Some aspects of employment psychology

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SOME ASPECTS

OF

EMPLOYMENT

PSYCHOLOGY

A THESIS

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I. INDEX

SOME ASPECTS OF EMPLOYMENT PSYCHOLOGY

II. INTRODUCTION

1. The possibility of guiding young people into occupations for which they are most suited and the scientific selection of labour by employers have long been matters of interest to the educationalist, industrialist and psychologist.

2. Importance of problem. The temporary, or even partial, solution of these problems affects not only individual, but communal well-being. Any attempt to minimise what the present Prime Minister has termed "The greatest tragedy of our modern life - the tragedy of the misfit,"[x] or to curtail excessive drift in employment - a correlated evil - will, in the long run, tend to produce a more contented stable industrial system.

3. The net satisfaction which would follow possesses a temporary, and even permanent, social significance. This is achieved apart from the scientific value of

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(x) Speech by the Rt.Hon.J.Ramsay MacDonald at the National Institute of Industrial Psychology Dinner. 28.11.1930.

the experimental procedures by which it is accomplished, which are in themselves of no little significance.

The General Problem.

4. According to Schneider, "Every individual has "certain broad characteristics and every type of work requires certain broad characteristics. The problem then is to state the broad characteristics, to devise a rational method to discover these characteristics (or talents) in individuals, to classify the types of jobs by the talents they require and to guide the youth with certain talents into the type of job which requires those talents. This is a big problem, possible of measurable solution, at the worst, possible of a solution immeasurably superior to the present haphazard methods."

5. The main problems of Vocational Psychology as thus indicated are:-

1. How may an individual achieve the most adequate knowledge of his own native mental and physical equipment, his aptitudes and abilities, and the extent to which his qualities are similar to or different from the equipment of others ?
2. How may an individual acquire information concerning the general or special traits demanded

for successful participation in the various occupations, in order that he can select or endeavour to select the particular activity for which, by reason of his physical and mental characteristics, he is adapted ?

3. How may an employer ascertain the relative abilities, fitness and capacities of those who may offer themselves for his employment in order that he may select those who will be of greatest service ?

Division of Topics

6. Scott, (30) was one of the earliest to point out that these problems could be conveniently divided into (a) Vocational Guidance dealing with items 1 and 2 of the previous paragraph, and (b) Vocational Selection dealing with the 3rd item. A further branch of Vocational Psychology namely Vocational Training, has been recognised recently. Accordingly, we can regard Vocational Psychology as comprising:-

1. Vocational Guidance - the problem of finding the right job for the right person.
2. Vocational Selection - the problem of finding the right person for the right job.
3. Vocational Training - the problem of giving definite and adequate training for specific employments.

7. Vocational Training is based on the same psychological principles as Vocational Guidance and Selection, certain types of selection presupposing Vocational Training, yet it possesses a wider educational significance and is, on the practical side, essentially an educational problem.

Employment Psychology

8. Recognising this, the two topics Vocational Guidance and Selection are often segregated, being closely interwoven, and are known as Employment Psychology. This is that branch of Applied Psychology which deals with the analysis of the human factor in industry, the examination of the problems arising in the recruitment and selection of individuals in industry, and the wider psychological factors entering into employment.

9. Employment Psychology consists therefore of:-

a. Vocational Guidance.
b. Vocational Selection

These terms Vocational Guidance and Vocational Selection are often applied loosely and incorrectly. Thus the term Vocational Guidance is used to include all and every type of guidance and even to represent the whole process of the recruitment and placing of individuals in employment, of which it forms only one part.

Distinction between Vocational and Occupational.

10. Thus it is very desirable, in my opinion, to distinguish clearly between:-

1. Vocational Guidance - the guidance of individuals into the true vocations.

2. Non-Vocational Guidance, Occupational or Job Guidance - the guidance of individuals into occupations or jobs.

This differentiation has not been recognised previously, confusion resulting.

11. We may likewise distinguish between:-

1. Vocational Selection - the selection of entrants to vocations.

2. Non-Vocational Selection, Occupational or Job Selection - the selection of entrants to occupations or jobs.

Practical nature of the distinctions.

12. These distinctions are practical as well as theoretical. Not only are entirely different problems presented by

1. Vocational Guidance and Selection.

2. Occupational or Job Guidance and Selection,

but the technique of solution differs in each case. Whilst guidance may be successfully undertaken at present in dealing with the entrants to Vocations, it is held by some that Selection is, as yet, the only reliable method of approach in dealing with with entrants into Occupations.

Job Psychology

13. Job Psychology is that branch of Psychology which deals with the guidance and selection of workers for particular jobs and the analysis of the underlying psychological principles.

14. The aims and objects of Vocational Psychology and Job Psychology are now so widely recognised and approved, that it is a matter of some surprise to find that progress in this direction has been exceedingly slow, considering the success of early work, almost a decade ago.

Interaction of Theoretical and Practical work.

15. It is a commonplace that successful practical application in any sphere depends upon a progressive development of theoretical principles, but sufficient work has already been accomplished in this direction by Burt, Muscio, Earle and others to allow extensive practical application of such principles.

16. The lag of progress, which is apparent, is probably due to some hindering factor, or combination of such factors.

17. Principal among these is the fact that the precise requirements, technique and procedure of Vocational Psychology are still matters for discussion. Further, the detailed problems involved have not, so far as I know, ever been formulated.

18. The main questions are:-

1. What are the most suitable forms of Vocational Guidance and Selection and Occupational Guidance and Selection, which may be put widely into practice ?

2. What are the most suitable means by which these processes are to be performed ?

19. Any rational attempt at their solution will involve:-

Possible Method of Solution.

1. A survey of the existent topics of Vocational Psychology, in their proper setting.

2. An analysis of the psychological factors involved.

3. The consideration of practical means and procedures.

4. A detailed description of the methods proposed.

20. This involves, on the one hand, an intimate knowledge of the basic psychological principles, and on the other, a working knowledge of the current methods of employment and of modern industrial requirements.

III. AIM OF PAPER

21. The purpose of this paper is to present a critical survey of the existing principles of Employment Psychology and to consider the means whereby its essential problems as herein stated may be solved.

IV. PREVIOUS WORK. HISTORICAL

22. It is difficult to trace who first observed the fact that it was possible by means of psychological tests to determine the innate capacities of an individual and particularly to utilise this knowledge in guiding individuals or selecting them for employment.

E.Toulouse. 1896 1910

23. The earliest methodological attempt to ascertain vocational aptitudes was in the work of E. Toulouse (42) 1896 and 1910, who made an exhaustive psycho-physiological examination of those found to excel in a particular occupation, such as Poincaré and Zola.

F.Parsons 1909

24. F. Parsons (28) ascribed great diagnostic value to vocational tests as early as 1909. He urged that vocational aptitudes are determined

by emotional and temperamental qualities rather than by special mental or physiological capacities.

F.W.Taylor 1911. 25. A year later F.W. Taylor (37) 1911, indicated some of the numerous advantages to be derived from the scientific selection of employees and submitted incontestable proof of the efficacy of his methods. His work acted as a direct stimulus to Vocational Selection and later to Industrial Psychology. While it is very fashionable for the modern Industrial Psychologist to dissociate himself completely from "Taylorism," he should recognise the far-reaching stimulus Taylor provided.

Woolley and Fischer 1914 26. In 1914, Woolley and Fischer (44) recognised the potentialities of this Applied Psychology[x], but their insight was neglected until a decade later.

(x) Woolley and Fischer.
1914. "Mental and Physical Measurements of Working Children." Psychol. Review Co. Princetown, N.J. 1914.
"At least one good way of testing the use-"fulness of experimental psychology as a guide "in vocational advising is to apply a represen-"tative series of psychological tests to a large "and fairly homogeneous group of young people "and then find out how much if any, correlation "exists, between the outcome of the tests and "industrial success or failure in various "directions."

Scott 1917. 27. Three years after Scott (30) 1917, was one of the first to recognise the distinction between Vocational Guidance, the securing of the right post for a person and Vocational Selection, that of obtaining the right person for the right post. This distinction is still, however, not fully recognised.

E.L.Thorndike 1917 28. Dealing with the possibilities of Vocational Guidance, E.L.Thorndike (40) 1917, investigated the relation of early interests and abilities finding a close correlation between the two; three years subsequently Bridges and Dollinger (4) 1920 negatived his conclusions.

Bridges and Dollinger 1920

Link 1919 29. In 1919, Link (19) explored with great success the possibilities of vocational selection of employees whilst L.L. Thurstone (41) 1919, also worked in this field. Stockbridge and Trabue (34) 1920 issued a series of mentimeter tests to estimate ability by scientific methods.

Thurstone 1919

1920

B.Muscio 1921 30. Surveying the field in 1921, B.Muscio (23) pointed out that the work was confined to the American investigators and to one or two German

pioneers such as O. Lipman, and that it consisted of Vocational Selection, not Vocational Guidance.

C.S.Myers 1920

31. The formation of the National Institute of Industrial Psychology by C.S.Myers, 1920 led to the first Vocational Guidance experiment in Great Britain[x]. In its early days, the Institute felt itself provisionally precluded from embarking unaided on a long and immediately unremunerative research. In 1922, the Industrial Fatigue Research Board resolved to co-operate in a joint preliminary investigation, the aim of which was:-

Industrial Fat.Research Board

1. Te test the practical value of scientific Vocational Guidance.
2. If such guidance proved valuable, to discover ways of improving its technique.

International Conference 1921

32. That the technique of Vocational Guidance was yet in a very experimental stage was universally recognised at the Second International Conference on Vocational Guidance, 1921, at Barcelona, during which an account of the German Selection Tests carried out by the Psycho-technical Institute, Charlottenburg Technical High School, near Berlin, was also given.

(x) This was also the first large scale controlled Vocational Guidance Experiment in any country.

Bureau of Personnel Research 1921

33. The formation of the Bureau of Personnel Research, Carnegie Institute of Technology, Pittsburg, 1921, marked the definite application of experimental methods to problems of guidance and selection in America whilst the formation of the American Vocational Guidance Association helped to co-ordinate the existing Children's Bureaux such as that commenced in Washington in 1912 and the Bureau of Vocational Guidance, Harvard University originated in 1917.

Washington 1912

Harvard, 1917.

34. That similar attention was also being given in Europe was evinced by the formation of:-

Brussels — Inter-communal Bureau for Vocational Guidance and Apprenticeship of Youths and Girls of Greater Brussels, opened in 1914, re-opened 1919.

Berlin — The Institute for Vocational Psychology, Berlin, 1914, which joined with the Institute of Applied Psychology, 1919.

Barcelona — The Institut D'Orientacio Professional of Barcelona, 1921.

Czechoslavakia — The Academic Prace of Czechoslovakia, 1921.

Geneva — Cabinet d'Orientation professionnelle de l'Institut J.J.Rousseau, Geneva 1922.

Zurich — Psychotechnisches Institut, Zurich, 1919.,

Tokio — whilst in Asia Japan possessed a Department of Industrial Psychology, Tokio, 1921.

J.S.Rowntree 1923

W.Spielman 1923

35. J.S. Rowntree, Jun. (29) 1923, W.Spielman (32) 1923, showed the practicability of tests of Vocational Selection for commerce and industry. F. Gaw (14) 1923 stressed the use of Performance and Mechanical Tests in testing procedures of Vocational Guidance and Selection.

36. At the Seventh International Congress of Psychologists July 1923, a symposium was arranged to discuss the principles of Vocational Guidance. It was recognised:-

1. That Vocational Selection is easier than Vocational Guidance but that Guidance is the more important of the two.

2. No vocational programme can be complete unless it provides opportunity for an estimate of the social, emotional and temperamental characteristics of the subject.

3. Progress would be gained more rapidly if our initial studies were planned more to discover general principles of testing than to demonstrate the diagnostic value of this or that particular test.

37. The year following saw a wider extension of interest in other countries in and outside[x] Europe

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(x) There was formed an Australian National Institute of Industrial Psychology based on the London model, but its vocational guidance activities have been repetitive rather than original

There were formed -

1924

Office Regional de la Main d'Oeuvre Nantes, Strassbourg, 1924.

Institute Émile, Metz, Luxembourg.

Vocational Bureau for Navy Candidates, Christiana, Gothenburg.

State Railways Psycho-technical Laboratory, Helsingfors.

U.S.A. 1924

38. In U.S.A., 1924, the Director-General of U.S. Department of Labour wrote, (22).

"There is no uniform and complete system of "Vocational Guidance under Federal direction in "the United States. The movement known as "Vocational Guidance has developed locally and "sporadically throughout the country. However "through the Junior Division of the U.S.Employ-"ment Service certain centralised and systematic "work is being done which encourages its "development and tends to standardise methods."

W.Spielman 1926

39. W. Spielman (33) 1926, continued to show the increased reliability of selection tests now becoming more widely used.

London Experiment 1926.

40. In 1926, F.Gaw., L. Ramsey, M. Smith and W.Spielman, under the direction of C.Burt (16) showed that the possibilities of guidance were very practicable. They conclude in their report of this joint investigation by the National Institute of Industrial Psychology and the

Industrial Fatigue Research Board.[x]

"Of all branches of applied science, vocation-
"al psychology is one of the youngest. But our
"primary concern has been, not with results, but
"with methods, and we believe that we have amply
"demonstrated that such methods are feasible and
"that, with the further refinement that renewed
"research will inevitably bring, they will prove
"of the utmost value to the individual and the
"community, to the employer and to industry as a
"whole."

E.K.Strong 1927

41. Personnel problems are dealt with by E.K. Strong, Junr. (35) 1927 and R.A.Brotemarkle (5) 1928, whilst J.W. Cox 1928 (8) dealt with a particular aptitude in relation to guidance.

Brotemarkle 1928.

C.L.Hull 1929.

C.L. Hull (15) 1929 contributed to the methodological side of aptitude determination.

42. Further concrete evidence as to the value of Vocational Guidance was submitted by the National Institute of Industrial Psychology in 1929 based on two London Experiments. This showed that in the group of children who had followed vocational advice, a much higher percentage had found greater satisfaction in their posts than those who had not followed such advice. Further, the average number of

National Institute Experiments 1929

(x) Now known as The Industrial Health Research Board.

posts held per person was less in the advised group than in the other group. The report concludes "Results such as those are most encouraging."

Further Experiments

43. This stimulus led to other Vocational Experiments[x] being undertaken such as:-

a. The Fifeshire Experiment ... Dr Macrae

b. The Birmingham Experiment ... Miss Allen.

c. The Cambridge Experiment ... Mrs Ramsey

d. The Borstal Experiment ... Dr Macrae

e. The Second Cambridge Experiment ... K.H. Edwards.

Such work, however, was sporadic and unorganised, whilst in Germany great advance was shown.

German Progress

44. German Vocational Guidance and Selection are rapidly developing along different lines. Selection is usually carried out in laboratories of private firms; Vocational Guidance is organised by the State. The country is divided into large districts each served by a "Landesarbeitsamt"(district vocational office), co-ordinating a number of smaller local employment bureaux.

(x) These experiments are still in various stages of completion whilst the last one has just been commenced.

National Institute 1929

45. In 1929 F.M. Earle (10) added to the theoretical principles whilst Reports of the National Institute of Industrial Psychology dealt with the measurement of manual dexterities (26), and tests of mechanical ability (25). The next year,

National Institute 1930

A. Macrae (20), on behalf of the National Institute of Industrial Psychology, followed up 241 vocationally guided cases and showed that over 80% of these had been successful in their posts. In 1931,

F.M. Earle 1931

F.M, Earle (11) presented a full account of the London Experiments in Vocational Guidance and submitted reliable evidence as to their utility.

V. COMMENTS ON THIS WORK.

46. It would appear that Employment Psychology has proceeded along two main lines:-

A. The work of:

a. the psycho-technical Laboratories of Institutes.

b. the Laboratories of private firms,

concerned principally in selection problems in their own interests.

B. The work of:

a. the pure Psychological Laboratories

b. the Children's Clinics

c. the Employment Agencies

occupied with the development of guidance work in the interests of the community.

47. The growth of the technique and principles of Employment Psychology was interwoven with the growth of the technique of the measurement of Intelligence. This has been omitted for the sake of clarity and continuity.

Development of Theory of Intelligence.

48. Very briefly this development was as follows: The early work of Binet and Simon (3), 1905 and 1909, was followed by revisionary efforts of these attempts by L.M. Terman (38) 1917, by N.J.Melville (21) 1917, and by F.Kuhlman (18) 1922, dealing with the technique of the practical estimation of intelligence. On the purely theoretical side C.Spearman (31), 1904 and 1912, produced a theory of intelligence which was effectively challenged by G.Thomson (39) in 1916. Garnett (13), 1919, agreed with Thomson; Dodd (9), 1927, followed Spearman, who later elaborated his theory and endeavoured to reply to the criticisms of Brown and Thomson (6). Burt (7) 1921 and Ballard (1) 1920 meanwhile developed to a high degree of utility the technique of testing.

Two Factor Theory and Group Factor Theory.

Present position

49. Broadly, one could state that at present we are behind in selection work, principally investigated by America and Germany, slightly behind in general intelligence and specific aptitude work, but quite prominent in guidance work.

50. The only direct evidence I have been able to discover, which is adduced as direct evidence of the value of Vocational (or rather Occupational) Guidance is contained in the English experiments outlined in paragraphs 31, 42. 43.

51. By far the greater proportion of this work has been accomplished by the National Institute of Industrial Psychology. The work is, in general, very reliable but it has not yet received the criticisms it deserves and will be dealt with later. (paras 96-100).

VI. THEORETICAL PRINCIPLES

VI. (1) Methods of Employment Psychology

52. The methods of Employment Psychology are those characteristic methods which are employed in Guidance and Selection work. Among these are the (a) Occupational Miniature Method, (b) the Method of Sample Performance, (c) the Method of Analogy (d) the Prospective Correlation Method (e) the Individual Psychograph Method.

Occupational Method.

53. In the Occupational Method, the entire work to be performed, or part of it, is produced on a smaller scale, which it is assumed duplicates the situation roughly for the person. Tagg (36) 1924, in this way, designed miniature engineering machinery to test engineering apprentices. It is presumed that the general reaction to the miniature situation is the same as, if not identical with, the given situation.

54. Actually, the two situations real and miniature demand different attitudes of mind. They arouse different feelings and emotional reactions in the person. Similarity of working principle but difference in size do not produce similarity in attitude of

mind, since usually a definite adjustment to miniature apparatus must be made.

55. It may thus be a dangerous proceeding to endeavour to gauge ability through miniature performances. A possible value of such miniature apparatus, in my opinion, is that it can be used as a means of preliminary training for the worker, the transfer from miniature to ordinary machines being carefully made.

Sample Performance Method.

56. In the Method of Sample Performance, in order to test a person's suitability for a particular occupation, a sample of the actual work to be performed, is presented and the performance measured. The assumption is that where there is competition for the post, the person who scores highest in the sample performance is most likely to score highest on the actual job.

Its advantages

57. This method is commonly used, especially in selection for clerical posts. If due care is taken, it may prove highly successful as a method. It neglects, however, differences in emotional balance which may affect sample performances and also the factor of potential standard. By this is indicated that although A at present reaches a higher

performance than B, yet A may be potentially capable, with due training, of reaching a standard of work unattainable by B. The limitations to this method should therefore be recognised.

Occupational Analogy Method.

58. The third method, that of Occupational Analogy, comprises the devising and arranging of some test piece of work which bears some resemblance to the general situation met with by the worker in the selected occupation. One again recognises differences in materials and conditions but supposes a similarity in mental attitude. The tacit, or expressed belief, is that there are similar mental processes involved in both cases, although the precise correlation between the mental reactions to each situation has not been stated, so far as I am aware, even in general terms.

Prospective Correlation Method.

59. The fourth method may be called, for want of a better term, the Prospective Correlation Method. It has not been widely used, yet is of psychological interest. A general and miscellaneous series of tests are given and results tabulated. Industrial success or failure is noted and any correlation of test scores and suitability for certain

Meaning?

occupations is observed. Clearly it lacks the scientific precision and clearness which is the mark of good test methods. Yet in the hands of expert investigators it is capable of yielding valuable results.

60. **Individual Psychograph**

The fifth method is that of the Individual Psychograph, one of the earliest attempts at vocational differentiation (para.24). In the endeavour to analyse the psychological processes essential to success in any particular occupation or calling, a detailed study is made of any person who has achieved marked success in his vocation.

Its difficulty

The essential difficulty is to determine with precision the degree to which vocational success, particularly unusual success, is dependent on the presence of demonstrable personal factors, distinguished from the other factors of accidents of time, place and circumstance.

VI. (2) Psychological Tests.

61. It is stated that every test is a psychological test but the term is more usually restricted to:-

(1) Intelligence tests.
(2) Standardised scholastic tests.
(3) Vocational tests.
(4) Special tests of certain mental activities.
(5) Selected physical tests.
(6) Tests of temperament and character.

There are three types of ordinary examinations:-

(a) Written,
(b) Oral,
(c) Practical,

and three types of tests corresponding to these:-

(a) Group,
(b) Individual,
(c) Performance.

The Test and the Psychological Experiment.

62. A test consists of a selected number of tasks designed to give detailed information about individuals. Ordinary test method differs from the ordinary psychological experiment in that:-

(a) The test method possesses all the merits common to experimental investigation at large, but is concerned less with qualitative examination or structural analyses of mental processes than with the quantitative determination of human efficiency. It studies mental performance than mental content.

(b) The test has a diagnostic rather than a theoretical aim. It endeavours to analyse, measure and rank the status or efficiency of traits amd capacities in the individual under examination.

(c) The aim of a test is to classify a particular case with reference to known phenomena.

(d) The mental capacities and performance of individuals are measured with a view to the comparison of individuals with one another either

for the purpose of selecting certain types of persons for certain purposes, or else for the rating of these individuals for some other practical end.

(e) If the measurement is approximate it is a test, if exact, an experiment.

63. Further,

(1) Tests are designed to throw light on individual differences, experiments to establish general principles.

(2) Tests are characterised by simplicity or brevity and use of pencil and paper than apparatus.

(3) The test has a practical aim, usually individual diagnosis and guidance, and has to do with technology rather than with science.

64. In general, methodologically, there is no essential difference between a mental test and a scientific psychological experiment. Historically, in usage, there is. A mental test is an abbreviated experiment upon an individual in which his behaviour is observed in order to determine his capacity with respect to some biological use. Its motivation, therefore, is biologically and socially practical. The loss of precision due to its abbreviation, is usually offset by its application to a large number of individuals, so that it becomes the precise measure for a group.

Value of Tests

Indirectness of Tests

65. Scientifically, a test is an indirect method of measuring an empirical and variable quantity by measuring another variable upon whose values the corresponding values of the former depend. But before the quantity A can be measured by the quantity B,

(1) A and B must be capable of being measured directly and independently.

(2) The values of B relative to A bear a relationship which is capable of specification.

66. Most physical measurements are made, not directly on the variable under study, but on some of its functions. If B is not amenable to direct observation and measurement, it cannot be indirectly measured or tested by A. Its presence can merely be indicated broadly.

Possible Difficulties in Testing.

67. Mental characteristics such as Intelligence and Temperament can only be measured indirectly. We note their functions and assume similarity of the central quantity. We should note however that:-

1. The relationship of a certain mental characteristic to its functions is usually vaguely undeterminable.

2. Measurement merely indicates the character of such functions at a specified time, T1 there

being little concrete evidence to give the relationship between the nature of the functions at time T2 and T3, or which of these is the truest index.

3. In any case, it is only possible to state that the variable A as measured by the variable B possesses certain characteristics which may bear some unknown function to A proper.

4. A common fallacy is to measure the variable A by two variables B and C which may show high correlation. But the presence of high correlation between B and C is of little actual value to the indication of the true A.

Meaning?

5. A complex mental quality can rarely be measured. Its presence may only be indicated on a suitable arbitrary scale. This merely gives, ordinarily, the height or level of the quality and thus its extent is not properly indicated since, for complete measurements, both height and extent are required.

68. Testing is still further complicated by the fact that the indirect measurement of the mental quality cannot even be directly given and thus the test and the object of the test are both indirect procedures.

69. The position now is as follows: Assume we wish to measure the quality A in the individual X. Also that, as in most cases, A is only approachable through its attributes, a,b,c,d, and e. These, being partly subject to the will of A are influenced by his personal factor p.l.

The complexity of measuring mental attributes

Suppose we possess a reliable variable quality B, which indicates the presence of the attributes, a,b,c,d, and e directly and thus A indirectly. This must be given by another person Y and the validity of his judgment as affected by his personal factors P.2 is another variable which differs from individual to individual and in each individual at different intervals of time. Still another possible variation is that X may react in different ways to observers Y, Z. etc. and the actual presentation of a,b,c,d and e be altered in each case.

70. Dealing with a single quality we must therefore not only possess a measure of the reliability of B as an index of the presence or absence of A, but also a measure of the reliability of B used by Y,Z. etc.

71. Thurstone[x] has shown that the reliability of opinions in terms of known data is given by formulae

$$p\,1 = \frac{n.12}{n.2}$$

and

$$p\,2 = \frac{n.12}{n.1.}$$

(x) Theory of Attitude Measurement. Psychol. Review. 1929 36 222-249.

where n1 = total no. of individuals in group N who endorse opinion 1.

n2 = total no. of individuals in group N who endorse opinion 2.

n12 = total no. of individuals who endorse opinions 1 and 2.

p1 = probability of statement 1 being endorsed by an accurate subject under accurate conditions.

p2 = probability of statement 2 being endorsed by an accurate subject under accurate conditons..

72. The determination by means of tests of a simple quality being complicated, the analyses of the fuller mental life is much more so, an additional complication being that the qualities become intermingled and can rarely be separated. Thus the result of testing singly qualities A.B.C.D. does not give on summation the true portrayal of the individual mental make up. In practice, it is extremely difficult to assess A or B or C or D since A is connected with B.C. and D., B with A.C.D. and so on.

Danger of unwarranted assumptions

73. In testing it is usually found that:-

1. The test technique and apparatus become ends in themselves and the fact that the test is merely an indirect means for the determination of an end is frequently forgotten.

2. Validity of test procedure becomeshandicapped by extreme variations in experimental conditions and in statistical treatment of data. The wide standardisation of procedures helps to minimise the former but, at the same time introduces the factor of acquaintance with test procedures.

Effect of Coaching on Tests

74. In an endeavour to estimate the effects of this latter element I arranged to test 6 classes of boys namely classes 3A, 3B (age 10); 4A, 4B (age 11) 5A and 5B (age 12) containing approximately 40 boys each using a simple test[x]. After the first test, each class was coached in the aims, objects, and hints for the test given. They were tested again the next day in the same way and the frequency distributions in each case drawn up.

It was observed that:-

A. The general form and arrangement of the distributions was broadly the same.

B. An increase in score was apparent. This was higher in B classes than in A classes and was higher in class 4 than class 3 and higher in class 5 than 4.

One may conclude that the factor of acquaintance with test procedure in this case.

(1) produces a common increase of score within a group but that the relative distribution of individuals within the group is not greatly altered.

(x) The Three Minute Word Test.

(2) showed that the effect of the coaching was more apparent in the scholastically superior classes and was also more apparent in the older than the younger boys.

Acquaintance with test materials and procedures may, therefore, prove a disturbing element, the presence of which should always be recognised, even if not estimated.

Summary of Observations on Psychological Tests

75. Biological phenomena exhibit individual variation. This may be:-

1. Extremely large.
2. Neither large nor small.
3. Extremely small.

Extremely large variations are obvious and may be classified without experiment. Extremely small differences often elude examination and classification owing to their minuteness or to imperfections or inadequacies of existing methods. We are therefore limited in our observations to those phenomena which are of such magnitude that they are capable of being estimated by existing methods. Among these are the test and the psychological experiment. Numerous distinctions have been drawn between these. But a test is merely a rigid psychological experiment designed to encompass and reveal a certain range of variation in a given quality which is

subject to a standardised statistical treatment. Imperfections in test procedures usually arise from the disregard of the ordinary accepted principles of psychological experiment.

VI. (3) The Determination of General Ability

76. Intelligence is now commonly regarded as a function entering into every mental performance and determining efficiency in every form of work. Such an all-pervasive quality is essential for occupational success. Tests are available for its measurement (or rather indication) and it is safe to say that, at present, there is no other characteristic of mental life which can be so accurately assessed.

Development of Tests

77. These existing instruments for measuring Intelligence developed from the Interview, the School Oral and Written examination and from Tests of Sensory Acuity, Memory and Attention. Recent surveys show that the range of Intelligence varies widely there being, for example, a difference equivalent to 10 years of mental growth between the feeble-minded child and the scholarship child.

Possible limits of Intelligence

Cattell[x] has tried to show that Intelligence varies within the limits 2 : 1, the extremes of the abilities of individuals he measured being 65: 130 or 1:2. The ratio of abilities in two groups tested by the National Institute of Industrial Psychology I have calculated to be approximately 4:1 (45 to 175) and 2:1 (134 to 62).

78. Further work is necessary before definite conclusions may be deduced; although one could suggest that to infer that Intelligence varies within limits is dangerous. For one can only state that Intelligence, as measured by our existing tests, varies, perhaps, within limits. But that does not exclude the possibility of Intelligence covering a much wider range which cannot be indicated adequately by existing tests. Further, the exact relationship of Intelligence as measured by our tests and the true Intelligence has yet to be demonstrated.

A Criticism

79. The degree of Intelligence which a person displays debars him from success in such higher occupations as would call for more Intelligence

Practical significance of Intelligence

(x) Reference unknown.

than he possesses, and at the same time makes it foolish for him, other things being equal, to seek lower occupations which could be carried out by others less intelligent than himself. In most occupations there is a lower limit of Intelligence below which the employee is likely to fail, and an upper limit beyond which he is likely to find his mental powers only partly absorbed by the duties of his post, and consequently, in part, wasted.

80. **The Problem of average and maximum achievement**

Specific attempts have been made to determine such thresholds. An interesting psychological problem arises in connection with the upper threshold, namely, the relation between the average daily achievement of a person and his maximum capacity. Thus doctors, teachers, accountants and others continually work at a much lower level than their maximum capacity, as indicated by the highest examination they have passed. One could suggest, very broadly, that one of the many differences between Vocations and the lower Occupations is that in the latter, individuals are usually working at their maximum capacity, whilst in the former they rarely do so. More is achieved, though at less expense, by the former.

81. Referring again to the measurement of Intelligence, it is alleged that three fundamental defects of these tests remain. There exists:

Test defects

1. Ambiguity in content - what they measure is not known.
2. Arbitrariness in units - How far it is proper is add and subtract units is not known.
3. Ambiguity in significance - what the measures signify concerning intellect is not known.

These defects become apparent in the practical estimation of Intelligence which usually consists of the setting of a number of selected graded tests.

82. Three theorems are involved in the estimation of Intelligence in this way (i.e.) in the performance of either written or other tasks.

Basic Theorems.

A. Other things being equal if A can do correctly all the tasks that B can do save one and in place of that one can do one harder than it, the intelligence of A is at the higher level.

B. Other things being equal, if A can do correctly all the tasks that B can do, and can also do one more task at the level of any of the others. Intelligence A has a greater range than Intelligence B.

C. Other things being equal, if Intelligence A can do at each level the same number of tasks as Intelligence B, but in less time, Intelligence A is quicker and perhaps better.

Quoted from whom?

Each of the three factors, level, extent and quickness is essential for an accurate estimation of Intelligence.

83. The examination of mental growth has been difficult owing to:-

(1) Lack of a suitable unit.

Concepts of Mental Age and Bodily Age

(2) Vagueness of the origin and maximum development of this growth

Binet's introduction of the Concept of Mental Age was a decided aid towards overcoming the first difficulty. A similar concept, Bodily Age, has been introduced in regard to physical growth, though it is not so well known. This is age illustrated by skeletal and physiological development. Chronological age becomes for these concepts a point of reference. An inter-relationship between Mental Age and Bodily Age has been claimed.

84. Criticising this supposed relationship, the skeletal and physiological growth is dependent principally on the workings of the endocrine glands. the thymus, pineal body, pituitary, thyroid, and others. Of these, the pituitary has probably, most to do with skeletal growth after early childhood. X-ray[x] examination, therefore, of the bones of the hand, merely indicates the activity or otherwise of pituitary and other endocrine processes. But until we know more about the detailed workings of the endocrines, it is almost impossible to

Possible criticism

(x) See plates 1,2 and 3.

Plate 1

Hand of Boy 3 10/12 years of age. The epiphysis of Radius and the Capitatum, Hamatum and Triquetrum have appeared.

Plate 2

Hand of Boy 10½ years. Compare with Previous Plate. All Carpal bones have now assumed their definite shapes and the distal epiphysis of the Ulna is present.

Plate 3

Hand of adult. Compare with previous Plates. Complete epiphysial union has now occurred.

attempt to approach the study of intelligence and mental growth in this way.

Mental Growth

85. From what we know of mental growth, the development of Intelligence takes place evenly, but there is considerable vagueness about:

1. the Absolute Zero of Intelligence,
2. its Upper Threshold.

For practical purposes this means that:-

A. It cannot be assumed that equal interval increases on the development curve represent equal mental growths.

Thus: A increases 40 to 50, B increases 50 - 60.
A has increased 10/40 = $\frac{1}{4}$ of what he was.
B has increased 10/50 = 1/5th of what he was.

B. The determination of Intelligence from 15 years plus becomes vague. Mental Ages of 16 plus being arbitrary figures.

To avoid such defects of test scores, a promising procedure is to transform test scores into units of ability on the assumption that the distribution of ability in all adults of a group is approximately that given by the normal probability equation

$$y = \frac{1}{\sigma\sqrt{2\pi}} e^{-x^2/2\sigma^2}$$

VI. (6) Interests

86. The problems of Interests, particularly, occupational interests, or the feelings of an individual towards certain occupational endeavours, affect the Employment Psychologist. Attempts have been made to make Interests the basis of guidance and selection. A high degree of correspondence between interests and abilities was shown by E.L. Thorndike (40) 1917 whilst Bridges and Dollinger (4) 1920 proved the reverse. B.Muscio (23), 1921 could not see how they could be safely utilised in Vocational Guidance. Terman, 1929, in his study of gifted children, showed that change in interests was not due at adolescence to competing interests, but to a general increase of interests.

Current problems

87. We have yet to ascertain why some callings evoke general interest, some little, some none at all. Valentine (43) 1927, has indicated that particular occupational interests may be due to faulty information. Such have to be discounted in guidance work.

88. Bartlett (2), 1927, suggests that interests may be limited by certain temperamental factors,

a problem which I hope to attack shortly. The numerous attempts to indicate Extroversion-Introversion have a bearing on our topic, since occupations and vocations have been classified according to the degree of Introversion or Extroversion required, the latter being shown by persons in social contacts (e.g.) politics, stage, military administrative and executive posts, the former by inventors, statisticians, research workers and others. The following is

Functional Interests

Is this original?

A Classification of Types of Work Along these lines.

A. HUMANICS (with people).

1. Concrete

Directly with people, influencing, advising, directing.
(e.g. buyer, salesman, executive staff.

2. Abstract.

Indirectly with people, promoting and forming policies, ideals and organisations for people to work or live by.

(e.g.) publicity and advertising agents, administrators and public officials, journalists.

B. MECHANICS (with objects).

1. Concrete.

Directly with objects of work.
Manipulating tools and machinery.
(e.g.) mechanic, farmer, engineer, builder.

2. Abstract.

Work with objects only indirectly
in symbols and calculations.
Statistician, Surveyors, Architects,
Draughtsmen.
For these introventive qualities are
mainly required.

89. Freyd (12), 1924, in a monograph showed that it is possible to distinguish, through interest analysis, between two occupational groups. To utilise this for guidance it becomes necessary to distinguish between

a. those interests existent at the choice of occupation which enabled or contributed to success.

b. those acquired in the pursuit of the occupation.

90. The usual means of estimating Objective Interests are:

1. Differences in distractibility in various fields.
2. Differences in speeds of learning.
3. Educational courses chosen.
4. Occupations voluntarily chosen.
5. Analyses of labour turnover and drift.
6. Analyses of absences in industry or school.

These give a cross selection of individual interests. To ascertain their relation to the dynamic interests, further analysis is necessary

and essential; for interests are functional activities as well as static objects.

Temperament

91. The general type of occupation followed by an individual is determined broadly by the degree of Intelligence he possesses. Were this the only factor, persons of equal intellectual endowment would progress in their occupations equally well. That they do not do so is an indication of other modifying factors, notably Temperament and Character. Possession of certain temperamental traits will compensate in occupational success for the possession of only a moderate intellectual level. As yet, no detailed estimation of Character and Temperament is possible.

92. Practical estimations of Temperament are limited by:

(a) lack of adequate knowledge of nature of Temperament,

(b) lack of suitable means of its indication.

But it has been pointed out by several investigators that to assume Temperament Tests are in the stage Intelligence tests were 20 years ago is a fallacy.

93. Oates (27) 1928 in his work on Temperament has shown that:-

The problem of Temperament

1. There is little direct relationship between Intelligence and Temperament as measured by his tests.

2. Examinations and Intelligence correlate on account of a general intellectual factor, examinations and Temperament correlate on account of a general temperamental or emotional factor.*

94. The usual methods used to indicate Temperamental qualities are:-

1. Rating method of Traits.

2. Performance test method.

3. Questionnaires.

4. Handwriting Tests (e.g.) June-Downey.

5. Emotional Tests (e.g.)Pressey Cross Out.

It is now accepted that in estimations of such complex qualities as Temperament and Character we can no longer give standardised tests, but must return to the psychological experiment relying upon observation and deduction.

95. It will be ultimately possible, when some agreement exists as to the various types of Temperaments and their estimation, to classify

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(*) In my opinion, the difficulty of studying Temperament has been increased by the current investigators endeavouring to model their temperamental investigations on the usual intelligence estimations and neglecting the other methods of approach.

occupations according to the temperamental qualities required. According to Bartlett (2), 1927, Temperament plays a larger part then Intelligence in the determination of a man's social status and occupation. We can now modify our previous statement that the level of man's occupation is determined by his Intelligence (para 79), for whilst his Intelligence indicates the broad class or grade of employment open to him, his Temperament and Character determine his success within that grade.

VI. (5) Criticisms of Experimental Procedures

Estimations of Value of Vocational Guidance.

96. Recently, attempts have been made by the National Institute of Industrial Psychology to offer evidence as to the value of Vocational Guidance. The principal method used is as follows.

97. Children leaving School in a particular district are divided into two groups A and B, of equal magnitude. Group A is tested and guided, Group B is not. After an interval of 18 months onwards the children are "followed-up", their industrial record being carefully ascertained. It is then found that:-

A. The guided Group A averages less posts per person than the unguided group B.

B. Individuals of Group A express greater satisfaction in their posts.

Such differences are taken to indicate the value of Vocational Guidance.

The following Table gives the number of posts held by two such groups

	Boys	Girls
1. Tested Group		
a. Those who followed the Institute's advice	1·93	1.82
b. Those who rejected the Institute's advice	2·57	2·24
2. Control Group		
a. Those who followed the Institute's advice	2·35	2.26
b. Those who rejected the Institute's advice	2.64	2·63

98. My criticisms of this procedure are:-

My Criticisms of the normal guidance experiment

1. It is decidedly unsatisfactory, in my opinion, to give statistics such as the following: Average no. of posts held per person = 1.93 An average is in such a case, misleading. * The actual position will be as follows. Some children will have had one post some two, three, four, five and perhaps six. Suppose the following is the distribution of posts in Groups A and B.

No.of Posts	Group A	Group B
7	5	12
6	8	13
5	10	20
4	22	36
3	38	28
2	24	14
1	25	9

(*) Dr C.S. Myers in a recent conversation with me, agreed with this criticism.

It is then comparatively easy to compare the distribution of persons having any particular number of posts, the full range of the distribution being also apparent. Comparison with the probable frequency will allow any disturbing factors to be traced. In an endeavour to put forward a more satisfactory method of showing the variations in the numbers of posts held by the individuals of a group. I made this topic the basis of my third investigation which is described in paras 154 to 161.

2. The fundamental idea when we contrast two groups as to the number of situations held, is that the group which reveals the least drift is the most satisfactory group. Maximum satisfaction then appears when each child retains his post during the period in question. Against this one may adopt the attitude that it is undesirable to restrict a child to one occupation for the rest of his career. Normal drift, as distinguished from excessive drift, may be valuable in the acquisition of experience.

3. Lacking objective tests of satisfaction, we are forced to rely on subjective estimations, which in my experience, in the case of juveniles, are usually unreliable guides to the actual position. Further, the dissatisfied juvenile quickly drifts and therefore a high degree of dissatisfaction is a natural concomitant of drift. This is not another piece of evidence, but another piece of the same evidence.

4. Fundamentally we cannot really compare groups A and B. No matter how we may endeavour to equate them in magnitude, general ability, etc., each meets a totally different set of economic conditions of time, place and circumstance. Comparison in these cases is dangerous.

99. Without elaborating criticisms further, it is apparent that the various factors affecting and often modifying the aims of Vocational Guidance work are of supreme importance. Such work as is

being undertaken is as yet in a very experimental state and will remain so until these influences are properly recognised.

100. No definite attempt to estimate the various significant factors has previously been made, and thus the following experimental work is entirely original, and further, is of direct import to the Employment Psychologist.

VII. MY INVESTIGATIONS

Preliminary Remarks

101. A survey of some of the wider topics of Employment Psychology having been attempted, it now becomes necessary, in view of the stated aim, to make some analysis of the detailed psychological factors involved, later studying practical means and procedures. The following experimental work is arranged as a necessary preliminary to this latter step.

102 Among the significant factors entering into Employment Psychology are:- General Intelligence, Emotions, Character, Will, Imagination, Choice

of Employment and such economic factors as Wage Levels and Drift in Employment. It is clearly impossible, within the scope of a Thesis, to estimate fully the relative part played in employment work by each of these. Attention, therefore, has been directed to those which are of special interest for our purpose. Thus my investigations, which are original, embrace:

1. Choice of Employment,
2. Interests,
3. Drift in Employment,

in this order.

INVESTIGATION I

(Choice of Employment)

Introductory Remarks

103. In view of the importance of Choice of Employment for Employment Psychology, no apology is made for the length and somewhat wide range of this investigation. This is arranged in three parts:-

Part I. deals with the Obliteration of Choice of Employment.
Part II. deals with the variation in Choice of Employment according to the type of School.
Part III. deals with the reasons underlying individual Choice of Employment.

Some work on this later topic has been done by Valentine (43) 1927.

The two other topics have not, so far as I know, been previously investigated.

Preliminary Remarks.

104. Ministry of Labour work is organised in two departments namely:

1. Choice of Employment.

2. Unemployment Insurance.

Restricting ourselves to the former, this is arranged so that the individual is registered for the kind of occupation he desires and subsequently every effort is made to fulfil this choice.

Glaring assumptions are;

1. that a person can choose his occupation, which is rarely the case.

2. that such choice is both suitable and desirable, which has yet to be shown.

Regarding the first assumption, it is clear that, the Choice of Employment of a group of children leaving School, will only be fulfilled when that range of choice coincides with the current economic demands of the area. Where it does not, Obliteration of individual choice occurs.

Regarding the second assumption, it is also apparent that where the choice is not suitable and perhaps irrational, then the possibility of the previous assumption being fulfilled, is even less remote.

No figures regarding the extent of the Obliteration which occurs are available and so the first part of my work deals with this.

105. Aim of Experiment I

To ascertain the extent to which Choice of Employment is obliterated in an average group of School Leavers.

EXPERIMENT 2

106. Method
Details of Investigation.

Obliteration of choice of Employment.

Place of Investigation:- Middlesbrough
Date of Investigation:- March 1930-
December 1930.

Number and Sex of
Subjects:- 395 Girls.
Age of Subjects:- 14-16 years.

The group of over 350 girls eligible to leave the public Elementary Schools of Middlesbrough at Easter 1930, were interviewed by my Lady assistant and myself, in the course of my official duties* regarding their Choice of Employment. This was entered on a Record Card which was filed for future reference. Towards the end of September 1930, an attempt was made to trace these girls. This was an extremely difficult and arduous task. Some of the girls had remained at school, others were employed, some could not be traced at all.

Finally, by means of the Records of the Juvenile Employment Bureau, the School Leaving Registers, and personal investigation, information regarding the first employment of 220 girls was obtained. This was then entered on the Record Card from which statistics regarding:-

1. The Choice of Occupation.

2. The first employment obtained,

were compiled.

For purposes of comparison, a similar experiment with a smaller group containing 45 girls from the Hugh Bell Girls Central School, Middlesbrough was arranged. These left school in July 1930 and were followed up towards Christmas by the Headmistress, Miss E.Holmes, who kindly supplied me with the full particulars of their employment, and to whom my thanks are due.

(*) As Juvenile Employment Officer.

107. RESULTS

CHOICE OF EMPLOYMENT AND EMPLOYMENT OBTAINED

Comparison between Elementary Schools and Central School.

Choice of Employment	Elementary School		Central School	
	% Choice	% Obtained	% Choice	% Obtained
At Home	9	3	4	4
Dressmakers Apprentice	11	5	-	-
Domestic Work	38	59	12	22
Not specified	6	4·9	4	20
Nurse	-	-	6	-
Office	7	2·6	38	18
Shop Assistant	20	15	32	34
Tailoress	9	10·5	4	2
	Choice Col.A.	Obtained Col.B.	Choice Col.A.	Obtained Col.B.

108. Analysis of Results

1. In the group of children one can recognise three sub-divisions.

   (a) those who desired a particular employment and obtained it.

   (b) those who desired a particular employment but did not obtain it.

   (c) those who did not desire a particular employment but obtained it.

2. The Obliteration of the Choice of Employment will be obtained through an analysis of (b) and (c).

3. To assume that the extent is indicated by the differences between the percentages of the Choice of Employment and Employment Obtained is fallacious. This merely gives the particulars of the numbers who desired and those who obtained a certain employment. Since the number who did not obtain a particular occupation accepted others, the algebraic sum of these differences is zero.

Obliteration of Choice of Employment

4. In view of this we are not justified in stating further than, in this investigation,

   a. 21% more of the total Elementary School girls obtained domestic work than desired it 10% being the figure for the Central School Girls.

   b. 5% less of the total Elementary School Girls obtained Shop work than desired it but 2% more of the Central School Girls did so.

   c. 6% less of the Elementary School Girls obtained posts as Dressmakers' Apprentices than desired it, whilst 20% less Central School Girls actually obtained office work than the total desiring it, and so on.

109. **OBSERVATIONS**

1. It will be advisable to select a much smaller group and investigate in detail choice of employment and employment found before an accurate indication of obliteration can be made.

2. The over-riding effect of the economic needs of the area on the choice is very apparent. Since one may assume the economic needs of a district to be broadly the same from year to year, this obliteration will be a yearly feature.

110. CONCLUSIONS

1. It has been shown that appreciable differences occur between the numbers desiring and obtaining a particular employment. But further detailed procedures are necessary to arrive at an accurate indication of obliteration.

Aim for a further Experiment.

2. It will also be necessary to consider not only the first occupation obtained, but also the second, since the choices unfulfilled in the first may, quite possibly, be filled in later occupations. The investigation was, accordingly, continued and a second experiment arranged in which the second and third employment found were included.

EXPERIMENT 2.

111. AIM.

Obliteration of Choice of Employment (contd.)

In order to ascertain the obliteration in the second employment as well as the first, I decided to continue the investigation further, slightly modifying my method.

Further Method
Details of Investigation

Place of Investigation:-	Middlesbrough.
Date of Investigation:-	December 1930.
Number and Sex of Subjects	59 Girls
Age of Subjects	16-17½ years.

In order that I could ascertain the Obliteration by the second as well as the first Employment, the group were selected so that each girl had industrial experience in at least two situations. The girls were chosen from those included in the current Ministry of Labour Live Register of Unemployed at December 1930.

The method adopted was quite straightforward. I interviewed each girl and noted down the answers to my oral questions which covered:

(a) Her original choice of Employment (which was checked from information on her Record Card).

(b) The nature of her first employment.

(c) The nature of her second employment.

(d) The choice of Employment she would now make, in view of her industrial experience, could she choose again.

The full range of employments desired and obtained are given in the following table.

TABLE SHOWING CHOICE OF EMPLOYMENT - GIRLS

First Choice	Situation Obtained	Second Situation Obtained	Present Choice 3 Yrs later
Shop	Shop	Shop	Shop
Day Girl	Shop	do.	Day Girl
General	Bakeress	do.	General
Tailoress	Shop	Shop	Shop
Shop	Shop	Shop	Shop
Dressmaker	Shop	Shop	Dressmaker
Shop	Clerk	Shop	Clerk
Shop	Shop	Shop	Shop
Office	Shop	Shop	Office
Domestic	Factory	do.	Factory
Dressmaker	Tailoress	do.	Tailoress
Office	Shop	Shop	Shop.Assist.
Nursemaid	Laundry	Domestic	Domestic
Bakeress	Bakeress	do.	Shop
Domestic	Laundry	Factory	Factory
Domestic	Day Girl	do.	Shop
Shop	Shop	Shop	Shop
Dressmaker	Shop	Shop	Shop
Domestic	Mill Girl	Shop	Domestic
Shop	Errands	Dairy Girl	Domestic
Dressmaker	Dressmaker	do.	Dressmaker
Shop	Shop	Shop	Shop
Day Girl	Day Girl	Domestic	Domestic
Office	Shop	Shop	Office
Day Girl	Shop	Canvasser	Domestic
Domestic	Shop	Domestic	Domestic
Dressmaker	Day Girl	Dressmaker	Tailoress
Domestic	Tailoress	Shop	Domestic
Tailoress	Printer	Printer	Printer
Office	Shop	Office	Office
Tailoress	Tailoress	Tailoress	Tailoress
Shop	Shop	Tailoress	Shop
Shop	Shop	Shop	Shop
Shop	Printer	Printer	Shop
Tailoress	Tailoress	Tailoress	Shop

TABLE SHOWING CHOICE OF EMPLOYMENT - GIRLS (contd.)

First Choice	Situation Obtained	Second Situation Obtained	Present Choice 3 Yrs later
Office	Shop	Typist	Office
Home	Shop	Office	Office
Shop	Shop	Shop	Shop
Shop	Shop	Canvasser	Shop
Day Girl	Day Girl	Shop	Domestic
Shop	Shop	Shop	Office
Tailoress	Shop	Shop	Shop
Shop	Shop	Shop	Shop
Dressmaker	Printer's binder	Domestic	Dressmaker
Mill Girl	Mill Girl	Shop	Shop
Tailoress	Tailoress	same	Dressmaker
Tailoress	Tailoress	Shop	Dressmaker
Foundry	Foundry	same	Foundry
Shop	Shop	Shop	Shop
Shop	Shop	same	Bakeress
Tailoress	Shop	Shop	Shop
Clerk	Clerk	Shop	Clerk
Domestic	Domestic	Foundry	Barmaid
Shop	Shop	Shop	Shop
Shop	Shop	Shop	Shop
Shop	Shop	Clerk	Clerk
Shop	Domestic	Shop	Shop
Actress	Actress	Actress	Actress

112. Classifying these results further to show the numbers choosing a particular occupation and those who obtained it we have

TABLE TO SHOW CHOICE OF EMPLOYMENT AND FIRST AND SECOND EMPLOYMENTS OBTAINED - GIRLS

Occupation	Choice	First Post	Second Post	Present Choice
Actress	1	1	1	1
Bakeress	1	2	2	-
Barmaid	-	-	-	1
Canvasser	-	-	2	-
Day Girl	3	4	2	1
Dairy Girl	-	-	1	-
Dressmaker	7	2	3	6
Errand Girl	-	1	-	-
Factory Hand	-	-	2	2
Foundry Hand	1	1	2	1
General domestic	8	2	5	9
At Home	1	1	-	-
Laundry Hand	-	2	-	-
Mill Girl	1	2	-	-
Nursemaid	1	-	-	-
Office	6	2	4	9
Printers	1	3	-	1
Shop Assistant	20	30	30	24
Tailoress	8	6	5	4
	Col.A.	Col.B.	Col.C.	Col. B.

113. ANALYSIS OF RESULTS

Obliteration of Choice of Employment.

1. Treating these results graphically is a useful approach to the analysis of Obliteration. In this way, a Table is constructed giving the occupations along two axes, the chosen occupation appearing on the vertical axis and the occupation obtained on the horizontal axis (See Plate 2).

2. Then the central distribution about the diagonal represents those desiring and obtaining a particular employment, the others represent Obliterated choices. Considering the Table just given,

Obliteration in the first occupation,
= 29/59 x 100 = 49%
and Obliteration in the Second occupation
= 25/59 x 100 = 42.4%
The extent of the agreement between the first Choice and the Choice three years later
= 31/59 x 100 = 52.5%.

114. OBSERVATIONS

1. The Obliteration of Choice of Employment is greater in the first post than in the second. Presumably, economic necessity has intervened in the first case, whilst several girls may, in their second post, have endeavoured to secure the occupation they desired.

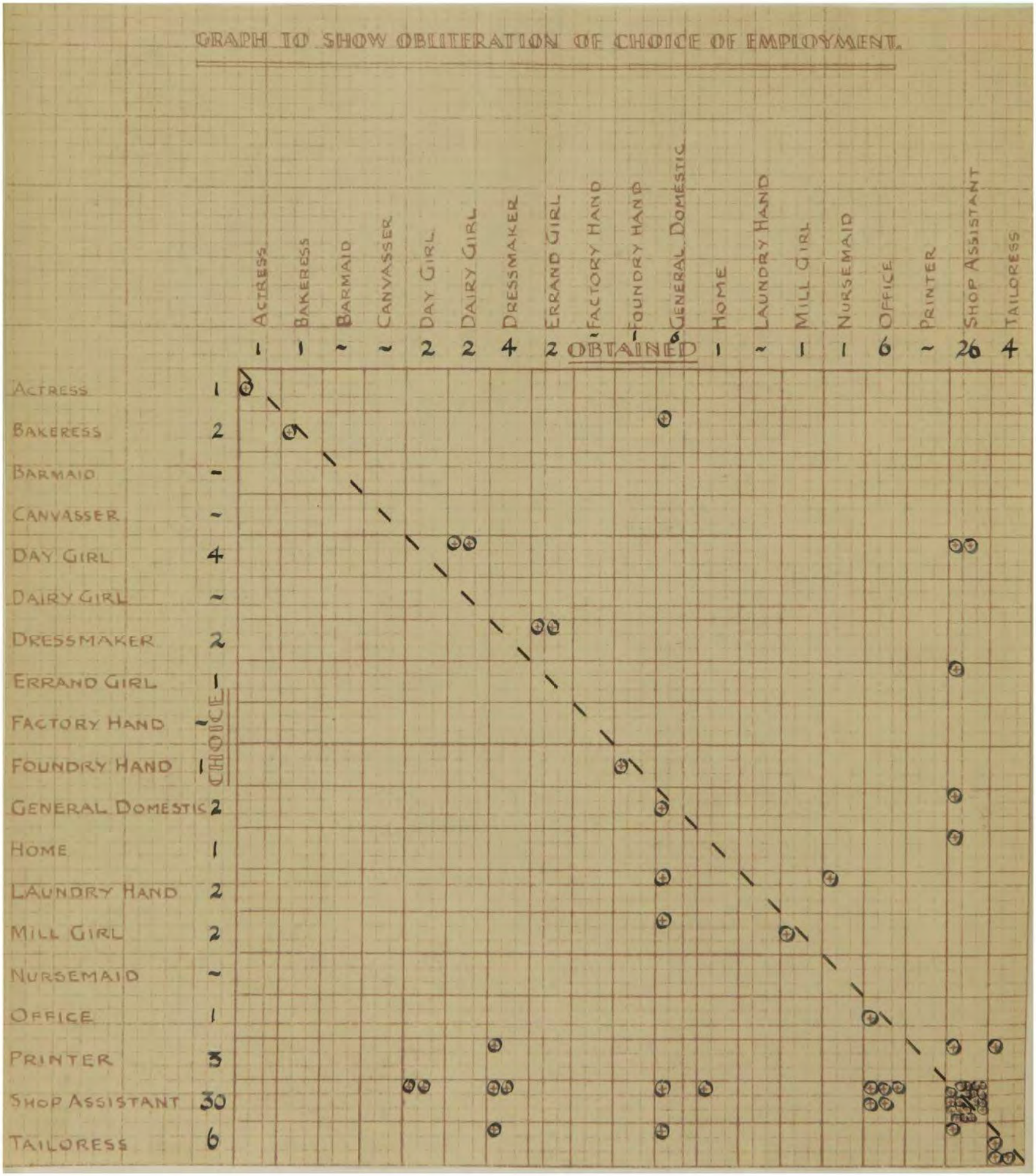
2. In both, the Obliteration is somewhat extensive and shows that only half the group secures the occupation chosen.

3. The relatively large modification of the original choice occasioned by industrial experience is illustrated by the fact that approximately half the girls would now choose some other occupation than the one they originally selected, could they remake their choice.

115. CONCLUSIONS

1. The general over-riding of Choice of Employment by the economic demands of an area has been shown. It is suggested that this is a yearly feature.

GRAPH TO SHOW OBLITERATION OF CHOICE OF EMPLOYMENT.



2. The extent of Obliteration is indicated to be 49% in the first occupation and 42.4% in the second.

3. The extent of the agreement between original and present choice in employment is 52.5% thus showing that a considerable change in occupational interests has taken place, due probably to industrial experience.

4. This annual Obliteration of Choice is due principally to the non-coincidence of occupational choices with industrial needs. This is a problem worthy of further serious consideration.

CHOICE OF EMPLOYMENT AND TYPES OF SCHOOLS

EXPERIMENT 3.

116. Preliminary Remarks

It has been fairly generally assumed, up to now, that Choice of Employment is mainly dependent on personal caprice. That it is not entirely dependent has been indicated by the range of choice in the previous investigation. Here it was shown that the type of school attended is a relevant external factor. This investigation follows up this line of approach.

117. Aim of Experiment

To determine to what extent Choice of Employment is influenced by the type of School attended.

Choice of Employment and Type of School

Method
Details of Experiment

Place of Investigation:-	Middlesbrough
Date of Investigation :-	Sept.1930
No. and Sex of Subjects	300 Girls, 400 Boys
Age of Subjects	14-16½ years
Types of Schools covered:	Elementary. Central Technical. Secondary.

Does this mean every child?

The whole of the information presented in this investigation was obtained through analysis of the individual Record Cards of the Middlesbrough Juvenile Employment Bureau. As already indicated, each child leaving school is interviewed, the choice of employment and other personal particulars ascertained and these are entered on a Record Card which is filed alphabetically for future reference. This scheme has been in operation at Middlesbrough since 1925.

Since over 2,000 children, approximately equal numbers of boys and girls, leave the Elementary Schools in this town annually, there are some 10,000 cards filed. Likewise there are approximately 700 Central; 250 Technical and 1,200 Secondary cards available[x]. Thus to secure sample groups of 100 from each type of School it was necessary to proceed through the files and

select	1	in	50	for	the	Elementary	Boys	&	Girls	Group
"	1	in	3	"	"	Central	"	"	"	"
"	1	in	2	"	"	Technical	"	"	"	"
"	1	in	6	"	"	Secondary	"	"	"	"

In this way, fairly representative sample groups may be selected. A possible objection is that such a method does not take into account the fact that the cards represent a five year collection. Since the range of choice is, according to my experience, roughly the same from year to year, it is safe to neglect this time factor, especially when it is common to each group selected.

The cards selected in the above manner were then examined and the choice of employment ascertained and classified. These were as follows:-

---

(x) Boys and Girls in approximately equal numbers except the Technical School (Boys only).

118. RESULTS

OCCUPATIONAL CHOICE. BOYS

	Element	Central	Tech.	Second.
Analytical Chemist	-	8	20	10
Bricklayer	-	2	-	-
Cabinet Maker	-	-	10	-
Draughtsman	-	2	16	2
Electrician	9	-	16	2
Engineer	-	4	-	4
Errand Boy	26	-	-	-
Farm	9	-	-	-
Grocer	10	2	-	-
Joiner	12	8	16	-
Motor Mechanic	25	6	14	-
Plumber	-	2	-	-
Office	9	64	6	80
Shop Assistant	-	2	2	2
	100	100	100	100

119. Similarly the classified choices of the girls were:-

OCCUPATIONAL CHOICE. GIRLS

	Elem.	Central	Secondary
Cash Desk Assistant	-	-	1
Chemist	-	-	1
Domestic Servant	36	13	3
Dressmaking	4	3	-
Farm Service	-	-	1
Librarian	-	1	-
Nursemaid	5	-	4
Nurse	-	4	-
Office	5	40	74
Shop Assistant	38	33	12
Tailoress	8	4	2
Teacher	-	1	-
Tracer	-	1	2
Waitress	4	-	-
	100	100	100

120. ANALYSIS OF RESULTS

Choice of Employment and Type of Schools.

1. Analysing these Tables, the principal choices are as follows:-

BOYS. A. Elementary School.

(1) Errands	26
(2) Motor Mechanic ...	25
(3) Joiner	12
(4) Grocer	10

B. Central School

(1) Office	64
(2) Analytical Chemist	8
(3) Joiner	8
(4) Motor Mechanic ...	6

C. Technical School

(1) Analytical Chemist	20
(2) Electrician	16
(3) Draughtsman.....	16
(4) Joiner.....	16

D. Secondary School

(1) Office.....	80
(2) Analytical Chemist	10
(3) Engineer	4
(4) Shop Assist.....	2

GIRLS

A. Elementary School.

(1) Shop. Assist.....	38
(2) Domestic Service	36
(3) Tailoress.....	8
(4) Office.....	5

B. Central School

(1) Office.....	40
(2) Shop.Assist.....	33
(3) Domestic Service	13
(4) Nurse.....	4

C. Secondary School

(1) Office.....	74
(2) Shop. Assist.....	12
(3) Nursemaid.....	4
(4) Domestic Service	5

2. If comparison is made between the range of choice of the Elementary and Central School girls in the preceding and current investigations, it will be found to be broadly similar.

Choice of Employment and Type of Schools

3. The desire for clerical occupations is very marked in the Central and Secondary School pupils, particularly the latter, 72% of the total number of Secondary pupils desiring this type of work.

4. Occupations rather than vocations predominate throughout.

121. OBSERVATIONS

1. Wide differences exist in the Choice of Occupation by children of different Schools. Quite possibly part of such variations are due to differences in age of the pupils, the Central School children being one and the Secondary up to three years older than the Elementary School children.

2. But this explanation is not sufficient to account for the detailed variation of choice which is apparently due to differences in interests and training. It is evident that each type of School trains the individual in a particular way, gives him certain ideals, outlook and interests. This is accomplished through the type and range of the School curriculum

3. In this way, the view may be put forward that the external factor, namely the type of School attended, exerts a specific influence on the occupational choice of a group, which is now seen to be not so independent of external factors. The choice appears to be least affected by the Elementary School, where it is almost entirely individual (and also most irrational), and greatly affected in the Central, Technical and Secondary Schools, where personal choice within a certain range appears, this being more rational owing to the training already received.

122. CONCLUSIONS

Choice of Employment and Type of Schools

1. By means of the method of Samples, an analysis of five years records of Choice of Employment has been attempted. It has been demonstrated that choice is not so dependent on personal idiosyncrasies as previously accepted. It is especially affected by the type of school attended, least by the Elementary School and most by the Central, Technical and Secondary Schools in this order. Individual choice appears, but within limits characteristic to the type of School.

2. This is a fairly permanent factor. The types of choice as here described may, therefore, be accepted as representative.

3. Of the two factors Economic requirements of a distinct and Occupational Choice, the latter is more susceptible to modification. In view of the present Obliteration which occurs, the suggestion is put forward that School organisation should be relative to the occupational and economic needs of an area. The investigation may, in conjunction with the previous one be taken as evidence for occupational organisation of Schools. This would at least ensure that the yearly supply of labour at least be equivalent to the demand. The two implied principles are:-

   (1) That Schools must now be organised not as ends in themselves, but as means to successful occupational endeavours.

   (2) Co-ordination among the different types of Schools is virtually necessary to minimise overlapping and subsequent wasteful competition and obliteration.

REASONS UNDERLYING OCCUPATIONAL CHOICE

EXPERIMENT 4

123. **Preliminary Remarks**

The Obliteration of Occupational Choice which occurs has been dealt with and also the effect of the type of School attended on Occupational choice. There yet remains the analysis of the detailed reasons underlying occupational choice.

124. **Aim of Experiment**

To ascertain the range of, and the reasons underlying, Occupational Choice.

125. **Method:**

Details of Experiment

Place of Investigation: Melbourne Place Central School, Cambridge[x]
Date of Investigation: May to June 1931
No. and Sex of Subjects 50 Boys; 20 Girls
Age of Subjects: 15 - 16 years.

Available Methods

Two methods are available when dealing with Occupational Interest Blanks as in this investigation. The individual may be given the Blank and when it is completed asked to write down the reasons for his preferences. Or the Blank may be given and the person subsequently interviewed by the investigator, details of his reasons being elucidated orally. I decided to employ the latter method as being more satisfactory for my purpose.

An Occupational Interest Blank was drawn up for the Boys and another for the Girls+. Each

(x) A Central School was selected for this investigation on account of its intermediary status between the Elementary and Secondary Schools, which makes it the most representative of the three.

(+) See Appendix I., Blanks A1 and A2.

included a full range of local and general occupations and professions. The children were instructed to put one cross before each occupation (including vocations) they may possibly decide to follow and two crosses before the one occupation they are most likely to choose.

126. The Blanks were given to the two groups at 9 a.m. one morning and unlimited time allowed for their completion. Subsequently each individual was interviewed by myself and the reasons for their preferences recorded during conversation. The period of the interview averaged about 10 minutes for each child. Since the girls proved to be rather shy, I interviewed each in the presence of her school friend. This eliminated the need for the presence of a Mistress which had been a hindrance to free expression on the part of the girls.

The full range of Occupations desired as indicated by the completed Blanks is given in detail. In each case, the first occupation of the individual list is that receiving two crosses, representing the one most desired.

INVESTIGATION I. (Choice of Employment).

TABLE SHOWING RANGE OF OCCUPATIONAL CHOICES - BOYS

Boy No.1. Mechanical Engineer, Engineer, Police, Photographer.

" " 2. College Servant, Fireman, Chauffeur, Policeman Motor Mechanic, Detective

" " 3. Motor Mechanic, Clerk, Shop Assistant, Printer, College Servant.

" " 4. Printer, Motor Mechanic, Shop Assistant, Engineer.

" " 5. Policeman, Detective, Footballer, Motor Mechanic, Mechanical Engineer.

" " 6. Clerk, Chemist, Private Secretary, Photographer, Laboratory Assistant.

" " 7. Painter, Grocer, Air Force, Electrician, Postman, Laboratory Assistant.

" " 8. Chemist, School Teacher, Laboratory Assistant, Shop Assistant.

" " 9. Engineer, Electrician, Wireless Operator, Sign Writer, Chemist, Actor, Accountant, Civil Engineer, Clerk, Typist, Laboratory Assistant, Photographer.

" " 10. Clerk, Air Forceman, Mechanical Engineer, Librarian

" " 11. Sailor, Motor Mechanic, Engineer, Footballer, Cricketer, Policeman, Army or Navy Officer.

" " 12. Clerk, Poet, Editor, Librarian, Laboratory Assistant, Sign Writer.

" " 13. Chef, Postman, Policeman, Plumber, Engineer, Gardener.

" " 14. Printer, Architect, Surveyor, Clerk, Electrician, Librarian, Draughtsman, Merchant.

" " 15. Clerk, Typist, Grocer, Printer, Electrician, Bookseller.

" " 16. Clerk, Typist, Shop Assistant, Laboratory Assistant, Footballer, Tailor.

Boy No. 17. Shop Assistant, Clerk, Typist, Waiter, Printer, Laboratory Assistant, Journalist.

" " 18. Shop Assistant, Waiter, Printer, College Servant, Gardener, Librarian, Footballer, Grocer, Bus Conductor, Actor, Clerk.

" " 19. Clerk, Typist, Accountant, Banker, Printer, Bookseller.

" " 20. Clerk, Shop Assistant, Motor Mechanic, Electrician.

" " 21. Lawyer or Solicitor, Clerk.

" " 22. Engineer, Electrician, Wireless Operator, Air Force Man, Chemist, Cabinet Maker, Laboratory Assistant, Mechanical Engineer.

" " 23. Engineer, Bricklayer, Talkie Operator.

" " 24. Shop Assistant, Typist.

" " 25. Printer, Grocer, Footballer, Shop Assistant.

" " 26. Printer, Shop Assistant, Grocer, Footballer.

" " 27. Laboratory Assistant, Clerk, Air Force.

" " 28. Shop Assistant, Baker, Draughtsman, Chauffeur, Wireless Operator, Footballer, Groundsman, Talkie Operator, Boat Builder.

" " 29. Private Secretary, Shop Assistant. Mining Engineer, Photographer.

" " 30. Clerk, Journalist, Librarian.

" " 31. Printer, Railwayman, Engineer, Plumber.

" " 32. Journalist, Policeman, Clerk, Printer.

" " 33. Clerk, Typist, Printer,

" " 34. Farmer, Electrician, Motor Mechanic, Baker, Mechanical Engineer.

" " 35. Clerk, Baker, Grocer, Chauffeur, Shop Assistant.

" " 36. Instrument Maker, Laboratory Assistant, Engineer.

" " 37. Draughtsman, Cartoonist, Wireless Operator, Architect, Surveyor, Mining Engineer, Landscape Artist.

Boy No. 38. Electrician, Wireless Operator, Motor Mechanic, Engineer, Civil Engineer, Mechanical Engineer, Laboratory Assistant.

" " 39. Laboratory Assistant, Photographer, Detective, Clerk, Groundsman.

" " 40. Journalist, Clerk, Printer.

" " 41. Electrician, Engineer, Railwayman, Footballer.

" " 42. Printer, Railwayman, Electrician, Wireless Operator.

" " 43. Electrician, Motor Mechanic, Civil Engineer, Mechanical Engineer.

" " 44. Electrician, Motor Mechanic, Engineer.

" " 45. Air Force Man, Draughtsman, Electrician, Wireless Operator.

" " 46. Electrician, Wireless Operator, Sailor, Air Force Man, Draughtsman, Photographer, Motor Mechanic, Explorer, Architect, Surveyor, Civil Engineer, Army or Navy Officer, Marine.

" " 47. Laboratory Assistant, Policeman, Electrician.

" " 48. Engineer, Motor Mechanic, Electrician, Wireless Operator, Explorer, Air Force Man, Footballer, Laboratory Assistant, Surveyor, Scientist,

" " 49. Printer, Electrician, Motor Mechanic, Engineer, Mechanical Engineer. Talkie Operator.

" " 50. Chemist, Draughtsman, Accountant, Architect, Banker.

INVESTIGATION I. EXPERIMENT 4

Reasons underlying Choice of Employment.

127. DETAILED ANALYSIS OF REASONS FOR OCCUPATIONAL PREFERENCES

(BOYS)

Proceeding to the detailed analyses of the reasons underlying the Occupational Choices which were obtained during the interviews, to attempt to present the full list of reasons of all the subjects would involve the consideration of a rather unwieldy accumulation of data and accordingly a selection has been made

Selecting as samples numbers, 7, 18, 19, 27, 32 and 33, the reasons given for the occupational preferences are:-[x]

Boy No.1

Painter:	Likes it. Does it at home. Fairly good job. Brother-in-law painter. Job in mind with him.
Grocer:	Likes it. Interesting. Money making game. Used to it. Helps a grocer on Saturdays. He tells him about the trade.
Postman:	Chance to rise in the world. Good pay. Learn things. Get to know people more.
Shop-Assistant:	Interesting. Modern shop clean and healthy place. Chance of working a business up from small shop.
Air Force:	Fancied it. No particular reason.
Electrician:	Thinks would like it.
Laboratory Assistant:	Thinks would like it. No particular Laboratory fancied.

Boy No.8

Chemist:	Likes experimenting
School Teacher:	Fancies it. No particular reason.
Laboratory Assistant:	Thinks would get on all right

Boy No.18

Shop-Assistant:	Brother is shop assistant. Thinks would like it.
Waiter	Like to get in Hotel or College Kitchen. Likes cooking.
Printer:	Has friends in Pitt Press. Thinks would like it.
College Servant:	Would like it. Get plenty of amusement and sport. Friends say so.
Gardener:	Father is gardener and helps him.

(x) The general nature of my questions may be traced from the answers given herewith.

Librarian:	Likes books. Knows assistant in University Library.
Footballer:	Plays in School XI. Likes games.
Grocer:	Would like to get in International Stores.
Bus Conductor:	Plenty of free rides. Interesting.
Actor:	Has acted at Sunday School Treats and Concerts.
Clerk:	Does Shorthand and Book-keeping at School.

Boy.No.19.

Clerk:	Does Shorthand and Book-keeping at School. Parents want this also.
Bookseller:	Seems interesting. Likes books.

Boy.No.27

Laboratory Assistant:	Mother knows friends in this line - would like it. Any Lab. except Engineering Lab.
Clerk:	Does Shorthand 50 words per min. and Book-keeping at school. Would like it.
Air Force:	Would like to fly - lives near Aerodrome. Not interested in engineering side.

Boy No.28

Shop Assistant:	Interesting. See a lot of people. Always something new. Would like to work for Co-op.
Grocer:	Has name down. Brother is grocer. Thinks would do well at it.
Baker:	Fresh and interesting work. Would like to make designs on cakes.
Chauffeur:	They travel about. See the country. Likes motors and engines.
Wireless Operator:	Interesting. Does not know any Wireless nor Morse code. Travel about and see the World.
Footballer:	Right full back in school football team. Would like it.
Talkie Operator:	Likes mechanical work. Could see all the films. Learn how it works.
Boat Builder:	Likes river and rowing. Would like to make and design boats.

Boy No.32

Journalist:	Is Interesting. Likes clerical work. Knows a reporter. Parents want him to go in for office work.
Policeman:	Open air life. Steady job. Knows retired policeman. Everyone says he should be a policeman because he is tall.

Clerk: Wants clean and steady job like this. Does commercial work in school.

Printer: Has friends in Pitt Press. Going to get name down. Would not go in for machine work, but craft work, binding etc.

Boy No.33

Clerk: Likes shorthand. Top of class in this subject. Brother is clerk. Wants to be like him. Likes writing.

Typist: Cannot type. Fancies it. Brother does it. Parents want him to go into office or be an Electrician.

Printer: Would like to get in Pitt Press. Thinks will like it. Knows nothing about it.

INVESTIGATION I. EXPERIMENT 4.

Reasons underlying Occupational Choice

GIRLS RESULTS

The Occupational Preferences as shown on the Girls' Interest Blanks were:-

TABLE SHOWING RANGE OF OCCUPATIONAL CHOICE

Girl No.1.	Clerk,	Policewoman,	Nurse.	
" " 2.	Shorthand-Typist.	Clerk.	Post Office Probationer.	
" " 3.	Clerk.	Shorthand-Typist.	General domestic.	Cashier.
" " 4.	Clerk.	Shorthand-Typist.	Shop-Assistant.	Librarian.
" " 5.	Shorthand-Typist.	Clerk.	Shop Assistant.	
Girl No.6.	Shorthand-Typist.	Clerk.	Post Office Probationer	
" " 7.	Shorthand-Typist.	Clerk.	Shop-Assistant.	
" " 8.	Shorthand-Typist.	Clerk.	Librarian.	
" " 9.	Shorthand-Typist.	Shop-Assistant.	Bookseller	
" " 10.	Children's Nurse.	Shop-Assistant.		
Girl No.11.	Shop-Assistant.	Cashier.		
" " 12.	Shorthand-Typist.	Clerk.	Shop-Assistant.	
" " 13.	Clerk.	Shorthand-Typist.	Shop-Assistant.	
" " 14.	Clerk.	Shorthand-Typist.	Secretary.	
" " 15.	Shop-Assistant	Hairdresser.	Shorthand-Typist.	
Girl No.16.	Children's Nurse.	General Domestic.		
" " 17.	Shorthand-Typist.	Clerk.		
" " 18.	Nursery Governess.	Shorthand-Typist.	Shop Assistant.	
" " 19.	Shorthand-Typist.	Drawing-Office Clerk.	Shop Assistant.	
" " 20.	Shorthand-Typist.	Clerk.	Cashier.	

INVESTIGATION I. EXPERIMENT 4

Reasons underlying Choice of Employment

GIRLS

DETAILED ANALYSIS OF REASONS FOR OCCUPATIONAL PREFERENCES

128. In the case of the Girls, Selecting as samples numbers 4, 5, 9, 10, 15 and 16 the reasons given for the preferences were:-

Girl No.4	Clerk:	Likes book-keeping.
	Shorthand-Typist:	Likes both subjects. Has a friend who is this and who is getting on well.
	Shop Assistant:	Would like to be in a shop and see different people.
	Librarian:	Likes reading books. Has friend in Town Library, who likes her work.
Girl No.5	Shorthand-Typist.	Fancies it. Does these subjects at school. Likes them.
	Clerk:	Likes book-keeping.
	Shop-Assistant:	It would be nice to be in a shop. One sees nice things. Like to be in draper's shop.
Girl No.9	Shorthand-Typist:	Likes both subjects. Would like to be using fingers all day long. Would probably secure a good post.
	Shop-Assistant:	Like to enter Drapery Shop. Would like anything to do with clothes.
	Bookseller:	Likes reading books.
Girl No.10	Children's Nurse:	Likes children. Would like to look after them.
	Shop Assistant:	Would like to serve in a shop. Drapery for preference.
Girl No.15	Shop Assistant:	Fancies draper's shop. Would like to show pretty things to people.
	Haidresser:	Father is hairdresser. Would like to follow him.
	Shorthand-Typist	No particular reason. Just fancies it.
Girl No.16	Children's Nurse:	Likes children. Has a friend a nurse.
	General Domestic	Likes housework. Has friends in service

129. Further Analysis of Results (BOYS).

The classified types of Occupations desired by the Boys are given herewith and what percentage of the total number of Boys desired them.

Reasons underlying Occupational Choice.

Table to show Types of Occupation chosen.

Type of Occupation	%
Agriculture	1
Mechanical Trades	23
Building, Construction	
Manufacturing	3
Transportation	2
Commercial	18
Public Service	10
Domestic and Personal	3
Clerical	12
Artistic	4
Semi-Professional	10
Professional	11
Athletics	3

Table to show number of Preferences Made BOYS.

No. of Preferences	% of Total No.of Boys	No. of Preferences	% of Total No.of Boys
1	0	8	4
2	2	9	0
3	20	10	6
4	26	11	2
5	12	12	2
6	16	13	2
7	8		

This Table shows what percentage of the total number of Boys made a particular number of preferences. (e.g.) 20% of the total number of boys made 3 choices and so on.

130. Analysis of Results. (GIRLS)

Reasons underlying Occupational Choice

1. Treating the Girl's Results in the same way, the classified types of occupations desired are given herewith and the percentage of the total number of Girls who desired them. It must be remembered, however, if comparison is made with the Boys' Table, that the Girls' group was smaller than the Boys' group.

Table to show types of Occupation Chosen. GIRLS

Type of Occupation	%
Commercial	21.3
Public Service	1.6
Domestic and Personal	8.2
Clerical	60.7
Semi-professional	6.6
Professional	1.6

2. The girls in the investigated group chose either two, three or four occupations, the percentages of the total number of girls making those choices are:-

Table to show number of Preferences made. GIRLS

No.of Preferences	%
2	15
3	65
4	20.

131. FURTHER ANALYSIS OF RESULTS (BOYS AND GIRLS)

Occupational Choice.

Comparing the Boys' group with the Girls' group it would appear that.

1. Number of Preferences made

		Boys.	Girls
Arithmetic Mean	=	5.4	3
Median	=	5	3
Mode	=	4	3

Further comparing the Types of Occupations chosen,

2. (a) 82% of the Girls wished for Clerical and Commercial situations.
30% of the Boys wished for this type of occupation.

(b) 8.2% of the Girls desired Professional and Semi-Professional work.

21% of the Boys did so.

3. The agreement between the Preferences[x] is as follows:-

Agreement between

First and Second Preference
28% Boys. 65% Girls

Second and Third
24% Boys. 30% Girls

Third and Fourth
18% Boys - Girls

Fourth and Fifth
8% Boys - Girls.

---

x This shows whether the types of employment chosen in the first preference agree with those of the second and so on. It was obtained by inspection of the various columns.

Reasons underlying Occupational Choices

132. OBSERVATIONS

1. The interviews during which the reasons for the expressed preferences were elucidated proved to be very illuminating. This method is much superior to that requiring the person to write down the reasons for the preferences.

2. It was soon apparent that there were three types of individuals.

   (a) Those who could hardly give any reasons at all for their preferences.

   (b) Those who could give some reasons for some of their choices.

   (c) Those who could give ample reasons for all their preferences.

3. The children were unable to distinguish between those occupations in which they were actually interested, and those in which they thought they were interested. Hence in the latter they were unable to give precise reasons for their preferences, a common occurrence in the investigation.

4. Differences in the number of preferences and the range of choice between the boys' and girls' groups is partly explained by the fact that the girls' group was much smaller than the boys' and that a larger group would probably have revealed a wider range of choice.

133. CONCLUSIONS

1. By means of Occupational Interest Blanks and personal interview an investigation has been made into the range of Occupations chosen and the reasons for occupational choice in two groups one of 50 boys and one of 20 girls. It was found that 11% of the Boys and 1.6% of the girls desired Professional work, whilst 10% of the Boys and 6.6% of the girls desired Semi-Professional work. The majority of the girls showed a decided preference for Clerical and Commercial occupations, the boys for Mechanical and then Clerical and Commercial callings.

2. The range of Choice has been shown to be fairly high, averaging 5 per individual in the case of the boys over 12% of whom has 10 or over occupational preferences. The average was less in the case of the girls being 3 per head.

3. The main factors affecting the range of choice were: Random fancies and likings; desire to follow example of a friend; Desire to continue with subjects in school curriculum; wishes of parents, belief in own capacity; Repressed desires.

4. The investigation has shown that, too often, Occupational Choice is based on fancy or supposed interest or inaccurate information. Fitness or capacity rarely enters into the range of Choice. Obliteration is the normal result. This state of affairs reverses the correct procedure which should consist of:-

   1. an estimation of personal qualities.
   2. A choice of occupation relative to those qualities.

INVESTIGATION II.

Preliminary Remarks.

134. Any scheme of Occupational Selection or Guidance, neglecting the Interests of the individual is incomplete. The following work deals with these factors and the part they should play in guidance.

135. Aim of Investigation

INTERESTS

To ascertain, quite broadly, what importance should be attached to individual Interests in Guidance work.

136. Method
Details of Investigation.

Place of Investigation;	Melbourne Place, Central School, Cambridge.
Date of Investigation:	May and June, 1931
Number and Sex of Subjects	50 boys, 20 Girls
Age of Subjects	15-15½ years.

The difference between the number of boys and girls in the two groups is explained by the fact that I was unable to have the facilities in arranging my work in the Girls' School that I was granted in the Boys' School.

The interests covered in the investigation were

A. Occupational Interests..... Expt.1
B. Scholastic Interests..... Expt.2
C. Activity Interests..... Expt.3
D. Reading Interests..... Expt.4
E. Collections..... Expt.5

The general method followed was to give each child an Interest Blank, which was completed in unlimited time. Each blank contained the necessary instructions, which were amplified, if necessary,

by myself. No attempt was made to introduce an examination atmosphere and a brief outline of the investigation was given to the children prior to their work.

Interest Blanks A, C. and E. were given the first morning from 9 a.m. - 10 a.m. with both boys and girls. Blanks B. and D. the second morning. These Interest Blanks are given in full in Appendix I.

EXPERIMENT 1.

137. ### A. Occupational Interests

Occupational Interests.

Since the detailed analysis of the Occupational Interest Blank has formed part of a previous experiment, (paras 120-129), to avoid repetition it is omitted here.

INVESTIGATION II

EXPERIMENT 2

138. B. **SCHOLASTIC INTERESTS**

The analysis of the Scholastic Interest Blanks* was as follows:-

Subject	Like Very Much		Like Fairly Well.		Neither Like nor Dislike		Rather dislike		Dislike Very Much	
	B. %	G. %	B. %	G. %	B. %	G. %	B. %	G. %	B. %	G. %
Art	49	44	33	33	16	23	2	-	-	-
History	26	33	46	23	23	41	5	3	-	-
Geography	14	16	41	34	31	33	10	17	4	-
English	25	43	36	32	23	17.5	13	7.5	3	-
Maths.	33	43	38	34	25	13	4	-	-	10
Phys.Exercise	82	80	14	16.5	3	1	-	1.5	1	-
Book-keeping	4	24	36	44	37	20	20	6	3	6
Shorthand	22	-	31	-	15	-	19	-	13	-
Science	23.5	-	36	-	33.5	-	7	-	-	-
Metalwork	59	-	30	-	5	-	3	-	3	-
French	-	14	-	30	-	30	-	23	-	3
Singing	-	39	-	43	-	10	-	4	-	4
Sewing	-	43.3	-	33.3	-	13	-	6	-	3.3
Cookery	-	50	-	34	-	16	-	-	-	-
Typewriting	-	77	-	13	-	10	-	-	-	-
	B.	G.	B.	G.	B.	G.	B.	G.	B.	G

* See Appendix I, Blank B.

INVESTIGATION II

EXPERIMENT 2.

139. ANALYSIS OF RESULTS.

Scholastic Interests.

1. The expressed preferences for individual subjects are as follows:-

Boys:
1. Physical Exercises;
2. Metalwork;
3. Art;
4. History;
5. Mathematics;
6. English;
7. Science;
8. Geography;
9. Shorthand;
10. Book-keeping.

Girls
1. Physical Exercises;
2. Typing.
3. Cookery;
4. Singing;
5. Art;
6. Mathematics;
7. Sewing;
8. English
9. Book-keeping
10. History;
11. Geography;
12. French.

2. No detailed statistical analyses, such as the determination of the correlation between the boy's and girl's preferences for each and all the subjects, has been attempted. For owing to differences in material factors affecting the preferences and to differences in curricula, such analyses lose their significance.

3. No marked dislike of any subject is apparent and, in general, liking for scholastic subjects exists in these two particular Schools.

4. General trends of like or dislike of certain subjects are apparent. This stresses the part played by external factors, such as the influence of the teacher and teaching method, on such expressed interests.

140. OBSERVATIONS.

1. Scholastic Interests are, perhaps of all Interests, least affected by extraneous factors, such as home circumstances and social position. The Static analyses given here represent, therefore, fairly closely, individual discriminations which have grown during the period of school life.

2. Whilst these are influenced by extreme factors such as the teacher's personal influence, the teaching methods and facilities for study, and, internal or personal factors such as the persons general ability and special aptitudes, yet certain interests predominate and often exert a dynamic influence on mental life.

3. The determination of such dominant scholastic interests or associated group of interests will prove valuable in Guidance and Selection work, particularly in true Vocational Guidance, where an initial common intellectual standard being required, the choice of a profession may be made through such interest analyses.

4. The detailed examination of the reasons underlying individual likes and dislikes of particular subjects, the manner in which interests fluctuate and grow during the school career and the extent to which the internal modifying factors influence scholastic interests are matters requiring further investigation.

141. CONCLUSIONS

Scholastic Interests

1. If reference is made to the choice of occupation of these two groups, it will be noticed that occupational choice was generally made exclusive of, and independent of, scholastic interests and ability. The exception was in the case of the subjects Shorthand, Typing and Book-keeping, interest in which induced strong occupational preference with the group of girls.

2. A partial explanation of this lack of influence is that the children, unable to link up their school subjects with the occupations of

the external world, cannot recognise those callings relative to their particular interests and, perhaps, ability.

3. We may conclude that:-

(1) As psychological phenomena, scholastic interests are relatively isolated, being subject later to almost complete obliteration or alternation.

(2) They are significant when they appear, singly or united, as driving forces which either intrude on existing mental life or show signs of intruding later.

(3) Quite broadly, they are as yet, of greater interest than utility to the Employment Psychologist.

(4) Where they are useful, they possess greater value in true Vocational Guidance work than in Occupational Guidance.

INVESTIGATION II

EXPERIMENT 3.

142. C. Activity Interests

Results. The Activity Interests as given on the Interest Blanks[x] were as follows:

Activity	Like Very Much		Like fairly well		Neither like nor Dislike		Rather Dislike		Dislike very much	
	%	%	%	%	%	%	%	%	%	%
General Reading	72	90	25	10	-	-	3	-	-	-
Practising music, drawing, dancing	22	40	32	50	7	10	18	-	21	-
Playing of games with little physical ex.	36	50	36	40	15	10	4	-	9	-
Playing games with lots of phys.ex.	75	65	15	35	7	-	-	-	3	-
Playing with several others	65	75	26	15	3	10	2	-	4	-
Playing with one other	28	40	31	30	21	25	6	-	4	5
Playing alone	5	-	23	10	24	15	25	35	44	40
Going to parties, dances, clubs	24	40	31	15	25	35	12	-	8	10
Using tools, working with apps. and machy.	58	20	28	30	9	35	2	15	3	-
Sewing, cooking, housework	-	45	3	35	7	10	4	10	86	-
Leader in club and managing others	14	35	24	15	22	21	20	20	20	9
	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.

x See Appendix I., Blank C.

ANALYSIS OF RESULTS

1. The correlation between the boys' and girls' rating is as follows:-

Rating	Correlation. Boys' and Girls' Rating
Like very much.....	·90
Like fairly well.....	·88
Neither like nor dislike	·88
Rather dislike.....	·86
Dislike very much.....	·84

2. It will be noticed that the agreement of the ratings of the different activities is fairly close. This ranges from a general liking for General Reading to a fairly general dislike of playing alone.

3. As could be expected, differences between the groups occur in the ratings of Practising Music, Drawing and Dancing, Using Tools, Apparatus and machinery, Sewing, cooking and housework.

143. OBSERVATIONS

Activity Interests

1. The principal value of the Table is that it indicated the average attitude to a particular activity. Comparison may then be drawn between a particular individual's attitude and the average.

2. In this way, deviations can be recognised and graded, wide deviations being regarded as being of sufficient importance to require further investigation.

3. It would be possible after examination of average activities and individual activities, to classify individuals with regard to the social group as:

1. Socially blind.
2. Socially dependent.
3. Socially independent.

4. Alternatively, one could classify them with reference to their activities arranging the following groups in order of prominence.

    1. Scholastic Interests

    2. Social Interests.

    3. Activity Interests.

5. The general dislike of playing alone, with which one could include "working alone," has a far-reaching effect. It is safe to say that the majority of the children will be more alone in their first occupation than they have ever been before. This may occasion dislike for a particular occupation which actually may be due to dislike of the involved solitariness.

6. The activities as here stated will, without doubt, alter during succeeding years. It is necessary to remember, therefore, in utilising such information, that these activities are merely those at a time T1 and that they are subject to modification.

144. CONCLUSIONS

Activity Interests.

1. Activity Interests are likely to prove of greater value than Scholastic Interests in Employment work.

2. Various occupations demand different types of activities. Through an analysis of interests as that undertaken it is possible not only to ascertain individual interests, but also to classify individuals with reference to their suitability for particular types of work.

INVESTIGATION II
EXPERIMENT 4

RESULTS 145. D. Reading Interests

The analysis of the Reading Interest Blanks* is as follows:

	I %		II %		III %		IV %		V %		VI %		VII %		VIII %		IX %		X %	
	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.
Fairy Tales, Folk Tales, Legends	-	--	--	-	2	5	*	7	-	10	4	10	4	10	10	5	20	25	58	30
Nature & animal Stories	2	-	16	5	6	5	8	25	10	5	8	5	18	25	8	20	22	5	2	5
History, Biography & Travel	4	10	12	-	10	10	10	15	20	25	14	10	16	5	6	5	4	15	4	5
Science	16	-	10	-	12	10	8	5	6	5	18	5	12	20	16	10	-	25	2	20
Stories of Adventure & Mystery	58	50	14	15	10	15	10	5	2	5	2	5	2	-	2	-	-	-	-	5
Stories of Home & School Life	8	20	8	40	16	5	16	-	18	10	18	5	8	15	6	-	2	5	-	-
Poetry & Drama	-	5	4	15	14	5	10	20	14	25	4	20	14	-	26	10	6	-	8	-
Childrens Encyclopaesias.	2	5	14	-	16	15	22	5	14	-	18	25	8	20	-	25	4	5	2	-
Informational Fiction	10	10	18	20	10	25	12	15	12	5	10	-	10	5	10	10	8	5	-	5
Emotional Fiction	-	-	2	5	6	5	6	15	6	10	8	10	10	5	12	15	28	15	22	20
	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G

* See Appendix I., Blank D.

146. ANALYSIS OF RESULTS

Reading Interests

1. There appears to be general liking for Stories of Adventure and Mystery and general dislike for Fairy tales, Folk Tales and Legends. There is also diffidence about Emotional Fiction.

2. The almost uniform ratings of Informational Fiction suggests that the children here did not properly appreciate the term and consequently could not indicate their true regard for this class of reading.

3. Science appears more popular with boys than girls the latter preferring Stories of Home and School life. Poetry and drama is neither prominent in the boys' preferences nor in the girls'.

147. OBSERVATIONS.

1. These reading interests are not entirely free and untrammelled, being influenced by the type of books available, the suggestions of other girls and the teachers and parents, the school curriculum and so on. Further, opportunities for reading differ from child to child.

2. Were each child in receipt of equal opportunities and facilities, then the static analysis of their reading interests might be of value. In the present position, it is not.

3. Assuming that it were, there is considerable danger in following the kind of argument as the following "My boy is always reading books about engines and machinery, so I am going to make him an engineer." This "Post hoc ergo propter hoc" type of reasoning is equally common and fallacious.

4. It cannot be taken for granted that the enumeration of such Interests by the children is entirely reliable. To properly grade these various types of reading might prove somewhat difficult to older persons. (It is realised of course that, in the latter case, the reading is much wider). Thus some form of internal check is desirable. This could be obtained by an analysis of the children's book lists to discover whether their classification under these headings coincides with their statements.

In this way a reliability coefficient of the latter would be obtained.

148. CONCLUSIONS

Reading Interests

1. At present, little use can be made of Reading Interests. This is owing to the fact that:-

   1. They represent Interests at time T1.

   2. They are not entirely free from suggestion.

   3. They are limited by circumstances.

   4. They are not entirely to be accepted without further check or confirmation.

2. They may possibly be of value in indicating, very broadly, certain functional activities as shown by inter-related interests, or to rationalise unusual or extraordinary occupational choices. In particular further work is required regarding:-

   1. the exact inter-connections of the various Interests,

   2. the nature of the relation between static and dynamic aspects of the same Interest.

INVESTIGATION II.

EXPERIMENT 5.

149. E. Collections*

1. The following Table gives the percentage of the total number of boys and girls who began collections at any particular age.

Interest in Collections.

Results. The Collections classified according to the age at which begun are:-

Age	Boys %	Girls %	Age	Boys %	Girls %
5	2	2	11	12	34
6	2	1	12	17	28
7	3	2	13	15	10
8	5	3	14	15	10
9	7	2	15	10	2
10	12	6			

(e.g) At the age of 11, 12% of the Boys and 34% of the Girls began their collections.

2. The percentage of the total number of Boys and Girls who made a specific number of Collections is as follows:- -

The number of Collections made is

No.	Boys %	Girls %	No.	Boys %	Girls %
0	8	3.33 = 1	6	8	13.33 = 4
1	10	-	7	6	20.0 = 6
2	12	-	8	-	-
3	14	6.67 = 2	9	-	-
4	30	23.33 = 7	10	-	-
5	12	26.67 = 8	12	-	6.67 = 2

30

Thus 14% of the Boys and 6.67% of the Girls made 3 collections etc.

* See Appendix I, Blank E.

150. The full range of collections in order of frequency is:-

Interest in Collections.

BOYS

Cigarette cards, stamps. Birds' Eggs, Books and Pamphlets, Photographs, Fossils, Coupons, Coins Sea Shells, Box-tops, autographs, marbles, conkers, packets, models, feathers, rabbits, pigeons, butterflies, pressed flowers, drawings, animal spoors, meccano parts, programmes, woodwork tools souvenirs, post-cards, silver paper, pictures, newspaper cuttings, matches.

GIRLS

Pictures, cigarette cards, pressed flowers, newspaper cuttings, Books, photographs, Foreign stamps, silver paper, pamphlets, post-cards, magazines, moths, music, leaves, stones, shells, seaweeds.

Broadly classified the types of collections made are:-

TYPES OF COLLECTIONS	BOYS %	GIRLS %
Birds, eggs, nests, butterflies	15	-
Flowers, grasses, leaves	-	7.5
Stamps, coins.....	25	3.0
Rocks, stones, fossils.....	4	1.2
Books, pamphlets, cuttings.....	11	13.6
Pictures, photographs, postcards	8	62.3
Cigarette cards, silver paper.....	27	12.4
Packets, coupons.....	8	-
Tools, apparatus, miscellaneous...	2	-
	BOYS	GIRLS

151. ANALYSIS OF RESULTS

Interest in Collections

1. The average number of collections made is

Boys 3·5; Girls 5.5

2. Of these the boys' figure is the most reliable as indicating the average number of collections made. The girls' figure is high owing to the fact that, as part of their school work, the girls are required to keep collections of history, geography and other pictures. This gives the figure a higher value than it would normally possess.

3. The collections of boys and girls show differences in content.

4. The period of maximum development for both is 11 - 12 years, the boys continuing almost equally to 13 and 14, but the girl's interest in collections diminishing at that time.

152. OBSERVATIONS

1. It is possible that the children cannot remember early collections and thus gave slightly inaccurate figures. On the whole, however, this would not greatly affect the general distribution.

2. The collections appear mainly to be of general interest. Comparison with Terman's work cannot be undertaken since he dealt with much younger children.

3. Some correlation between the number of collections totally made and the number of occupational choices of these children was observed. In several cases wide range of choice was accompanied by a large number of collections. This cannot be interpreted as an indication of an inter-relationship between interest in collections and number of occupational choices, since it merely indicates the existence of a wide range of mental activity and alertness in those cases, the activity being manifest in this dual way.

153. CONCLUSIONS.

Interest in Collections

1. My negative conclusion is that the analysis of interests in collections does not prove of great service for our employment work. The collections represent the workings of an instinctive urge which seems to be at its earliest maximum activity during the ages 11 - 12 years, after which it tends to be less prominent, especially in the case of the girls.

2. There is no evidence that any of the subjects collected particular objects with reference to their occupational interests.

3. The principal value of such data is to yield details of average performance and development. This enables individual differences to be recognised. Where, for example, several boys admitted having had no collections, this unusual assertion may correlate with a lack of a particular attribute which may be in this way indicated and examined.

INVESTIGATION III

154. Preliminary Remarks

Drift in employment is of two kinds, normal and excessive. The former is the ordinary drift to which a person is subject in an average employment and which is usually governed by circumstances beyond his control. The latter is that drift to which the person, through lack of certain personal characteristics, contributes.

The difficulty of adequately and correctly measuring these drifts has been already indicated (paras. 96 to 99), in which it was pointed out that the ordinary statistical measures are unsuited to the task. Since one of the aims of Employment Psychology is to minimise excessive drift and to reduce normal drift in so far as it is the resultant of personal maladjustments, it is of import to secure a reliable index of the success or failure of these attempts.

155. Aim of Experiment

To indicate the drift to which a normal group of persons in employment is subject and to attempt to secure an adequate index for the measurement of drift.

Method
Details of Investigation

156.

Place of investigation:	Middlesbrough Junior Instruction Centre.
Date of Investigation.	December 1929
Number and Sex of Subjects.	188 Boys
Age of subjects	16 - 17½ years.

It is very necessary, in an investigation of this character to ensure that the group chosen for the experiment is a representative group. My reasons for presuming that my group was are as follows:-

1. The subjects were unemployed owing to the closure of the local steel and iron trade from depression and its subsequent effect on the local transport undertakings, offices and shops. They were affected by reasons beyond their control.

2. In the group were a certain number of youths who had been unemployed through personal characteristics prior to the above cause, i.e. who were affected by reasons within their control.

3. The subjects were drawn from three towns, Middlesbrough, Stockton and Thornaby, and can be reasonably presumed to be a representative sample.

4. Subsequent graphical analysis verified this assumption.

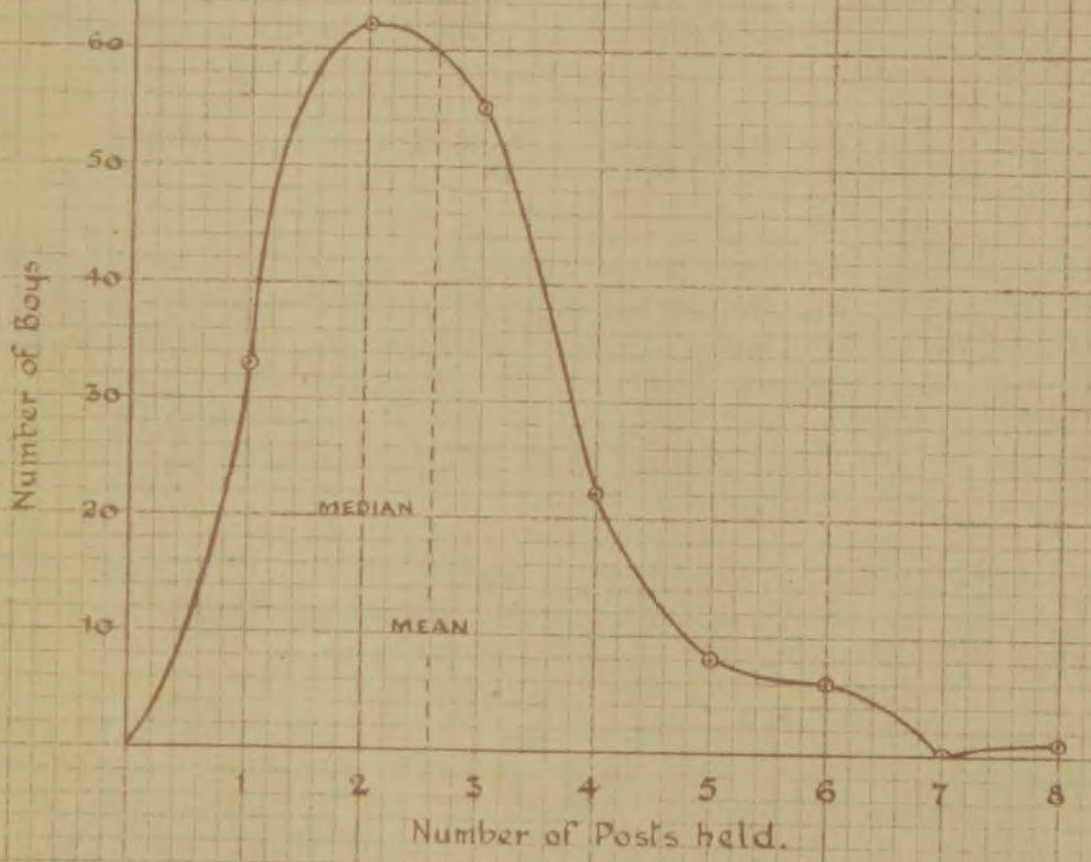
157. Owing to the fact that many of the subjects were of below average intelligence, they were unable to satisfactorily complete any type of questionnaire. It was therefore decided to substitute the method whereby the examiner, in casual conversation, put forward his questions and recorded the answers himself. The questions were:

1. Name, address, age.
2. No. of posts since leaving school.
3. Period of unemployment.

A difficulty which is likely to arise with this type of youth under these circumstances is that it is customary for the youth to be interviewed by a Ministry of Labour Official regarding his title to his Unemployment Benefit, which may be subsequently affected by certain answers to specified questions. The youths consequently become very cautious in replying to questions put to them and may possibly relapse into silence if they think the investigation will affect their benefit. To avoid this, it is necessary to explain that the investigation has nothing to do with their Benefit or better still to have the experiment carried out by someone not an official, which I was unable to arrange.

GRAPHICAL METHOD OF SHOWING PRESENCE OF DRIFT

Graph to show Distribution of Number of Posts held



Note Positive Skewness.

RESULTS

158. The analysis of the number of situations held is as follows:-

Drift in Employment.

Age in years	Number of Situations Held							
	1	2	3	4	5	6	7	8
16	4	8	3	2	-	-	-	-
16½	4	2	2	-	-	-	-	-
17	23	46	44	18	8	5	-	-
17½	2	6	5	2	-	1	-	1
Total all ages	33	62	54	22	8	6	-	1
	95		91					

159. ANALYSIS OF RESULTS

Considering total number of situations held

1. Arithmetic Mean = 494/187.
   = 2.6 posts per person
   Median = 2 posts per person
   Mode = 2 posts per person
   Mean Variation = 1.0 approx.
   Standard Deviation = 1.44

2. A graphical analysis as on Plate 4 shows that the distribution curve has a decided skewness.

Skewness is given by the formulae

$$\text{Skewness} = 3\left(\frac{\text{Average} - \text{median}}{\text{S.D.}}\right)^{x}$$

$$= 3\left(\frac{2.6 - 2.0}{1.414}\right)$$

$$\therefore \text{Skewness} = + 1.3.$$

(x) Thorndike, E.L., Theory of Mental and Social Measurements. Page 77, Para 16.

He takes the median as
– literally the middle case –
what here, where the units
are large, means that it came
at a point from 2 & 3. As
early point from
w^d^ for example were
2s & 3. if three cases
& have 3 posts instead of 2.
And then skewness, with this
slight change, would be
∴ negative.∴

160. OBSERVATIONS.

Drift in Employment

1. Some allowance should be made for the fact that the frequency distribution from 0-1, that is those persons who have not been in any occupation, are not included in the above list, which only contains individuals having one post or over. This number, one can reasonably assume, will be small and will not obviously affect the above calculated Skewness which appears at the opposite end of the curve.

2. Two superimposed frequencies are distinguishable - a normal frequency distribution from 1 to 5 and another from 4 - 8. The former represents the ordinary factors contributing the normal drift as previously defined, the latter represents abnormal drift.

3. The degree of extra Skewness, therefore, which appears, (.3), (the ordinary distribution being 1) may be used as an index of abnormal drift which it indicates. As a statistical measure, I would submit that it is preferable to the average, Median or any other ordinary measure since these do not adequately represent the true position in cases of this kind.

161. CONCLUSIONS

1. The number of situations held by a group of 188 youths has been obtained. Analysis shows that the frequency distribution reveals inequalities due to abnormal drift.

2. Through graphical treatment, a measure of the drift has been put forward, namely the skewness of the frequency curve. This, it is claimed, is superior as an index to the more commonly used statistical measures such as the Average, Median, or Mode.

3. It has also been shown that the drift in employment to which a group is normally subject averages from 2 - 3 posts. Regarding this, it may be reasonably suggested that conditions for juvenile labour are abnormal from 14 - 17 years of age and that a later analysis from 17 - 20 would show less drift. This is probably so.

4. Finally, the investigation has shown that excessive drift, as revealed through Skewness, not only indicates the need for occupational guidance but may also serve as an index of its efficacy.

VIII. PROPOSED SCHEME

Preliminary Remarks.

162. In the third part of this work, which is constructive, an attempt is made to put forward a scheme for Vocational and Occupational Guidance. Since Selection is first and foremost the business of the employer and, the more widely explored topic, it is only dealt with indirectly here in so far as the employer can utilise guidance data to aid him in selection.

163. It has been shown in the earlier parts of this work that:-

1. The processes of Vocational Guidance and Occupational Guidance are quite distinct.
2. Vocational Guidance concerns only a small part of the school population.

Attention has, therefore, been concentrated on the problem of Occupational Guidance since other bodies* are satisfactorily dealing with the true Vocational Guidance work.

(*) (e.g.) The National Institute of Industrial Psychology.

Employment Guidance Agents.

164. Employment Guidance work is at present undertaken by a multiplicity of agents such as:

A. Official Institutions.

1. Ministry of Labour Juvenile Employment Bureaux.[a]

2. Ministry of Labour Juvenile Advisory Committees.[a]

B. Educational Institutions.

1. Schools - Elementary, Central, Technical, Secondary, Public, Private.

2. Colleges - Technical, Art, University, Polytechnics.

C. Voluntary Institutions.

1. Parents Associations.

2. Organisations such as After Care Committees [b].

D. Semi-Public Institutions.

1. National Institute of Industrial Psychology (aided by grants from Carnegie Trust Funds).

165. As early as 1921 the Second Congress of Psychologists passed a resolution that:-

"The work of Vocational Guidance and "Selection, besides having a scientific "physiological and psychological interest,

a. Established under provisions of: Education (Choice of Employment) Act 1910; Education Act 1921, Section 107; and Unemployment Insurance Act 1923, Section 6 (i).

b. Established under Ministry of Labour. C.E. Circular 3 to all local Education Authorities.

"should have a wider social and economic "interest and that therefore they should "be linked up with agencies for the relief "of employment."

Somewhat similar evidence is provided by Dr Drever:

"Every educational area should have its own "psychological clinic, but that on the practical "side, these clinics should be in close connection "with the schools employment bureaux, appointment "committees and the like."

National Institute Scheme.

166. The National Institute of Industrial Psychology subscribes to the view that the most suitable agents to carry out guidance work are the schools and accordingly have proposed a "Careers' Master" plan (24), which is in actual operation in several public schools,* for which it appears quite appropriate.

Criticisms of Scheme.

167. Against a wider application of the scheme it may be argued:-

1. That the plan is not equally applicable to the more numerous Secondary, Technical, Central and Elementary and other Schools.

2. There would be introduced into our educational system an element of commercialisation which it is very desirable to avoid.

(*) A Public Schools Career's Association was formed in 1931.

3. Organisations are already in existence for carrying out guidance work and the increasing interest of these employment agencies in the schools is, from an educational standpoint, detrimental to the established aim of the schools.

4. Practical obstacles, such as overcrowded curricula, preclude such attempts.

Criteria for Scheme. 168. There are two essentials in any proposed scheme:-

1. That the multiplicity of existing organisations be reduced,

2. That a centralisation, co-ordination and standardisation of method be effected.

My Proposals 169. In my opinion, the most suitable agent through which these aims may be achieved is the State since:

1. At present each organisation apart from the official ones, is working primarily in its own interests.* This involves frequently unnecessary competition and a sacrifice of national for individual gain.

2. No other single organisation is capable of organising the work, whose administration costs will increase with their activities.

3. It may eventually be essential, in the public welfare, to use authority to pursue a particular course of action in this work. The State is the only agent to whom this is at all a possibility.

Thus I suggest that all guidance work should be State-controlled as in Germany. In England

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(*) Thus, in my opinion, the National Institute of Industrial Psychology has shown a tendency to concentrate on matters bringing immediate financial reward, not necessarily on those requiring most attention from a national standpoint.

there has long existed severe competition between the Board of Education and the Ministry of Labour for the control of Juvenile Employment. The latter department of State appears to be most suited to the task. The supporting arguments are:

Supporting Arguments for Ministry of Labour Control.

1. That whilst the Ministry of Labour's interest in the person is just commencing and will continue to the age of 65, the interest of the Board of Education is dwindling and normally will not extend beyond 16 years of age.

2. The former department possesses a much wider industrial outlook, being in touch, officially and otherwise, with current and local economic conditions.

3. Choice of Employment is one of the principal problems of the former State department and one of its sole interests, whereas it is only of minor importance to the Board of Education, whose fundamental interests are elsewhere.

4. The Ministry of Labour has a wide experience of this work and an organisation already in existence, whose high efficiency is only impaired, in some towns, by interference in administration resultant upon a relatively small contribution by the Board of Education to the expenses of the existing scheme, which they control through the Local Education Authorities.

Conclusion 170. The Ministry of Labour could, therefore, co-ordinate all existent bodies or supersede them and introduce centralisation through authority. Bodies such as the National Institute of Industrial Psychology could become, to advantage, research organisations, State-maintained.

Outline of Next Problem.

171. Having therefore decided upon the most suitable agent for Guidance, the next step is to arrange the actual scheme. Any such proposals will, of necessity, cover a survey of:

A. The Demand for Labour.

B. The Supply of Labour.

This will inevitably include:-

I. Occupational Survey of Area.

II. Job-Analysis.

III. Assembly and Standardisation of Tests.

IV. Subsequent Guidance.

Occupational Survey.

172. All employment guidance work involves a survey of the range and number of posts available. This may be obtained by an analysis firstly of the various local industries and callings and secondly of the numerous occupations and jobs of these industries. Information for this purpose is available in:

1. Census Statistics.
2. Local records and information.
3. Ministry of Labour Records of
   a. Industries and Occupations in which persons have been placed in employment.
   b. The general range of Industries and their relative importance as indicated by the numbers employed shown by the Annual Exchange of Unemployment Books.

4. Official surveys such as those from time to time instituted by the State.

173. The accumulation of yearly records enables industrial change in an area to be recognised and minimises the danger of any one year being taken as entirely representative. In this way, the general distribution of industries within an area is ascertainable. Cross-checks are available. To illustrate. In the case of Elementary School children, the numbers in industry and commerce at a particular age, plus the number of that age group unemployed, plus those migrated elsewhere should equal the number leaving school at a given interval previously. Since all these statistics are available, the numbers in industry can be obtained with a fair degree of accuracy. The survey of industries is used in this way, as a means of ascertaining the numbers engaged in those industries.

Numbers engaged in industry.

174. The next step is to survey the local occupations or jobs and in a like way obtain the numbers engaged therein. The analysis of the occupations into which persons have been placed through the official Employment agency is a useful starting point, especially if figures for several years

Occupational Analysis

are shown. This can be supplemented by other information obtained elsewhere. It should be noted that whilst industries themselves may not change, the various occupations themselves within the industry may change. The full range of local occupations may be usefully combined with a survey of local employers of labour. A cross-check is usually available on the statistics of persons in particular occupations.

Possibility of changes

Forcasting of Demand for Labour.

175. The ultimate step is to utilise the information gained in the wide and more detailed surveys to forecast the demand for labour during a particular year. The attendant difficulties are more apparent than real and directly proportionate to the size of the town or city concerned. Factors entering into such a forecast are:

1. the past record of employment in those industries or occupations.
2. the current economic position.
3. possibilities of increased or diminished demand for labour.

Considerable assistance can be given by the determination of the probable labour demand of the largest employers since most of the latter can state, fairly accurately, their labour requirements for the coming year.

176. Working along these lines therefore, it is possible to obtain a fairly reliable estimate of the actual demand for labour over a particular period. Before proceeding further with the scheme, it would be advisable to consider the supply of labour, in view of the importance of these factors of supply and demand in modifying any proposed scheme of guidance.

The Supply of Labour

177. The supply of labour is the total number of persons available to enter employment yearly. This is equivalent to the number of children leaving school yearly, which in its turn is approximately equal to the number who entered school at approximately five years of age. This figure can be derived from the total Births five years previously less a definite percentage for Deaths. Hence the full statistics of the school population and the labour supply, past, present or future are available through analysis of the Vital Statistics. The total supply of labour therefore is no chance figure, but is determinable with accuracy.[x]

Origin of Statistics

(x) The Ministry of Labour have recently instituted a national survey of the Demand for and supply of Juvenile Labour 1930-40.

Ordinary assumption.

178. Within the total group however are numerous and different varieties of occupational choice so that, at first sight, the supply of labour for the various occupations is a chance factor. The importance of the earlier experimental work is now evident. For it was shown:-

Relevance of my experimental work.

1. That choice of occupation is not a chance but a determinable factor.

2. That a definite proportion of this choice is obliterated through the non-coincidence of the economic demands of the area with the supply.

By suitable methods, this obliteration may be reduced and the supply moulded to satisfy the demand. It is clear, however, not only that the total supply of labour, but also the detailed supply for each occupation is calculable.

Variations in Supply of and demand for labour.

179. Having now reviewed the demand for labour and the supply of labour, let us now consider the effects of their joint action on the work of employment guidance.

The general cases.

180. There are three possible relationships between the supply of and the demand for labour.

a. That the Supply equals the Demand.

b. That the Supply is less than the Demand.

c. That the Supply is greater than the Demand.

Case when Supply less than Demand.

The first case is the ideal situation, rarely attained. The second case, too, is rare, since the demand for labour seldom is greater than the labour supply, owing to labour-saving economic improvements. Even if it were so, the position would only be temporary. Assume it exists. The number of posts available is now greater than the supply. A wide range of posts is open to the average person, the above average is specially sought for and even the poorer types of individuals, normally unemployed are absorbed. This position therefore, favours the exercise of Vocational or Occupational Guidance.

Case when Supply is Greater than Demand

181. The commoner position is that the supply is greater than the demand. This state at present exists owing to the high birth rate of the post-war period. In this case, more persons offer themselves for employment than are required. Competition for posts occurs. The better types of individuals obtain posts with relative ease, the average with perhaps some difficulty, and the poorer types probably not at all. If, in this competition for posts, an unequal factor intervenes, such as personal influence used to secure individuals situations, this arrangement may be disturbed and individuals placed in employment

Effect of competition for posts.

irrespective of merit, to the ultimate loss to industry. Two features emerge, firstly that employers find they have to make some selection among the numbers desiring employment and secondly that individual choice is not generally possible. Guidance will, in such circumstances, be displaced by selection, individuals not gaining the type of occupations for which they are most suited, but often a grade lower

The Conclusion.

182. Were this state of excess labour to be prevalent over a period of years, a new social problem would become prominent. The keen competition for posts, the displacement of the former workers and constant rejection by employers of those failing to reach a minimum standard would lead to the average and above average being continually absorbed but the below average, such as the person with mental or physical defect, being permanently displaced. They would eventually become a charge to Industry and the State. The problem then to be solved would be whether the policy of selection, involving the displacement of all but the efficient workers, would produce a resulting high efficiency in industry capable of supporting the burden of the displaced workers

New Social Problem.

Danger of excessive selection

for whom provision, in the interests of humanity, should be made.

Job Analysis

183. Let us assume, however, in the working out of our scheme, favourable conditions. Proceeding further with the survey of the local openings, it now becomes necessary, ~~to~~ after enumerating the various kinds of occupations, to ascertain the qualities demanded in the individual by these occupations. This is accomplished through Job-Analysis. This consists of a psychological analysis of the mental and physical qualities demanded by particular occupations and in this way stresses the needs of the industry rather than those of the individual. This necessarily involves a preliminary occupational survey, such as that indicated for as Dr Lipmann[*] puts it - "Arbeits-auslese" presupposes "Arbeits-analyse." Not one, but several, analyses are usually required for the same occupation. These may include economic, psychological, physiological, industrial and others.

Economic Analysis of Jobs

184. Commencing with the economic analysis, it is possible to classify the various jobs into:-

1. Those in which a person is paid inadequately for the amount of work he actually does.

(*) An International Discussion on Voc. Guid. See I.Nat.Inst.Indust.Psychl. 1924. II,1.37-38.

2. Those in which he is paid only partly for what he does and partly for what he has done.

3. Those in which he is paid, not for what he actually does, but according to what he can do.

(a) when opportunity arises for his services.
(b) when he is asked.

Wage Analysis

Pursuing this economic approach, it is always advisable to make a wage analysis of the various occupations, since this is a primary and vital necessity, often leading persons to adopt unsuitable occupations in the hope of high financial gain. From the industrial standpoint, we can classify jobs as to the degree of monotony involved, or the degree of initial training which is necessary or the working speed normally expected and so on.

Psychological Analysis. 185.

Proceeding to the psychological analysis, occupations may be classified according to the degree of possession of some particular mental quality required in the various employments such as the general speed of reaction, intelligence. This type of classification is only possible:-

1. When the mental quality is commonly required by each occupation.

2. When the degree of the quality required can be assessed with some degree of accuracy.

Analysis based on Intelligence.

186. Since the degree of Intelligence possessed enters very largely into the employment of an individual, classifications or analyses of jobs according to the amount of Intelligence required are important. The following is a fairly complete classification along such lines which I have found to be very useful.[x]

Gradations to be Cyril Burt's

Classification of Occupations and Vocations according to degree of Intelligence required.

Class I. Higher professional and administrative Mental Ratio 150.

Lawyer, physician, teacher, (university and secondary) author, editor, scientist , artist, civil service clerk (class 1), managing director, company secretary, breker, chartered accountant, architect, analytical chemist, professional engineer.

Class II. Lower professional, technical, executive work Mental Ratio 130-150.

Teacher (elementary), civil service (second division) accountant, secretary, executive clerk, dentist, veterinary surgeon, reporter, social worker, factory superintendent, surveyor, merchant, auctioneer, buyer, commercial traveller, technical engineer, designer.

Class III. Clerical and highly skilled work. Mental Ratio 115-150.

Shorthand-Typist, book-keeper, bank-clerk, wholesale salesman, musician, specialist teacher (gymnasium, music, domestic science) small merchant, insurance agent, electrician, telegraphist, druggist, hospital nurse, compositor, engraver, lithographer, draughtsman, photographer, tool-maker, pattern-maker, moulder, machine inspector, showroom assistant, foreman.

(x) Origin unknown.

Class IV. Skilled work. Mental Ratio 100-115.

Tailor, dressmaker, milliner, upholsterer, engine, tram, and 'bus driver, policeman, telephone operator, printer, mechanic, turner, fitter, miller, finisher, hand-riveter, cabinet-maker, carpenter, plumber, blacksmith, mason, farmer, shop-assistant, cashier, hair-dresser, routine typist.

Class V. Semi-skilled repetition work. Mental Ratio 85-100.

Fairly mechanical repetition work requiring low degrees of skill, poorer commercial occupations. Barber, welder, tin and coppersmith, driller, polisher, miner, furnace-man, carter, bricklayer, painter, carpenter, baker, cook, shoemaker, textile worker, laundry worker, packer, postman, coachman, waiter or waitress, page-boy, domestic servant.

Class VI. Unskilled repetition work. Mental Ratio 70-85.

Unskilled labour, coarse manual work

Automatic machine worker, labourer, loader, navvy, fisherman, farm hand, groom, slater, chimney sweep, packer, labeller, bottler, porter, messenger, deliverer, lift-boy and girl, domestic servant, factory workers.

Class VII. Casual labourer. Mental Ratio 50-70.

Simplest routine work and occasional employment on purely mechanical tasks under supervision.

Class VIII. Institutional Mental Ratio Under 50.

Unemployables.

N.B. This table by no means implies that persons in the named employments do actually possess the mental ratios named. It is rather probable that they may possess higher. ???

Other Possible Analyses. 187. It will be possible, whem more is known about the nature of other mental qualities, to

modify the very prominent position given to Intelligence and to Job Analyses based on Intelligence, in Guidance work. I hope shortly to be able to begin an investigation with this end in view* and to endeavour to determine the part played in employment by factors other than Intelligence+.

Lack of Industrial Information.

188. It was shown in the first investigation

1. That the range of Occupational Choice is generally very narrow.
2. It is frequently irrational.

This is partly due to a lack of general accurate knowledge about the various occupations. To remedy this, each child ought to have access to the list of the full range of occupations in their district and a brief descriptive outline about each occupation.

Value of Wage Analyses.

189. An indication of

(a) the initial wage
(b) the ultimate wage

(*) The National Institute of Industrial Psychology agree with this viewpoint and admit that at present, perhaps too much significance is placed on the estimation of general and special abilities in Guidance work.

(+) Thus my Cambridge Experiment (para.43) is an attempt to estimate the part played by Temperament in Occupational Success.

to be expected in a certain job is, in my experience, an essential part of job analysis since it:

1. Acquaints the person with the average wage and so prevents him from being rejected by an employer on account of demanding a fictitiously high commencing wage (a common occurrence).

2. Enables differentiation between jobs inviting the same amount of manual work but which are paid at different rates.

3. Illustrates the fact that occupations with low commencing wages may offer prospects of greater ultimate reward, than those offering a relatively high commencing wage.

Sources of Information

190. Information regarding the general qualities required by vocations and occupations is now available from:

1. Professional Institutions.
   (e.g.) Society of Chartered Accountants.
   Law Society.

2. Private Institutions
   (e.g.) Truman and Knightly.

3. Public Sources.
   Ministry of Labour.
   Local Education Authorities.

Neglect of Occupational Information.

191. This work deals principally with the professions and vocations whose regulations and conduct are fairly uniform in operation throughout the country. The more difficult and detailed work, that of surveying the local

jobs and occupations of the various districts has,so far, been almost entirely neglected. The current position is, therefore, that much overlapping and duplication occurs regarding professional information, whilst occupational and industrial information is not so easily available.

My Proposal. 192. Here again the State would supervene, coordinate and develop the work more uniformly. In this way, we would ultimately progress to a stage at which the full economic and industrial conditions of each occupation were known and classified. When our knowledge of the psychological and physiological aspects of these becomes similarly advanced, one half of the problem, the survey of the industrial paths and their requirements will have been solved.

Test Procedures

Setting of Problem. 193. The second part of the problem is the determination of individual capacities, , the part which, up to now, has received most attention. The normal school population varies greatly in quality and it is very essential, for employment purposes, that such differences be fully recognised. Test procedures are the

means by which this is accomplished.

Criticisms of Test Procedures. 194. Against these current test methods I would submit the criticisms that:

1. There is a tendency for test procedures to become too rigid and uniform.

2. There is a concentration on almost purely intellectual and physical qualities.

Suggestions. 195. The former may be counterbalanced by more direct observation of spontaneous behaviour aiming at a more direct method of assessment of mental qualities. The latter may be remedied through the fuller recognition of the part played by social characteristics in employment success. The assessment of cheerfulness, adaptability, attitude to others and similar social qualities being included in the complete scheme.

Further Criticisms. 196. Further criticisms are:-

1. The average Vocational Test is selective and merely endeavours to ascertain the presence or absence of certain single or group abilities previously chosen for recognition.

2. Test schemes are too general and possess more psychological interest than practical utility.

The implication is that the technique of testing can be greatly improved.

Further Proposals.

197. The weakness of the plan whereby certain group abilities are postulated and their presence subsequently sought[x] can be remedied through the introduction of the somewhat neglected Prospective Correlation method. Unit tests would be employed and given to the individuals concerned. Subsequently, the inter-correlations could be calculated and the presence or absence of group factors demonstrated, thus reversing current procedure.

198. To avoid the psychological bias of existing methods, the full range of the tests and unit tests should be selected with reference to the character of the local district and its industrial needs.

Proposed Variation of Group Tests.

199. Should the Occupational Survey show the principal local callings to be Clerical, Mechanical and Domestic, then the tests would include unit tests such as Instructions, Number, Cancellation, Substitution, Group Checking, Analogies, Ingenuity, Manipulative, and Cube Building tests and so on. This

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(*) The usual procedure of the National Institute.

adaptation of general test methods to local industrial needs gives the tests an added industrial significance, in this way increasing their utility.

The Time for Guidance.

200. The most suitable age for testing and guidance appears a relevant factor. At present testing and guidance occur at the school-leaving age. This appears, at first sight, the most suitable time for the actual final guidance. But there is no reason why the preliminary survey of individual qualities through test procedures should not be made prior to this date. In this way, the detailed work required for the assessment of the general ability, special aptitudes, character and temperament of the whole school population will be spread over a number of years, which alone would make such a scheme a practical proposition.

201. The qualities remaining to be dealt with are general emotionality, character and temperament. Whilst estimations of these and other remaining mental qualities should form an integral part of any scheme, as previously indicated, no definite manner as to their

exact assessment can yet be made.

202. It is sufficient for this scheme that these qualities be simply and accurately enumerated so that the full range of individual qualities offered may be readily perceived. Once this is accurately accomplished, the task of comparing qualities required with qualities offered is rendered then a practical possibility.

Guidance Procedure.

Guidance details.

203. The most appropriate time for Guidance is just prior to leaving school. This latter date is fixed according to Statute and varies according to the type of school. The actual technique of guidance is now fairly well established and takes place at a conference of the interested parties when accumulated data, scholastic, physical, psychological and economic is sifted and analysed.

Docketing of Information.

204. This information could, in this scheme, be retained after the Conference and docketed by Ministry of Labour Officials who would supplement it with details of the person's industrial career and then transfer the docket to the Senior Labour Exchange at the age of 18.

Possible Difficulties.

205. The principal parties concerned in Guidance are the individual, the parent, the counsellor. Regarding a particular occupation the situation may be as follows:-

1. All parties agree.
2. Parent and individual agree, counsellor disagrees.
3. Parent and counsellor agree, individual disagrees.
4. Individual and counsellor agree, parent disagrees.

206. Only the first case is entirely satisfactory. The problem then occurs to what extent is it desirable and expedient to advise a boy to adopt an occupation which he dislikes. The compulsion of parental desires is a prominent factor which may later account for vocational non-success. In the upper classes of society this is displayed by the compulsory following of an occupation chosen by the parent to satisfy parental ambitions. In the lower strata of society it is manifest in the compulsory following of any high remunerative occupation for immediate financial gain.

Finality of Guidance

207. A further observation regarding the degree of finality of guidance is desirable. It is

too often assumed that there is an air of finality about guidance counsel. This is by no means so. For guidance is based on the possession of particular qualities at the time T1.

It is quite possible that the individual qualities may become altered, particularly during adolescence, with its emotional and personality fluctuations. Provision should, therefore, be made for subsequent guidance at suitable intervals as and when required.

Limiting Factors to the Scheme.

208. So far the following assumptions have been made:

Primary Assumptions.

1. That posts are available.
2. That each person is anxious for and available for work.
3. That posts are filled by reference to individual capabilities.

The first assumption has already been considered.

Current Attitude to Work.

209. With regard to the second, it is becoming more evident that owing to

(a) the prevalence of long periods of unemployment;

(b) favourable legislation regarding unemployment insurance and pensions

there is an individual and national lessened attitude to realise the economic necessity of work.

Among the lower strata of Society this is manifest in:

(A) An increasing desire of parents to allow children to leave school on attaining school age, in order to continue some financial gain dependent on school attendance (e.g.) pension allowance to the age of 15.

(B) A decreased desire and urge to seek work as manifest by the individual. This is partly encouraged by the increased shouldering of individual burdens by the State.

It must, therefore, be remembered that whilst the vocational counsellor can advise the most suitable occupation, actual success is only achieved through individual application.

210. Restrictive Factors in Scheme.

The third assumption is equally important. Misfit will always exist unless it is fulfilled. For, if we determine individual fitness and external factors intervene which disregard these, we will continue to have persons following occupations for which they are not entirely suited.

211. Restricting Factors.

Among the factors which restrict the working of Vocational and Occupational Guidance and Selection are:

I. The specification by an employer of a particular quality, usually psychologically unimportant (but socially significant) in the employee.
(e.g.) a. possession of a religious creed.
or b. attendance at a certain type of school.
or c. possession of war service.

II. The rapidity with which employers may require positions to be filled, necessitating the employment of an inferior but immediately available worker on the grounds of urgency.

III. The influence of social relationship. This occurs when persons achieve certain positions by virtue of their social position not through their actual talents.

In these cases restriction of the free operation of any scheme occurs.

Summary of Constructive Proposals.

212. The existing machinery of Employment Guidance has been critically examined and proposals made to remedy existing deficiencies. These, in short, were as follows:-

The State should take over the work of Vocational and Occupational Guidance in national interests, existing bodies to be co-ordinated unified and controlled. This scheme could be effectively based on the present organisation of the Ministry of Labour which, however, would be entirely free from restrictive control by the Local Education Authorities, with whom, however, close contact has to be maintained.

213. Large scale detailed surveys of particular districts and their occupation would be undertaken, the information being available for all. Continuous research work regarding the psychological aspects of industrial requirements would be made. Finally

a comprehensive system of individual records would be put into operation from an early age through the Local Education Authorities and this would be available at the school leaving age for guidance purposes.

Conclusion 214. The Social unit as a whole pays a heavy penalty for not making a sufficient effort to settle systematically the fundamental problems of Vocational and Occupational Guidance, Selection and Training. This is a moral duty, for ethically, each individual has a right to the type of occupation for which he is, through native endowment, most suited.

215. Whilst it may be argued that much further work in Employment Psychology is yet to be performed before one can put forward adequate methods of solution, one can reply that sheer urgent necessity demands the immediate and full application of any possible solution notwithstanding the imperfections of the latter. For undoubtedly with further progress, existing defects will be eliminated, and thus each attempt however incomplete, provides a setting-off point towards a fuller and more complete solution of the numerous problems of Employment Psychology which lie yet before us.

APPENDIX I

BLANK A.1.
INVESTIGATION I.
Experiment 4.

Occupational. Interest Blank BOYS

Put ONE CROSS before each occupation you MAY POSSIBLY DECIDE TO FOLLOW. Put TWO CROSSES before the ONE occupation you are MOST LIKELY TO CHOOSE.

Butcher	Writer	Explorer	Army or Navy Officer.
Baker	Poet	Priest	Politician
Grocer	Journalist	Preacher	Lawyer or solicitor.
Cobbler	Editor		Statesman
	Publisher	Dancer	Astronomer
	Cartoonist	Actor	Mathematician
Soldier	Novelist	Stage Manager	Physicist
Sailor	Historian	Sculptor	Chemist
Air Force man			
Marine			
			Botanist
Plasterer	Electrician	Clerk	Zoologist
Painter	Wireless Operator	Typist	Biologist
Plumber	Motor Mechanic	Railwayman	Psychologist
Bricklayer	Engineer	Manager	
Joiner	Sign writer		Accountant
Stonemason			Architect
			Surveyor
Draughtsman	Librarian	Musician	Banker
Artist	School teacher	Singer	Broker
Sculptor	Chemist	Composer	Dentist
Landscape Artist	Social worker	Organist	Barrister
	College lecturer		Surgeon
			Physician
			Veterinary
Labourer	Private Secretary	Shop Assistant	Surgeon
			Civil engineer
Blacksmith		Watch repairer	Mechanical engineer
Chauffeur	Boxer	Waiter	
Contractor	Footballer	Farmer	Mining engineer
Merchant	Cricketer	Jeweller	Professor
			Geologist
Postman	Cinema attendant	Groundsman	Scientist
Policeman	Cabinet maker	Hairdresser	
Engine cleaner	Talkie operator	Printer	
Bus conductor	Gardener	Shipwright	
Steward	Boat-builder	Road-mender	

Tailor	Laboratory assistant	Taxi-driver
Upholsterer	Detective	College servant
Bookseller	Milkman	Music teacher
Photographer	Window cleaner	Fireman

If the occupation you would like best is not given above, write it here .....

BLANK A.2.
INVESTIGATION I.
Experiment 4.

OCCUPATIONAL INTERESTS BLANK - GIRLS.

Put ONE CROSS before each occupation you MAY POSSIBLY DECIDE to follow. Put TWO CROSSES before the ONE occupation you are MOST LIKELY to CHOOSE.

.....

Artist	Gardener	Private Secretary.
Actress	General domestic servant	Porteress.
Bus Conductress	Governess	School teacher.
Book binder	Hairdresser	Social worker
Bakeress	Laundry worker	Shop Assistant.
Bank Clerk	Lift Attendant	Shorthand-Typist.
Chauffeuse	Librarian	Stewardess.
Cook	Lady Journalist	Tailoress.
Cinema attendant	Music Teacher	Tracer
Clerk	Nurse	Upholsterer
Cashier	Novelist	Writer.
Canvasser	Postal Clerk	Waitress.
Day Girl	Post office Probationer	Barrister.
Dressmaker	Policewoman	College Lecturer
Dairy worker	Photographer	Lady Doctor
Dental mechanic	Poet	Pharmaceutical Chemist
Factory hand	Packer	
Dancer	Printer	Poultry Farmer.

If the occupation you would like best is not given above, write it here _____

N.B. The Boys' Occupational Interest Blank is adapted from L.M. Terman's. The Girls' Occupational Interest Blank is original.

BLANK B.
INVESTIGATION II
Experiment 2.

NAME School No.3

SCHOLASTIC INTERESTS BLANK

1. Put a 1 on the dotted line before each subject that you like VERY MUCH.

2. Put a 2 before each subject that you like FAIRLY WELL.

3. Put a 3 before each subject that you NEITHER LIKE NOR DISLIKE.

4. Put a 4 before each subject that you RATHER DISLIKE.

5. Put a 5 before each subject that you DISLIKE VERY MUCH.

Now put ONE CROSS like this X, before each subject that is VERY EASY FOR YOU. Put TWO CROSSES XX, before the ONE subject that is EASIEST OF ALL.

ART

2 Drawing

2 Painting

FOREIGN LANGUAGES

2 French

HISTORY

3 Ancient or Medieval
3 British
22European

GEOGRAPHY

3 Physical Geog.
3 Geog. of British Isles.
2 Geog. of Brit.Empire
1 World Geog.
XX.

PRACTICAL SUBJECTS

2 Metalwork X
2 Book-keeping
2 Shorthand

ENGLISH

2 Composition
3 Debating
3 Grammar
3 Poetry
1 Drama
2 Dictation
1 Reading
3 Spelling
2 Literature

MATHEMATICS

2 Arithmetic

SCIENCE

3 Theoretical Chemistry
2 Practical Chemistry
3 Theoretical Physics
2 Practical Physics

PHYS.CULTURE

1 Drill
1 Games
1 Sport

BLANK B.
INVESTIGATION II
Experiment 2.

NAME School No.3

SCHOLASTIC INTERESTS BLANK

1. Put a 1 on the dotted line before each subject that you like VERY MUCH.

2. Put a 2 before each subject that you like FAIRLY WELL.

3. Put a 3 before each subject that you NEITHER LIKE NOR DISLIKE.

4. Put a 4 before each subject that you RATHER DISLIKE

5. Put a 5 before each subject that you DISLIKE VERY MUCH.

Now put ONE CROSS like this X, before each subject that is VERY EASY FOR YOU. Put TWO CROSSES XX, before the ONE subject that is EASIEST OF ALL.

ART	FOREIGN LANGUAGES	HISTORY	GEOGRAPHY
Drawing	French	Ancient or Medieval	Physical Geog.
Painting		British	Geog. of British Isles
		European	Geog. of Brit.Empire
			World Geog.

PRACTICAL SUBJECTS	ENGLISH	MATHEMATICS	PHYS.CULTURE
Metalwork	Composition	Arithmetic	Drill
Book-keeping	Debating		Games
Shorthand	Grammar		Sport
	Poetry		
	Drama		
	Dictation		
	Reading		
	Spelling		
	Literature		

SCIENCE
Theoretical Chemistry
Practical Chemistry
Theoretical Physics
Practical Physics.

BLANK C
INVESTIGATION 2
Experiment 3.

ACTIVITY INTEREST BLANK

Preference for Various Types of Activity

Below are several different kinds of things to do. On the line before each thing, put a figure (1,2,3,4 or 5) to show how well you like to do that kind of thing.

Put a 1 if you LIKE IT VERY MUCH
2 " " LIKE IT FAIRLY WELL.
3 " " NEITHER LIKE IT NOR DISLIKE IT.
4 " " RATHER DISLIKE IT.
5 " " DISLIKE IT VERY MUCH

Studying your lessons

General reading (books, magazines, newspapers).
dancing.
Playing games that require little physical exercise.
Playing games tyat require lots of exercise.
Playing with several other persons
Playing with one other person
Playing alone
Going to parties, dances, clubs etc.
Using tools or working with apparatus and machinery housework.
Being a leader in a club and managing other persons.

BLANK E.
INVESTIGATION 2
Experiment 5

INTEREST IN Collection, BLANK

Name all the collections you have ever made; say how old you were when you made it and how large the collection was.

Collection	Age	Size
Silver Paper	9	Small
Cigarette Cards	11-12	Large
Thrilling Books	13	Large
Marbles	9-13	Large

BLANK D.
INVESTIGATION 2
Experiment 4.

Reading Interests Blank

Re-arrange the following list in order of preference for you

I. Fairy tales, folk tales and legends.
II. Nature and Animal Stories.
III. History, Biography and Travel.
IV. Science.
V. Stories of Adventure or mystery.
VI. Stories of Hame and School Life.
VII. Poetry and drama.
VIII. Children's Encyclopaedias
IX. Informational fiction, including Classics.
X. Emotional fiction (popular novel and love story).

APPENDIX II

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