible to apply measures of many different traits which may, or may not be related to intelligence. Terman's revision of the Binet tests include not only the possibility of finding a subject's mental age, but also a way of arriving at the I.Q. which is a percentage of the total possible range of intellect. The identification of mental deficiency has become more accurate since it is based on social fact as well as psychological measurement.

Edgar A. Doll and Elizabeth B. McKay of the Training School at Vineland, New Jersey developed the Vineland Social Maturity Scale, which is an additional attempt to further augment the accuracy of identification. This scale is a gradation of tests of social competency, measuring the very simplest to the most complex skill. The mechanics of the test are very similar to those of the Binet tests. A social age for the normal individual is established at each age level.
It is then possible to find the social age of any individual. The ratio between the social age and life age makes the Social Quotient. The scale is still in its experimental stages and is still not considered to be fully standardized, but it has found application in a great many ways and is being widely used.

The significance of this measure in building a program of vocational education and guidance is illustrated by a validation study done with the Scale (19). Thirty-eight special class children were each paired off with an institutionalized child of the same sex, age and I.Q. It was found that the special class group as a whole had higher \( S.Q. \)'s. In view of the fact that there is a high correlation between the I.Q. and S.Q., any deviation as great as that found in this study is significant. Here the S.Q. is found to be of value in identifying the mentally deficient who definitely can be socialized and for whom it is the duty of the school to provide the necessary training. The low S.Q. of the institutionalized child offers evidence that this group would never be able to adjust to society and become independent citizens; that they should be identified and separated as soon as possible since their training will differ greatly from the training for social competency which should be offered the special class child, especially the mentally deficient in secondary schools.
The Social Age and Social Quotient scores are recorded for the mentally deficient by most school systems along with the M.A. and I.Q. (19). The S.Q. of those mentally deficient for whom vocational education and guidance are planned varies in different cities. In general 70 is the lowest considered.

The range of I.Q.'s and C.A.'s in representative cities is as follows:

<table>
<thead>
<tr>
<th>City</th>
<th>I.Q.</th>
<th>C.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newark, New Jersey</td>
<td>50-90</td>
<td>12-16 (4)</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>up to 65</td>
<td>13-17 (32)</td>
</tr>
<tr>
<td>Detroit</td>
<td>under 75</td>
<td>13-16 (29)</td>
</tr>
<tr>
<td>Chicago</td>
<td>over 70</td>
<td>12-16</td>
</tr>
<tr>
<td>New York</td>
<td>65-70</td>
<td>14-16</td>
</tr>
<tr>
<td>Baltimore</td>
<td>50-85</td>
<td>14 on</td>
</tr>
<tr>
<td>Amherst, Massachusetts</td>
<td>65-85</td>
<td>12 on (43)</td>
</tr>
</tbody>
</table>
III.

Potentialities and Limitations of the Feeble Minded in Occupational Pursuits.

Lists which determine intelligence standards of men in various occupational fields, such as the Barr and Fryer Scales or the Levels of Accomplishment worked out by Burr, are a valuable tool to be used in vocational guidance of the mentally deficient as well as the normal. However, it must be remembered, that these lists are significant in indicating only the general intellectual level required for success in each occupation. For we cannot altogether depend upon results of intelligence tests. As Thorndike says, psychological ratings are not dependable. Too, intelligence is not the only significant requirement for success on the job. Social and emotional maturity, social background, personality, health, mechanical ability, manual dexterity, all may have much to do with success.

K. M. Cowdery (15) made a study of the relationship between intelligence and success in trade training. He concludes that:

1. General intelligence influences success in different fields to different degrees.

2. In no group is the degree or fact of success wholly dependent on intelligence.
The results of Ball's study on the predictability of occupational levels from intelligence (7) revealed a "substantial conditioning of the occupation by intelligence." Ball found that this holds true for grosser distinctions in occupational level, for adjustment to finer distinctions depends on other than intellectual factors such as traits of character, personality and chance opportunity.

Beckman's study of laundry employees (9) shows that excellent workers have an average mental age of 9; that there is little difference in intelligence of good, fair and poor workers. Very evidently factors other than intelligence are of great importance for success in laundry work, assuming a 7 or 8 year minimum mental age.

It will be found that selection of workers is being based not on results of intelligence tests primarily, but on results of aptitude tests designed for each job. The Division of Occupational Analysis of the War Manpower Commission is concerned with the design of instruments and procedures for placing individuals in jobs according to the requirements of the job and the capacity of the individual. It is interesting to note here, that no attempt was made to estimate quantitatively the amount of general ability required for any of the jobs analyzed by the Division. Instead, aptitude tests have been developed for jobs in skilled levels. These tests have been found in actual situations to correlate with job performance.
records of employed persons.

The General Electric Company which had been using intelligence tests since 1918 as a basis for worker selection is now using in addition tests of finger dexterity in selecting women for shop work. Bench work, coil winding, operation of punch presses, drill presses, burning machines, chuck motors, insulating machines are the classes of work for which finger dexterity tests are now being used.

Selection of Army personnel for various jobs is done on the basis of aptitude tests such as Mechanical and Clerical aptitude tests. Truck drivers for instance are selected not on intelligence test results but on the following predictions: the road test itself, multiple choice tests of driver information, tests of visual and motor functions, visual accuracy, night vision and reaction time.

Perhaps it is because these aptitude tests are used in selection that many of the feeble minded have been able to function successfully in the army. The army does consider the feeble minded a handicap, but we know definitely that neither the ten minute individual intelligence test nor the General Capacity Test is able to screen out all of the feeble minded. The higher type of mentally deficient does make the grade. Once in the army, however, he is placed according to his aptitudes which is an advantage for him. For in civilian
life we are too ready as Miss Martens says in her "National Overview" (37), "to concede limitations and have not been prepared to capitalize potentialities of the handicapped."

No doubt, special abilities or aptitudes exist among those with very limited intelligence, as well as among the normal and superior. The intelligence test itself will show a considerable amount of variation in performance from what might have been expected on the basis of general intelligence levels - or mental ages. Hollingworth (64) describes evidences of special abilities observed by her in individuals with the very lowest intelligence - the idiots and imbeciles. She concludes her discussion of special abilities with the statement that: "it is possible, that after much further study has been made on this point, it will appear that education can utilize special abilities among the subnormal more fully than has been feasible hitherto." So far few studies have been made of special abilities and few objective measures are available.

The Human Engineering Laboratory at the Institute of Technology in Hoboken, New Jersey has found measures of thirteen different aptitudes which are required in various jobs. The following is a list of these aptitudes. The Laboratory admits this list is incomplete.

1. Structural Visualization
2. Accounting Aptitude
3. Personality
4. Finger Dexterity
5. Tweezer Dexterity 10. Analytical Reasoning
6. Creative Imagination 11. Number Memory
7. Inductive Reasoning 12. Memory for Design
8. Observation 13. Muscular Speed
9. Tonal Memory

If these are truly "aptitudes" they should have little relation to intelligence.

For purposes of vocational education and guidance of the mentally retarded it is most important to consider mechanical ability. For mechanical ability has been proven over and over again to be a "unique" trait with very little relation to intelligence, age, height and motor ability. Scores of the Minnesota Mechanical Ability Tests were found to be practically unrelated to results of the Otis Intelligence Test scores (45). Cowdery reports that a study of the Minnesota Spatial Relations Test showed only slight relationship to intelligence. Miriam Pritchard found in studying the mechanical ability of subnormal boys (46) that it is possible to discover some individuals among the subnormal who possess mechanical ability equal or superior to the norm for the general population.

The above mentioned studies reveal that:

1. The mechanical ability of the morons as a group is lower than that of the normal.

2. The correlation between mechanical ability and
intelligence for the morons is slightly higher than for the normal.

3. Within the subnormal group performance in mechanical ability tests were found to be closely related to the M. A.

4. Below a M. A. of 8 and an I. Q. of 55 mechanical ability ceases to be "unique" trait. On this level it ceases to be independent of the I. Q. Above this level it is definitely unrelated to intelligence.

Heinz Werner's study shows that in a test involving kinesthetic and visual responses there is a steady increase in correct responses with increasing mental age. (59)

Hollingworth (64) quotes results of studies which compare the physical characteristics of the mentally deficient and the normal. The mentally deficient were found to approach the norms in height and weight, sensory capacity and motor control.

More recent research (43) has found that the mentally deficient as a group are somewhat inferior to the normal in muscular strength and endurance, speed and accuracy of movement, handwriting, drawing and handwork. However there is apt to be much overlapping between the normal and inferior in all physical characteristics.

The many follow up studies (38) done point to the fact that in moral and character traits the feeble minded are
again as a group somewhat inferior to the normal. These demonstrate that:

1. That three times as many of the subnormal have court records.
2. The subnormal need more help from various agencies.
3. Promiscuity and prostitution occur slightly more often among the subnormal.
4. The subnormal need more guidance.
5. The mentally deficient compare favorably with the normal in matters of self-support.

Bigelow (10) found little absenteeism among feeble minded workers who were doing work suited to their capacity. The workers were content on the job and demonstrated reliability and cooperation.

Apparently desirable moral and character traits appear among properly placed and therefore successful mentally deficient workers. Theodora Abel states the following 5 factors of success which, as her study revealed, contributed to the successful adjustment of a group of subnormal girls in industry (1)

1. a stable home;
2. ambition and self respect;
3. careful placement;
4. guidance and encouragement - being treated with patience especially during the initial work period;
5. "luck" in securing an adequate initial job.

It will be seen that only one of these factors refers to character. All others refer to environmental influences and proper guidance.

Interests of the mentally deficient in occupational pursuits is not an important consideration in vocational education and guidance in the light of the following:

1. Of a 1,000 junior high school students no child with an I. Q. below 60 selected an unskilled job and only 33% selected a semi-skilled job; 17% who were so low as to be rejected by a vocational school selected a profession. (3)

2. Vocational interests are not permanent (26).

3. There is little relation between interest and trade training ability (7).
IV.


Few school authorities are convinced of the need for Vocational Education and Guidance for the mentally deficient. They argue, that jobs the feeble minded will fill, require a "strong back and a weak mind", and therefore a very limited amount of training which can be done "on the job". They overlook the following facts:

1. More and more low grade labor is being supplanted by machines. Labor is needed for maintenance, but maintenance jobs require a higher degree of intelligence. The feeble minded will of necessity find employment in social service jobs which are more numerous. And social service jobs require training.

2. Often the feeble minded fails on the job not because the work is too difficult, but because of the slowness with which he adjusts.

3. Statistics show that 3 out of every 4 people lose their jobs because of the lack of "non manual" skills - getting along with others, cooperation, respect for superiors etc.

Many school systems feel that the cost of equipment for such a program is too great. There is also ignorance
and lack of understanding as to the types of occupations for which training is needed and feasible. The following charts are intended to summarize such programs as are in operation in representative cities and schools.
### Type of organization for vocational education in representative cities.

<table>
<thead>
<tr>
<th>City, State</th>
<th>I.Q.</th>
<th>C.A.</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Los Angeles, Cal.</td>
<td>Below 65</td>
<td>14-16</td>
<td>Boys - Coronel Vocational School - a high school for the mentally deficient</td>
</tr>
<tr>
<td></td>
<td>Below 65</td>
<td>14-16</td>
<td>Girls - Class in elementary school</td>
</tr>
<tr>
<td>Newark, N. Jersey</td>
<td>60-75</td>
<td>14-17</td>
<td>Regular high school - curriculum adapted.</td>
</tr>
<tr>
<td>Baltimore, M.</td>
<td>50-80</td>
<td>14-16</td>
<td>Special shop centers for boys.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Special shop centers for girls.</td>
</tr>
<tr>
<td>Chicago, Ill.</td>
<td>70-85</td>
<td>12-16</td>
<td>Lower Vocational Schools.</td>
</tr>
<tr>
<td>Detroit, Mich.</td>
<td>under 75</td>
<td>13-16</td>
<td>Special Centers of Special Schools.</td>
</tr>
<tr>
<td></td>
<td>75-82</td>
<td>16-17</td>
<td>Occupational School.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Junior Trade School for those who can do the work.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Some admitted to regular vocational high schools.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>947 enrolled in vocational high schools in 1942.</td>
</tr>
<tr>
<td>Boston, Mass.</td>
<td>60-80</td>
<td>13 on</td>
<td>Special Class Centers</td>
</tr>
<tr>
<td>Minneapolis, M.</td>
<td>All mentally retarded</td>
<td>13-14</td>
<td>Enrolled with the normal junior high school pupils in regular home rooms.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Assigned to especially trained teacher for school work.</td>
</tr>
<tr>
<td>City</td>
<td>I.Q.</td>
<td>C.A.</td>
<td>Organization</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------</td>
<td>-------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Rochester</td>
<td>All mentally retarded</td>
<td>12 on</td>
<td>Girls - 7th, 8th, 9th year class in regular high school. Class work under direction of especially trained home room teacher.</td>
</tr>
<tr>
<td>New York</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All mentally retarded</td>
<td>1516</td>
<td>For girls who cannot adjust to large high school program, a program set up in cooperation with the adult Vocational Training Center for War Activities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Boys - Trade School (Paul Revere)</td>
</tr>
<tr>
<td>City, State</td>
<td>I.Q. Range</td>
<td>Age</td>
<td>Subject Matter</td>
</tr>
<tr>
<td>------------------</td>
<td>------------</td>
<td>-------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Los Angeles, CA</td>
<td>below 65</td>
<td>14-18</td>
<td>Boys - auto mechanics, furniture making and painting, plumbing, foundry work, washing, polishing and painting cars, cobblering, cooking, baking, laundry work, cement work.</td>
</tr>
<tr>
<td></td>
<td>65-75</td>
<td>14-16</td>
<td>Girls - household arts, power machine sewing, cooking, baking, laundry work.</td>
</tr>
<tr>
<td>Newark, NJ</td>
<td>60-75</td>
<td>12-18</td>
<td>Boys - &quot;Technical&quot; and &quot;Scientific&quot; courses offered in regular high school. &quot;Technical&quot; course - arithmetic, reading, writing, measuring, construction. &quot;Scientific&quot; experiences in working with gadgets used in the home. Social and work experience is included in these courses.</td>
</tr>
<tr>
<td>Chicago, IL</td>
<td>70-85</td>
<td>12-16</td>
<td>Boys - wood, metal and plaster work, auto mechanics, home decorating. &quot;Home Helpers&quot; course teaches how to repair broken articles. Girls - sewing, cooking, millinery, weaving. Academic work organized around a general store operated by pupils.</td>
</tr>
<tr>
<td>Year</td>
<td>Sales (M)</td>
<td>Costs (M)</td>
<td>Profits (M)</td>
</tr>
<tr>
<td>------</td>
<td>-----------</td>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>2023</td>
<td>120</td>
<td>80</td>
<td>40</td>
</tr>
<tr>
<td>2024</td>
<td>150</td>
<td>90</td>
<td>60</td>
</tr>
<tr>
<td>2025</td>
<td>180</td>
<td>100</td>
<td>80</td>
</tr>
<tr>
<td>2026</td>
<td>200</td>
<td>110</td>
<td>90</td>
</tr>
<tr>
<td>2027</td>
<td>220</td>
<td>120</td>
<td>100</td>
</tr>
<tr>
<td>Location</td>
<td>Age Range</td>
<td>Length</td>
<td>Program Details</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>--------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Detroit, Michigan</td>
<td>75-82</td>
<td>13 on</td>
<td>Special Centers - Hand skills of domestic or family nature such as shoe repairing and household repairs. Occupational School - part time work in food handling, building trade, mechanics, personal service.</td>
</tr>
<tr>
<td>Boston, Mass.</td>
<td>60-80</td>
<td>12 on</td>
<td>All kinds of shops. In-school work experience in lunchroom and janitor’s work.</td>
</tr>
<tr>
<td>Minneapolis, MN</td>
<td>All</td>
<td>13,14</td>
<td>Part time work for mentally retarded in last year of school. Social studies point of departure for vocational education.</td>
</tr>
<tr>
<td>New York, NY</td>
<td>All non-academic pupils</td>
<td>14 on</td>
<td>Subject matter built around cores which emphasize occupational information, vocational education and vocational training. Academic work - reading, English, number, all taught in connection with above mentioned areas.</td>
</tr>
<tr>
<td>San Antonio, TX</td>
<td>Low I.Q.'s</td>
<td>15-16</td>
<td>Boys - general industrial shop. Girls - homemaking shop, &quot;Children's Companion&quot; course preparing for children's companion, homemaker or companion to an invalid.</td>
</tr>
<tr>
<td>Providence, RI</td>
<td>2 yrs. or more mentally retarded</td>
<td>12-16</td>
<td>Subject matter built around industrial arts core.</td>
</tr>
<tr>
<td>Rochester, NY</td>
<td>All mentally retarded</td>
<td>12 on</td>
<td>Boys - a wide choice of vocational and pre-vocational training - light assembly, power machine operation etc. Girls - foods, clothing, tailoring.</td>
</tr>
</tbody>
</table>
Provisions for Vocational Education

in Representative Schools.

<table>
<thead>
<tr>
<th>Schools</th>
<th>I.Q.</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>65-85</td>
<td>Grouped according to age and social maturity. 1/3 of these pupils go to trade schools from special classes.</td>
</tr>
<tr>
<td>Senior High School, Holyoke, Massachusetts</td>
<td></td>
<td>Program of Vocational Preparation for girls - study of food and clothing, child care, home nursing. Academic work related to these studies. School runs a cooperative course called &quot;Retail Foods Merchandizing&quot;. It involves 15 hours of school work a week and 15 hours of work in a retail grocery store.</td>
</tr>
<tr>
<td>High School, Bay City, Michigan</td>
<td></td>
<td>A very commendable program of in-school work experience. A period each day is devoted to work experience. Boys take care of the school lawn and shrubs, do dusting, sweeping, painting and repairing. Girls experience in child care, home nursing, foods and clothing. Academic work built around these cores.</td>
</tr>
<tr>
<td>Mound Junior High School, Columbus, Ohio</td>
<td>4 levels of intelligence</td>
<td>Minimum academic work according to the pupil's needs. Much shop work. Pupils in 4th, lowest group sent to opportunity schools.</td>
</tr>
<tr>
<td>Northern High School, Detroit, Michigan</td>
<td>Below 02</td>
<td>The curriculum is constantly modified to suit the pupil's needs. Special teacher studies record of each child.</td>
</tr>
<tr>
<td>Bay Ridge High School, Brooklyn, New York</td>
<td>Non academic girls</td>
<td>Study of home economics, child care.</td>
</tr>
</tbody>
</table>
Monroe High School, Rochester, New York

A vocational curriculum. All work is done on the contract plan. (Smith Hughes Act)

Richmond, Virginia

12-14 year old girls in junior high school have cooking and sewing. Work is planned in a cooperative unit-training is given in school and credit toward a diploma is given for work done outside of school. In high school the same method is used with fourteen, fifteen and sixteen year olds.
The vocational education and guidance program in operation in Detroit, Chicago, New York and Newark, New Jersey are outstanding and are therefore here described in detail.

The Detroit program is built on research done in that city which shows that all but approximately 10% of the mentally retarded enrolled in the public schools there can be trained for some useful work in the community. (4) Those who belong to the lowest 10%, it was found, are sooner or later institutionalized, or taken care of by the family. It is also recognized that among the remaining 90% there are cases of defective delinquents who should be institutionalized.

The adolescents between the ages of 13 and 16 whose I. Q. is below 75 are housed in special schools or special centers in so called B classes. Hand skills of domestic or family nature such as shoe repairing or household repairs are emphasized. At 16 most of these pupils are given a work certificate. Some provision is made to transfer back to intermediate school with special teachers. The higher type mentally deficient is sent to the Junior Trade School.

The so called Occupational School is established for the higher type mentally deficient adolescent who can not profit by the trade school. Provision is here made for part-time work and part-time school. A coordinator obtains jobs and supervises the work. The employment areas are: food handling, building trade, mechanics, personal service. The
three phases of the program stressed in school work are as follows."

1. Occupational information which is an overview of the whole economic structure and the relationships between the different types of work and the welfare of society as a whole. It includes such topics as jobs for beginners, after school jobs, service jobs, organization of heavy industry, heavy industry jobs, small proprietorship.

2. Vocational guidance, a measuring of individual qualifications against job requirements. Pupils learn how to choose a job, how to get work.

3. Two phases of Vocational Training are taken up - the manual and non-manual. Non-manual training aims to teach the pupil how to make most of the job, how to spend wages, how to get along with others.

Since 1942 the vocational high schools in Detroit have been admitting the higher type of mentally deficient boys and girls. The pupils are selected on the basis of manual ability, interests, aptitudes, intelligence ratings, educational achievement, health, behavior and attendance record. In 1942 there were 947 mentally deficient enrolled in these vocational high schools.

Detroit has developed the so called "Employability Scale" as a very excellent means of grouping the mentally deficient according to their job potentialities. The I.Q.,
social age, personality, physical and emotional maturity, the economic and social status of the family are charted for each individual and his place in the Scale found. Application of this Scale results in the grouping of the mentally deficient as follows:

1. 10% who can never support themselves and should be institutionalized.

2. 10% of those whose parents would insist that they do work above their levels of potentialities.

3. The 70% who can not profit by trade school training but who can support themselves.

4. 10% who can profit by the Junior Trade School or the Vocational high school.

Occupational information, vocational guidance, vocational training, vocational placement and social placement are stressed in the Detroit plan. The first three areas mentioned are presented formally.

The material taught in occupational information is intended as an overview of the whole economic structure, and the relationship between the different types of work and the welfare of society as a whole. Material is presented here in the following sequence:

A study of after school jobs available to pupils; jobs for beginners; service jobs; organization of heavy industry; heavy industry jobs; small proprietorship. The
teachers who teach this material have put out a very excellent Handbook on Occupational Education. This is accompanied by a Pupil Workbook.

Vocational guidance includes a study in measuring individual qualifications against job requirements. Better Guidance, Occupational Information and Vocational Guidance are outlines worked out to help teachers with the material. The latter is a course of study set up in such a way that it might well serve as a guide in setting up a similar outline for any other community. Four large areas are outlined: (68)

1. Jobs suitable to the handicap.
2. Helping pupils understand how to choose a job.
3. How to get a job.
4. Making the most of the job.

Practical and helpful suggestions as to teaching methods and sources for teaching materials are given for each area.

Area 3 is here given as an illustration of this very excellent outline.
III. How to get a job (give in middle of semester. Repeat just before end of semester pupil is leaving school).

I. The purpose of this unit is to give the pupil specific instructions relative to obtaining work either through a placement agency or on his own initiative.

A. Obtaining working permit papers and social security cards.

A. Teacher should outline carefully for the pupils the exact steps necessary in obtaining working permit papers and social security cards.

1. Practice in filling in practice sheets #7 and #11 should be provided for the pupils.

2. The need for a birth certificate.

3. Exact information should be given the pupils as to where to go to obtain social security cards and working permit papers.

B. Obtaining jobs I. Discuss with pupils function of job placement services, how they are operated, and why we have them. Point out that pupils must cooperate with these agencies if the results are to be worthwhile.

1. Rehabilitation Office (514 Boulevard Building, corner Woodward and Grand Blvd).
2 - Board of Education
   Placement Service
   (1346 Broadway)

3 - U.S. Employment Service

A. Explain the purpose of the Rehabilitation Service and how it functions in regard to job placement and follow-up for Special Education pupils.

1 - Rehabilitation agents call at pupil's home
2 - Provide medical examinations
3 - Help pupil find jobs
4 - Provide special training in certain circumstances

B. 1 - Review with pupil location of this office.
   (10th floor American Radiator Building)

Downtown, 112 E. Jefferson Rd. 5925
East Side, 14421 E. Jefferson Le. 9500
Midtown, 6210 Second
Tr. 1-3100
North side, 11500 Jos.
   Campau Tw. 2-2334
Northeast, 3580 Hurlbut
   Pl. 3480
West side, 5459 E. Fort
   Vi. 2-2600
Northwest, 10785 Grand River Ho. 0815

2 - Be sure that they understand that they are to take the following papers with them when they apply for help in obtaining employment.

a - Birth certificate
b - Social security card
c - Working permit papers

C. 1 - Review with pupils the locations of the various offices.
2-Explain that there is a director, Mr. Harold T. Hayes, who has the responsibility of obtaining employment for handicapped individuals.

3-Point out that the U.S. Employment Service knows the employment needs for the entire area and can direct individuals to jobs where the need exists.

4-Explain to pupils that individuals employed in war essential work must apply at the United States Employment Service if they plan to change jobs.

5-Review with pupils the importance of taking the proper papers with them when applying at this office (see #2 above).

C. Obtaining jobs through I. Discuss with pupils where "Help Wanted" ads are found in newspaper and how to select those which would fit their aptitudes.

A. Newspaper "Help Wanted" advertisements
B. Worksheets #9 and #10.
A. Have pupils bring want ads and select suitable jobs listed.

B. Discuss their selections.

D. Obtaining jobs by means of "Letters of Application"

I. Discuss purpose and use of "Letters of Application." Discuss contents of such a letter. Have pupils dictate, in concert, a letter and write on blackboard. Review it carefully for better content. Have each pupil write a letter and use for group discussion and criticism.

E. Obtaining jobs over the telephone

I. Use real or dummy telephone for practice purposes. Have group discuss each pupil's practice efforts. Review practice in using telephone books.

IA. Real or dummy telephone

B. Telephone books

A. Have pupils look up names selected by teacher.
F. Employment interviews

I. Discuss the importance of being at one's best in an interview

A. Good personal appearance (have mirror hung in classroom), hair; cleanliness of person; neat and sensible clothes.

B. Good speaking voice—no mumbling.

C. Knowing what you want to say.

D. Having answers to stock questions ready

E. Acting courteously - Yes Sir - No Sir - Thank you

F. Be honest with employer: tell truth

G. Be there early

II. Practice interviews between pupil and teacher as well as between pupils. Simply constructed puppets may be used for practice interviews as it allows the pupils to express their feelings without self-consciousness. Different types of employment interviews should be practiced; 1-gas station, 2-factory employment office, etc.
G. Application blanks

I. Since nearly all jobs require the filling-in of application blanks, it is highly essential that pupils be given practice in this. Work sheets #12 and #13 as well as any other blanks obtainable from employers may be used. Have pupils learn to print names (last names first) and addresses as neatly as possible and to write small so that all information may be placed in limited space. Help pupils obtain and memorize answers to questions generally found on application blanks as:

1- mother's maiden name
2- country of birth
3- birthdate, etc.

IA. Work sheets #12 and #13

B. Application blanks from some employers
In 1938 Chicago established the so-called Lower Vocational Centers to provide for all mentally deficient over 12 years of age and with intelligence quotients below 70. These schools are planned to do for the feeble-minded what the Higher Vocational School is planned to do for the normal. At 16 some of the mentally deficient are able to transfer to these Higher Vocational Schools. The objectives of the Lower Vocational Schools are (51):

1. The development of manual skills.
2. Teaching the basic academic skills.
3. Teaching the desirable use of leisure time.

Emphasis is placed in these schools on occupational information, vocational training and vocational guidance.

Occupational information is taught through an "Occupational Course" worked out by Bernadine Schmidt. It involves the study of industries in Chicago in which employment suited to the abilities of the pupils can be found.

Much vocational training is offered here. The girls have sewing, cooking, millinery and weaving.

In school work experience is provided in running a General Store which is under the direction of an elected General Manager and Board of Directors. The store includes 11 departments. Much of the stock is made by the girls.

The boys work in wood, metal and plaster, auto mechan-
ics and home decorating. A Home Helpers course teaches how to repair broken articles. School Service teaches how to do work around the school.

Vocational Guidance aims to help the pupil in looking for work, preparing for an interview, using want ads, in filling work applications in developing desirable work and character traits.

Placement assistance is provided in part time employment while in school and also after leaving school.

Provisions for vocational education and guidance are made for all the mentally deficient in Newark, New Jersey. A consideration of the social maturity of this group has resulted in their being accepted in secondary schools under an especially planned program. All over 12 years of age who have a Social Quotient of 80 and up, a social rating of 70, and an I. Q. of 60 to 90 are accepted. Pupils are divided into 2 groups according to their I. Q. - Work for those with I. Q.'s between 60-75 is planned on a different level than that planned for those in the higher group. The program includes "technical" work such as reading, writing, arithmetic, measuring, construction; "scientific" experiences such as working with gadgets in the home: Much work experience is planned. The social studies is the point of departure for all this work in vocational guidance.

New York has only recently begun to plan for vocational education and guidance. Up to 1943 there were no
special provisions for adolescents along these lines. The special classes cared for all non-academic pupils without differentiating the mentally deficient. There is still no placement done, no follow up, no job supervision.

The program in general is similar to the one in Detroit in that occupational information, vocational training and guidance are presented formally. The curriculum is set up in groups of interest cores in which these three areas are emphasized. Cores are now in use for children from 7 years of age to 17.

The allocation of cores to the different chronological age levels and the selection of skills to be taught in each core was based partly on results of a study done with the mentally deficient in New York. The study (5) undertook to obtain an estimate of the median mental ability and academic skill of retarded boys and girls at different chronological age levels. Four thousand two hundred and fifty nine test samplings were used from reports submitted by fifty two teachers. The mental test results used and the majority of achievement tests were taken from clinical reports made by licensed psychologists. Other achievement test results were obtained from standardized tests administered and rated by teachers trained in the work. The results are considered valid only for the purposes indicated. Results are chartered in terms of chronological age, mental age, intelligence quotients and accomplish-
ment in school subjects expressed in grade levels. Whenever, in working out the cores arbitrary decisions had to be made they were made by a group of ten experienced teachers of the retarded.

The guiding objectives of the committee which worked on the cores were:

1. To provide a limited number of basic occupational skills for specified C.A. levels centered about meaningful, realistic cores of interest.

2. Making the cores start from the nearest and most meaningful environment of the pupil and gradually leading him to an ultimate realization of his privileges and responsibilities as a citizen and as a contributing member of the social sphere in which he lives and functions.

3. Grading the skills for each core so as to allow for the varying abilities and capacities of the children on each C.A. level.

4. Creating a spiral course of study in which the basic percepts in Occupational Education appear on different C.A. levels but in graded degrees of difficulty, detail and abstraction.

5. Providing for C.A. levels from 13-17 content material in teaching occupational information, vocational guidance and the non-manual aspects of vocational training. Laying a foundation for the attainment of social placement.

The cardinal objective of this course of study is the
creation of a program based on the total needs of the children rather than on temporary child interest. The needs to be met are those that constitute the total life picture of the individual.

6. Cores were set up for children in secondary school:

1. Study of Job Areas.
2. Preparation for the Selection of a Job Area.
4. Spending One's Income.
5. The Worker as a Citizen.
6. Living with others.

12 master topics were decided upon as sources from which to develop skills:

1. People
2. Food
3. Clothing
4. Shelters
5. Health and Hygiene
6. Safety
7. Recreation
8. Workers
9. Transportation and Communication
10. Modern Comforts and Conveniences
12. Social Responsibilities and/or Relationships.
The skills for each level are not only graded from the simplest to the most difficult but are also divided into three tracks—"Slowest, Average" and "Advanced"—to provide for differences in the learning potential of the children. For it is recognized many factors other than intelligence influence the maximum functioning of a child. The committee considered the following factors as the most important in influencing the performance of children with the same I. Q. rating:

1. Degree of emotional stability.
2. State of health.
3. Presence of physical disabilities.
4. Degree of social development.
5. Extent of academic progress.
6. Home background and other environmental factors.
7. Degree of manual dexterity.
8. Employability potential.
V.

Principles of the Program of Vocational Education and Guidance.

 Authorities in the field of special education feel that the school will be held more and more responsible for the vocational education and guidance of the mentally deficient. (21) The setting up of a program to meet the needs of the mentally deficient will require a consideration of the following:

1. The types of employment in which this group is likely to succeed.

2. A study of the occupational potentialities of the group.

3. An adaptation of the most workable programs in use today to local needs.

4. Application of the best teaching methods to be used in carrying out the aims of the program.

Many follow up studies have been done to find what types of employment are open to the feeble minded. The study done by Noel Keys and J. M. Nathan in 1932 (32) is significant in that it reports results of five different studies done in five different localities. Only those gainfully employed were considered in the study. The median I. Q. of the subjects was 65 - 70. 80 was the highest included. Results show the following percentages in different types of work:
1. 82% - in unskilled work
   8% - skilled laborers
   1.9% - small shop or farm laborers
2.89% - of the group worked in factories
4.6% - employed in farms and dairies
3.19% - employed as domestics
15.7% - do sewing, kitchen and laundry work.

Studies done by Beckman (9), Mathews (39) and Brophy (12) show the work which can be done by the feeble minded at each mental age level. Beckman's results are a compilation of the results of several studies. The others are results of follow up studies.

Beckman
M.A. of 5.

Boys
wash dishes
sandpaper furniture
scrub and polish floors
feed and fold from mangle
simple domestic work
brush maker's assistant
handle cinders and garbage
cut rags in accurate strips

Girls
follow pattern in simple sewing
pare vegetables
cut rags in accurate strips
wash dishes by hand
sew rag carpet

M.A. of 6.
mow lawn
kitchen scullion
mix cement
handle freight
brush making
simple laundry
assist brick mason
crochet open mesh
weave rag rug with pattern
simple laundry
operate mangle
fold clothes
**M.A. of 7**

**Boys**
- rough painting
- simple shoe repairing
- 2 horse team plow
- blacksmith's assistant
- chair cane
- make brooms
- simple carpentry
- domestic work

**Girls**
- knit neckties and scarfs
- plain and Italian hemstitching
- cross stitch
- braid
- sew rags for rugs
- simple domestic work
- hand ironing
- simple packing of small articles

**M.A. of 8**

**Boys**
- handle coal and ashes
- pitch and load hay
- barn work
- paint outside and interior flat work
- hair cut and shave
- shingle and set glass
- make wooden toys
- make nets
- garden work
- repair mattresses

**Girls**
- stitch neckties - fillet from pattern
- make baskets
- operate bead loom
- stencil work
- dress doll without help
- operate scarf loom
- make dresses cut by others
- plain ironing
- high grade domestic work
- hand weaving and knitting

**M.A. of 9**

**Boys**
- entire broom making process
- foot power printing press
- block paper into pads
- repair furniture
- paint toys
- higher process of shoe repairing
- harvest vegetables and fruit
- mattress and pillow making
- learn alto horn
- manipulate drums
- fancy brush making

**Girls**
- knit stockings and mittens
- fancy basket making
- cloth toy making
- pottery making
- operate automatic rug loom
- cut out and make dresses
- plain cooking
- pillow lace making
- sew in lining - hat industry
- sew mounts on cardboard
- sew buttons
- make novelties

**M.A. of 10**

**Boys**
- setting and sorting type
- sign painting
- electrician's assistant
- steam fitter's assistant
- form making for cement and floors

**Girls**
- raffia and reed work
- basketry
- Swedish embroidery
- sweater machine
- looper for stocking toes
- starching and polishing in laundry
M.A. of 10 (cont'd.)

**Boys**

- shellacking and varnishing
- bass horn and cornet
- laundry work (detailed)
- garden work (detailed)
- carrying mail

**Girls**

- fancy laundry work
- fancy cooking, cakes, candy, canning
- learn cornet and saxophone

M.A. of 11 and 12

- competent janitors
- stock keeping
- store keeping (small)
- labelling and checking
- green house attendant
- lawn (care taker)

**Mathews.**

**Under M. A. 8**

- helper on freight truck
- helpers on trucks
- roofer's helper
- helper in restaurant
- upholstering

M.A. 8

- tender in round house
- taking boards from a saw
- repairing auto radiators
- mailing boxes
- boiler maker's helper
- helpers on machines
- repairing furniture

M.A. 9

- painter
- machinist's helper
- packing glass

**M.A. 8**

- sew garters and powder puffs
- sew wire edges and facing in hats
- simple library work
- Italian cut work
- power sealing in canning
- learn first violin, cello, flute, and clarinet

**M.A. 9**

- rough work in factory
- errand boy
- set up pins in bowling alley

**M.A. 9**

- elevator boy
- factory and farm workers
### M.A. 10

- Railroad employee
- Drivers of teams and trucks
- Canvasser

**over M.A. 10**

- Director of stock - 7 men in his charge
- Truck driver
- Painter
- Broom maker
- Turning eggs in hatchery
- Factory work

### Brophy

- **Boys**
  - Rope braiding
  - Clothes sorting
  - Garden work
  - Operating mangle

- **Girls**
  - Hand ironing
  - Hand weaving
  - Knitting
  - Weaving rag rugs with pattern

### M.A. 5

- Handling garbage, cinders
- Freight, laundry work
- Farm and dairy work
- Mowing lawns
- Mixing cement
- Brick layer's assistant
- Common laborer

### M.A. 6

- Hand ironing
- Hand weaving
- Knitting
- Weaving rag rugs with pattern

### M.A. 7

- Rough painting
- Simple carpentry
- Making brooms
- Driving truck
- Cleaning automobiles

- Hand or machine sewing
- Braiding
- Simple packing of small articles
- Bottle vinegar
- Case sausage
Boys

M.A. 8

painter's helper
clean boilers
cut hair and shave
machine operators in auto industry
sprayer
leather cutting
solders

M.A. 9

shoe repairing
motion picture machine operator
repairing furniture
auto horns repairer
laundry workers

M.A. 10

set and sort type
printing
paint signs
shipping clerk
play bass drum, cornet

Girls

make dresses if cut by someone else
time keepers
wrapping packages

M.A. 8

knit stockings, mittens
make pottery
cut and make dresses
do plain cooking
sew buttons
laundry workers

M.A. 9

raffia and reed work
Swedish embroidery
salesgirl

The scale worked out by Burr (13) is another source to consult in determining jobs the feeble minded can hold. It is interesting to note that the scales as first worked out (62) were subsequently found to be too high. It was found for instance that those with a M.A. of only 5 could be trained to succeed at the easiest packing jobs. Women with an M.A. of 6 could be placed in light factory work. At seven, some had been trained for assembling parts, errand service, examining and pasting parts.

The McKeon follow up study done in Worcester, Massa-
chusetts (70) showed that 23% of the jobs held by former special class pupils were helpers jobs; 17.5% were in the delivery service; 11% were drivers; 10.3% were machine operators; 7% were on government projects; the remaining 13.2% included 13 occupations.

Miss Hopkinson’s study (69) proved that the mentally deficient could be trained for jobs in the production of plastic jewelry.

We would then expect that the work most of the feeble minded are to prepare for will fall in the unskilled group or the lowest group of occupations as classified by the Dictionary of Occupational Titles. A few who possess some special ability will be found among the semi-skilled and skilled workers.

The major occupational groupings as given by the Dictionary as well as the Barr Scale (11) may be placed in an acceptable order of intellectual demands. Both these measures, it is true, are based on subjective estimates alone of intelligence needed for each job, judged by expert workers. But Blau and Lorge found (11) that there is a correlation between subjective estimates of intelligence demanded on the job and objective measures. They found a correlation of .76 with the mean Barr Scale value of 9.46 and a standard deviation of 3.09;
and with the mean Fryer Standard Score of 5.21 and standard deviation of .63.

As has been pointed out in chapter 3, the prime consideration in the education and training of the mentally deficient for jobs in which they can succeed is a consideration of their level of intelligence. However, it is important to consider special abilities early in the vocational education of the mentally deficient in order that appropriate training can be given to help those with special abilities utilize these abilities to the best advantage.

Lightfoot (34) voices the idea that manual training is stressed because the school is unable to provide any other training; that therefore there is no remarkable result from such training. Miriam Pritchard concludes that the mentally deficient not having mechanical skill should be trained for other work. She points out that the majority of the feeble minded who were trained for mechanical trades soon gravitated to other jobs. There are sufficient tests of manual dexterity and mechanical aptitude which can be used successfully with those of the feeble minded who are considered capable of profiting from a program of vocational education and guidance. There is little justification in subjecting all to training along mechanical lines. The two tests of manual aptitude to be described here are the Minnesota Manual Dexterity Test, and the Finger Dexterity Test.
The Minnesota test measures speed of hand and arm movements. The speed with which the subject picks up and places cylindrical blocks all of the same size in holes in a board is recorded. The test is used to determine aptitude for semi-skilled factory operations which require a high degree of manual dexterity. Food wrappers and packers do well on this test. This aptitude measures early. The Standard Norms given are applicable to adults and children from 13 on. This aptitude is an asset in the following 8 occupations: butter packers, butter wrappers, food packers, bank tellers, semi-skilled workers, skilled manual workers, stenographers, garage mechanics.

The Finger Dexterity Test is used to indicate aptitude for those kinds of bench work which require rapid manipulation of objects such as picking up and placing small parts in assembly work. It is used with adults and children over 13. Women engaged in meter and instrument making rank highest here, butter wrappers lowest.

The Minnesota Paper Form Board, the Spatial Relations and the Assembly Test can be used to discover mechanical ability.

The Paper Form Board is a paper test which indicates degree to which an individual is capable of discriminating geometrical patterns in 2 dimensions and manipulating such figures.

The Spatial Relations Tests is a series of form boards designed to measure speed and accuracy in discriminating sizes and shapes. It can be used with children in the upper elementary grades as well as with adults. (62)

The Assembly Test is designed for ages 11-21. Dr. Burr describes its use with a girl whose mental age was 7.10 (14). It was found that although the results of other items on the scale were negligible, she possessed sufficient manual dexterity to do well on the tape threading and bead stringing test. After some training, this girl was able to do simple table work in a factory.

Dr. Burr also recommends the use of the MacQuarrie, Stenquist and Toops Mechanical Assembly Tests. The MacQuarrie test gives the age levels of each separate part as determined by the Babcock method. The test scores then, can be broken down into single units for guidance purposes.
The Stenquist Mechanical Test is especially designed for boys. The test items are arranged in two groups of 5. The first 5 give reliable indications of the subject's trainability in simple manual tasks, the second 5 for more involved jobs.

The Toops Mechanical Assembly Test for Girls also offers suggestions as to the best type of training if used in sections.

Dr. Burr finds the Babcock Efficiency Examination very useful because it not only tests a girl's work capacity but it also analyzes the various mental processes involved. For, as has been pointed out earlier, equivalent mental levels, equivalent initial learning ability do not mean that two persons can be equally efficient workers. Many other physical and mental characteristics need to be considered.

The use of the Rorschach instrument can also be recommended here. It has been found to be of great value in vocational guidance. It is appropriate for all ages beyond three years, all levels of intelligence and without regard to environment and training.

Other factors to consider in determining the occupational potentiality of the mentally deficient are: physical and mental health, social and emotional maturity and educational achievement.

The survey of programs in operation in representative cities showed that the following phases were being emphasized:

1. occupational information
2. vocational guidance
3. vocational training
4. vocational placement
5. social placement

The first three areas are presented formally. In order to be carried out successfully each one needs to be based on a thorough survey of the community to find jobs the group
needs to learn about, how to compare their capacity with the requirements of these jobs, to find the jobs for which training would be profitable. Success will depend on the thoroughness with which the locality has been surveyed, the teaching plans adapted to the group and the methods used.

It must be emphasized that the first three areas be based on a very systematic study of work available in each locality. For the kind of employment found possible will vary from community to community. Jobs in a rural community will be found in agriculture. A small community built around one or two industries will need to consider jobs available in these few industries. An example of work studied in such a community was done in the town of Leominster by Miss Hilda Hopkinson (69). In the city it is impossible to train for all available occupations, because the occupations and skills represented are so diverse. Here vocational guidance, training in non-manual skills and work experience in sheltered shops need to be stressed.

The acquiring of occupational information is a continuous process. Much of it will have been acquired long before the mentally deficient enters upon a program of vocational education. In earlier years the child learned about different occupations more to understand the contributions others were making toward his welfare, to realize the interdependence of people to cultivate a respect for work done by others. In the
last years of his schooling it is planned that he learn what contribution he can make.

Occupational information should include such areas as the following worked out for each community: kinds of jobs available for different members of the group; descriptions and analyses of these jobs; where jobs are located; how to get the job.

The short outline of the guidance program in Chicago as given by Bernadine Schmidt may well summarize the vocational guidance programs in general.

1. personality rehabilitation;
2. teaching of fundamental academic skills; looking for work; interviews; using want ads; filling work applications;
3. development of desirable work and character traits;
4. placement assistance in part time employment while in school;
5. placement after leaving school.

The subject matter in the course of study should be set up to include such topics as: how to choose a job, how to make the most of the job, how to keep a job, adjusting to accidents and unemployment, how to save, how to get along with others on the job and away from it. The teaching of these
non-manual skills must be emphasized.

The extent to which a vocational guidance program is carried out will depend upon whether the teacher is the only guidance worker or a counsellor is provided. In many large cities where the junior high school students are provided with counsellors as a matter of course, handicapped children, even of high school age have none. The classroom teacher then assumes the guidance function. Grouping of subject matter into a vocational guidance course will take care of group guidance.

Individual counselling will be based on:

the I.Q., results of special aptitude and achievement tests, "behaviorograms" and other anecdotal records submitted by teachers, records of physical and mental health, temperamental and emotional traits, social maturity, general behavior, family and neighborhood environment.

Program adjustments must be made to provide time for individual counselling where it is done by the teacher alone. Shortened periods or an afternoon a week should be set aside. It might be possible to assign the group to regular classes such as gym, shop work or auditorium in order to make time for counselling.

Where there is a counsellor much more can be accomplished. The guidance specialist will have time to carry out
such projects as the following (16):

1. Supervising the compilation of current occupational information.

2. Constructing courses of study in occupational information and guidance.

3. Arranging for exhibits of pupils’ work done in connection with these courses.

4. Utilizing the facilities of all existing public and private employment agencies.

5. Establishing contacts with personnel managers in public and private industry.

6. Educating labor management as to the worth of the retarded in industry by such means as gathering and publicizing data on the success of retarded workers properly trained and supervised.

7. Compiling data which will establish the need for sheltered workshops.

8. Keeping cumulative records of pupils up to date in follow up work of social and job experience.

9. Making provisions for utilizing and augmenting the facilities of all existing social and vocational rehabilitation agencies.

10. Replacing the pupil in industry after treatment if such is necessary.

11. Maintaining contact with employer after job placement.
The type of vocational training provided for will again depend upon the survey of the industries in the particular locality. There is a difference of opinion as to whether specific vocational training is possible. Some teachers and administrators feel that it is not possible to bring into the class simple routine factory work. They believe that preparation should be carried out on the job and that emphasis in school should be on acquiring of habits (38). Some deny the need for vocational training altogether on the grounds that the simple work this group will be doing can be learned on the job.

The need for training cannot be denied. Those who have worked with the retarded know well that no matter how simple a job may seem to us, to the dull this very small requirement looms large. However, it is true that most routine factory work cannot be brought into the classroom. Work experience done with the help and under the supervision of a special teacher or counsellor will take care of this kind of work. Altho there is evidence that some routine factory work can be brought into the classroom Miss Hopkinson's study shows how this can be done in the production of plastic jewelry.

The value of work experience has been definitely determined for the normal. Proof can be found in the numerous
cooperative courses in various fields being set up in high schools.

It must be remembered that the feeble minded will be engaged in many other jobs besides routine factory work. And if the resources of the school and community are surveyed and used, much training is possible. The ordinary junior high school has ample equipment for training along lines of domestic service for girls, the shop and the school building offers equipment for training the boys for many of the assistant jobs they will fill.

Too, emphasis must be placed on non-manual skills. A pupil who has gained through courses in occupational information and guidance many habits, attitudes and skills in connection with job getting and job keeping; a pupil who has had in school as much training in as many job areas suited to his capacity as possible; a pupil who has had the privilege of work experience in and out of school has not very much more to learn on the job. Since he has built up a good background of habits, attitudes and skills necessary in holding a job, he can devote all his attention to learning any little new skill on the job.

Vocational training for the mentally deficient need not then, be expensive. It must be remembered that there is little justification in duplicating for this group the services
of the regular classes in training for the higher job levels. For those with potential ability above the semi-skilled level comprise only 8% of the group. This 8% does need specialized vocational education and guidance services but not of the kind that require separate and specialized machines and other equipment. (32)

Such studies as Bigelow's (10) and Theodora Abel's (1) demonstrate the need of sheltered shops and long term work experience for the retarded. Work experience is preferred to apprenticeship in that the training of the pupil is handled by the teacher, counsellor or coordinator not by another worker or by the foreman. The supervision of the deficient on the job and the advancing of the pupil from job to job within a factory needs to be done by a specialist.

Since it is true that the mentally deficient need a much longer period of training than the normal, it is recommended that work experience, a part of the program for the mentally deficient in secondary school, begin in the first year of junior high school. Vocational training is based on this work experience. Pupils between 12 and 14 will have in-school work experience, those between 14 and 16 experience in jobs in the community. Of course placement in any job, in school or out must be based on a consideration of the cumulative records kept for each pupil.
The following is a list of possible in-school jobs. The pupils at the Handy Junior High School at Bay, Michigan do many of these jobs in their school:

Janitor's Assistant:
- sweeping
- care of waste and ashes
- running incinerator
- washing windows
- reconditioning school furniture
  - (sandpapering, shellacking, and varnishing)
- minor paint jobs (flat paint)
- taking care of tools
- taking care of game fields and courts
- waxing, oiling floors
- dusting

Gardening
- taking care of lawns - rolling, fertilizing, raking, cutting
- trimming shrubbery
- care of flower beds
- watering, weeding

Office help
- running mimeograph machine
- running motion picture machine
- messengers
- counting out and distributing notices
- distributing mail
- storing school supplies and filling teacher's orders
- storing and distributing visual aids materials

Lunchroom work
- serving
- washing dishes
- checking each day's milk order
- preparing food for sandwich fillings
- making up sandwiches

These jobs are always available in any junior high school. If the teacher will constantly search for additional
jobs she will undoubtedly find many more if not in the school then in the community. Many jobs done by community organizations - the Red Cross, child care centers offer profitable vocational training and can be brought into the classroom. Too, very often it is possible to set up in school facilities for training in routine jobs done in the factories of the community. (69)

In-school work experience will probably not be planned for more than a period a day. However, the work to be done by each pupil during that hour must be carefully planned, supervised and checked. It would defeat the purpose of work experience to allow the pupil to do his work in a slipshod manner and then spend the rest of his time in idleness. A work sheet with a list of work to be done should be issued to the pupil for each hour of work experience. Marks for each hour should be based on attitudes, thoroughness and industry.

The pupil should have as many different kinds of work experience both in school and out of school. Follow up studies repeatedly bring out the fact that the feeble minded, once he loses the one job for which he had been trained, often fails to adjust to a new job.

Work experience in the community involves agreements between the school, the employer and the pupil's parents. The school and the employer will need to agree on the number of hours the pupil is to work, wages, working conditions, the
duties of the supervisor, rights of the employer in case of unsatisfactory work, the rotation of pupils from job to job, reports employer will be asked to give about the pupil, whether or not the employer has the right to offer the pupil full time employment at the end of training.

The parents need to sign an agreement as to wages and hours. The U. S. Employment Office or State Labor Bureau will be of help in the matter of wages and hours. For minimum wage and hour laws must be observed, the approval of union leaders should be secured.

Time devoted to work experience will vary from a minimum of 15 hours a week to a full time 8 hours a day. Pupils should not work at any job later than 7:00 P.M. and no earlier than 7:00 A.M.

Methods of rotating pupils vary. It would seem more profitable to have short periods of alternating work and school for the feeble minded. In Baltimore Maryland children work as teams. "A" and "B" hold the same job. While "A" is in school for two weeks, "B" is on the job. When "B" returns to school, "A" goes on the job. In this way the employer has the job covered full time for the school term and the pupils do not lose touch either with their school work or their job.

It is interesting to note here that of the 8 large cities of the United States which have excellent programs for vocational education and guidance, only 2 have put into opera-
tion programs of out-of-school work experience. The writer's questionnaire was answered by all 8 cities -- New York, Los Angeles and San Francisco, Cal., Baltimore, Md., Detroit, Mich., Minneapolis, Minn., Newark, N. J., and Rochester, N. Y. The programs in Baltimore and Detroit are the only complete programs in that they include work experience in the community. There are other isolated provisions for work experience throughout the country. However, these are not part of any program, nor are they systematically or thoroughly planned.

The Baltimore program offers training and work experience in woodwork, electricity, sheet-metal, shoe repair, wrapping, packing, sorting, sample filing, soda fountain work, pretzel twisting, glass examination, seamstress helper, grocery store helper and messenger. Job training units have been worked out for each of these jobs. One of them is reprinted here as an excellent example of how to set up a training plan for teaching skills needed on a job in the community. This is an example which may be followed because:

1. it fills a definite need for workers in a local industry;

2. it is prepared for a definite group of pupils - low mentality, some manual dexterity;

3. it is based on a well thought out job analysis (a study of the skills involved broken down into their most elementary forms.
Job Training

Pretzel Twisting

(Low Ability)

The pretzel baking industry offers many opportunities for girls who have reached the age of sixteen.

The equipment needed for teaching this skill is simple and inexpensive.

All girls in the Job Training Classes who have been given this training have been able to master the skill. Not all have been able to attain the commercial standard of speed.

A. This unit consists of the following equipment:

1. Two, four, or six boards fourteen inches wide, fifty inches long, and about one inch thick. (14"X50"X1")

2. Fifty-four feet of ordinary clothes line for use with each board. This clothes line is cut in eighteen inch strips—thirty-six strips for each board.

3. Two buckets, capacity two or three gallons.

4. Linoleum to cover boards. This last is optional but is economical in the last analysis as it prevents the boards from warping.

B. Method of twisting pretzels.

(This method might prove very difficult for the learner with only the written directions, therefore we advise the instructor to learn first hand from an experienced person and use the following directions merely as a guide.)

1. The pretzel is held with one end between the thumb and fore-finger of the right hand and the other end between the thumb and fore-finger of the left hand. Fig. 1.

2. A is held in the air while B is held near the board—the pretzel is held in a perpendicular position. Fig. 2.
3. Bring A toward the body and swing left forming a large loop ending with A crossing over B. Fig. 3.

4. Do not change hands but with a clock-wise motion let B follow A until ends of the pretzel are approximately in front of the worker. Fig. 4.

5. Cross B over A to the left and A over B to the right in the order given. Fig. 5.

6. Grasp pretzel with both hands at spot marked X (Fig. 5.) between the thumb and fore-finger and with remaining fingers thrust through each loop, stretch slightly with an outward and downward pull and lay on board.

7. Some companies require that the pretzel be turned face down on the board for baking but others do not.

C. Commercial requirements. (Giant size pretzels.)

1. 36 pretzels to one board--9 across and 4 down. Fig. 1.

2. 3 boards done in 5 minutes

3. (Medium size pretzels.) 12 across and five down Fig. 2.

4. 3 boards done in 5 minutes.

D. Wages

During normal times a girl will earn from eighteen to twenty-five or twenty-six dollars per week depending upon her speed.

E. Suggested teaching aids.
1. Individual cards to be punched for each three boards completed.
The rate of pay is based on the number of boards completed.

2. Speed tests with charts showing pupil progress.

F. Suggested related work,

1. Arithmetic

   a. use of fundamental processes
      1' Counting number of boards completed individually
      2' Counting number of boards completed by class
      3' Counting number of pretzels left on board at end of speed test
      4' Counting number of punches in one day
      5' Counting number of punches in a week
      6' Comparing number of punches done each day of a week and determining on which day the best work was done and on which day the poorest from the standpoint of speed, was done.
      7' Using the four multiplication table to count number of pretzels on the board.
      8' Using the three table to count number of boards done for number of punches.
      9' Setting up a wage scale based on the punch system and computing wages earned.
         a'per day
         b'per week
      10' Division by 3. Give number of boards done and find number of punches that should be given.
      11' Division by 36 or 60—give number of pretzels done and find number of boards done.

      Any number of one and two step problems may be written with pretzel twisting as the subject.

2. Personal Hygiene

   a. Body
      1'skin
      2'hair
      3'nails
      4'teeth
      5'posture

   b. Clothing
      1'uniforms
      2'underwear
      3'shoes
Care of the body and the clothing is stressed for all food handlers.

3. Guidance

See the following: "The Pupil as an Individual Who Will Eventually Seek Employment," Part I Job Training.

"Emphasizing Character Traits." Part II

"The Qualifications of a Good Worker." Part III

Care of the equipment.

1. The rope used for pretzels must be thoroughly soaked to make it pliable.
2. All excess water must be removed from the pretzel before twisting.
3. Each evening the pretzels should be stretched dry and laid out upon the boards to dry.
4. Keep the boards wiped dry.

Courtesy of Mrs. Mary W. Corby, Teacher, Job Training--School No. 22

Edited by Mrs. Koma Stinchcomb
Acting Assistant Supervisor
Occupational and Shop Related Work
VI.

Adapting the Program of Vocational Education and Guidance to a Local Situation.

It must be emphasized that the feeble minded in secondary school should receive training primarily for work within their own community. They should be prepared for as many jobs as possible, but training for a particular job should be offered only if it fills a definite need in the community. For, the mentally deficient, if properly trained, placed and therefore satisfied with their jobs, will remain in the community. (70) They can at best be trained for only a very few jobs, comparing to the number possible for the normal, and these few jobs should be found in the environment where the feeble minded feel most secure, that is, in the community. Some of the mentally deficient, it is true, will find employment outside the community. But here the transition will be made easily if handled through after school placement and follow up service.

The five components of a successful program of vocational education and guidance were discussed in part 5. In order to organize the program in any community the following steps must be taken (55):

1. A job census must be made in the community to determine the available positions of social utility requiring little or no skill or general ability.
2. A carefully controlled and well thought out job analysis of the situations located by the job census. This implies a study of the skills involved broken down into their most elementary form.

3. Means for discovering and measuring the essential requirements.

The three steps are here worked out, to illustrate, their adaptation to a definite community - that of Belmont, Massachusetts.

Belmont is a prosperous, residential town with a population of 28,000. There are few manufacturing plants here. Most of the work within the community falls in the line of service occupations. A survey of the community reveals that the following establishments offer some occupations at which the feeble minded might succeed. These establishments are here listed according to the number of such concerns from the greatest number to the least.

Markets, drug stores, gas stations, tailors, beauty shops, contractors, coal dealers, restaurants, express companies, hardware stores, greenhouses, laundries, welding shops, milk dealers, upholstering company, roofing company, spring water bottling company, storage, trucking, lithographers, painters, paper hangers, plasterers, feather company, builders, building supplies, coach service, carpenters, caterers, cement manufacturers, machine company, manufacture of drinking cups, production of electricity.
It was brought out in the preceding section that the major occupational groups as listed in the Dictionary of Occupational Titles may be arranged in an acceptable order of intellectual demands. On the basis of data presented by Blau and Lorge (11) and taking into consideration the correlation between the Barr Scale and the Fryer Standard Scores these major occupational groupings have been arranged tentatively in the following order with ranks showing the intellectual demand for each group (11):

<table>
<thead>
<tr>
<th>Rank</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-0 through 0-3</td>
<td>10</td>
</tr>
<tr>
<td>0-7</td>
<td>0-9</td>
</tr>
<tr>
<td>0-4</td>
<td>0-6</td>
</tr>
<tr>
<td>1-0</td>
<td>1-4</td>
</tr>
<tr>
<td>1-5</td>
<td>1-9</td>
</tr>
<tr>
<td>2-6</td>
<td>-</td>
</tr>
<tr>
<td>composite 4 and 5</td>
<td>$5_{1 \over 2}$</td>
</tr>
<tr>
<td>3-0 through 3-4</td>
<td>-</td>
</tr>
<tr>
<td>2-2</td>
<td>2-5</td>
</tr>
<tr>
<td>composite 6 and 7</td>
<td>-</td>
</tr>
<tr>
<td>composite 8 and 9</td>
<td>-</td>
</tr>
<tr>
<td>2-0</td>
<td>-</td>
</tr>
<tr>
<td>3-8</td>
<td>-</td>
</tr>
</tbody>
</table>
On the basis of this listing the jobs available for the feeble minded in Belmont were checked against their ranking in the Dictionary of Occupational Titles, and again against the three lists given in part 5. The more carefully cumulative records are kept in each community as to the jobs at which the feeble minded succeed, the more numerous, inclusive and accurate will be these lists and in turn the more accurate and purposeful will be the work of vocational education and guidance. The American Association on Mental Deficiency, through its Committee on Education and Training has undertaken a nationwide survey of the occupational services rendered by the mentally deficient who have been trained in special schools or classes. Results of this study will be greatly improved practices of occupational placement of the mentally handicapped throughout the country.

The following is a list of jobs available in each of the business establishments in Belmont. A list like this becomes more accurate as the skills for each job are noted and analyzed and as cumulative record information on pupils who hold each job is compiled and studied.

In small concerns such as found in Belmont one worker might be required to do more than one of the jobs listed, so that two or three job titles might indicate work done by one worker.
Restaurant Work.

Unskilled

dishwasher
dishwashing machine
    attendant
dumb waiter operator
fountain waiter
glass boy
glass drier
kitchen boy
kitchen hand
mop man
pantry service girl
sandwich counter
    attendant
scullion
service girl (cafeteria)
soda jerker
    vegetable girl (man, woman)
waiter (dummy)
bus boy, bus girl
clean up boy
dish carrier
coffee boy, coffee girl
counter man, woman
dining room girl
Laundry Work.

Unskilled

blouse finisher and folder
body clothes press operator
bosom press operator
breaker
bundle boy
bundle weigher
buttoner
chute girl
clip boy
collar ironer detached collars
baller - a puff ironer
collar molder - machine operator
collar edger
collar seam dampener
cuff operator, cuff presser
curtain drier or curtain framer or curtain girl
curtain wrapper
sorter
routing clerk
tumbler operator or drying machine operator
duck coat press operator
family ironer
fancy ironer
flatwork finisher
flatwork retoucher
mangle girl or flat ironer
flatwork catcher or first receiver
handkerchief backer or iron operator helper
pin boy or girl, pin marker
pin sorter and bagger
reel girl
towel shaker operator or towel fluffer

Semi-skilled
assorter
classifier
blanket comber or carder
blanket washer
flat work folder
classifier
detacher
wash girl (hand)

Skilled
sock darter or darning machine operator, stocking darter
fluting machine operator
Auto Service Work.

Unskilled
station attendant - pump man
auto washer or wash boy

Semi-skilled
oil salesman
shock absorber repairman
service man
tire and tube repairman or tire fixer
car greaser, car oiler, grease man or grease monkey

Manufacture of chemicals
Unskilled
drier
drum filler
bottle washer

Skilled
bleacher operator, bleacher man or C.P. bleacher operator
filter pressman, filter presser or pressman
lye treater

Manufacture of Cement.
Unskilled
cement belt man
separator man, silo tender, bin man
cement loader and sacker
screenman, cement gun mixing machine

Skilled
cement drier tender, kiln tender
grinder, grinder operator, millman

Production of Electricity
Unskilled
cable repairman
cable puller
cable placer

Semi-skilled
cable splicer

Machine Shop Work.
Unskilled
handyman
hacksawing machine operator, cut off sawyer
sweeper, cleaner
motor tramp
briquette machine operator
oil extractor
machine set-up man
maintenance mechanic's helper
stock boy
Semi-skilled

tool grinder
belt man
bit sharpener
band sawing machine operator
floor assembler, erector, assembly man
circular rip saw operator, ripsawyer
enameler
lathe hand

Dairy Work.

Unskilled

bottle dumper
bottle feeder
bottle inspector
bottle unloader
case changer
case loader
sterilizer
cooler operator
bottle filler - helper
can filler
Semi-skilled

bottle washer
sanitary equipment man
tank washer
fireman
dye weigher
vacuum capping machine operator

Domestic service.

chamber maid
children's sitter
furnace tender
maid-of-all-work
housecleaner
odd-job man
cleaning woman
laundress
mother's helper
waitress - dining room girl
gardener helper

Construction Work

Unskilled

Brick cleaner
bricklayer helper
clearing man
hammer and saw man
hod carrier
brick laborer
material hauling laborer
wall washing
asbestos worker helper
pick and shovel man
wood butcher
yardman
roofer helper

Semi-skilled

building cleaner
calker
cement gun nozzle operator
roofer
steam fitter helper
tile layer helper
window calker

Skilled
calciminer
carpenter-weather stripper
cement mixer operator
cork layer
floor layer
paper hanger
stair man
weather stripper
Miscellaneous.

Unskilled.
greenskeeper - golf course
hothouse laborer
box wrapper
wrapping machine operator
label stamper
delivery truck driver helper
coal bagger
coal hiker
furniture packer
garbage collector
trash collector
street cleaner
snow remover
sewer pumper

Semi-skilled
chair upholsterer, cushion builder
roofer - composition
roofer - asphalt
chauffeur
truck drivers
dump truck driver
Instructional units must be based on a thorough analysis of each job. Some of the principles of job analyses are here quoted from the work on job analysis by Verne Fryk-lund (5).

“TRADE AND JOB ANALYSIS

Trade and job analysis is a technique by means of which the essential elements of an occupation are identified and listed for instructional purposes.

The making of an analysis of an occupation can be compared to the making of an inventory of a store.”

“Kinds of Analysis

Workers in vocational education should be able to distinguish trade and job analysis from the many techniques of job descriptions, job specifications, and job classifications. These and many similar techniques are mistaken for trade and job analysis.”

“A relative order of instruction of operations and a progressive order of jobs in a block can be arranged by means of a charting procedure. It simplifies the making of the analysis and affords a graphic procedure for securing an instructional order by inspection.”

“MAKING THE ANALYSIS -- LISTING THE INSTRUCTIONAL STEPS

The listing of the operations, the information topics and the making of a chart for a trade, or block of a trade, are important steps in making a trade or job analysis. Thus far, the materials obtained are exceedingly useful to the experienced as well as to the beginning shop teacher. However, there remains another important step which is necessary in order to complete the analysis and which makes the analysis even more useful. Each operation and each information topic should be further outlined, or analyzed into steps. Merely listing the operations and the information topics does not give assurance that the teacher will fully cover each of them when teaching. The important steps that include the details of the manner of adjusting and manipulating tools in depicting, shaping or forming, or assembling should be listed in their sequence, otherwise it is likely that important points may be left out when teaching. This is just as likely to happen to an experienced teacher as to a beginner. The next procedure in making the analysis results in material which is useful in making a daily lesson plan;
it is a practical lesson to plan. To those who are interested in preparing instruction sheets, it also serves as a basic outline."

"What to Teach The thing to teach is the instructional unit. The instructional unit is an element of the trade or job. The elements consist of operations and information topics. One instructional unit and no more should be taught at one time. The steps to be covered in a single lesson are outlined in the analysis of the trade. For example, in a machine shop the operation on 'how to knurl', would be covered in one lesson and would include all the steps involved in knurling and no more.

To repeat an often made and often proved statement, it is not the seemingly easy operation that should be taught first. The basic and frequently used ones should be taught first whether they are seemingly easy or difficult. Individuals differ in every human characteristic including ability to learn easily the elements of the trade. What may be easy for one person may be difficult for another. Therefore, the question of difficulty as a control of the teaching order may be dismissed in favor of the frequency of use of a given operation.

There probably is not a best method of teaching. The objective, the teacher, the learner, the subject matter, the time limitations, and the equipment and supplies available are major factors in determining the best methods of teaching in a given situation."
## A Sample Record of Out of School Work Experience

### Employer's Report

**Name of Pupil** ____________________________

**Name of Employer** ____________________________

<table>
<thead>
<tr>
<th>Period of Work</th>
<th>Name of job</th>
<th>Skills performed</th>
<th>Weekly Hrs. wages</th>
</tr>
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<tr>
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</tbody>
</table>

### Job Description

<table>
<thead>
<tr>
<th>Efficiency</th>
<th>Date Check</th>
<th>Date Check</th>
<th>Date Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude toward other workers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude toward superiors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honesty</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**Is this a worker whom you would employ or recommend that others employ?**

- Yes [ ]
- No [ ]

**If not why not?**

---
A Sample Cumulative Record Card.

Name of the School.

Pupil's name __________________________ last first initial

Address __________________________ Date of birth ______

Father's name __________________________ Occupation __________________________

Teacher's records.

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<tr>
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Name __________________________

Year of test ______

I.Q. ______ S.A. ______ S.A. ______

Yes or No. __________________________

Is the child a behavior problem?

Has he been a behavior problem in the past?

Is his attendance regular?

Has been referred to --
### Anecdotal Records - (Teacher's)

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<thead>
<tr>
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### Counsellor's Records

**Aptitude Tests**

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### Anecdotal Records

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Regular school health card to be consulted for health record.
A Sample Record of Out of School Work Experience.

Counsellor's Report.

Pupil's name ________________________________

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<th>Date</th>
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</table>

The counsellor reports on the development of skills, attitudes required on the job; absences; next job recommended etc.
A Sample Follow-Up Record - cont.

Counsellor's Report

<table>
<thead>
<tr>
<th>Year</th>
<th>Progress on the job</th>
<th>Name of agency referred to</th>
<th>Reason for referring</th>
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A Sample Follow-Up Record Card.

School.

Pupil's name ____________________________________________

Address ____________________________________________ Date of birth ______

Father's name ____________________________________________ Occupation _______________________

Job Description

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Weekly

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A Sample of a Written Agreement Between the Employer and the School. (A reprint from the Department of Education, Division of Vocational Education, Baltimore, Maryland.)

This Agreement certifies that _______________________, Employer

__________________________, Baltimore, Maryland, is cooperating with the Division of Vocational Education of the Baltimore Public Schools in a Coordination Program alternating two weeks employment and two weeks schooling for _______________________, Employee

__________________________, Baltimore, Maryland, Address

for a minimum period of six months or until the employee reaches the age of 16, or until the close of the current school year in June. It is agreed that:

1. Minimum wage and hour standards will be observed.

2. So far as practical, the employee shall be rotated through a series of jobs within his or her capacity. School credit shall be determined by the school coordinator in cooperation with the employer.

3. The employee can be discharged for incompetence at the discretion of the employer.

4. The employee can be removed from the job by the School, either for violation of this agreement on the part of the employer, or for violation of School rules and regulations on the part of the employee, particularly in regard to attendance.

5. The regulations of the Office of the Commissioner of Labor and Statistics are to be followed.

6. The employer will not suggest a full-time permit without first consulting the coordinator, for coordination employees.

__________________________
Employer

__________________________
Principal
A Sample of a Written Agreement Between the Employer and Pupil's Parents.

We, ___________ Parent and ___________ Employee of ___________ Address, hereby consent to abide by the above agreement.

________________________________________ Parent

________________________________________ Date of Birth

________________________________________ Employee
A Sample Training Unit for In School Work

Experience.
Lunchroom Work.

General understandings:

1. Through cooperation and efficiency it is possible to accomplish a great deal and perform great services for others.

2. Each person's contribution in work is important even if it is only a very "insignificant" job.

3. Efficiency is not the only qualification of a good worker.

Specific understandings:

1. Each little job in the lunchroom if well done is important in that it contributes to the services rendered by the lunchroom as a whole.

2. It is necessary to learn to do the work quickly and well, to remember that:

   a - It is not very difficult to learn to do things safely as well as efficiently.
   b - Strict cleanliness and neatness is a matter of necessity in a lunchroom.
   c - The attitude of a person who does not cooperate with others makes him much less efficient.
   d - The worker who learns to be cheerful and courteous stands a much better chance of getting and keeping a job.
It is suggested that each skill involved be taken up separately, practiced and mastered. Each pupil should actually demonstrate in the lunchroom that he has mastered a given skill before going on to the next one. Not until all skills have been mastered and the unit of work finished in the classroom should work experience in the lunchroom begin.

Skills to be developed

I. Dishwashing

1. To clear dishes; stack plates together not moving their position on the tray. Stack cups but never glasses. Stand these side by side. Place silver so that handles are all facing the same way.

2. To prepare water: a pan of hot water and soap; for sterilization a pan of hot water to which a tablespoon of bleach to a gallon of water has been added.

3. Order of washing glasses, silver, china, pots and pans. Wash in soap and hot water rinse in plain hot water then

Suggested methods

1. After demonstrating the stacking of dishes pupils work out brief rules to remember. These to be written out and sheet put into "Pupil's Handbook" section on Lunchroom Work. Work out chart in classroom which gives name of each pupil and each of the skills. Pupils and teacher act as critics and decide whether or not pupil has acquired given skill. Name is checked on chart.

Class investigates actual arrangement of dishes and silver in lunchroom closets. Make
Skills

in pan with hot water and bleach.

4. To dry:
   Drain dishes and glassware, dry silver.

5. Sorting dishes and silver.

II. Checking food order

Methods

diagram of closets. Memorize placement of dishes.

Pupils actually do the dishwashing in lunchroom one day to check on whether or not skill has been mastered.

Actually put all dishes away etc.

II. Make a list of actual foods which need to be checked in the lunchroom each day.

10 loaves white bread
5 loaves rye bread
250 plain milk
12 chocolate
6 qts. plain milk

For practice make chart with items listed. Leave pockets for no. of each item and date.

Pupils set in dates and nos. to correspond with date and numbers for each day's order.

Check food order in lunchroom for a week.
Skills

III. Preparing sandwiches

Fillings -

1. Chopping
   a. Celery - wash, trim; split each stalk and chop 3 or 4 stalks at a time.
   b. Olives
   c. Nut meats - place between wax paper and roll with a rolling pin.
   d. Eggs - cook 18 min. below boiling point. Cool and mash with fork.

2. To cream butter - place in warm bowl, mash and beat until soft.

3. To prepare tuna fish.
   Mash with a fork, turn over it oil mixed with vinegar, add celery and place in refrigerator until needed.

Methods

III.

Watch the preparation of sandwich fillings in the lunch room.

Collect recipes and write them out to be included in "Pupil's Handbook."

Class divided into groups prepares sandwich fillings for use in the lunch room. Each group to be given a different filling to prepare each day.

Study recipes in reading arithmetic and spelling lesson to learn measures (tbs., ts., c., qt., etc.), to learn to read recipes and spell new words involved, to learn to apply this information to use of other recipes.
Skills


5. Making up sandwiches.

   Prepare fillings according to recipe. Spread butter to the very edges on the sides that are to be put together being careful not to let the butter spread over the edges of the slices. Use a pliable knife or small spatula. Spread filling on the buttered surface of one slice only.

   Cut

   \[ x \text{ fingers} \]

   and wrap.

Methods

Make up one type of sandwich for use in the lunchroom at a time.
Skills.

IV. Getting lunchroom ready for the next day.

1. Collect and stack dishes, remove napkins.
2. Wipe off table with a damp cloth, push in chairs.
3. Wash and store dishes and silver.
4. Sweep floor. Push chairs aside and sweep under table, sweep under each chair and replace it at table.
5. Wash out towels and dish cloths. Scald in boiling water, rinse, wring out. Shake or pull out all wrinkles and dry.
6. Remove any particles of food from sink with sink brush and sink shovel. Wash sink with hot soapy water. Rinse.

Methods.

Practice in the lunchroom doing work in groups of 2 at first and under close supervision.
Skills.

V. Meeting standards of personal cleanliness for work in the lunchroom.

1. For work in the lunchroom hands must be thoroughly washed before work begins. Nails must be short and clean. Keep hands away from hair, nose, mouth and other parts of face or body. Remove nail polish. Wear no rings.

2. Wash hair once a week. Wear no elaborate hair dress.

3. A good complexion is the result of a healthy body. Keep skin clean, use no make-up.

4. Bathe or take a sponge bath daily. Wear clean underthings.

Methods.

Pupils collect pictures which show each rule of cleanliness.

For reading lesson read stories on personal cleanliness written by teacher. Each story should be accompanied by appropriate pictures. (See 3.) Reading lessons should be worked out for each story to include drill on new words, checks on comprehension etc.

Set a day when all are to be checked in the morning by person in charge of lunchroom.

Collect, read and report on health stories. Each pupil to illustrate a health rule with pictures cut from magazines. The film strips put out by the Metropolitan
Life Insurance Company
(School Health Bureau) might be mentioned here as supplementary to the abundant amount of material available on health.

Attitudes.

1. Cooperation involves helpfulness. There should be a "help one another" spirit among the workers.
2. Cooperating with others means that the work of the lunchroom will be more efficient, the service to others all the greater.
3. One should be willing to do anything he is asked to do by the person in charge of the lunchroom.
4. Each worker needs to be friendly and gracious to all, but has no time to engage in lengthy conversations during the work period.
5. If a worker is impolite, not only will he be censured, but his actions cast a reflection on the work of the whole group.
6. Safety in the lunchroom involves doing the work correctly and exactly as taught.
7. It is each worker's responsibility to immediately take care of spilled food or broken dishes or glasses.

Knowledges.

Most of the knowledges which pupils will assimilate
have been mentioned in connection with skills to be learned. In addition the following will be integrated:

Reading:

1. Recipes.
2. Short directions.
3. Abbreviations.
5. Dictionary work. Learning the meaning of words such as alert, immaculate, orderly by making lists of adjectives to describe a good worker's appearance or a good worker's attitudes, work habits.

Arithmetic:

1. Finding the cost of milk used in the lunchroom each day, to check milk order.
2. Learning to double a recipe or halve it.
3. Listing prices of items sold in the lunchroom.
4. Cost of food used in the lunchroom in a day, in a week.

Spelling:

Words taught in reading should be checked against the regular spelling list to find those to be taught in connection with this unit. Many additional words which should be taught will be found in material listed in all of the sections outlined above.

Writing:

1. Writing sentences giving directions to be put in "Pupil Handbook".
2. Writing out menus.
3. Copying recipes.
4. Writing out menu and price list for the day.
5. Writing in prices on checks.
Bibliography

Periodicals


2. Alderblum, R. - "Guidance of Our Slowest Learners." High Points. 24: 26-30 Mr. '42.


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<tr>
<td>34. Lightfoot, Jessie -</td>
<td>&quot;The Study of a Special Class Center.&quot; Psychological Clinic 1928-29: 17-190-199.</td>
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<td>Unger, Edna W. and Burr, Emity T.</td>
<td>&quot;Minimum Age Levels of Accomplishment.&quot; New York State Department of Education. 1931.</td>
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Books.


Unpublished Materials.


68. Detroit Public Schools Bulletins. "Revised Bulletin for Occupational Information and Vocational Guidance"

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Service Paper
Gale, E.A.
1945

Gale, E.A.
A program of vocational education and guidance for the...