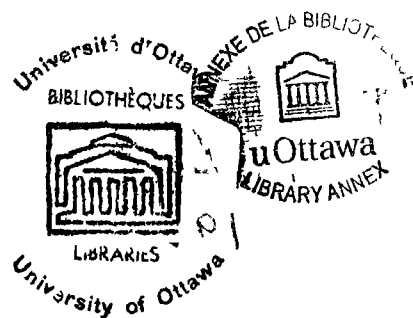


MEASURING MECHANICAL APTITUDE

by Malcolm MacNeil

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of Arts of the University of
Ottawa through the Institute of
Psychology as partial fulfill-
ment of the requirements for
the degree of Master of Arts.



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INTRODUCTION

This thesis is an essay on the measurement of mechanical aptitude. Mechanical aptitude has been assumed to exist and defined as the characteristic necessary for success in mechanical work. This was an unwarranted assumption because success with mechanical problems utilizes the same abilities, as perception and reasoning, that are required for success in every-day living. If such were the case then success in mechanical work could just as well be a function of general intelligence. Tests were developed which proved to predict reasonably well success in mechanical operations. None of the early test constructors demonstrated whether mechanical aptitude was one trait or a combination of traits.

The thesis sets out to review past significant research on the nature of mechanical aptitude. Sprinkled throughout the literature are dozens of studies measuring mechanical aptitude. Only two make any significant attempt to study, rather than simply measure this aptitude. A short account which surveys the past literature on the nature of mechanical aptitude in a theoretical perspective was located in Super's Appraising Vocational Fitness. Chapter one of this thesis is in effect his discussion extended. Its conclusion that so-called mechanical aptitude has spatial

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visualization, perceptual speed and accuracy, mechanical information, and interest as factor components and independent of intelligence closely parallels that of Super.

Since an actual measurement was made with Tests d'Aptitude Mécanique Stenquist-Ottawa, it was decided to collect the available information on the original Stenquist Mechanical Aptitude Test. Once again Super was utilized. His method of presenting a test, unappealing as it is, was adopted and used as a model for chapter two. The evidence of the validity studies demonstrates that the factor composition of the Picture Tests is to some extent the same as the definition. The test correlates as well as can be expected with other tests of mechanical aptitude but no studies were located to point out the specific tasks in which the Stenquist could predict success.

The content of chapter three is offered as original work. The Stenquist-Ottawa was administered to 921 French-speaking elementary and high school boys in the Ottawa-Hull area. A table of norms for the group was constructed and was compared with those computed by Stenquist in the original standardization. The effects of age on the Stenquist-Ottawa were then investigated. The distribution of mechanical aptitude and the effects of age on test scores in the French-speaking boys correspond quite closely to Stenquist's group.

CHAPTER I

THE NATURE OF MECHANICAL APTITUDE

Before an aptitude can be measured one must first determine that the aptitude exists. Thereupon the name, the description, and the localization in a variety of individuals and situations will follow. A psychological investigation into the nature of an aptitude will focus attention on the narrow scientific concept of aptitude important in vocations rather than on the popular concept of aptitude for a vocation. The immediate inquiry is an attempt to determine the existence and nature of mechanical aptitude.

It has long been assumed by psychologists, personnel men, and vocational counsellors that since individuals display different degrees of skill in mechanical work there must exist an inherent something which makes for proficiency in the mechanical field. That something has been variously referred to as mechanical 'aptitude', mechanical 'ability', or mechanical 'intelligence'. It has not been defined in any strict sense but used loosely to refer to the characteristic or set of characteristics that tends to make for success in mechanical work. Tests were developed which proved reasonably valid for various types of mechanical operations. So as Super¹ says, "in one sense then there has been some

1 D.E. Super, Appraising Vocational Fitness, New York, Harper and Bros., 1949, p. 221.

justification for using the term mechanical aptitude" even though there was no statement as to whether it was one trait or aptitude in the limited sense of the term or whether it was really a combination of aptitudes.

Growth of Aptitude Testing

The growth of differential psychology and the advances in intelligence testing during the first two decades of this century formed the immediate background from which aptitude testing emerged. The confusion as to the nature of intelligence led to the acceptance of an operational definition which briefly summarized was: the ability to succeed in intellectual (scholastic) work. There are so many occupations which require skills and abilities other than scholastic that the problem arises as to the discovery of these abilities and their measurement. A second need for the discovery of such abilities arose as a consequence of the need for experimental proofs for the current theories of intelligence.

Since all investigations of mechanical aptitude were influenced by two theories of mental organization, a description of each is opportune. One view is that of Spearman² who showed through vigorous mathematical proof that all intel-

2 C. Spearman, The Abilities of Man, Their Nature and Measurement, New York, MacMillan, 1927, p. VI, 415, XXX111.

lectual abilities could be expressed as functions of two factors, one a general or intellectual factor common to every ability, and another a specific factor specific to any particular ability and "in every case different from that of all others". The antithesis of this view is the theory of unique traits allied with such names as Thorndike, Hull, Kelly, and Woodrow. It states (1) that various degrees of success in all important classes of human behaviour correspond to compounds of relatively unitary traits combined in various proportions, (2) these unitary traits can be discovered and measured objectively and are probably not so numerous as to make impossible the tests of measuring them all. The full import of this theory was not felt until the invention of a practical factor analysis by Thurstone. The general emphasis now appears to be on distinct levels of behaviour and upon diverse patterns of activities made possible in part through the changing influence of group factors which determine success in each of a number of varied kinds of activity. The theory of group factors has been accepted in America to the exclusion of Spearman's two factor theory.

Review of the Literature

Studies in mechanical aptitude from the years of World War I to the present may be classified as follows:

- (1) operational -- tests that "looked" mechanical were validated with a job-sample so the test score was a relative indication of mechanical aptitude.
- (2) existential -- inquiries into the clear proof of the existence or insight into the psychological nature of mechanical aptitude.
- (3) factor analyses -- batteries of mechanical tests are analyzed to determine the abilities needed for success in such tests.

1. Operational Studies in America

The first notable attempt to measure mechanical aptitude was that of Stenquist³. His work, although primarily of the operational type, was nevertheless an attempt to understand the nature of mechanical aptitude. It will, therefore, be treated under category two. Rice, Toops and O'Rourke in the United States army of World War I⁴ developed interest

3 John L. Stenquist, Measurement of Mechanical Ability, Teachers College, Contributions to Education, No. 130, New York, Columbia U., Bureau of Publications, 1923, p. IX-101.

4 Douglas Fryer, The Measurement of Interests in Relation to Human Adjustment, New York, Holt, 1931, p. 264 ff.

tests which were later expanded into the Army Mechanical Aptitude Tests and into the O'Rourke Mechanical Tests⁵. The MacQuarrie Test⁶ appeared about the same time that Keane and O'Connor⁷ made the Wiggley Block.

These investigators built tests that "looked" mechanical or were presumed to measure mechanical aptitude. They validated the tests against an arbitrarily chosen criterion, usually a work sample or rating and presented them without any clear statement of what was being measured. The reasoning of Keane and O'Connor can be cited as a sample of their procedure:

What is the ability which enables its owners to solve a mechanical puzzle in a minute and a half and the lack of it which leads others to consume half an hour in reaching the same result? Obviously not pure analysis, for executives above all groups, grasp complicated situations yet fail to size up the relation of the blocks. Accountants analyze with extraordinary lucidity the financial standing of intricate mercantile combinations and yet fail to reason out the block problem. The solution necessitates a peculiar type of analysis characteristic of engineers and mechanics. The ability measured by the blocks is strictly mechanical analysis in general and is a requirement for success in every class of work calling for the solution of mechanical problems.⁸

5 J. O'Rourke, The O'Rourke Mechanical Aptitude Test, Psychological Corporation, 1926, 1940.

6 T.W. MacQuarrie, A Mechanical Ability Test, J. of Personnel Research, Vol. 5, January 1927, p. 329-337.

7 Francis L. Keane and Johnson O'Connor, A Measure of Mechanical Ability, The Personnel Journal, Vol. 6, No. 1, June 1927, p. 15-24.

8 Ibid, p. 23.

The ability to solve the block may be mechanical analysis but such a conclusion is not warranted. Neither can it be stated that the ability is general. The authors fail to make clear what the ability is nor why they call it mechanical ability.

2. Operational Studies in England

Studies in mechanical aptitude in England were of a different bent. Attempts were in the line of correlating performance tests, which were generally believed then to measure the same thing as the verbal tests, with existing tests of mechanical aptitude. Such studies were made for two reasons: (1) as evidence for intelligence theory, (2) to determine if mechanical aptitude was independent of general intelligence.

N. Carey⁹ found that mechanical thinking does not enter into school subjects. Burt¹⁰ intended to measure mechanical ability among school children but was mistaken in his choice of tests. He actually used tests of manual ability rather than tests of mechanical comprehension. Gaw¹¹ correlated fifteen performance tests with Stenquist's Assembly Tests I and III

9 N. Carey, Factors on the Mental Processes of School Children, British J. of Psychology, Vol. 9, Issue of 1917.

10 C. Burt, Mental and Scholastic Tests, London, King and Staples, 1921, p. 328.

11 F. Gaw, A Study of Performance Tests, British J. of Psychology, General Section, Vol. 15, No. 9, Issue of April 1925, p. 391.

and Healy's Puzzle Box. The correlations obtained were useful in affording some indication of the extent to which both groups of tests involve the same ability. In another study Gaw¹² accepts the view that mechanical tests involve a special mechanical ability which is independent of general intelligence, that is to say that there is a common unitary factor running throughout the mechanical tests upon which success in them depends and which is measured by the scores made at them. Cox¹³ argues: to prove a common unitary factor, there is need for elaborate statistical procedures which Miss Gaw has not applied. To prove that the tests measure mechanical ability first there must be a demonstration of what mechanical ability is. Miss Gaw has not done this.

3. Existential Studies in America

Stenquist¹⁴ administered a series of intelligence tests and his own mechanical tests to several hundred boys in a New York City Public School. Because of the high intercorrelations

12 F. Gaw, The Use of Performance Tests and Mechanical Tests in Vocational Guidance, J. of the Nat'l. Ins. of Ind. Psychol., Vol. I, Issue of 1923.

13 J.W. Cox, Mechanical Aptitude, Its Existence, Nature and Measurement, London, Methuen, p. 15.

14 J.L. Stenquist, The Case for the Low I.Q., J. of Educational Research, Vol. 4, No number, Issue of 1922, reported in Cox, op. cit., p. 16-21.

(.67-.82) between his tests he makes two conclusions: (1) any one is a measure of an ability which for convenience may be called general mechanical aptitude -- general in the sense that it doesn't apply to any particular trade, mechanical as is more or less obvious from its nature, (2) again because of the low intercorrelations found between his tests and those of general intelligence there are two kinds of intelligence -- general as measured by the intelligence tests and mechanical as measured by the mechanical tests.

Cox maintains that both of these conclusions are unwarranted from the presented data. Stenquist's high correlations are indicative of a common ability but he may not state on the basis of a correlation what the ability is. He fails to make clear just what the ability is and much less is it obvious from its nature. The second conclusion is invalid because of a mathematical error. Stenquist based his reasoning on an τ of .21 between a composite score from six tests of general intelligence and the combined scores of the mechanical tests. Cox applying Spearman's formula for the correlation of sums or differences (giving equal weights to each) he obtains an τ of .42.

Both Cox¹⁵ and Spearman¹⁶ criticize Stenquist because

15 Cox, op. cit. p. 19.

16 Spearman, op. cit. p. 229.

of the criterion which he uses in the proof of the existence of the two independent abilities. His data are not sufficient to supply the genuine and sole criterion. Neither can his correlations be attributed to one and the same element. So as Cox says, Stenquist may be right in his deductions but he has not proved them. Nowhere in his analysis does he indicate the special mechanical factor which the tests are said to measure. Stenquist realizes this himself when he states that he is not sure just what his tests measure. He says "possibly it would be more appropriate to designate these mechanical tests by some other name for they are mechanical in a limited sense only".

Another study¹⁷ into the nature of mechanical aptitude was done at the University of Minnesota, during the years 1923-27. It undertook to investigate the question of whether it is possible for an individual to be distinctly gifted in one line of mechanical work and to possess poor or mediocre capacity in another, or whether there is a single general ability "to succeed in the actual manipulation of tools and materials and their uses" that enables its possessor to do all kinds of mechanical work well.

17 D.G. Paterson, R.M. Elliott, L.D. Anderson, H.A. Toops, E. Heidebreder, Minnesota Mechanical Ability Tests, Minneapolis, U. Press, 1930, p. XXII, 586.

A battery of 26 tests was administered in the preliminary experiment to 217 seventh and eighth grade boys in a Minneapolis junior high school. The validity of each test was determined by a rating in shop courses. The tests were revised and administered in the experiment proper to 100 boys in the same grades in the same high school. In order to fulfil Spearman's demand that only dissimilar tests be subjected to scrutiny when a general factor is sought, the authors examined their tests and selected a group of fifteen. These were dissimilar to each other and uncorrelated. The inquiry offered no evidence for the existence of a general factor in mechanical ability.

The authors then sought evidence for the existence of group factors. Using a procedure, later found defective by Cox¹⁸ and Wittenborn¹⁹, they state²⁰ that the proof for the uniqueness of mechanical ability was consistently positive, and that the low intercorrelations suggest that factors of high specificity play a major role. Mechanical aptitude was found to be independent of both general intelligence and manual skill.

18 J.W. Cox, A Critical Note on Some Recent Research on Mechanical Ability, J. of Genetic Psychology, Vol. 41, No. 1, 1932, p. 228-234.

19 J.R. Wittenborn, Mechanical Ability, Its Nature and Measurement, Educational and Psychological Measurement, Vol. 5, No. 3, 1945, p. 246.

20 Paterson et al., op. cit., p. 300.

The objective criterion sought was mechanical ability as manipulation and information measured by (1) the quality of work done in shop courses, (2) quality of work done in relation to quantity, (3) information about tools and materials.

4. Existential Studies in England

Cox²¹ after a survey of the literature concluded that scientific evidence as to the proof of the existence of mechanical aptitude was entirely lacking so he began an investigation, the object of which was to inquire into the existence and psychological nature of what has been variously called mechanical 'ability', mechanical 'ingenuity', or mechanical 'sense'. He built mechanical models which did not require any manipulative ability but which would call forth those mental processes which seemed to form a characteristic element in the operations commonly attributed to mechanical ability. Cox reports high inter-test reliabilities²² even though the models present many scoring difficulties.

Summarizing his research, Cox says:

So far then as our present data are concerned the marked super correlations, and its natural consequence, the high specific correlations between those test items in which the subject was required to deal with 'mechanical' material is best explained by a unitary factor - m - running through this kind of work.²³

21 Cox, op. cit., p. 32 ff.

22 Cox, ibid., chapter 7.

23 Cox, ibid., p. 130.

Cox was incomplete in his claim that he had discovered mechanical aptitude now defined as the innate mental character which underlies the ability to carry out mechanical work. It is true that he showed the factor to be unique in relation to "g", and that it is a single group factor. What he uncovered, as Super says, was an eductive factor of the spatial relations type, rather than something peculiarly mechanical which might be called mechanical "comprehension", that is the capacity for employing mechanical relationships and principles. Slater²⁴ in a later factor analysis of the Cox tests uncovered no special mechanical factor over and above general intelligence and spatial visualization.

Harvey²⁵ tries to explain the discrepancy as to why Cox discovered a unitary factor and the Minnesota Group specific factors among their respective measures of mechanical aptitude. There are two possibilities he says, one in the definition of the field of investigation; the other in the basis of selection of tests. The first he discounts as unlikely. He believes that the group factor of Cox is entirely mental because of the nature of his tests. The highly speci-

24 P. Slater, Some Group Tests of Spatial Judgement or Practical Ability, Occupational Psychology, Vol. 14, no number, Issue of 1940, p. 40-55.

25 O.L. Harvey, Mechanical Aptitude or Mechanical Ability? A Study in Method, J. of Educational Psychology, Vol. 22, No. 7, Issue of October, 1931, p. 521.

fic factors of the Minnesota authors are due to the fact that their tests were actually little more than motor tests.

The writer was unable to find a reply to Harvey. It is his opinion that this argument of Harvey is not entirely valid since late factorial analyses show that many tests of the Minnesota battery thought to require some manipulative ability such as the Minnesota Assembly Test are purely mental tests.

5. Factor Analyses

Harrell²⁶ administered the Minnesota battery of mechanical ability tests, the MacQuarrie Test, the Wiggley Block, and the Stenquist Picture Test I to ninety-one Georgia cotton-mill machine fixers. Other manual and spatial tests, verbal tests and personal data composed thirty variables chosen to aid the identification of factors guessed to be present in the above tests.

Five factors were isolated two of which, P and S, are of importance in mechanical ability tests although the identification of P is the least certain of the five. The results contain a suggestion that insight into mechanical relations is bound up in factor S while the P factor is more routine. This

²⁶ W. Harrell, A Factor Analysis of Mechanical Ability, Psychometrika, Vol. 5, No. 1, Issue of March 1940, p. 17-33.

indication comes from the dropping out of S in the Minnesota Assembly Test when the test was repeated leaving only the factor P. This conclusion is not definite as the test was scored the first time for accuracy and the second time for speed.

Two other factor analyses agree in essence with Harrell's. Wittenborn²⁷ analyzed the variables of the preliminary Minnesota experiment and isolated six factors one of which spatial relations S was important in mechanical tests. Guildford²⁸ using the tests of the United States Army Air Forces claimed that two other factors, mechanical experience and visualization, far outweigh the P and S of Harrell in printed mechanical tests.

Evidence from the field of interest testing supports the hypothesis that interest is an important component of mechanical aptitude. Super²⁹, reporting the work of Leffel and Holcomb and Laslett, points out high positive relationships (.42 and .46) between the O'Rourke Mechanical Aptitude Test and the Strong Vocational Interest Blank scored with the chemist and engineer keys. Comparable results were found for

27 Wittenborn, op.cit. p. 250.

28 J.P. Guildford, ed., Printed Classification Tests, Report No. 5, Army Air Forces Aviation Psychology Programme Research Reports, Washington, Superintendent of Documents, 1947, p. 339.

29 Super, op. cit. p. 423.

the Stenquist Mechanical Aptitude Tests. This suggests that aptitude being more fundamental than interest, may have some causal effect on the latter; however, since the O'Rourke and Stenquist are measures of information the scores are no doubt influenced by both aptitude and interest.

A summary of the findings of past researches leads to the conclusion that mechanical aptitude is not one specific mental trait. Cox is the only investigator to claim the identification of a unitary factor running through mechanical work (mechanical aptitude). As was shown he was mistaken in the identification of this factor which was subsequently proven to be of the spatial relations type. The findings of the Minnesota study are best understood in the factor analyses of Harrell and Wittenborn which reveal the importance of spatial visualization and perceptual speed and accuracy. Guildford demonstrates the importance of mechanical information; Leffel and Holcomb and Laslett the influence of interest.

The present level of research would then define mechanical aptitude as a composite of spatial visualization, perceptual speed and accuracy, mechanical information and interest. Wittenborn comments on this loose definition:

The answer must be regarded as tentative not only because our researches to date are by no means exhaustive but also for a more positive reason. The

performances which investigators have found desirable to scrutinize and to measure are determined by the characteristics of our culture. As mechanical and other practical operations change perhaps old requirements become less important and new ones rise to importance. Different technical devices will be developed and the precise composition of that loosely defined group of abilities referred to as mechanical must be expected to change. ³⁰

³⁰ Wittenborn, op. cit. p. 242.

CHAPTER II

THE STENQUIST MECHANICAL APTITUDE TESTS

John L. Stenquist, the pioneer in the field of mechanical aptitude testing, was guided by two factors in the construction of his tests of mechanical aptitude. First, he believed that mental characteristics of individuals, such as the ability to succeed in work with tools, could be measured as well as the ability to succeed in school. In the second decade of this century general intelligence was the only mental ability measured with any degree of accuracy. The second reason follows from the first. It is important to know what aptitudes an individual may possess, other than general intelligence, if he wishes to make satisfactory adjustment in a field where intellectual ability is not at a premium.

The prototype of mechanical aptitude tests is the Stenquist Mechanical Assembly Test. It is a miniature test of mechanical tasks with a high face validity and an appeal for students interested in mechanical work. The test consists of ten items such as a clothes pin, bicycle bell, which are presented unassembled in order of difficulty. The score is the number of items correctly assembled in thirty minutes. The test is administered individually; scoring is difficult and time consuming. Items have a tendency to get lost and are highly susceptible to wear and tear. The reliability is low

(.72). To overcome the inadequacies of his assembly test Stenquist designed the group administered, paper and pencil Mechanical Aptitude Tests.¹

Since the aim of this chapter is to present available information on these tests, hereafter called Picture Tests I and II, it will cover the following topics (1) Description and Administration, (2) Applicability and Norms, (3) Standardization, (4) Evaluation.

1. Description and Administration

There are two parts to the Mechanical Aptitude Tests. Picture Test I is made up of a series of 95 problems presented in the form of pictures. In each problem the subject is required to determine which one of five pictures belong with each of five others. The pictures deal only with common objects. No particular trade is singled out and no picture related to highly specialized skills is included. Test II consists partly of material similar to Test I and also of questions applied to cuts of machines and machine parts. The questions are of a general nature and do not presuppose that the pupil has necessarily had actual first hand experience with the particular machines shown. The two tests are not

¹ J.L. Stenquist, Stenquist Mechanical Aptitude Tests, Manual of Directions, Yonkers, World Book Co., 1922, p.21.

entirely similar in nature; hence both should be combined to give a wider sampling of ability. Test II is more a test of mechanical reasoning power; hence is somewhat more difficult than Test I which is presumed to be a test of mechanical information. One remarkable feature of the test is that, despite its age, less than one-half dozen of its items are antiquated.

Both tests should be administered to the same individual whenever possible. Of a total testing time of 95 minutes, Test I has one time limit of 45 minutes. The manual indicates that the examiner should be careful not to imply by either word or manner that this is a speed test. The intention is to give all the time desired by 95 percent of the pupils. Thus it would seem that Test I is more a power test rather than a speed test. Test II requires an overall time of 50 minutes. Its three sub-tests have the following time limits. Exercise I has a time limit of ten minutes, Exercise II eighteen, Exercise III, section A ten and section B twelve.

The tests are easy to administer. All experiences have sample problems except Exercise II in Test II. The one difficulty about which students should be warned is that they have to reverse the booklet in Test I in order to complete the whole test. This might require extra supervision.

2. Applicability and Norms.

The tests were designed for junior high school boys particularly for the prediction of success in science courses and in shop work. In addition it was helpful to have a definite measure of mechanical aptitude since it constitutes a valuable guide in advising pupils in the choice of courses especially courses that involve training for a vocation. The tests are used as measures of mechanical information; hence are most applicable to school boys because of the relative inexperience of this group with things mechanical. Simpson², however, concludes from a study done with the Picture Tests that they are useful in ascertaining mechanical aptitude in adults. Harrell³ used Picture Test I with adults in his factor analysis of mechanical ability tests. His purpose was to determine the factor composition of the test rather than as a predictor of success in vocations.

The effects of age and experience have been studied by Stenquist⁴ and Simpson⁵. Stenquist states that mechanical ability does not vary with grade as it does with age. In fact,

2 Roy Mars Simpson, The Mechanical Aptitude of 312 Prisoners, J. of Applied Psychology, Vol. 16, No. 5, Issue of October 1932, p. 485-496.

3 Harrell, op. cit. p. 26.

4 Stenquist, Manual, p. 14.

5 Simpson, op. cit.

it does not vary much with age, from ages 12 to 15. Simpson found that experience gained through mechanical trades does not improve one's mechanical ability as measured by Test I⁶. This finding is rather strange since this test has always been considered a test of information which should increase in amount with experience.

The Scoring of the tests is designed for both rapidity and accuracy but it could be improved⁷. A separate key is provided for each test and Scoring is a simple matter of lining up the answer column in the booklet with the corresponding column on the answer sheet and checking whether the answer is right or wrong. The raw score is the number correct which can be entered on the first page of the test in the space provided for each sub-test score, total score and T-score.

The revised norms for Test I as presented in the manual are provided for boys ranging in ages from year 10-6 to year 18-6 based on a total of 4099 cases. Norms for Test II are for boys in the age range extending from year 10-6 to year 15-6 based on a total of 1087 cases. Any raw score can be interpreted in two different ways: (1) a T-score which is a comparison with the performance of a typical

6 Considered again on Page 28.

7 See Number 8 under Evaluation.

12-year old boy and (2) a percentile ranking. The writer believes from inspection that the norms for Test I are adequate for high school counselling. He cannot say the same for those of Test II. The age range is too narrow except for elementary school boys. To serve vocational guidance the norms for this test would have to be extended to include at least year 18. Since most boys come for guidance in their last years at school, which is on the average the 18th, it would be hazardous to make a prediction of success in mechanical work based on age norms far below that of the subject. Thus it would seem that an extension of the age norms of Test II is a necessity.

3. Standardization

Reliability coefficients for the Picture Test are presented in a footnote on page 8 of the manual. A coefficient of correlation between the two tests for 230 boys in grades 5 to 8 was found to be .68. A correlation of .79, by the split half method on Test I, was found for 103 boys in grades 6 to 8. Using the same method and Test II an r of .65 was found for 230 boys in the same grades. The reliability of Test I is what is expected; that of Test II is low.

The validity of a test is, of course, established by objective evidence, or when evidence does not go far enough, on logical analysis which uses fact rather than fancy as a starting point. To demonstrate what predictive value this test has studies will be cited to show to what degree it correlates with (1) tests of intelligence, (2) other mechanical tests, (3) with tests of spatial visualization, (4) with grades, (5) with success on the job, (6) with interest tests.

To evaluate Stenquist's notion of mechanical aptitude at the time of the designing of his tests is difficult. It may be said that he was more correct than incorrect even though he was not quite sure that his tests measured it. Despite his earlier assertions he says at a later date, "Possibly it would be more appropriate to designate these tests by some other name for they are mechanical only in a limited sense"⁸. Because of the high face validity of the Picture Tests he made the assumption that the tests measured an aptitude -- general in the sense that it does not pertain to any trade, and mechanical, as is more or less obvious from its nature. The writer believes that Stenquist would have been

⁸ Cox, op. cit., p. 21, citing J.L. Stenquist, The Case for the Low I.Q., J. of Educ. Research, Vol. 4, No Number, Issue of 1921, p. 241-254.

more correct had he inserted the term "common factor" in place of the word "general". The writer, however, cannot accept that an ability is mechanical because it is more or less obvious from its nature. Not until a rigid analysis is made of an ability required for a specific situation and a statement made as to what that ability is can a test be said to measure that ability. Nowhere in his work does Stenquist make this analysis. The thinking required to solve the mechanical problems could just as well be general intelligence since it utilizes the same mental processes involved in everyday living. Subsequent work with the test, however, has demonstrated that Stenquist was more or less correct in his assumptions. His tests do measure mechanical aptitude.

With Tests of Intelligence

Stenquist was interested in just what was the degree of relationship between his tests and those which purported to measure general intelligence. It was believed around the turn of the twenties that an absence of scholastic success implied the presence of mechanical aptitude. Hence, the trade schools became dumping grounds for all educational misfits. He correlated the average scores made on 6 tests of intelligence by 275 seventh and eighth grade boys with scores made on the Picture Tests. The correlation was $.21 \pm .04$. Because

of such a low coefficient Stenquist concluded that the degree of relationship between the two abilities was negligible. Of the group that was below average in intelligence 40 percent were above average in mechanical ability. Of the group that was above average in intelligence 52 percent was above average in mechanical ability. Cox⁹ complicates the interpretation when he corrected Stenquist's arithmetic and found an $r = .42$ between the variables.

The Picture Tests have also been correlated with intelligence tests by Boynton and Redfern¹⁰, Paterson¹¹, and Kefauver¹².

Boynton and Redfern obtained an $r = .06$ when they correlated the scores of 266 boys in the Tennessee State Training School made on the Picture Tests and the Otis. Paterson in the preliminary Minnesota experiment found between the Army Alpha and Test I a correlation of .04 and .37 with Test II. Kefauver administered the Picture Tests and the Terman Group

9 Cox, op. cit. p. 18.

10 Paul L. Boynton and Lena Redfern, An Analyses of the Responses of Reform School Boys on the Stenquist Test of Mechanical Aptitude, Peabody J. of Education, Vol. 17, Issue April 1940, p. 350-53.

11 Paterson, et al, op. cit.

12 Grayson N. Kefauver, The Relationship of the Intelligence Quotient and Scores on Mechanical Tests with Success in Industrial Subjects, Vocational Guidance Magazine, Vol. 7, No. 5, February 1929, p. 198-203.

Test of Mental Ability to 101 boys in Smiths Hughes Trades courses. He obtained a correlation of .35. These studies support the conclusion of Stenquist that general intelligence and mechanical aptitude are largely independent.

With Other Mechanical Tests

The Picture Tests have been correlated with the Stenquist Assembly Tests in three studies. The first was done in the initial validation by Stenquist¹³ himself. The scores for 8 classes of boys yielded median values of .69 and .66 and maximum values of .85 and .82 for Tests I and II respectively. Toops and O'Rourke¹⁴, using the same tests on two groups, each of 145 school boys, obtained the four following correlations: .36, .40, .42, and .45. Paterson¹⁵ in the Minnesota study also used the same tests with this finding: r 's = .48 and .55. In the same study he correlated the Picture Tests with the Minnesota Assembly Test (a lengthened and more reliable version of the Stenquist Assembly) with r 's of .46 and .40. Harrell¹⁶ using the Minnesota Assembly

13 Stenquist, Manual, p. 11.

14 Fryer, op. cit., p. 285, reporting Toops & O'Rourke.

15 Paterson, et al, op. cit.

16 Harrell, op. cit. p. 26.

and Picture Test I confirmed Paterson's .46.

Super¹⁷ in an unpublished study administered the O'Rourke Mechanical Aptitude Test and the Minnesota Assembly to 50 junior high school boys with a resulting correlation of .65. He states, "this is not contrary to what is expected when paper and pencil tests measure the same type of aptitude as apparatus tests. Perhaps it indicates that the O'Rourke more closely approximates a graphic version of the Minnesota test than the Stenquist"¹⁸. Scudder and Raubenheimer¹⁹ correlated the Picture Tests with the O'Rourke finding a correlation of .37 based on the scores of 114 seventh and eighth grade boys. The one remaining reference to be used in this section is that reporting the work of Toops and O'Rourke²⁰ with the United States Army Tests. They correlated the Army Mechanical Aptitude Test and the General Trade Test with the Picture Tests. For Test I correlations are .44 and .27 and for Test II .46 and .33 for 145 boys in grade 8.

If Stenquist's findings are viewed with caution, the

17 Super, op. cit. p. 231.

18 Super, ibid, op. cit.

19 C.R. Scudder and A.S. Raubenheimer, Are Standardized Mechanical Aptitude Tests Valid? J. of Juvenile Research, Vol. 14, No. , 1930, p. 120-123.

20 Fryer, op. cit. p. 283 and 285.

general conclusion that can be drawn from the above studies is that the Picture Tests agree as well as can be expected with other tests of mechanical information and comprehension.

With Tests of Spatial Visualization

The Picture Tests were found to contain a spatial component. Wittenborn²¹ demonstrated that 22 and 18 percent of the variance in the tests was accounted for by this factor. Harrell²² found what seems to be a high .54 when he correlated Test I with the Minnesota Form Boards. However, when he categorizes the tests he groups Test I with those of perceptual speed and accuracy rather than with the tests which measure spatial visualization. Paterson²³ also correlated the same tests. Resulting coefficients were .37 for Test I and .58 for Test II. The difference in the findings of the last two mentioned investigators is not easily explained. A solution may be because the subjects used in Harrell's study were experienced adults while those of the Minnesota study were school boys. Recalling Simpson's²⁴

21 Wittenborn, op. cit. p. 250.

22 Harrell, op. cit. p. 26.

23 Paterson, op. cit.

24 Stated on Page 21.

finding at this point confuses the issue and leaves the discrepancy unclarified.

In the initial validation of the Minnesota Spatial Relations Test it and the Picture Tests were administered to 100 seventh and eighth grade boys with a resulting correlation of .42²⁵. Scudder and Raubenheimer²⁶ verified the .42. Morrow²⁷ in an early factor analysis also found a spatial factor in the tests.

It would seem that if factor analysis is correct in stating that three factors are important in mechanical tests, then both Picture Tests, used concurrently, are valid measures of mechanical aptitude. The literature on aptitude testing is full of instances confirming the importance of spatial visualization in mechanical work. The short foregoing review establishes the presence of a spatial factor in the Tests. Perceptual speed and accuracy play some part in them, and authorities such as Guildford²⁸ and Bingham²⁹ have long con-

25 Super, op. cit. p. 289.

26 Scudder and Raubenheimer, op. cit.

27 R.S. Morrow, An Analysis of the Relations Among Tests of Musical, Artistic, and Mechanical Abilities, J. of Psychology, Vol. 5, Second Half, 1938, p. 253-263.

28 Guildford, op. cit. p. 297.

29 Walter Van Dyke Bingham, Aptitudes and Aptitude Testing, New York, Harper and Bros., 1937, p. 137, 320.

sidered them to be measures of mechanical information. Thus, it may be said that the Stenquist Mechanical Aptitude Tests measure as well as can be expected that loosely formulated ability -- so-called mechanical aptitude.

Since a series of correlations in a manuscript calls for overly close reading it was decided to present them in tabular form. The logical presentation would have all validating criteria in one table. The next possible division was to present as Table I all studies in which the Stenquist Picture Tests were correlated with other intelligence, mechanical comprehension, spatial visualization, and interest tests. Table II summarizes the studies in which the Stenquist was correlated with grades and success on the job.

TABLE I.-

31

Stenquist Results Correlated to Other Tests

Tests	No. Subjects	T.I	T.II	I & II	Author
<u>Intelligence</u>					
Average of six	275 boys			.21	Stenquist
" " "				.42	Cox
Otis	266 boys			.06	Boynton & Redfern
Army Alpha	217 boys	.04	.37		Paterson
Terman Group	101 boys			.35	Kefauver
<u>Mechanical Comprehension</u>					
Stenquist Assembly	15 classes	.69	.66		Stenquist
"		.85	.82		"
"	145 boys	.36	.40		Toops & O'Rourke
"	145 boys	.42	.45		" "
"	217 boys	.48	.55		Paterson
Minnesota Assembly	217 boys	.46	.40		"
"	91 adults	.46			Harrell
O'Rourke	114 boys			.37	Scudder & Raubenheimer
Army Mechanical	145 boys	.44	.46		Toops & O'Rourke
Army Trade	145 boys	.27	.33		" "
<u>Spatial Visualization</u>					
Minn. Form Boards	91 adults	.54			Harrell
" " "	217 boys	.37	.58		Paterson
" Spatial Relations	100 boys			.42	Paterson
" " "	114 boys			.42	Scudder & Raubenheimer
<u>Interest</u>					
Army Mech.Int.Test	145 boys	.44	.46		Toops & O'Rourke
"	145 boys	.50	.50		" "
Strong					Scudder & Raubenheimer
Engineering Key	114 boys			.42	
Chemist Key	114 boys			.46	
Thurstone Voc.Int.	525 students			.14	Reed
Physical Science				.41	
Athletics				.41	

With Grades

The Picture Tests have been correlated with college grades in schools of engineering, academic and shop grades, and in grades for mechanical drawing,

Bush³⁰ found that when he correlated the grades of 81 students for 3 semesters in the U. of Maine, School of Engineering, a correlation of .26 with Test I was obtained. The grades of 78 students for the same periods with Test II gave an r of .19. Holcomb and Laslett³¹ using the same variables in a similar situation obtained for Test I .14 and for Test II .42. Such results would lead to the conclusion that the tests cannot be used to predict success in schools of engineering.

Stenquist³², Cooper³³, Barden³⁴, and Scudder and Raubenheimer³⁵ used both academic grades and shop grades as

30 E.N. Brush, Mechanical Ability as a Factor in Engineering Aptitude, J. of Applied Psychology, Vol. 25, No. 3, Issue of June 1941, p. 300-311.

31 G.W. Holcomb and H.R. Laslett, A Prognostic Study of Engineering Aptitude, J. of Applied Psychology, Vol. 16, No. 2, Issue of April 1932, p. 107-115.

32 Stenquist, Manual, p. 11.

33 C.L. Cooper, Mechanical Aptitude and School Achievement of Negro Boys, J. of Applied Psychology, Vol. 20, No. 6, Issue of December 1936, p. 751-760.

34 Harold E. Barden, The Stenquist Mechanical Aptitude Test as a Measure of Mechanical Ability, J. of Juvenile Research, Vol. 17, Issue of April 1933, p. 94-104.

35 Scudder and Raubenheimer, op. cit.

validating criteria. In the initial validation of the tests Stenquist correlated the Picture Tests with ratings by shop and science teachers for "general mechanical ability" in elementary school boys. The coefficients of correlation determined separately for 15 classes had a median value of .67 and ranged as high as .84 in the case of pupils in private schools. Cooper administered the Picture Tests to 92 negro boys age 12-19 in all four grades of Dudley High School, Greensboro, North Carolina. The correlation with the shop grades was .65; with the academic grades .15, -.07, .02, .30. The resulting scores of 100 boys in a senior high school led Berden to conclude that the Stenquist does not have any predictive value for shop grades or science grades. Respective correlations are .16 and .30. Scudder and Raubenheimer administered four popular mechanical aptitude tests to 114 boys in grades 7 and 8. Their general conclusion was that the MacQuarrie, O'Rourke, Stenquist (Picture and Assembly) measure on the whole different things; that shop grades and teachers' ratings are related to a slight degree with the mechanical tests but not significantly. This finding can be disregarded since this literature shows that these tests do measure on the whole the same thing. The MacQuarrie in addition measures manual dexterity. If the findings of Stenquist are viewed with caution, to say that the Picture

Tests have any prognostic value for success in shop work more evidence is needed. The test has no relationship with academic achievement. Horning³⁶ maintains that the Stenquist does not predict success in mechanical drawing courses.

With Success on the Job

Only one study has been located in which the Stenquist Mechanical Aptitude Test was correlated with success on the job. Tiffin³⁷ reporting an unpublished study found a correlation of .47 between the ratings of foremen on the job performance of 47 paper machine operators and scores on the Bennett Test. It was also found in this study that a fifteen item adaption of the Stenquist gave an r of .42 with the same ratings for the same employees.

With Interest Tests

Fryer³⁸, reporting the work of Toops and O'Rourke, states that a "substantial" but not significant relationship exists between mechanical interest tests and mechanical aptitude tests. The correlations are high enough to suggest that

³⁶ S.D. Horning, Tests of Prognostic Value in Mechanical Drawing, Industrial Education Magazine, Vol. 24, June 1928, p. 441; quoted by Cooper, op. cit. p. 751.

³⁷ Joseph Tiffin, Industrial Psychology, New York, Prentice-Hall, 1947, p. 118.

³⁸ Fryer, op. cit. p. 284

to some degree both types of tests measure the same thing. Toops administered the Picture Tests and the Army Mechanical Interest Test to two groups of 145 school boys, ages 12-15. Correlations with Test I were .44 and .50, with Test II .46 and .50. Scudder and Raubenheimer³⁹ in their study found correlations of .42 and .46 between the Stenquist and the Strong scored with Engineering and Chemist keys respectively. Holcomb and Laslett⁴⁰ found comparable results with the same variables. Reed⁴¹ discovered that Test I has significant correlations with two of the seven fields of vocational interest measured by the Thurstone Vocational Interest Schedules. With the total test the correlation is only .14 but two of the sub-tests, Interest in Physical Sciences, and Interest in Athletics, the correlations = .41.

39 Scudder and Raubenheimer, op. cit.

40 Super, op. cit. p. 423, reporting Holcomb and Laslett, op. cit.

41 Homer B. Reed, The Place of the Bernreuter Personality, Stenquist Mechanical Aptitude and Thurstone Vocational Interest Tests in College Entrance Tests, J. of Applied Psychology, Vol. 25, No. 5, Issue of October 1941, p. 528-534.

TABLE II.-

Stenquist Results Correlated to Other Criteria

Criteria	No.Subjects	T.I	T.II	I & II	Author
Grades					
Engineering	81 students	.26			Brush
"	78 "		.19		"
Shop	8 classes			.67	Stenquist
				.84	"
	92 boys			.65	Cooper
Academic	92 "			.15 -.07 .02	"
				.30	
Shop	100 "			.16	Berden
Academic	100 "			.25	"
Success on the					
Job Ratings	47 adults			.42	Tiffin

Evaluation

- (1) The Stenquist Test of Mechanical Aptitude has the same factor composition as the loosely formulated definition developed in Chapter I. Evidence has been presented to demonstrate the presence of spatial and perceptual abilities and of elements of information and interest.
- (2) It correlates well with other tests of mechanical comprehension, spatial visualization, and measured interest in mechanical and scientific activities.
- (3) It has the advantage of face validity.
- (4) It is a paper and pencil test which has practically the same factor pattern as the Minnesota Assembly Test, Minnesota Spatial Relations, Wiggley Block, and the Thurstone Spatial Relations Test.⁴² This would imply that the Stenquist has the advantage of measuring the ability required in three dimensional spatial visualization in a two dimensional test.
- (5) More information is needed if the test is to be useful for predicting success in specific jobs. Most investigators in the past have used it in the school situation.
- (6) The norms are inadequate and outmoded.

⁴² E.B. Greene, Measurements of Human Behaviour, New York, Odyssey Press, 1941, p. 383.

- (7) High or low scores could very well indicate the presence or absence of mechanical aptitude. Scores in the middle range should be carefully interpreted and checked, if possible, by another mechanical test.
- (8) The tests could be reprinted omitting the answer columns. By providing answer sheets scoring could be done more rapidly by International Business Machines. The booklet could be used several times over thus reducing costs. *good*
- (9) There is no necessity for reversing Exercises 4, 5 and 6 in Test I. *9.*
- (10) A factor analysis has yet to be done to determine what specific factors are in the test. *Is it possible?*

CHAPTER III

THE STENQUIST-OTTAWA

Population? Representative?

A measurement of mechanical aptitude was made on a group of French speaking pupils in the following schools of the Ottawa-Hull area: Ottawa University High School, Larocque, St. Charles, St. Francis, Genest, and Montfort. The instrument used was the Stenquist-Ottawa Test of Mechanical Aptitude¹. This test is a translation of the Stenquist Mechanical Aptitude Test for a French speaking population. The adaption is the work of R.H. Shevenell² who made the translation in 1945. Test items are identical with those of the original.

This chapter is a description of the results obtained, using the Stenquist-Ottawa, from 921 boys ages 10 to 19.

(1) A general picture of mechanical aptitude in the group will be presented followed by (2) a comparison of the computed age norms with those of Stenquist, (3) the effects of age on test scores and the use of norms, and (4) conclusions.

1. Mechanical Ability in the Group.

The range of scores on both tests is very wide. Raw

1 A copy of the test can be found in Appendix 1.

2 R.H. Shevenell, Tests d'Aptitude Mécanique Stenquist-Ottawa, Stenquist Mechanical Aptitude Test, Publié par les Editions de l'Université d'Ottawa, Ottawa, Canada, 1945.

scores are from practically zero to 83 made by a 15 year old on Test I and from 10 to 78 made by a 13 year old on Test II. If, as the writer stated in the last chapter, ~~very~~ very high or very low scores on the Stenquist indicate the presence or absence of mechanical aptitude then some amount of the trait exists in this group.

Figures 1 and 2 are histograms of the distribution of scores on Tests I and II respectively. The first distribution is positively skewed ($S = +.10$). The second distribution is negatively skewed ($S = -.08$). It is not likely, however, that there is skewness to the extent of invalidating the employment of statistical methods based on the assumption of the normal distribution. There is no piling up of scores at the extremes. The mean raw score for Test I is ~~45.42~~⁴⁵, SD. is ~~11.25~~^{12.25}. For Test II the mean is ~~47.25~~⁴⁸, SD. is ~~12.05~~^{12.58}. Md. for Test I = ~~44.67~~⁴⁵. Md. for Test II = ~~47.58~~⁴⁸.

2. Age Norms Compared with those of Stenquist

Age norms based on 881 cases for Test I and on 669 cases for Test II were computed. Of a total of 921 boys age 10 to 19 it was decided that the number of cases in the 10 year old group and above 17 were too few to be of value in the derivation of norms. Consequently, only norms for ages 11 to 17 are presented in Appendix 2. The table is presented in alternate

forms. By using the first method of presentation the percentile rank can be determined by locating the raw score made on the test in column one. Then the percentile norm can be found on the same line in the appropriate age column. The converse is true for the second method. Raw scores can be read from decile points for the various ages. In a comparison of the norms with those of Stenquist the most apparent difference is in the number of cases. He standardized Test I on 4099 cases and Test II on 1087. The age groups are the same. Stenquist does not carry the norms for Test II beyond age 15.

Appendix 3 is a comparison of scores at decile points for both Stenquist and the writer. Ages 10 and 18 are omitted since these groups are found only in Stenquist³. The major difference is observed in the size of the score at any decile point. A higher raw score is needed on Test I to achieve any decile rank after Stenquist than according to the author. The reverse is true for Test II. The various decile point scores are all higher in the writer's than in Stenquist's norms. One other characteristic of the two sets of norms is evident. The range of scores, at the higher ages between decile 10 and decile 90, for both tests in both distributions is "practically" the same.

3 Stenquist, Manual, p. 15.

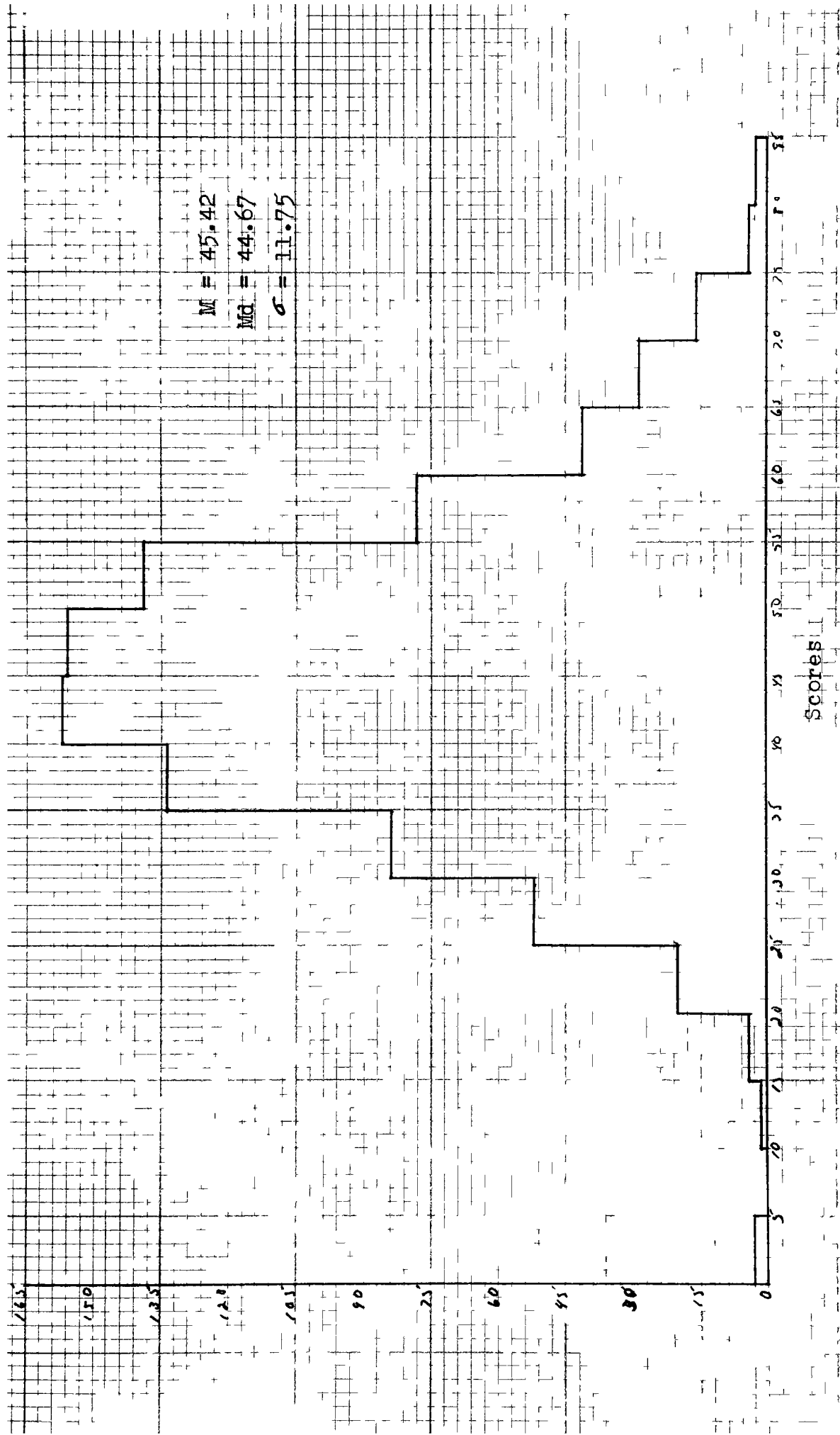


Figure 1. The distribution of scores of 921 boys age 10-19 on the Stenquist-Ottawa, Test I.

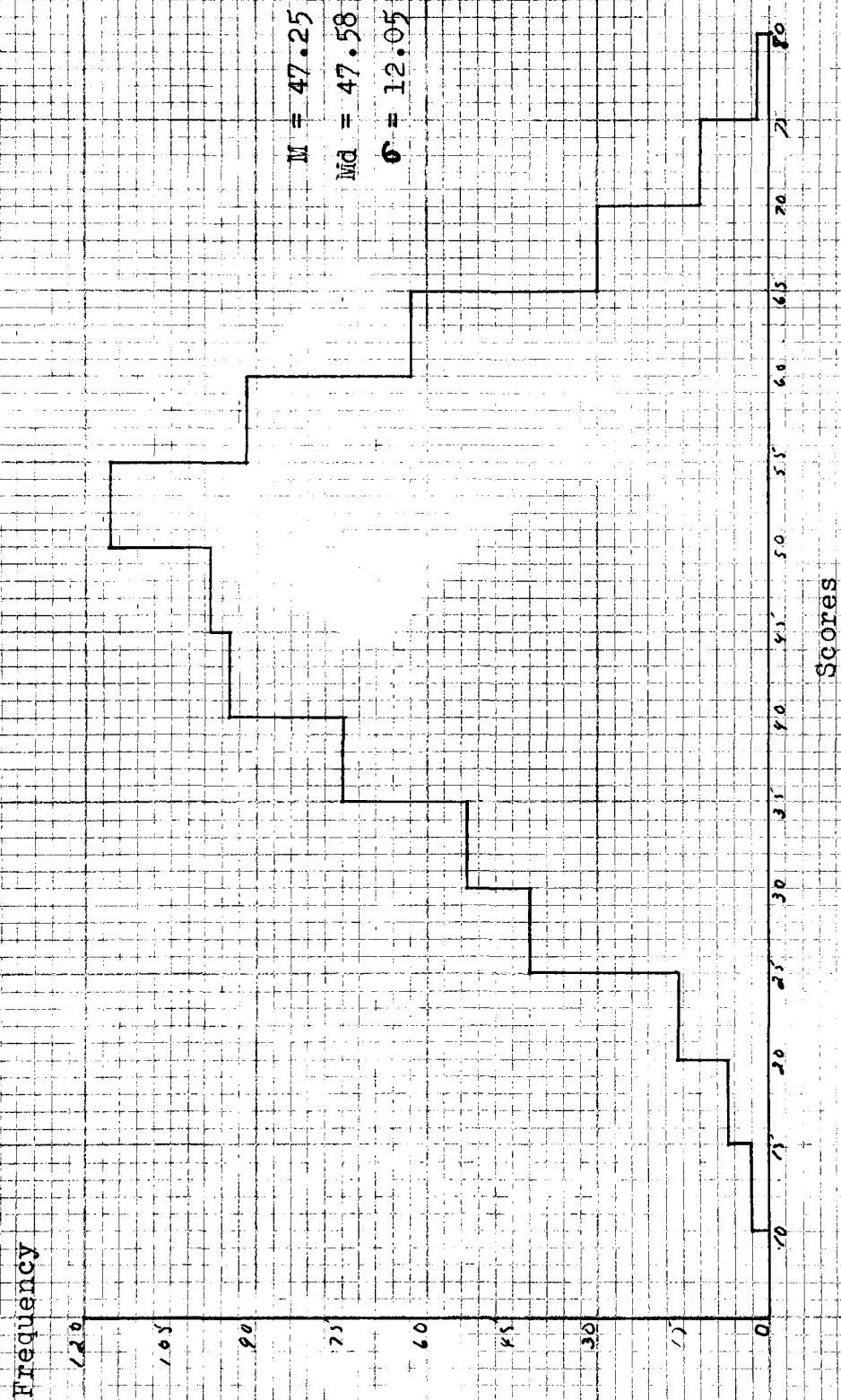


Figure 2. The distribution of scores of 703 boys age 10-19 on the Stenquist-Ottawa, Test II.

3. The Effects of Age on the Stenquist-Ottawa.

Means and sigmas for both tests at different age levels are presented in Table III. The means for Test I show a slight but gradual rise from ages 11 to 16 then level off. Those of Test II follow a different pattern. There are comparatively sharp increases alternating with almost imperceptibly gradual rises from ages 11 to 16 followed by a decrease. Test score variability, which is rather high, tends to remain the same for all ages. Caution must be used before accepting the table at face value because of the paucity of cases in some of the age groups in addition to the high variability.

It is interesting to compare at this point growth curves for both tests, as presented in Figure 3, with those of Anastasi and Foley⁴. These authors show growth curves for the Minnesota Spatial Relations and Mechanical Assembly Tests. The curves of the Picture Tests follow pretty much the same pattern as that of the Assembly Test. The similarity may be explained by the fact that both tests, as demonstrated by factor analysis, measure the same traits. All curves fail in that they do not extend into the twenties to indicate when levelling begins. The growth curve of the Assembly Test shows every indication

4 Anne Anastasi and John P. Foley, Jr., Differential Psychology, New York, MacMillan, 1949, p. 277.

TABLE III.-

Means and sigmas for the scores of seven
age groups on the Stenquist-Ottawa.

Age	Test I			Test II		
	N:	M.	SD.	N.	M.	SD.
11	48	34.9	8.54	36	32.75	8.32
12	101	39.0	9.32	62	39.4	10.33
13	152	42.7	9.95	104	42.6	9.98
14	204	46.9	10.57	150	49.8	11.70
15	190	48.2	11.07	152	50.2	10.46
16	134	52.5	11.74	117	54.6	10.34
17	152	52.0	9.72	48	52.6	10.55

of continued rise beyond age 19. This is as it should be because, as studies show⁵, the test is too easy for adult men.

In another place Super⁶ commenting on the similarity of mean scores for older adolescents and adults on the O'Rourke Test (similar to the Stenquist) says "This seems surprising in an information test but it could be due to the fact that the items in the test tap a low level of information, which is generally acquired from miscellaneous sources during adolescence rather than the high level of technical information which is learned in training or on the job". This has not been verified by research.

Two types of problems are raised in the foregoing discussion. One deals with the theoretical question of when the separate aptitudes that compose so-called mechanical ability fully mature. The other deals with the practical application of norms. About the former all that can be said is that "the apparent tendency of mechanical abilities to become highly related to each other with increasing age"⁷ has not been fully answered. One study deals with the problem. Babcock and Emerson⁸ in a study with the MacQuarrie state that intercor-

5 Super, op. cit., p. 229.

6 Super, loc. cit., p. 244, 245.

7 Wittenborn, op. cit., p. 257.

8 H. Babcock and M.R. Emerson, An Analytical Study of the MacQuarrie Test of Mechanical Ability, J. of Educational Psychology, Vol. 29, No. 1, Issue of January, 1938, p. 55.

relations of the seven sub-tests show that all have significant positive relationships in the twenty year group. Insignificant relations at year 14 become significant at either the 17 or 20 year groups. Tests which had significant relationships at 14 tend to maintain them at 17 and 20 year levels.

A comparison of the means in Table III of the subgroups with the total distribution reveals that the mean of 45.42 for Test I and of 47.25 for Test II approximate very closely the means at age 14 for both tests. Further inspection reveals that the range of the means between ages 14 and 17 is only a matter of seven or five points. This would indicate that mechanical aptitude as measured by the Stenquist-Ottawa does not increase to any noticeable extent after age 14. The question of the use of adolescent norms with adults on this test needs to be investigated further. Despite the above statement and the quoted opinion of Super the writer persists in his long standing opinion that norms based on the scores of junior high school boys should not be used with adults. Only one study actually discusses the problem. Simpson⁹ concluded that the Picture Tests were useful in ascertaining mechanical aptitude in adults.

9 Simpson, op. cit.

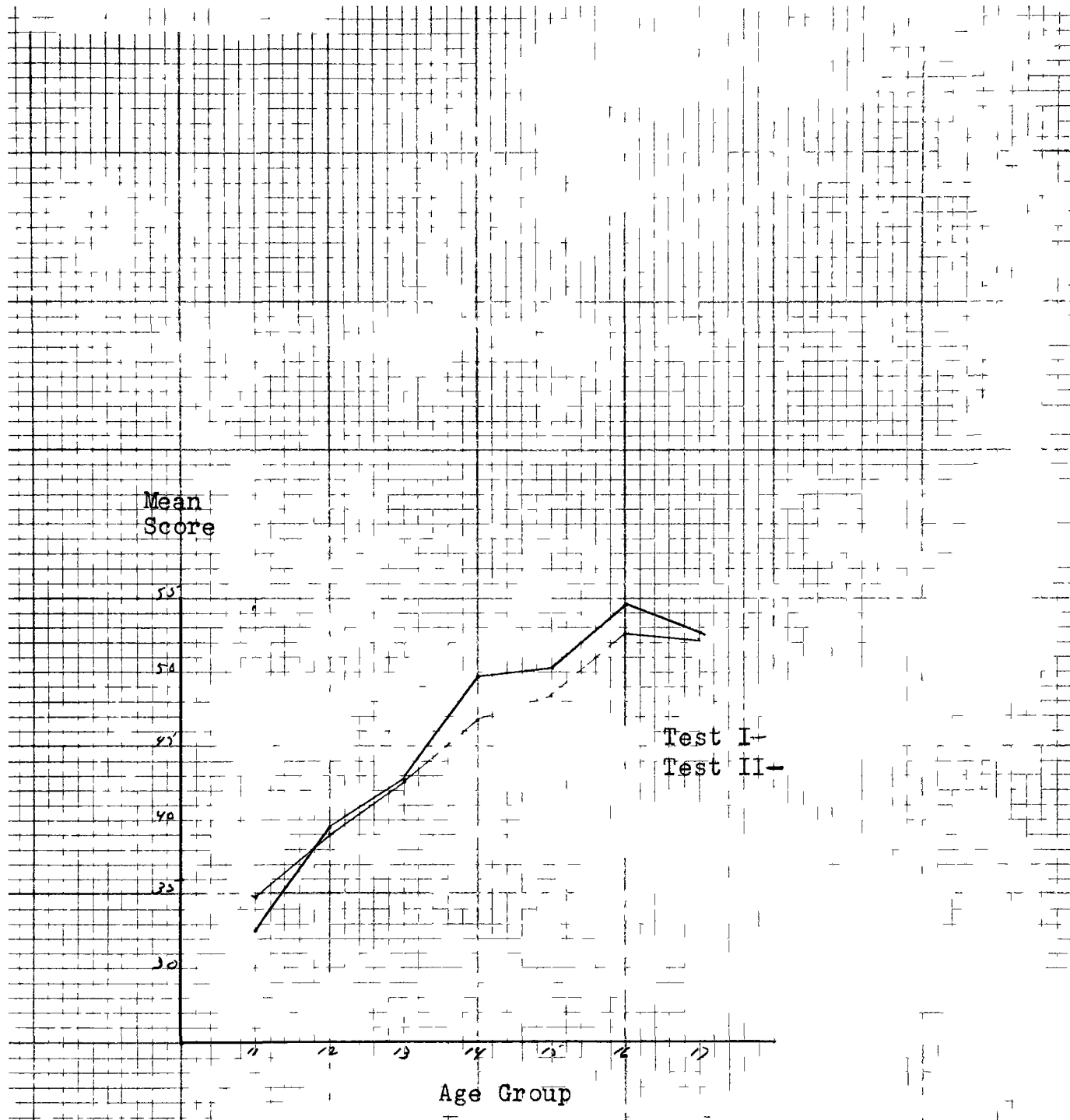


Figure 3. Growth curves for seven age groups of 881 boys on Test I and of 669 boys on Test II of the Stenquist-Ottawa.

4. Conclusions

Of what value is the test? It can be said that the test measures the definition of mechanical ability offered in Chapter I. This is something, of course, but hardly a satisfactory recommendation in this present age of high level test validation. The considered opinion of the writer is that the test is of limited value. It could be used in the counselling situation. But when other available tests of proven validity which can be administered in one-quarter the time and which tap a higher level of mechanical comprehension why use the Stenquist?

The literature abounds with tests that measure the definition. In modern industrial employment it is the ability to perform the operations involving machines, tools and other mechanical contrivances that should be measured. So as Wittenborn¹⁰ says, "It appears likely that the successful prediction of satisfactory performance and good morale in these industrial activities is more dependent on the development of adequate criteria than upon the invention of new mechanical ability tests". To close with what seems to be a pessimistic

¹⁰ J. Wittenborn, Mechanical Ability, Its Nature and Measurement II, Manual Dexterity, Educ. and Psychological Measurement, Vol. 5, No. 4, Winter 1945, p. 406.

note from Guildford and Zimmerman¹¹ on the measurement of mechanical ability thus for they state: "The common element that justifies the idea of mechanical aptitude is the machine, from which the concept takes its name".

11 J.P. Guildford and Wayne S. Zimmerman, The Guildford-Zimmerman Aptitude Survey, J. of Applied Psychology, Vol. 32, No. 1, Issue of February 1948, p. 26.

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Tiffin, Joseph, Industrial Psychology, New York, Prentice Hall, 1947, p. XXI-553.

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These are factor analyses of the data of the Minnesota experiment. The writer has quoted these two studies in several places throughout the thesis.

Nom	prénom	nom de famille	École		Sous test	Resultat
Age	ans	Anniversaire	Classe		1	
au dernier anniversaire	mois		jour		2	
Ville	Date du test	19	E		3	
Occupation de mon père	Adresse				4	
	ville				5	
					6	
					Total	
					Norme	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA

Stenquist Mechanical Aptitude Tests

préparés et adaptés par R.-H. SHEVENELL, O.M.I.

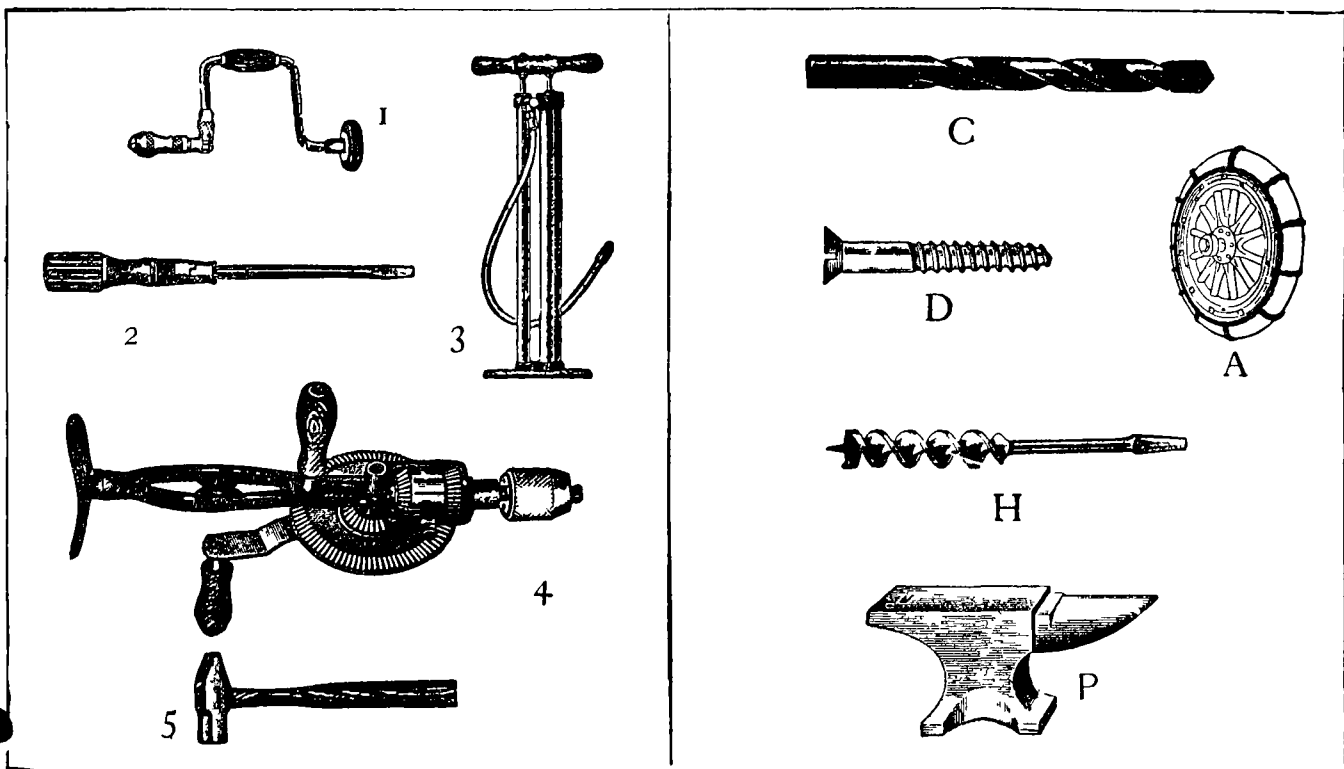
TEST 1

INSTRUCTIONS—Regardez les gravures ci-dessous. Chaque objet dans la 1^{re} partie est un morceau de l'un des objets dans la 2^e partie ou bien s'emploie avec l'un de ces derniers. Ainsi, le n° 1 dans la 1^{re} partie s'emploie avec le morceau marqué de la lettre H dans la 2^e partie, alors la lettre H est écrite à côté du chiffre 1 dans la liste des réponses. Le n° 3 s'emploie avec le morceau marqué de la lettre A; alors la lettre A est écrite à côté du chiffre 3 dans la liste des réponses. Le n° 4 s'emploie avec le morceau marqué de la lettre C; alors la lettre C est écrite à côté du chiffre 4 dans la liste des réponses. Le n° 5 s'emploie avec l'enclume marquée de la lettre P; alors la lettre P est écrite à côté du chiffre 5 dans la liste des réponses. Faites la même chose pour tous les tests de ce livret. Si vous n'êtes pas certain de la réponse, devinez-la. Essayez-les toutes. Faites en sorte d'écrire une lettre à côté de chaque numéro.

EXERCICE

1^{re} PARTIE

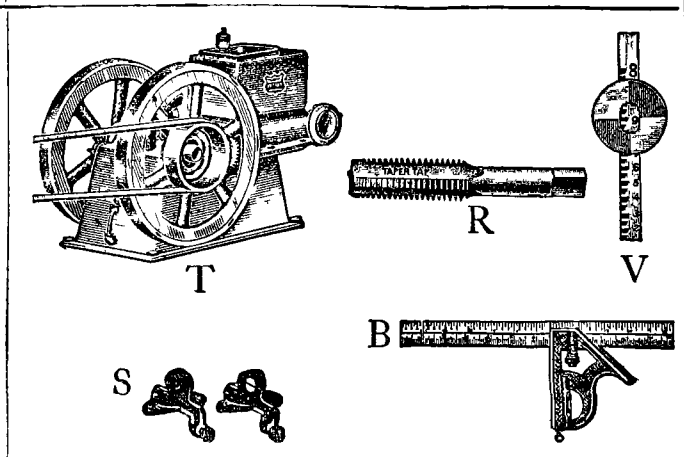
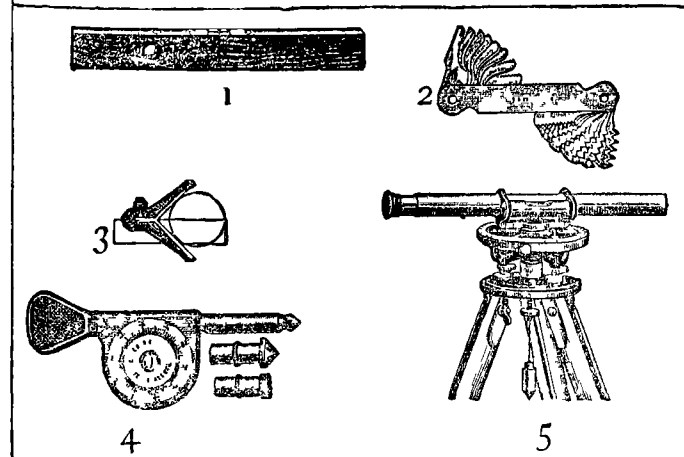
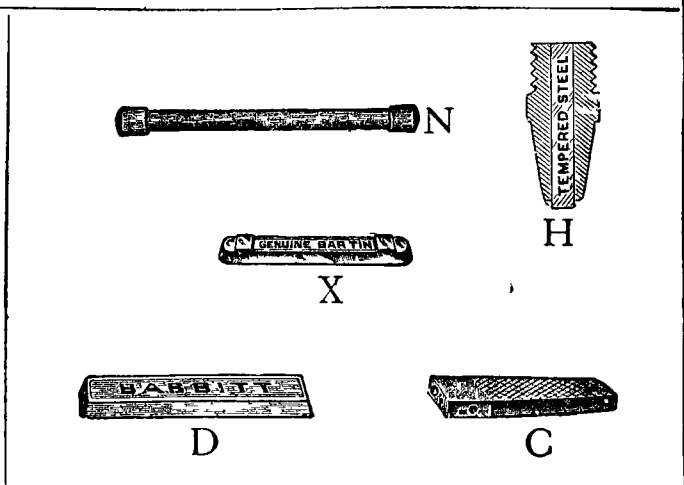
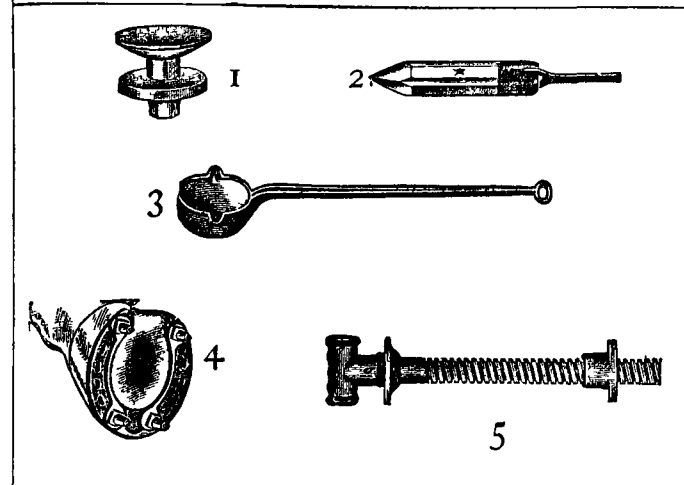
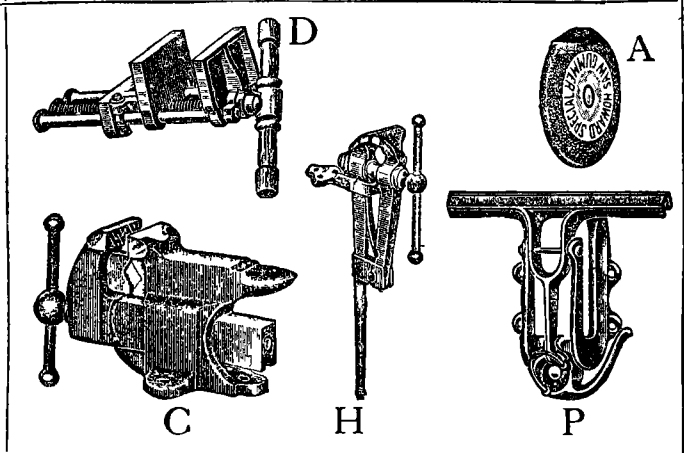
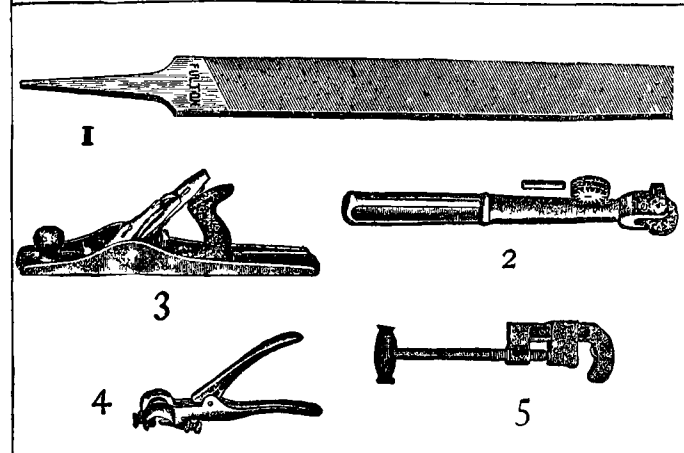
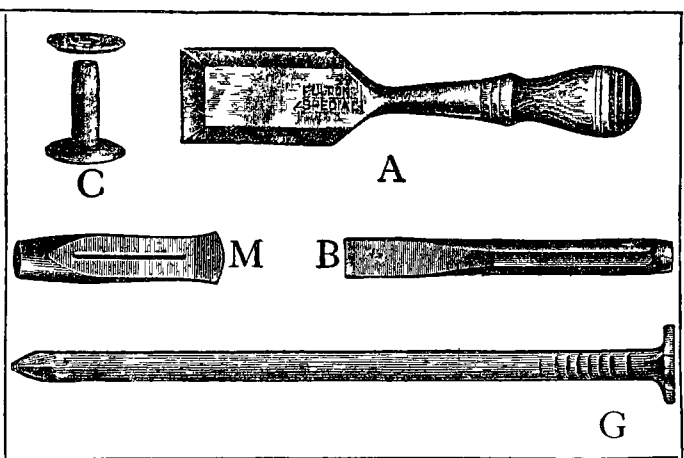
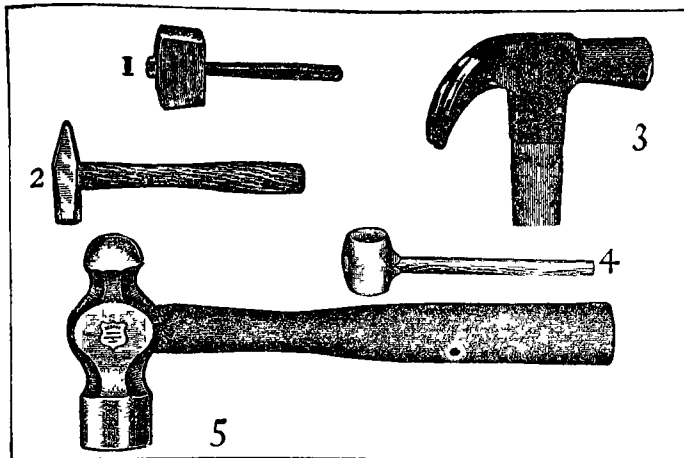
2^e PARTIE



SOUS-TEST 6

1^{re} PARTIE

2^e PARTIE

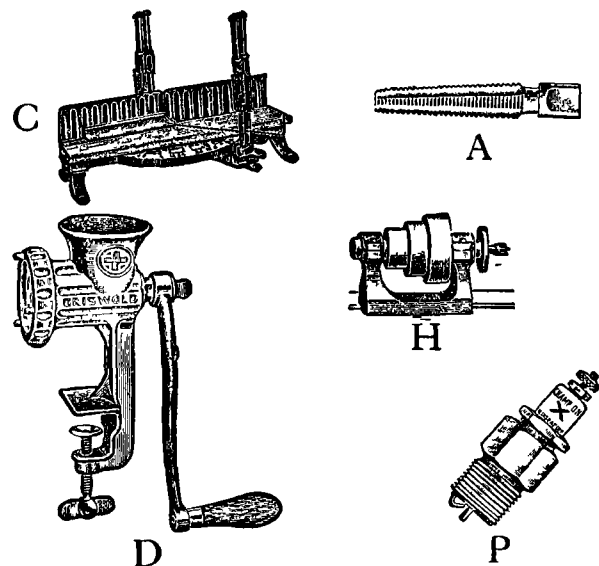
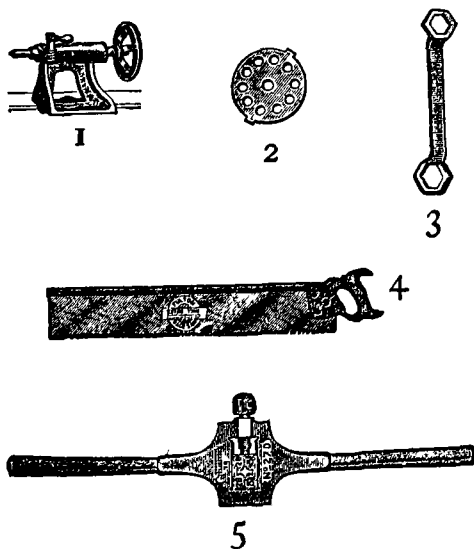
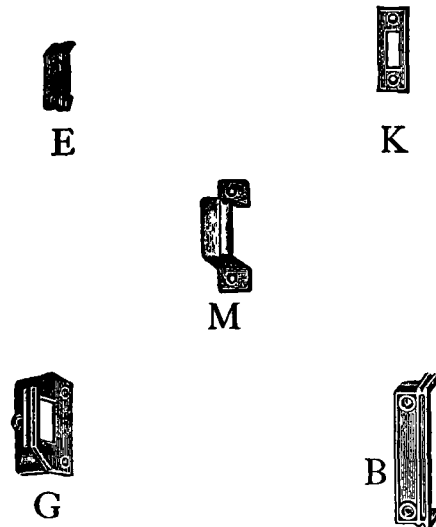
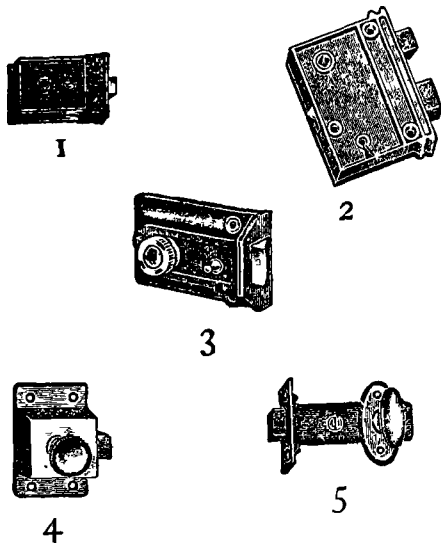
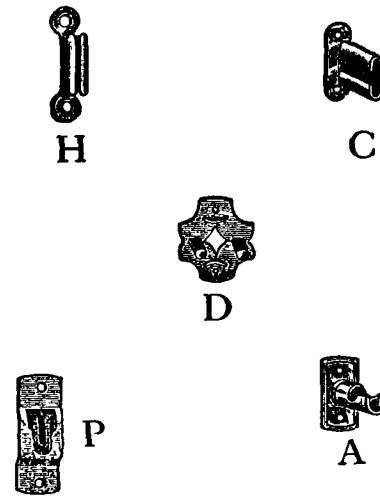
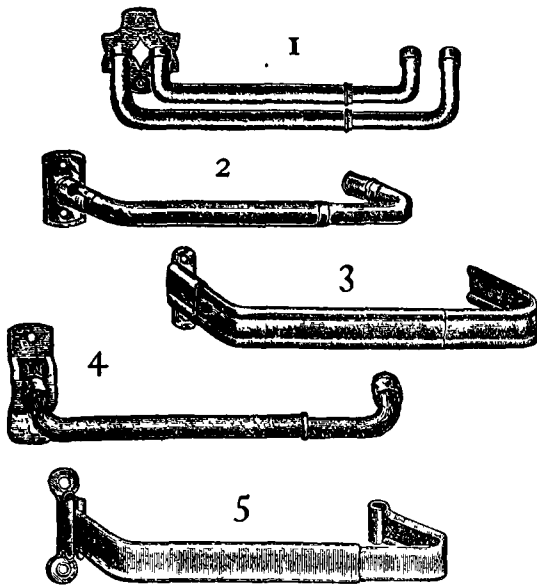


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SOUS-TEST 1

1^{re} PARTIE

2^e PARTIE



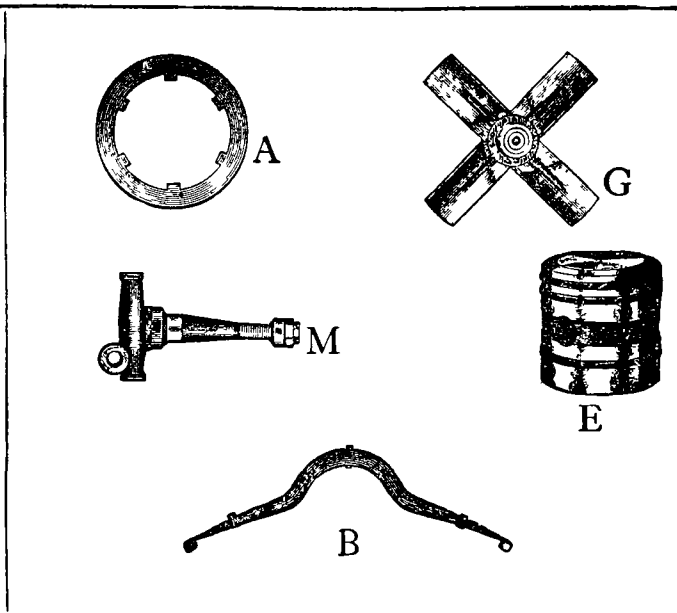
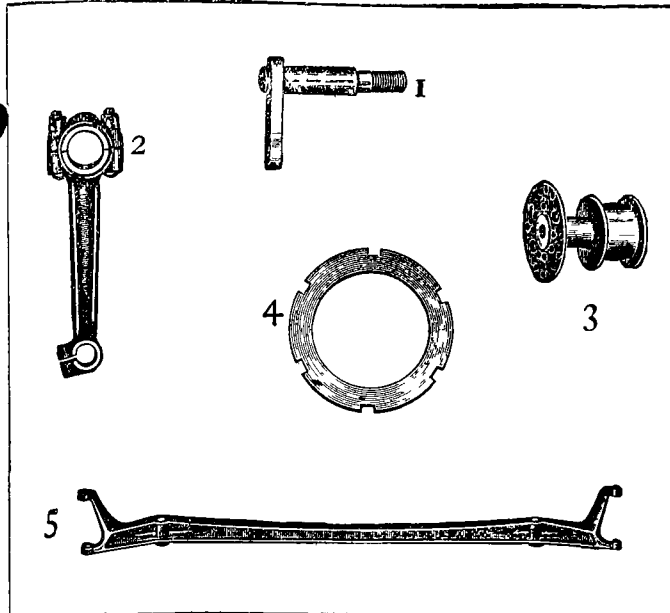
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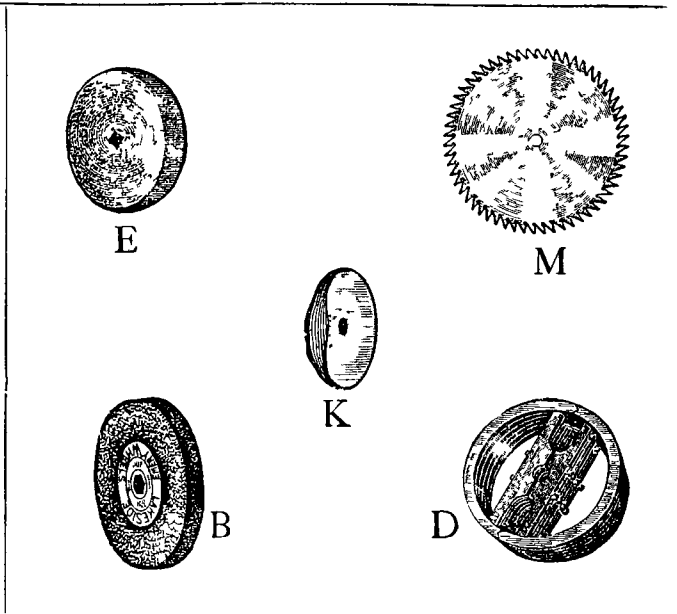
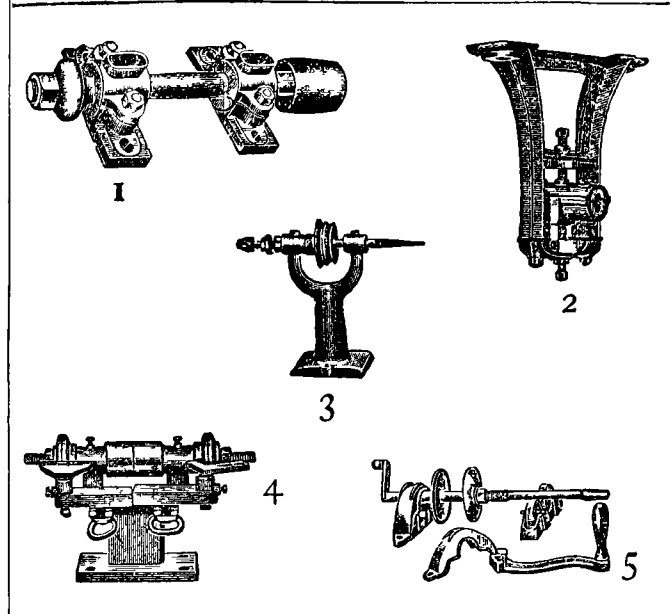
SOUS-TEST 5

1^{re} PARTIE

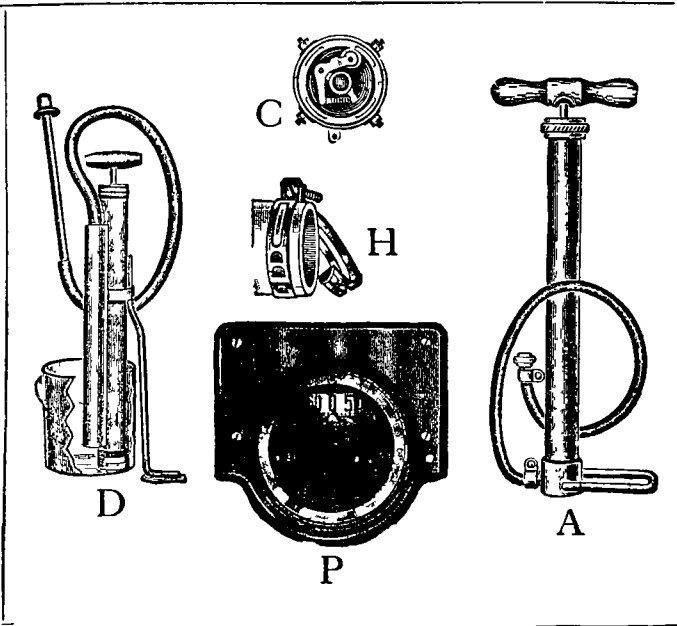
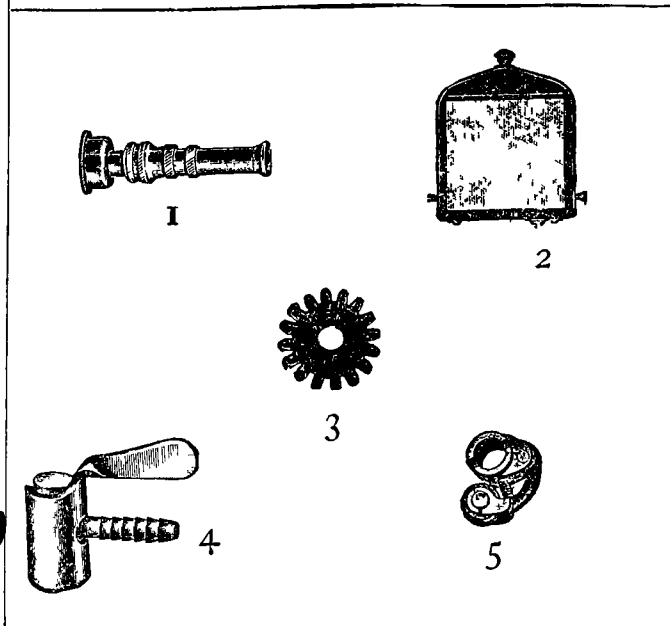
2^e PARTIE



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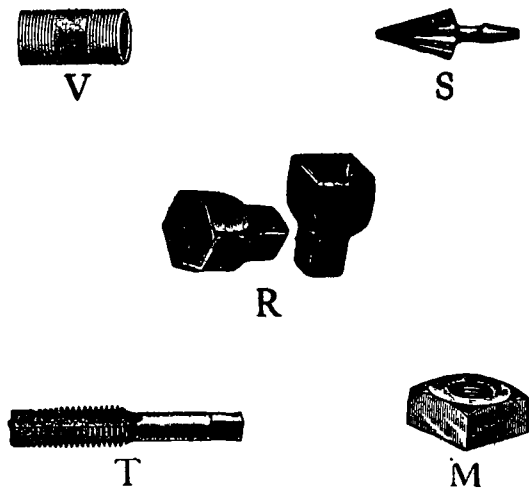
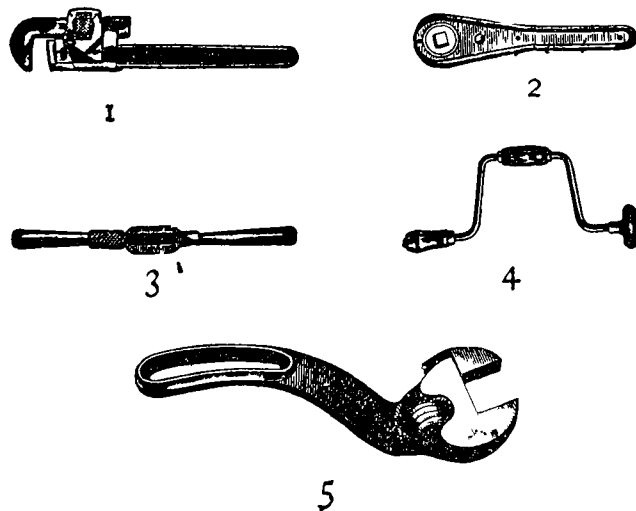
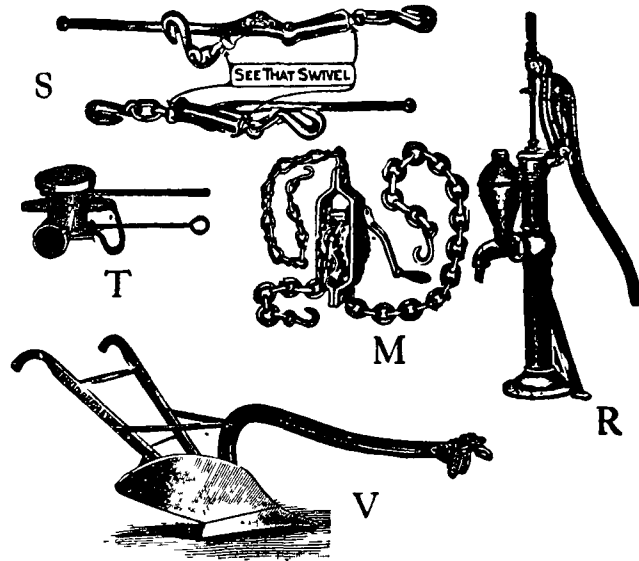
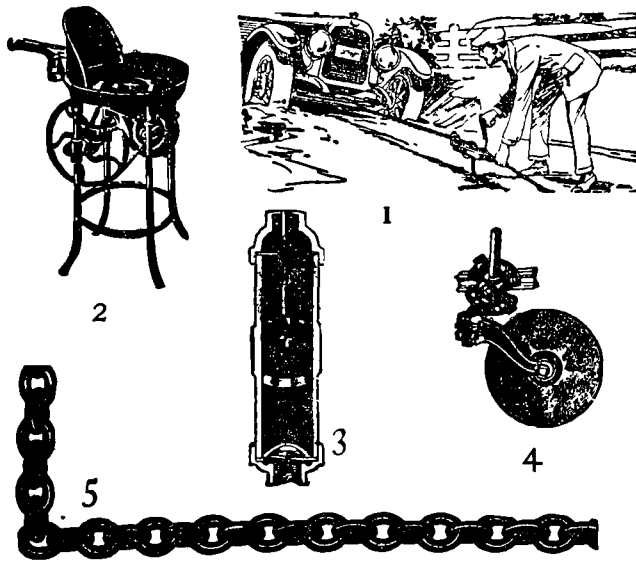
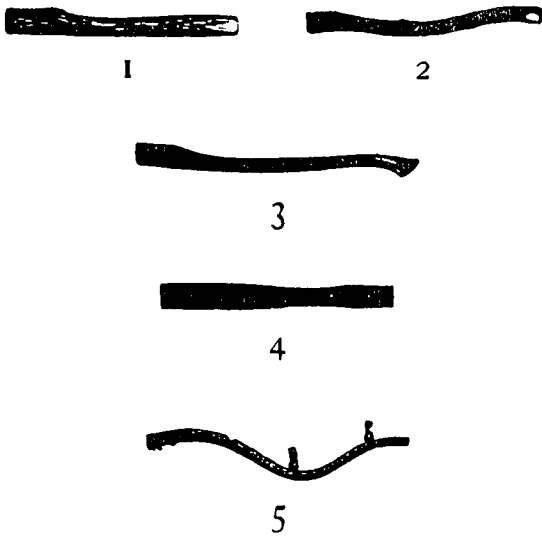


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SOUS-TEST 2

1^{re} PARTIE

2^e PARTIE



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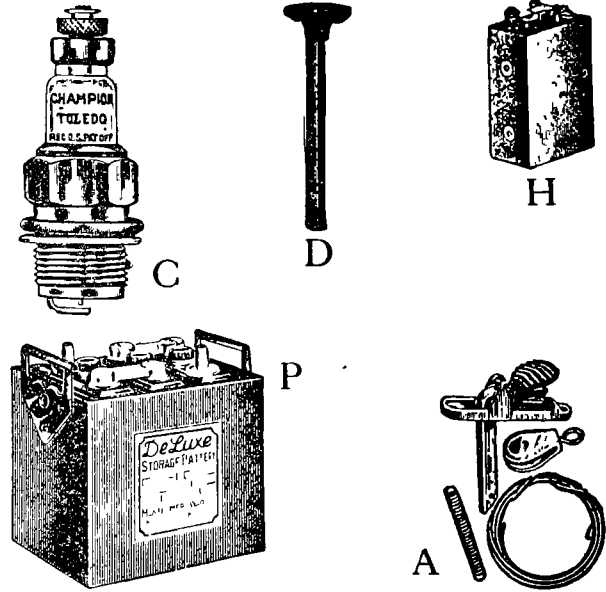
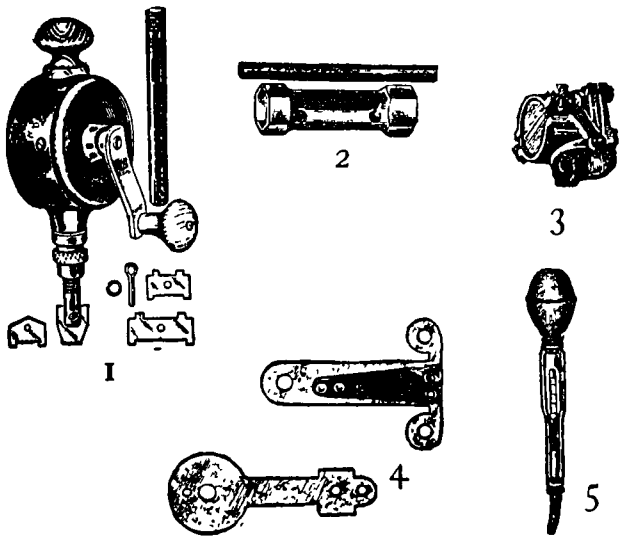
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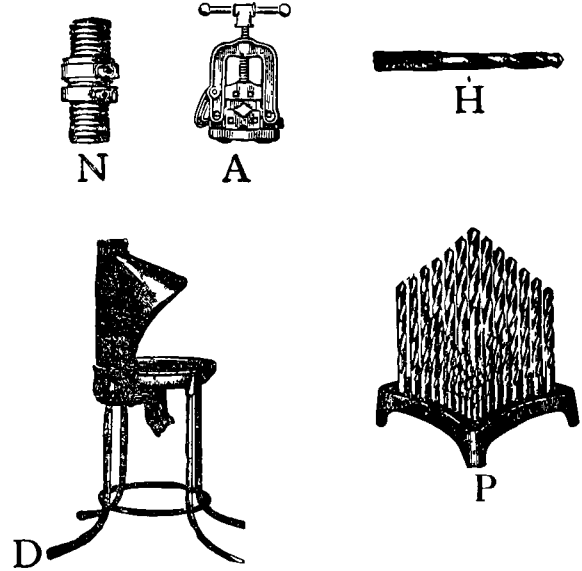
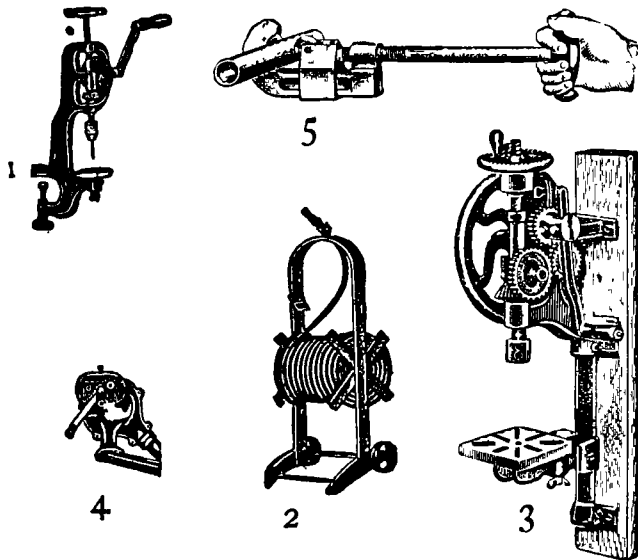
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1^{re} PARTIE

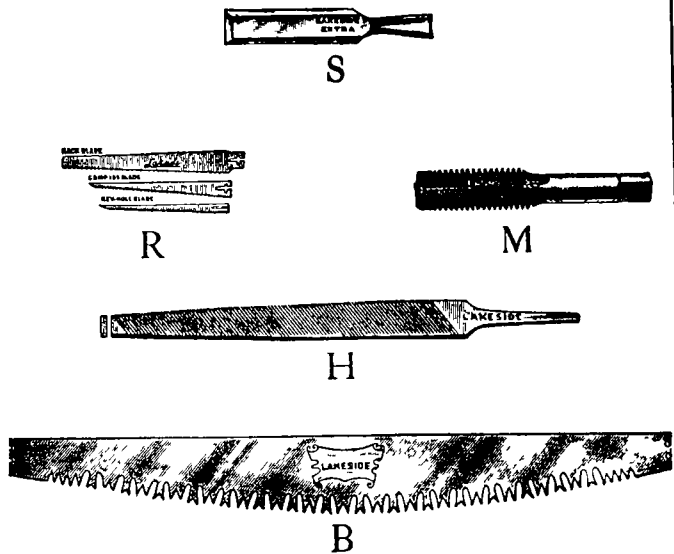
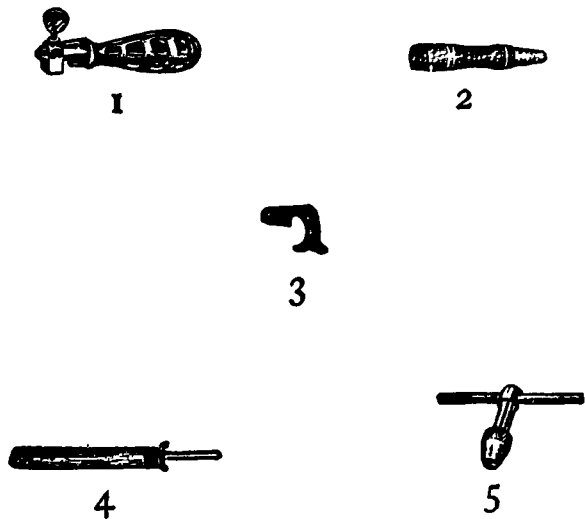
2^e PARTIE



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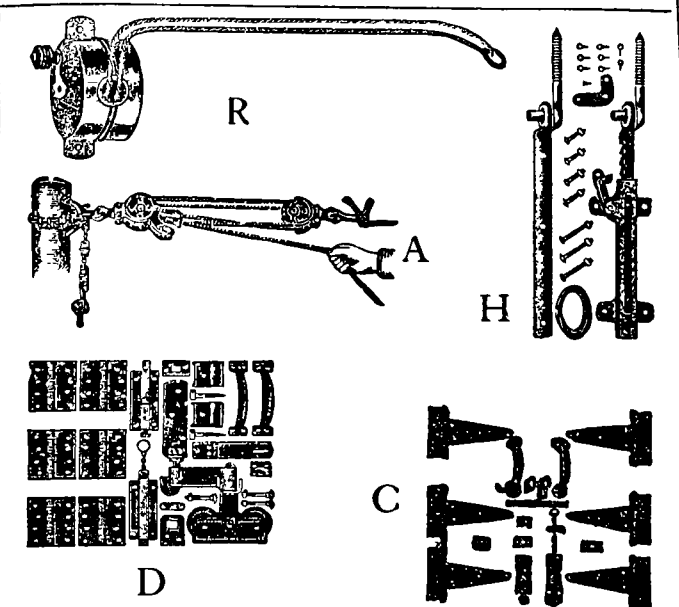
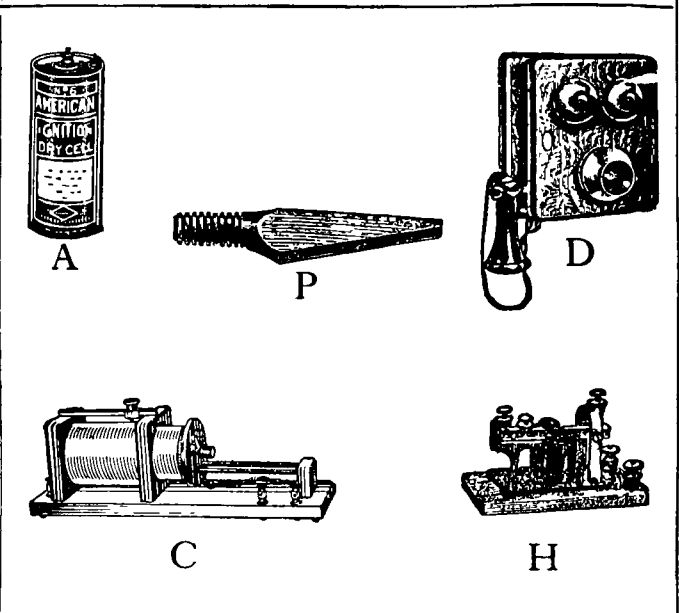
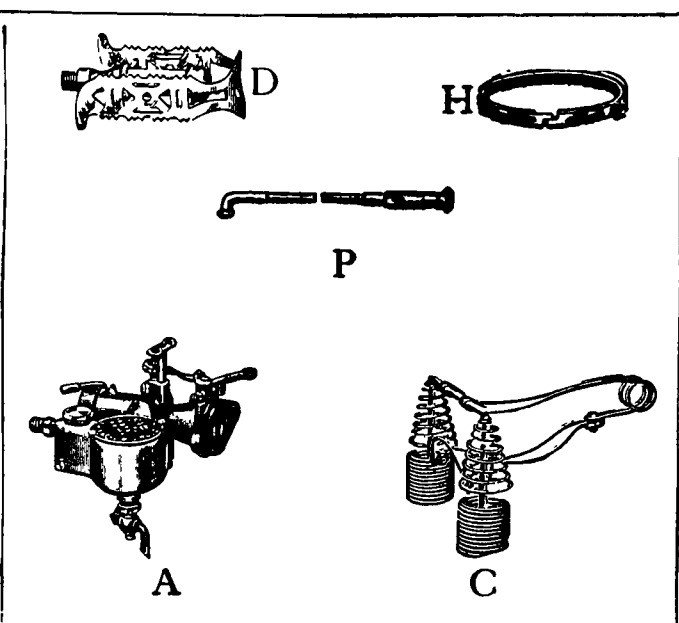
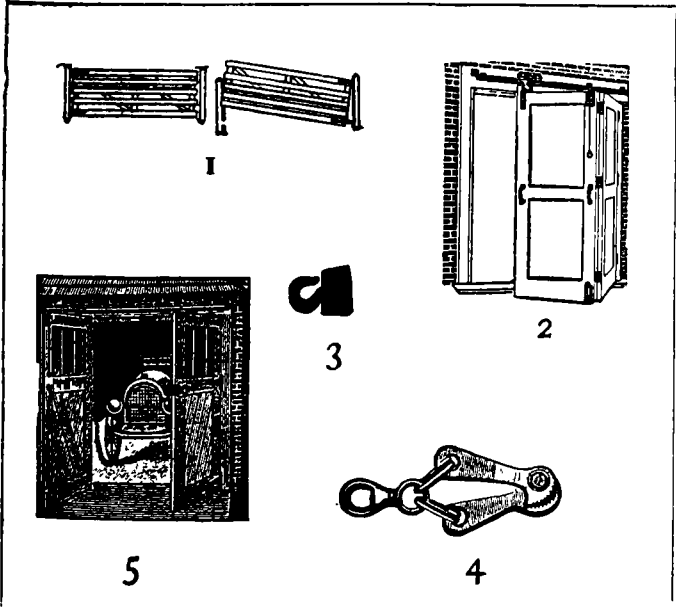
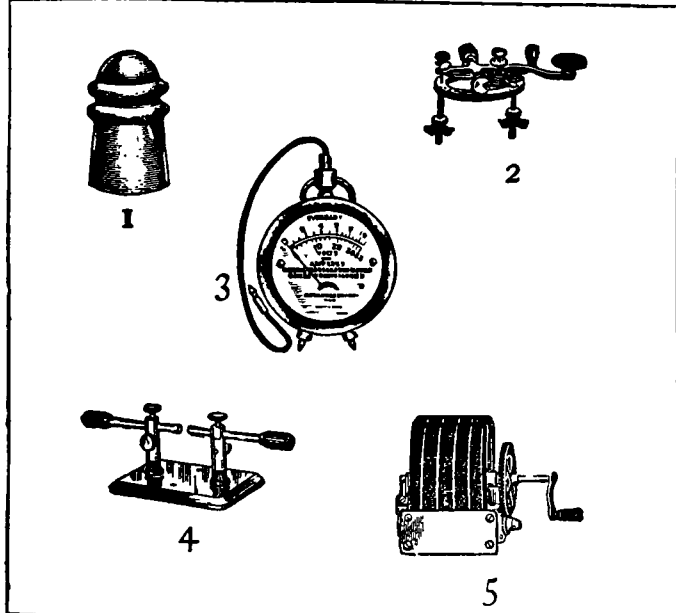
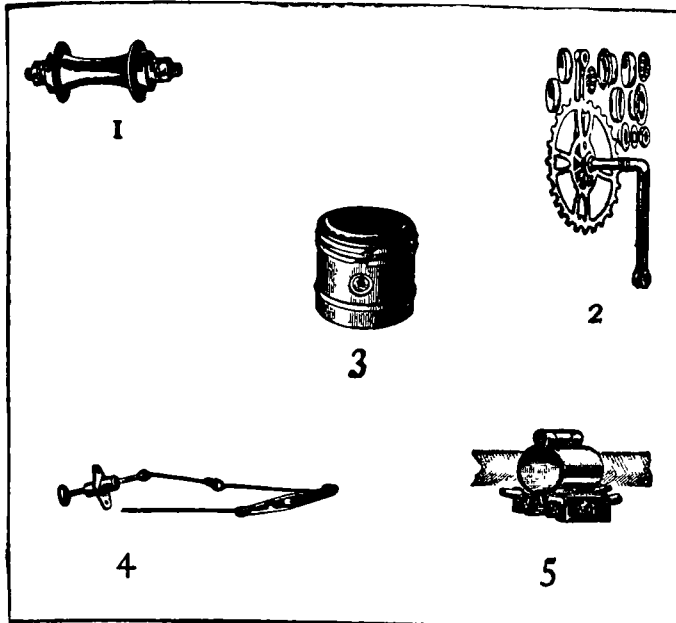
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5	☐

Nombre de bonnes réponses, sous-test 4: _____

SOUS-TEST 3

1^{re} PARTIE

2^e PARTIE



1	☐
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3	☐
4	☐
5	☐
1	☐
2	☐
3	☐
4	☐
5	☐

MES GOUTS

Répondez par une des quatre expressions suivantes:
beaucoup, un peu, je ne sais pas, pas du tout.

Comment aimez-vous

— le travail à l'extérieur	à l'intérieur
— le travail solitaire	en groupe
— le travail d'invention	propre
— le travail d'invention	d'exécution
— le travail de direction	d'exécution des ordres des autres
— le travail qui exige de l'attention	de la force physique

MON EXPERIENCE

Répondez par une des quatre expressions suivantes:
certainement, peut-être, je ne sais pas, pas du tout.

1. Votre père a-t-il un passe-temps demandant des aptitudes mécaniques ?
2. Vos parents vous ont-ils encouragé à développer l'habileté manuelle ?
3. Aimez-vous jouer avec un Meccano, ou d'autres jouets de construction ?
4. Avez-vous déjà songé à prendre un cours à l'école technique ?
5. Aimez-vous à faire des objets avec vos mains ?
6. Avez-vous déjà défait et refait des pièces de machinerie ?
7. Avez-vous déjà occupé une position qui demandait de l'habileté manuelle ?
8. Réussissez-vous bien dans les travaux manuels ?
9. Réussissez-vous bien dans la solution de casse-têtes (puzzles) ?
10. Vos amis vous croient-ils bon à réparer les objets avec vos mains ?
11. Croyez-vous de même que vous êtes assez habile lorsqu'il s'agit de faire ou de réparer des objets ?
12. Depuis deux ou trois ans, pouvez-vous dire que vous avez fait
 - de la menuiserie , — du tour à bois ,
 - de la forge , — du tour à fer ,
 - de la réparation et de la construction d'automobiles ,
 - de la réparation et de la construction d'appareils de radio ,
 - de la réparation de bicyclettes ou d'autres véhicules ,
 - de la construction de modèles d'aéroplanes, ou d'autres objets semblables ?
13. Si vous avez d'autres passe-temps qui demandent de l'habileté manuelle, nommez-les

Nom		Ecole		Sous test	Resultat
prénom	nom de famille			1	
Âge	ans	Anniversaire	Classe	2	
au dernier anniversaire		jour	mois	3	
Ville	Date du test	19	E	Total	
Occupation	Adresse			Norme	
de mon père	ville		province		

TESTS D'APTITUDE MÉCANIQUE STENQUIST-OTTAWA

Stenquist Mechanical Aptitude Tests

TEST II

AVIS PRÉLIMINAIRES

Commencez par le sous-test n° 1 et faites ce que l'on vous dit de faire.

Passez ensuite au sous-test n° 2, à la page suivante,
 et faites ce que l'on vous dit de faire.

Continuez de la sorte en faisant le sous-test n° 3 en dernier lieu.

Répondez à chaque question par une seule lettre, ou un seul chiffre écrit à côté du bon chiffre dans la marge. Si vous ne savez pas quelle réponse écrire, devinez-la. Faites en sorte d'écrire une lettre ou un chiffre dans chaque espace.

Écrivez très lisiblement.

Remettez ce livret aussitôt que vous aurez fini.

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INSTRUCTIONS POUR LE SOUS-TEST 1

Regardez les gravures de la 1^{re} partie sur la page opposée; regardez ensuite les gravures de la 2^e partie. Chaque gravure de la 1^{re} partie est un morceau qui appartient à une gravure de la 2^e partie.

Par exemple, regardez la gravure n° 1 dans la 1^{re} partie; ce morceau appartient au tricycle de la gravure T dans la 2^e partie; c'est pourquoi la lettre T est écrite auprès du chiffre 1 dans l'espace réservé aux réponses à la droite de la page. De la même manière le morceau n° 2 de la 1^{re} partie appartient au jouet de la gravure H dans la 2^e partie; c'est pourquoi la lettre H est écrite auprès du chiffre 2 dans l'espace réservé aux réponses.

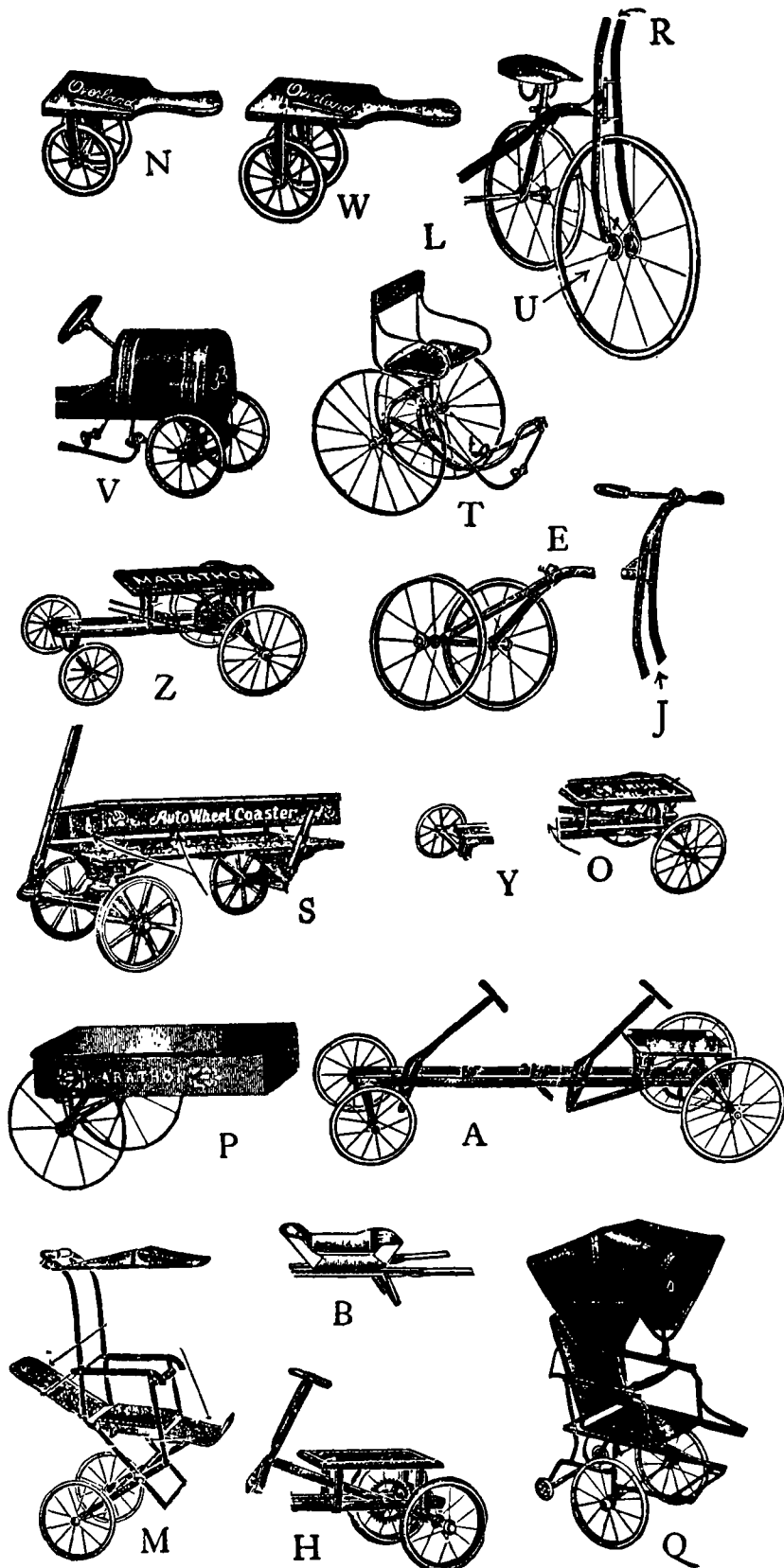
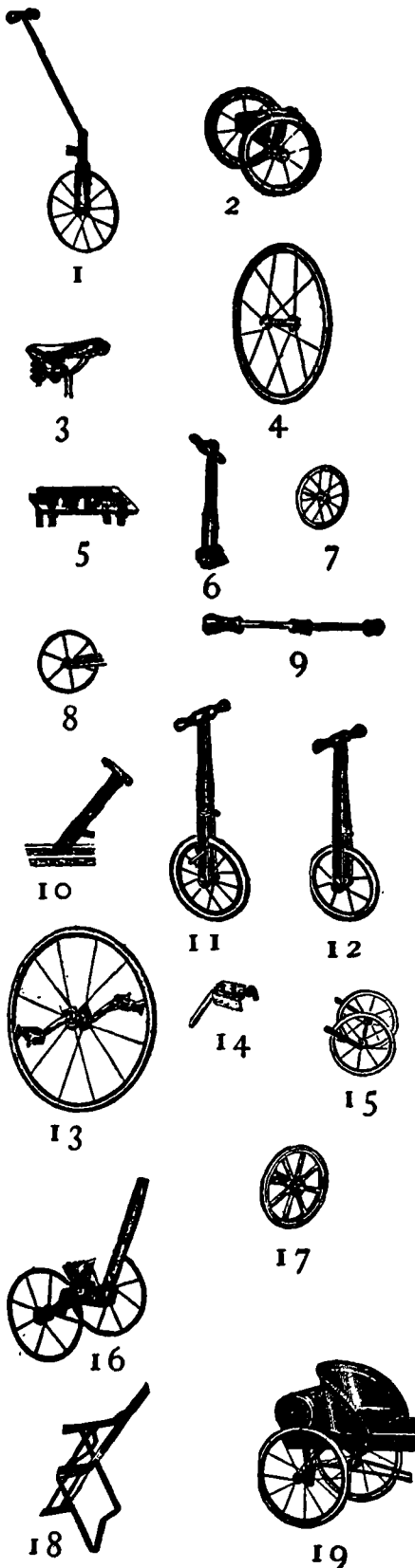
Trouvez la bonne lettre pour chaque numéro sur la liste.

SOUS-TEST 1

1^{re} PARTIE

2^e PARTIE

REPONDEZ ICI



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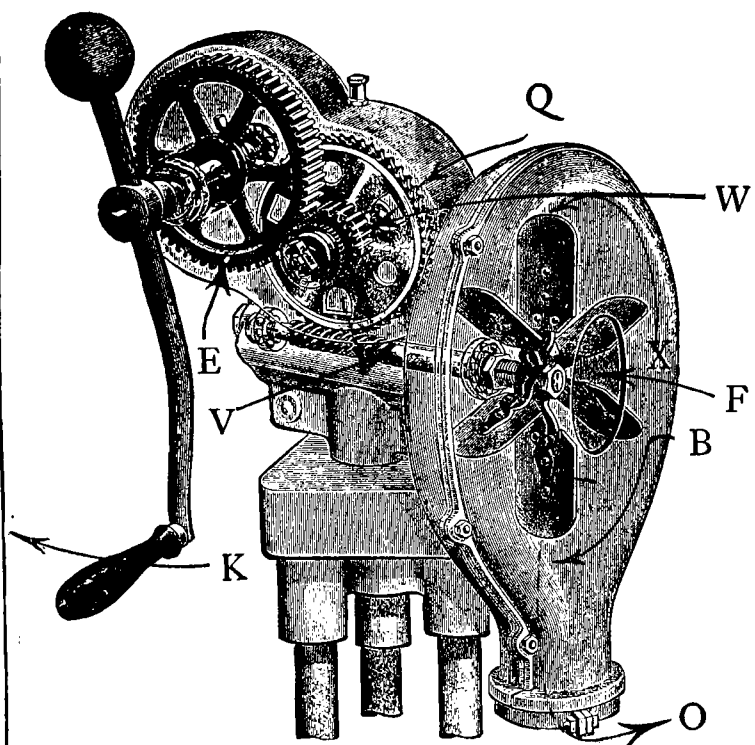


FIG. 1

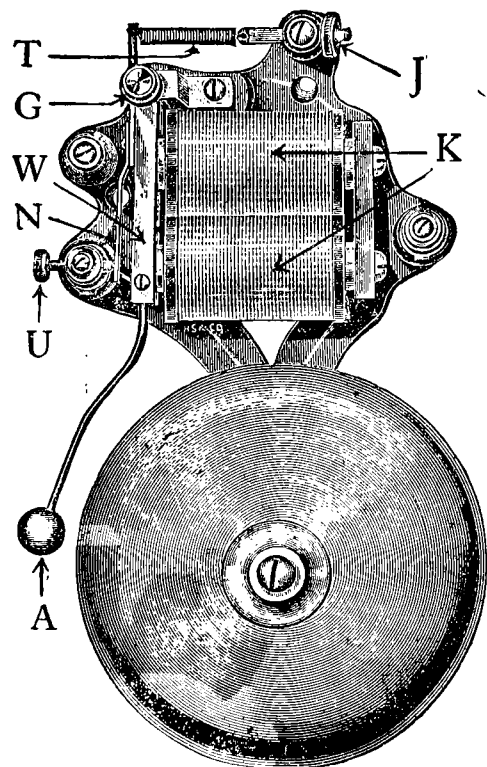


FIG. 2

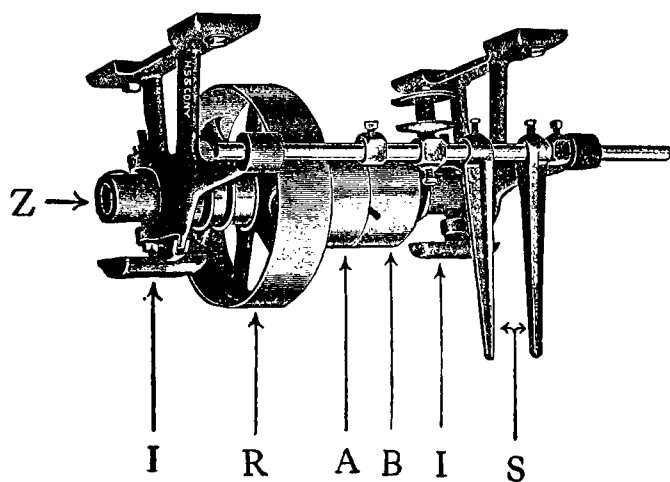


FIG. 3

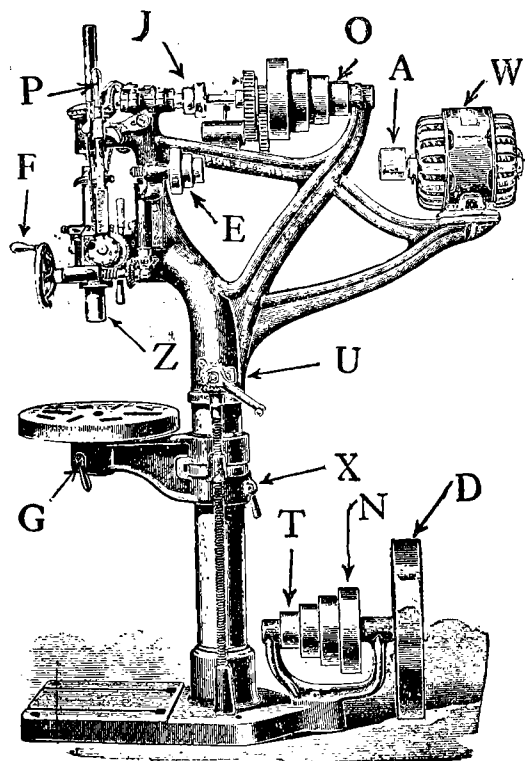


FIG. 4

SOUS-TEST 2



Espace
pour les
réponses

Regardez la Fig. 1 sur la page opposée, et répondez à autant de questions que vous le pouvez. Répondez à chaque question par une seule lettre. Si vous ne le savez pas, devinez.

- | | | |
|--|---|--|
| 1 Par où l'air entre-t-il ? | 1 | |
| 2 Par où l'air sort-il ? | 2 | |
| 3 Quand on tourne la manivelle K, quelle roue tourne le plus vite, E, Q, W, ou V ? | 3 | |
| 4 Laquelle tourne le plus lentement ? | 4 | |
| 5 Si on tourne la manivelle K dans la direction indiquée par la flèche K, l'éventail tournera-t-il dans la direction indiquée par la flèche B ou par la flèche X ? Écrivez B ou X | 5 | |
| 6 Si la roue à pignon marquée W était de la même dimension que celle marquée E, l'éventail tournerait-il plus vite, plus lentement ou à peu près à la même vitesse ? Écrivez V si elle tourne plus vite, L si plus lentement, et M si à peu près à la même vitesse | 6 | |
| 7 Si la manivelle K était plus longue, tournerait-elle plus difficilement, plus facilement, ou à peu près de même qu'avant ? Écrivez D si plus difficilement, F si plus facilement, et M si de même qu'avant | 7 | |

Regardez la Fig. 2 sur la page opposée, et répondez à autant de questions que vous le pouvez. Répondez à chaque question par une seule lettre. Si vous ne le savez pas, devinez.

- | | | |
|--|---|--|
| 1 Quelle partie est l'électro-aimant (<i>the electro-magnet</i>) ? | 1 | |
| 2 Quand le courant est mis, quelle partie l'aimant attire-t-il ? | 2 | |
| 3 Cela fait que la cloche est frappée par quelle partie ? | 3 | |
| 4 Mais quand la cloche est frappée, où le courant est-il coupé ? | 4 | |
| 5 L'aimant cesse alors d'attirer, et les parties sont ramenées par la partie marquée | 5 | |
| 6 Le réglage du ressort se fait au point marqué de la lettre | 6 | |
| 7 La vis de réglage du coupe-circuit est marquée de la lettre | 7 | |
| 8 La partie W est montée sur un pivot à | 8 | |

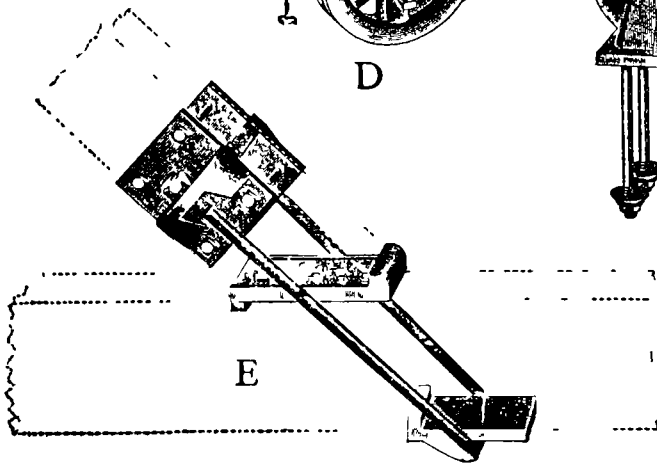
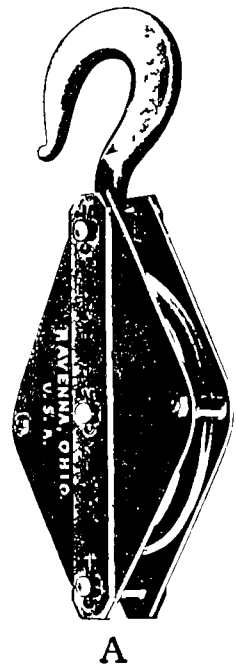
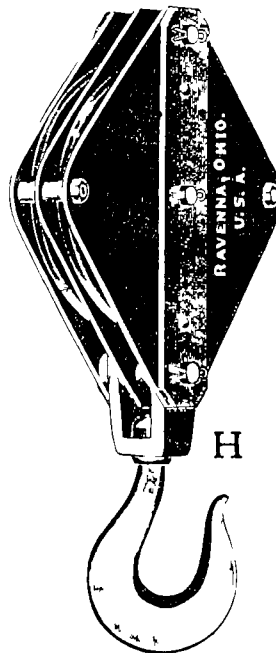
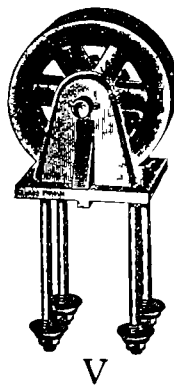
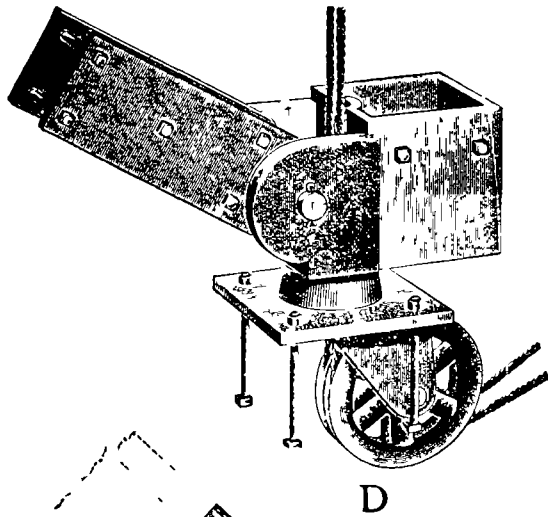
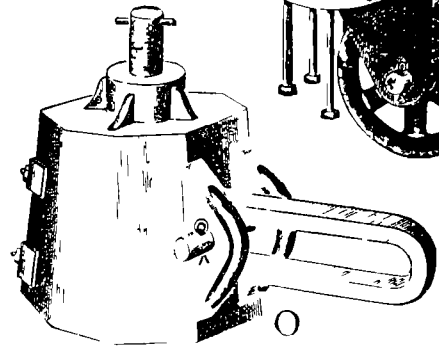
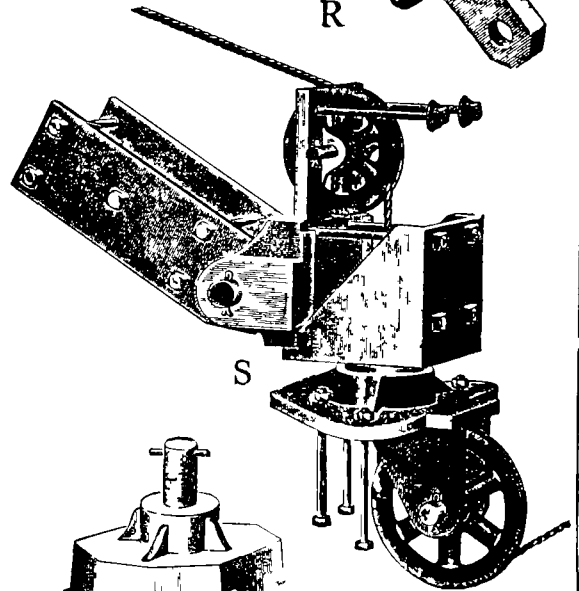
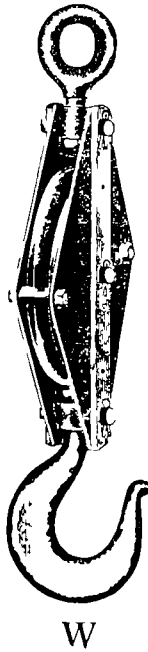
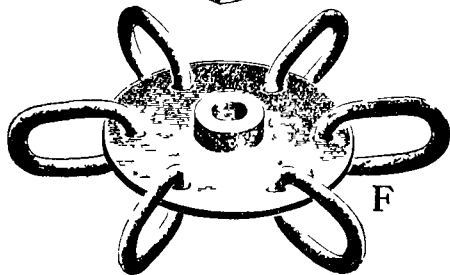
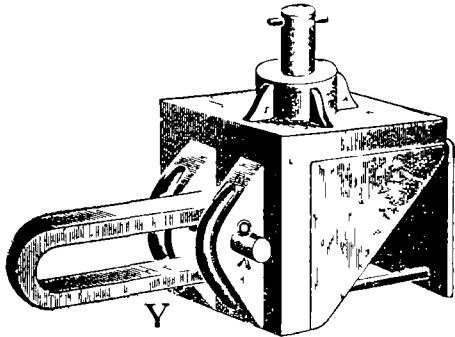
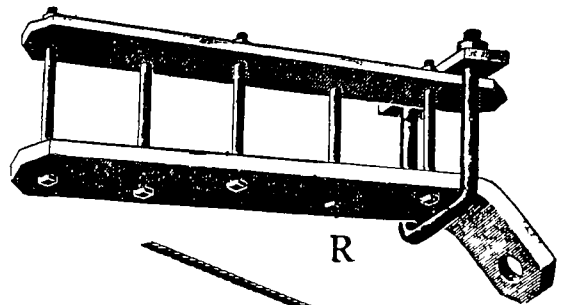
Regardez la Fig. 3 sur la page opposée, et répondez à autant de questions que vous le pouvez. Répondez à chaque question par une seule lettre. Si vous ne le savez pas, devinez.

- | | | |
|--|---|--|
| 1 On empêche l'huile de s'égoutter sur le plancher par | 1 | |
| 2 On avance ou on recule la courroie par | 2 | |
| 3 Si la poulie R tourne librement sur l'arbre de commande (<i>on the shaft</i>), écrivez la lettre T. Si elle est fixée à l'arbre de commande et tourne avec celui-ci, écrivez la lettre F | 3 | |
| 4 La courroie qui fait fonctionner cette machine passe-t-elle sur la poulie marquée de la lettre R ? Si oui, écrivez O ; si non, écrivez N | 4 | |
| 5 Regardez les deux poulies A et B. Si les deux tournent avec l'arbre Z, écrivez D. Si aucune ne tourne avec lui, écrivez N. Si une seulement tourne, écrivez U | 5 | |

Regardez la Fig. 4 sur la page opposée, et répondez à autant de questions que vous le pouvez. Répondez à chaque question par une seule lettre. Si vous ne le savez pas, devinez.

- | | | |
|---|----|--|
| 1 Quel est le moteur ? | 1 | |
| 2 Quelle manivelle tourne-t-on pour élever ou abaisser le porte-foret (<i>the spindle</i>) Z ? | 2 | |
| 3 Quel levier emploie-t-on pour élever ou abaisser le même porte-foret ? | 3 | |
| 4 Où se trouve le réglage pour renvoyer la table d'un côté ? | 4 | |
| 5 Quelle poulie fait fonctionner toute la machine ? | 5 | |
| 6 Quelle poulie conduit la poulie O ? | 6 | |
| 7 Que faut-il dévisser pour enlever la table ? | 7 | |
| 8 Si la poulie D n'était que la moitié aussi grande qu'elle l'est actuellement, la machine marcherait-elle plus vite ou plus lentement ? Si plus vite, écrivez V ; si plus lentement, écrivez L | 8 | |
| 9 Où est le réglage pour faire monter ou descendre la table ? | 9 | |
| 10 Pour faire marcher la machine plus lentement, la courroie devrait-elle être sur la poulie N ou sur la poulie T ? Écrivez N ou T | 10 | |
| 11 Quelle poulie fait monter ou descendre le porte-foret (<i>the spindle</i>) Z ? | 11 | |

Nombre de bonnes réponses, sous-test 2 :



SOUS-TEST 3

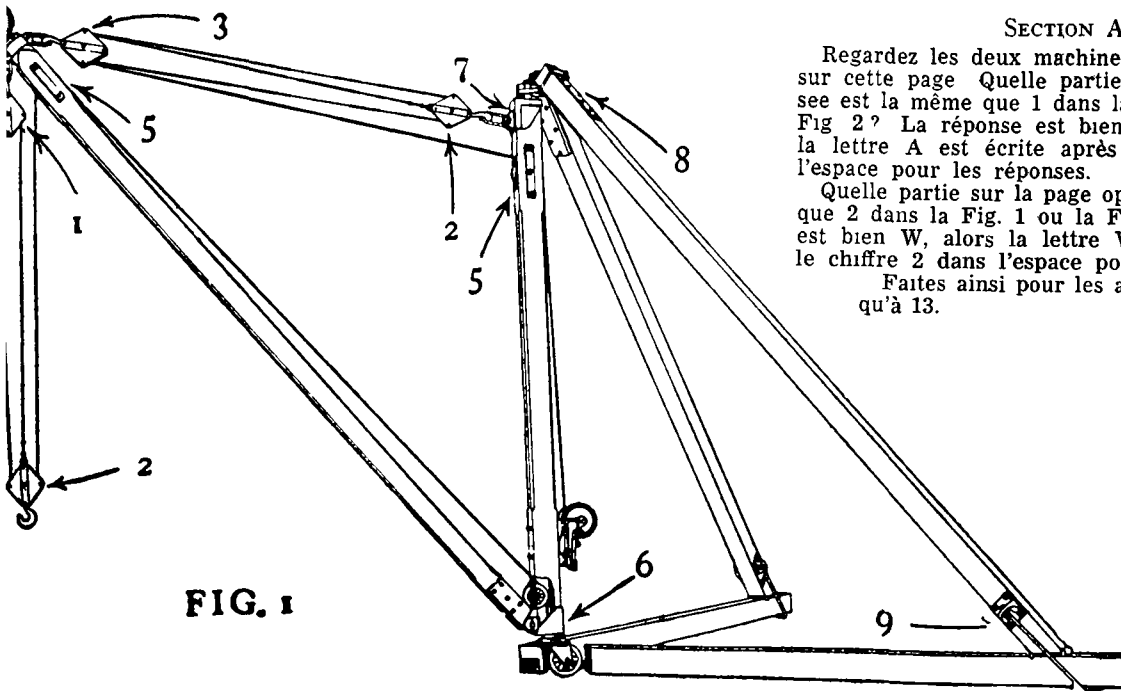


FIG. 1

SECTION A

Regardez les deux machines, Fig. 1 et Fig. 2, sur cette page. Quelle partie sur la page opposée est la même que 1 dans la Fig. 1 ou dans la Fig. 2? La réponse est bien A, c'est pourquoi la lettre A est écrite après le chiffre 1 dans l'espace pour les réponses.

Quelle partie sur la page opposée est la même que 2 dans la Fig. 1 ou la Fig. 2? La réponse est bien W, alors la lettre W est écrite après le chiffre 2 dans l'espace pour les réponses.

Faites ainsi pour les autres numéros jusqu'à 13.

Espace pour les réponses

- | | |
|----|-------|
| 1 | A |
| 2 | W |
| 3 | _____ |
| 4 | _____ |
| 5 | _____ |
| 6 | _____ |
| 7 | _____ |
| 8 | _____ |
| 9 | _____ |
| 10 | _____ |
| 11 | _____ |
| 12 | _____ |
| 13 | _____ |

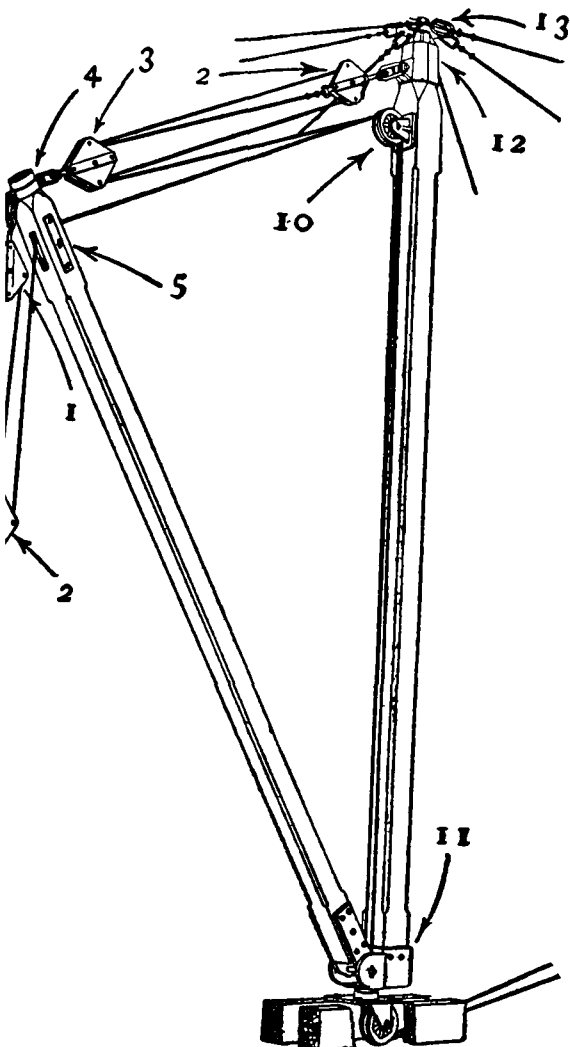


FIG. 2

SECTION B

Regardez la Fig. 1:

- | | |
|---|---------|
| 1 Regardez la partie 8. pousse-t-elle plutôt qu'elle ne tire? Si elle pousse, écrivez X; si elle tire, écrivez Y | 1 _____ |
| 2 Regardez la partie 6: la poulie supérieure tourne-t-elle en même temps que celle du bas? Si oui, écrivez O; si non, écrivez N | 2 _____ |
| 3 Quand on tourne la manivelle, les poulies 3 et 2 tournent. Quelle autre poulie doit aussi tourner alors? | 3 _____ |
| 4 Regardez les poulies 1 et 3: laquelle supporte la plus grosse charge? | 4 _____ |
| 5 Cette machine exige-t-elle un câble ou deux? | 5 _____ |

Regardez la Fig. 2:

- | | |
|---|---------|
| 1 Regardez les parties 1 et 3: laquelle supporte la charge la plus pesante, si le poids est suspendu à la poulie inférieure 2? | 1 _____ |
| 2 Regardez la partie 11 les deux poulies doivent-elles tourner ensemble? Si oui, écrivez O, si non, écrivez N | 2 _____ |
| 3 Regardez la partie 11. les poulies tournent-elles d'un côté et de l'autre quand le long bras soutenant la partie 1 pivote? Si oui, écrivez O; si non, écrivez N | 3 _____ |
| 4 Regardez les parties 5 et 13: laquelle exige le plus d'huile? | 4 _____ |
| 5 Regardez la partie 4: cette partie devrait-elle être faite en fonte ou en fer forgé? Pour la fonte, écrivez C; pour le fer forgé, écrivez F | 5 _____ |
| 6 Regardez les parties 4 et 5 laquelle exige le plus d'huile? | 6 _____ |
| 7 Regardez les parties 10 et 12 laquelle est retenue en place plutôt par sa forme que par des boulons? | 7 _____ |

Regardez les parties sur la page opposée:

- | | |
|---|---------|
| 1 Dans la partie C, quel est le nombre total de morceaux? | 1 _____ |
| 2 Dans la partie E? (Comptez tous les morceaux possibles séparément) | 2 _____ |
| 3 Dans la partie V? [L'arbre est claveté des deux côtés (shaft is keyed on both sides)] | 3 _____ |
| 4 Le corps de la partie O est-il coulé ou forgé? Pour coulé, écrivez la lettre C; pour forgé, écrivez la lettre F | 4 _____ |
| 5 La partie inférieure de R est-elle coulée ou forgée? Écrivez C ou F | 5 _____ |

Nombre de bonnes réponses, sous-test 3. _____

MON EXPERIENCE SCOLAIRE

<i>Avez-vous fait quelques études dans les sujets suivants ?</i>	<i>Pendant combien d'années ?</i>	<i>Combien d'heures de cours par semaine ?</i>	<i>Combien d'heures de laboratoire par semaine ?</i>	<i>En quelle année du cours d'études ?</i>	<i>Étiez vous parmi les premiers ? dans la moyenne ? parmi les derniers ?</i>	<i>Aimiez-vous cela beaucoup ? un peu ? pas du tout ?</i>
--	---	--	--	--	---	---

Anatomie

Astronomie

Botanique

Biologie

Chimie

Chimie physique

Chimie minérale

Chimie organique

Électricité

Géologie

Mécanique

Physiologie

Physique

Psychologie

Zoologie

Algèbre

Arithmétique

Calculus

Trigonométrie

Géométrie

Géométrie analytique

Statistiques

APPENDIX 2

Table of Normal Distribution - TEST I.

Raw Scores and percentile ranks for 7 ages on Test I

Raw Score	11 yr.	12 yr.	13 yr.	14 yr.	15 yr.	16 yr.	17 yr.
23	10	6	3	1	1	2	
24	12	7	3	1	1	3	
25	14	9	4	2	1	3	
26	16	10	5	3	1	3	
27	20	12	6	5	2	4	1
28	25	14	7	7	2	4	1
29	30	15	3	8	3	4	1
30	33	17	10	9	3	5	2
31	36	23	13	9	5	5	3
32	40	25	15	10	6	5	4
33	44	29	18	14	7	6	5
34	47	30	20	17	3	6	5
35	50	35	25	20	10	6	6
36	55	40	30	24	15	7	7
37	60	45	33	27	20	9	8
38	65	50	37	30	22	9	8
39	70	55	40	34	25	9	9
40	73	60	44	37	27	10	10
41	79	64	47	40	30	14	13
42	80	67	50	45	33	17	15
43	82	70	55	50	35	20	17
44	84	72	60	54	37	25	18
45	86	76	63	57	40	27	20
46	88	78	66	60	45	28	25
47	89	80	70	62	50	30	30
48	90	82	72	65	53	40	35
49	90	84	76	67	57	45	40
50	93	85	78	70	60	50	50
51	94	86	79	73	64	55	50
52	95	90	80	77	67	60	55
53	96	92	86	80	70	63	60
54	98	94	89	81	72	64	64
55	98	95	90	84	76	70	68
56	98	96	92	88	78	72	70
57	99	97	93	89	80	74	75
58		98	93	90	83	75	80
59		98	94	92	85	77	82
60		99	95	92	87	79	85
61			95	93	89	80	85

APPENDIX 2 CONT'D.

73

Raw Score	Percentile Rank						
	11 yr.	12 yr.	13 yr.	14 yr.	15 yr.	16 yr.	17 yr.
62			95	94	90	83	86
63			97	95	92	85	87
64			98	96	92	85	87
65			98	97	94	86	88
66			98	97	95	87	90
67			98	97	96	87	94
68			98	98	97	89	95
69			98	98	98	90	95
70			98	99	99	92	97
71			98		99	92	98
72			99		99	94	98
73					99	95	99
74					99	96	
75					99	96	
76					99	96	
77						97	
78						98	
79						98	
80						98	
81						99	
82							
83							
N	48	101	152	204	190	134	52
T.							881

Tableau IV.
NORMES du STANQUIST-DYFFA - TEST II.
 Raw scores and percentile ranks for 7 ages test II

Raw Scores	11 yrs.	12 yrs.	13 yrs.	14 yrs.	15 yrs.	16 yrs.	17 yrs.
22	10	4	2	4			
23	12	4	2	5			
24	15	4	2	5			
25	16	5	3	7		2	
26	20	9	5	7		2	
27	30	10	7	8		3	
28	35	13	10	8		3	
29	40	15	13	10		3	
30	50	17	17	12	1	4	
31	51	20	19	14	5	5	
32	52	25	20	15	7	5	3
33	52	30	22	16	9	6	3
34	57	33	24	17	9	7	3
35	60	35	26	20	10	7	6
36	65	40	30	22	12	7	6
37	70	45	33	24	14	8	8
38	75	50	37	27	16	8	8
39	80	53	40	30	18	9	10
40	82	57	43	33	19	9	10
41	85	60	50	36	20	10	10
42	88	65	53	38	23	12	12
43	89	70	57	40	26	14	20
44	90	72	60	45	29	15	24
45	93	75	65	47	30	18	29
46	93	77	70	50	33	20	30
47	94	79	73	55	35	24	33
48	95	80	75	60	40	28	36
49	95	83	77	64	43	30	39
50	95	85	80	68	45	33	40
51	96	88	83	70	48	38	43
52	96	90	86	74	50	40	46
53	97	93	90	78	55	44	49
54	98	95	91	80	60	47	50
55	98	95	92	83	61	49	54
56	99	95	93	85	64	50	58
57		95	94	86	70	55	60
58		95	95	87	80	60	65
59		96	97	90	84	65	70
60		96	97	92	86	70	73
61		96	97	92	89	80	76

Raw Score	Percentile Rank						
	11 yr.	12 yr.	13 yr.	14 yr.	15 yr.	16 yr.	17 yr.
62		96	93	92	89	81	80
63		96	99	93	90	82	82
64		96		95	92	85	87
65		96		96	94	87	90
66		97		97	95	90	90
67		99		97	96	91	93
68				97	96	93	95
69				97	98	94	95
70				98	98	95	97
71				98	99	97	97
72				99		98	99
73						99	99
74							99
N	36	62	104	150	152	117	48
T.							669

Tableau I.
Normes du Stenquist-Ottum - Test I, en déciles
 Raw scores at decile points for 7 ages on Test I

Deciles	Raw Scores						
	11 yr.	12 yr.	13 yr.	14 yr.	15 yr.	16 yr.	17 yr.
10	23	26	30	32	35	40	40
20	27	30	34	35	37	43	45
30	29	34	36	38	41	47	47
40	32	36	39	41	45	48	49
50	35	39	42	43	47	50	51
60	37	40	44	46	50	52	53
70	39	43	47	50	53	55	56
80	42	47	52	53	57	61	58
90	48	52	55	58	62	69	66
N:	48	101	152	204	190	134	52
Total							661

Tableau II.
Normes du Stenquist-Ottum - Test II, en déciles
 Raw scores at decile points for 7 ages on Test II

Deciles	Raw Scores						
	11 yr.	12 yr.	13 yr.	14 yr.	15 yr.	16 yr.	17 yr.
10	22	27	28	29	35	42	39
20	26	31	32	35	41	47	43
30	27	33	36	39	46	50	46
40	29	36	39	43	48	53	50
50	30	33	42	46	52	56	54
60	35	41	45	48	54	58	57
70	37	43	47	51	57	60	59
80	39	48	51	54	58	61	62
90	44	52	54	59	63	66	65
N:	36	62	104	150	152	117	43
Total							661

A comparison of scores at decile points for
ages 11 to 17 between two tables of norms.

Deciles	Age	<u>Stenquist</u>		<u>Writer</u>	
		Test I	Test II	Test I	Test II
	11 yr.	N.104	N-	N.48	N.36
10		14	13	23	22
20		22	18	27	26
30		27	22	29	27
40		32	25	32	29
50		35	28	35	30
60		40	30	37	35
70		42	34	39	37
80		48	38	42	39
90		55	43	48	44
	12 yr.	N.231	N-	N.101	N.62
10		29	16	25	27
20		37	22	30	31
30		41	26	34	33
40		46	29	36	36
50		48	31	38	38
60		50	34	40	41
70		55	37	43	43
80		60	41	47	43
90		66	47	52	52
	13 yr.	N.438	N-	N.152	104
10		37	19	30	28
20		41	24	34	32
30		49	28	36	36
40		52	31	39	39
50		57	34	42	42
60		60	36	44	45
70		64	40	47	47
80		66	44	52	51
90		73	49	55	54

Deciles	Age	Stenquist		Writer	
		Test I	Test II	Test I	Test II
	14 yr.	N.934	N-	N.204	N.150
10		38	20	32	29
20		44	25	35	35
30		49	29	38	39
40		52	32	41	43
50		58	35	43	46
60		60	38	46	48
70		64	41	50	51
80		69	45	53	54
90		74	50	58	59
	15 yr.	N.937	N-	N.190	N.152
10		40	21	35	35
20		46	25	37	41
30		51	29	41	46
40		55	33	45	48
50		58	36	47	52
60		61	40	50	54
70		64	43	53	57
80		69	46	57	59
90		74	52	62	63
	16 yr.	N.750	N-	N.134	N.117
10		44		40	42
20		49		43	47
30		53		47	50
40		57		48	53
50		59		50	56
60		63		52	58
70		65		55	60
80		69		61	61
90		75		69	66
	17 yr.	N.426	N-	N.52	N.48
10		43		40	39
20		49		45	43
30		54		47	46
40		57		49	50
50		59		51	54
60		63		53	57
70		65		56	59
80		68		58	62
90		72		66	67

APPENDIX 4

AN ABSTRACT OF Measuring Mechanical Aptitude

An inquiry was made first with the nature of mechanical aptitude. Then all available information was gathered on the Stenquist Mechanical Aptitude Test as a measure of mechanical aptitude. This was followed by an actual measurement of mechanical aptitude using Tests d'Aptitude Mechanique Stenquist-Ottawa, which is a translation of the Stenquist Picture Test for a French-speaking population.

From a survey of the literature it was determined that a group factor of mechanical aptitude does not exist. The factors involved in mechanical aptitude are highly specific. So-called mechanical aptitude is composed of spatial visualization, perceptual speed and accuracy, mechanical information, and interest.

Studies done with the Stenquist Mechanical Aptitude Test as to its worth as a measure of mechanical aptitude reveal that the test has the same factor composition as the definition, and that it correlates as well as can be expected with other tests of mechanical comprehension and spatial visualization. No studies were located to demonstrate the adequacy of the Picture Tests as predictors of success in specific occupations. Most studies used the test in a scholastic situation where it correlates moderately with shop grades.

The Stenquist-Ottawa was administered to  French-

speaking elementary and high school boys in the Ottawa-Hull area. The raw scores were plotted demonstrating what amounts to normal distributions for each test (skewness = $+.10$ and $-.08$ for Tests I and II respectively). A table of norms was constructed and compared with Stenquist's norms. The effects of age on the Stenquist-Ottawa was investigated.

It was concluded that there was no difference from Stenquist's observations as to the distribution of mechanical aptitude and the effects of age on the test. After age 14 there is no increase in mechanical aptitude. The Picture Tests and the Stenquist-Ottawa measure as well as can be expected that loosely formulated group of traits classified as mechanical aptitude. The test has been superseded by other more valid tests which tap a higher level of mechanical aptitude and which can be administered and scored in less time.

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- Keane, 5
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TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 1A Univ. O.

Noms	Age		Test I			Test II	
			Résultat	Norme	Exp.	Résultat	Norme
Guibord, J.-L.	16	11	53		12	56	
Bordeleau, G.	16	10	53		19	56	
Thériault, L.	16	10	51		21		
Grenier, J.A.	16	8	42		16	46	
Lozier, M.	16	7	73		29	58	
Rochon, G.	16	7	57		16		
Crenier, M.	16	2	52		20		
Carrière, Y.	15	11	67		20	55	
Sauvé, A.	15	8	42		19	55	
Chénier, A.	15	6	21		13	34	
Rochon, A.	15	6				28	
Emard, A.	15	5	62		22	55	
Gauthier, R.	15	5	38		2	43	
Bruneau, G.	15	3	62		20	62	
Michaud, J.	15	2	49		19	42	
Savard, J.-P.	15	2	53		18	59	
Sigouin, C.	15	2	34		16	32	
Couvillon, R.	15	1	50		14	29	
Labarge, M.	15	1	35		18	19	
Labelle, G.	15	1	50		0	44	
Martin, J.	15	1	51		13	59	
Dufour, P.	15	0	29		15	32	
Lachaine, M.	14	9	46		15	37	
Laframboise, G.	14	9	47		13	53	
Robichaud, P.	14	9	36		10	28	
Janeau, R.	14	7	43		33	43	
Lenieur, B.	14	7	43		16	56	
Chartrand, J.-J.	14	6	42		22	51	
Labrie, M.	14	6				48	
Lapointe, L.	14	5	49		7	39	
Whissell, R.	14	5	40		13	51	
Chartrand, R.	14	4	44		14	40	
Chartrand, Rob.	14	4	53		22	54	
Legros, G.	14	4	37		8	59	
Bruneau, G.	14	3	48		18		
Carrière, J.	14	3	47		22	42	
L'Heureux, A.	14	3	42		22	47	
Chénier, M.	14	0	32		8	44	
Sigouin, J.	14	0	49		7	21	
St-Germain, T.	13	10	49		21	56	
Gaulin, R.	13	9	54		17	49	
Crépin, G.R.	13	8	52		25	56	
Beaudry, R.	13	1	51		11	32	
Davault, J.	11	7	26		0	32	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 18 Univ. O.

Noms	Age		Test I		Exp.	Test II	
			Résultat	Norme		Résultat	Norme
Ouellette, J.	17	1	34		15	39	
Lapointe, R.	16	9	53		21	48	
Paré, B.	16	8	68		24	60	
Peirier, J.	16	5	26		24	26	
Régnier, R.	16	4	58		23	56	
Tremblay, M.	15	6	54		12	57	
Lalonde, G.	15	5	35		6		
Lafrance, S.	15	4	83		23	66	
Content, H.	15	2	55		16	58	
Gariépy, F.	15	1	47		19	35	
Richard, J.	15	1	52		25	38	
Bonais, H.	15	0				55	
Turpin, Y.	14	10	74		20		
Latour, O.	14	9	52		15	62	
Leroux, J.-P.	14	9	50		14	45	
Bondy, D.	14	8	40		17	46	
Jenisse, S.	14	8	49		20	62	
Fillion, J.-P.	14	7	38		4	51	
Lacasse, L.	14	6	30		14	52	
Marin, J.	14	6	50		16	52	
Thiboutot, M.	14	5	43		31	52	
Cousineau, J.-C.	14	2	46		17		
Samson, J.-M.	14	2	24		18	48	
Meloche, G.	14	0	57		15	45	
Lemieux, L.	13	11	36		5		
Marchand, L.	13	11	61		21		
Lamoureux, L.	13	9	37		21	29	
Biron, J.	13	8	52		11	52	
DesRosiers, M.	13	8	44		3	45	
Leina, R.	13	8	60		12	64	
Dumbriek, J.	13	6	59		16	49	
Masni, P.	13	6	32		9	28	
Reid, R.	12	6	51		9	60	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 10 Univ. O.

Noms	Age		Test I			Test II	
			Résultat	Norme	Exp.	Résultat	Norme
Goulet, G.	17	11	50		19	45	
Héroux, C.	16	9	69		16	40	
Michaud, R.	16	3	42		15	34	
Boucher, R.	16	2	75		26		
Leduc, B.	16	2	47		34	22	
Plante, R.	16	0	71		29	58	
Gaudreault, G.	15	11	56		18	56	
Lozeau, J.	15	7	45		20	42	
Bonhomme, L.	15	6	67		27	71	
Bryson, G.	15	5	61		12		
Secours, M.	15	5	55		5	51	
Filfe, J.-Y.	15	4	38		17	42	
Raymond, J.-P.	15	3	51		16	66	
Lamothe, A.	15	2	59		20	51	
Simard, R.	15	2	47		21	45	
Hamelin, J.G.	15	1	49		13		
Langelier, G.	15	1	36		10	36	
Whissell, Y.	15	1	38		8		
Boudreau, R.	15	0	56		25	47	
Clairoux, G.	14	8	58		15	60	
Caron, G.	14	6	46		26	49	
Boyd, J.-P.	14	6	55		9	46	
Simard, J.-M.	14	6				42	
Couture, P.	14	5	46		23	50	
Janelle, R.	14	5	32		29	33	
Dériger, R.	14	4	49		8	59	
Baril, G.	14	3	62		22	54	
Lalonde, A.	13	11	44		4	42	
Lebeau, G.	13	11	44		13	46	
Grand Maitre	13	9	48		16	64	
Lamarche, P.	13	9	39		13	53	
Patrice, G.	13	6	39		16		
Richard, C.	13	5	49		15	45	
Richard, G.	13	4				42	
Lemieux, P.	12	6	51		21	67	
Richard, L.	12	2	30		22		

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 1E Univ. O.

Noms	Age		Résultat	Test I		Test II	
				Norme	Exp.	Résultat	Norme
Robert, C.-E.	16	5	40		27	52	
Létourneau, P.	16	0	48		16	61	
Hupé, G.	15	8				51	
Chartrand, L.	15	7	37		14	41	
Bergeron, G.	15	4	49		23	37	
Vallée, M.	15	4	38		26	40	
Gauthier, J.-P.	15	3	44		9	44	
Gauthier, F.	15	2	46		10	45	
Diguer, R.	15	0	54			48	
Gervais, A.	14	11	36		22	42	
Lavergne, J.-P.	14	11	27		10		
Pinet, Y.	14	11	53		28	46	
Beauséjour, L.	14	9	49		20	46	
Dubé, A.	14	9	42		18	49	
Lacroix, G.	14	9	45		22	52	
Lemieux, R.	14	9	59		14	59	
Côté, A.	14	7	44		14	52	
Legault, J.	14	5	48		12	37	
Molloy, R.	14	5	43		22	46	
Leduc, M.	14	3	46		27	51	
Morreau, R.	14	2	36		14	50	
Dubé, R.	14	1	43		12	40	
Boivin, G.	13	10	54		27	64	
Patry, G.	13	10	38		19	39	
Hurtubise, J.	13	7	52		9	42	
Vekemay, B.	13	7	22		16	53	
Barrette, P.	13	6	64		25	70	
Richard, P.	13	6	41		9	42	
Billy, J.-M.	13	3	46		22		
Perreault, M.	13	3	49		13	38	
Bany, J.-P.	12	9	50		13	51	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 2A Univ. O.

Noms	Age		Résultat	Test I		Test II	
				Norme	Exp.	Résultat	Norme
Chenevert, J.-M.	18	8	47		13	52	
Lanson, C. O.	17	11	45		19	54	
Leclerc, A.	17	10	47		13	39	
Notard, E.	17	8	73		25		
Savary, G.	17	5	46		13		
Séguin, H.	17	4	51		16	39	
Marin, A.	17	2	41		4	41	
Dubé, J.	16	11	52		12	51	
Beaudry, P.	16	9	54		8	56	
Lamoue, E.	16	9	14		4	31	
LeBlanc, A.	16	8	42		12	48	
Asselin, M.	16	7	47		19	57	
Barrroughs, C.	16	6	50		20	67	
Chatelain, P.	16	6	47		25	54	
Harvois, M.	16	6	62		18	65	
Lesroix, B.	16	5	56		15	54	
Pappas, H.	16	5	53		21		
Bernard, M.	16	4	59		23	60	
Houle, M.	16	4	41		10	46	
Courtemanche, J.-P.	16	3	41		23	62	
Leblanc, P.	16	3	57		27		
Pelletier, B.	15	3	43		0	42	
Lavoie, J.-C.	16	1	58		21	45	
LeMay, P.	15	11	58		14	53	
Jennisse, M.	15	10	46		10	43	
Séguin, G.	15	7	49		20	56	
Lanthier, M.-G.	15	6	57		16	60	
Montha, A.	15	6	29		6	39	
Andet, D'Arcy	15	5	51		5	53	
Dupont, J.	15	5	46		27		
Brisson, W.	15	4	51		15		
Duceschi, G.	15	4	52		16	52	
Garvin, M.	15	4	57		22	55	
Ray, H.	15	4	56		21	57	
Erisebois, R.	15	3	44		4	49	
Bruyère, R.	15	3	56		8	37	
Rinfret, R.	15	3	36		11	58	
Bonenfant, A.	15	2	65		21	55	
Braceu, G.	14	11	42		16	30	
LeBel, M.	14	10	33		8	50	
Séguin, J.	14	9	41		17	48	
Néthot, R.	14	7	38		6	31	
Beaulne, R.	14	5	50		11	38	
Larieux, P.	14	3	26		12	24	
Gutton, P.	13	9	42		8	37	
Bordeleau, R.	13	7	42		17	37	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 2B Univ. O.

Noms	Age		Test I		Test II	
			Résultat	Norme	Résultat	Norme
Pajot, M.	17	1	66		45	
Dubé, A.	16	10	58		48	
Brechu, O.	16	7	41		55	
Mayotte, H.	16	7	50		70	
Ladouceur, V.	16	4	67			
De Varennes, J.	16	2	41		52	
Godin, M.	16	0	63		64	
Godin, D.	15	11	55		57	
Lemieux, J.-C.	15	9	47		42	
Couture, R.	15	8	36			
Lacasse, J.L.	15	8	44		56	
Maitre, B.	15	8	41		47	
Benoit, J.	15	7	65		59	
Lévesque, P.Y.	15	7	45		58	
Proulx, R.	15	4	56		61	
Malette, J.	15	4			67	
Lamoureux, G.	15	3	43		59	
Derouin, R.	14	11	33			
Lévesque, R.	14	11	31		46	
Lichtte, A.	14	11			11	
Mayotte, G.	14	10	52		65	
St-Aubin, D.	14	9	69		66	
De Varennes, M.	14	7	41		53	
Larose, C.	14	7	58		65	
Mulas, A.	14	6			17	
Vincent, L.M.	14	6	67		64	
Régnier, M.	14	5	45		58	
Babinski, R.	14	4	23		37	
Alguire, C.	14	3	51		42	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 2C Univ. O.

Noms	Age		Test I		Test II	
			Résultat	Norme	Résultat	Norme
Caron, A.	17	7	49		15	41
Patrice, M.	17	6	57		12	60
Bourgeois, G.	17	4	57		14	52
Trudel, R.	17	0	57		13	61
Guindon, A.	16	11	60		19	53
Longtin, P.	16	10	62		34	51
Laporte, J.	16	8	80		33	75
Saumier, W.	16	8	45		6	
Chénier, B.	16	7	39		24	52
Baril, C.	16	6	45		21	53
Maurice, R.	16	5	40		7	32
Fuoco, D.	16	3	50		17	58
Roy, G.	16	2	37		12	42
Lévesque, P.	16	0	74		14	62
Germain, F.	15	10	38		10	64
Couture, G.	15	8	30		11	46
Dubé, J.	15	7	53		20	61
Castagne, P.	15	6	52		18	56
Pellerin, G.	15	6	69		15	64
Binet, G.	15	2	50		18	57
Gauthier, R.	15	2	53		13	50
St-Louis, G.	15	2	39		10	46
Mercier, U.	15	1	35		0	35
Belleau, R.	14	8	61		16	54
Tardif, A.	14	6	53		8	57
Perrault, A.	13	1	41		16	50

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 3A Univ. O.

Noms	Age		Test I			Test II	
			Résultat	Norme	Exp.	Résultat	Norme
Anderson, G.	18	6	51		14		
Ouellette, L.	18	6	61		7	52	
Danis, J.	18	5	52		16		
Gagnon, P.	18	2	54		24	44	
Leblond, M.	18	1	35		13	50	
Paradis, R.	17	5	52		15	62	
Bélisle, J.-P.	17	4	50		17	40	
Hurteau, G.	17	2	52		22	66	
Coupal, J.-P.	17	1	33		13	41	
Lamontagne, G.	17	1	53		23	58	
Pelletier, O.	17	1	65		27	71	
Béniskos, J.-M.	17	0	54		10	33	
Barrette, R.	16	11	53		11	64	
Filliam, J.	16	11	53		3	60	
Magnan, M.	16	10	55		13	49	
Mahau, J.-P.	16	10	21		10	50	
Lalande, R.	16	9	41		15	48	
Potvin, J.B.	16	9	45		20	56	
Bernneau, A.	16	8	65		16	66	
Arpin, R.	16	7				74	
Dufour, P.	16	6	80		16	69	
Touquette, J.-M.	16	6	50		9	72	
Trottier, R.	16	6	75		27	55	
Trudel, J.	16	6	45		12	59	
Guillierrier, P.	16	5	50		9	61	
Derouin, M.	16	5	54		29	52	
Kearney, R.	16	5	46		15	59	
Leuson, R.	16	5	53		22	66	
Paris, J.	16	5	64		6	50	
Brisebois, P.	16	4	43			60	
St-Aubin, J.	16	3	73		24	65	
Buck, M.	16	2	59		27	65	
Dufault, R.	16	0	49		15	50	
St-Jacques, H.	16	0	53			46	
Lalonde, R.	15	11	46		29	49	
Quesnel, R.	15	11	69		26	59	
Rousseau, N.	15	10	47		18	61	
Dagenais, C.	15	9				42	
Goulet, C.	15	9	67		19	65	
Meloche, G.	15	9	61		19	60	
Vincent, J.	15	9	54		13	51	
Quenneville, P.	15	8	64		18	55	
Pelletier, G.	15	7				67	
Drouin, J.-E.	15	6	62		20	71	
Hurtubise, G.	15	6	42		8	51	
Hurtubise, M.	15	5	31		14	44	
Forget, G.	15	4	35		22	51	
Sabourin, G.	15	4	54		21	54	
Bénéteau, P.	14	10	56		12	48	
Côté, L.	14	9	76		21	78	
Gleutier, G.	14	6	65		24	72	
Courville, C.	14	3	50		12	59	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 3B Univ. O.

Noms	Age	Test I			Test II	
		Résultat	Norme	Exp.	Résultat	Norme
Chartrand, A.	19 8	54		22	60	
Feirier, R.	19 5	39		10	53	
Beauparlant, J.-C.	18 7	52		12	52	
Gagnon, P.	18 5	58		14	69	
Boudreau, M.	17 9	52		13	54	
Laframboise, J.	17 8	27		12	40	
Duke, C.	17 7	54		20	43	
Gagnon, J.	17 6	57		12	60	
Proulx, R.	17 3	48		17	47	
Chevrier, J.	17 2	49		12	59	
Ménard, F.	17 1	46		29	54	
Goyette, G.	16 9	46		26	49	
Gratton, J.-P.	16 8	41		21	55	
Larivière, R.	16 8	61		22	68	
Ryan, M.	16 7	44		16	45	
Latremouille, G.	16 6	50		10	54	
Boy, M.E.	16 5	48		10	55	
Surprenant, R.	16 5	64		22		
Guilbault, P.	16 3	31		5	59	
Harkins, R.	16 3	54		25	59	
Bertrand, M.	16 1	39		3	46	
Ouellet, A.	16 1	45		24	57	
Bonhomme, G.	16 0	45		14	56	
Symmett, R.	15 11	59		27	59	
Baillet, R.	15 10	64		25	63	
Belzile, R.	15 10	54		9	50	
Labrosse, C.	15 9	45		17	55	
Ferragne, A.	15 8	60		8	65	
St-Denis, P.	15 8	54		16	69	
Cousineau, R.	15 7	49		28	53	
Maillet, H.	15 7	46		11	51	
Pilon, R.	15 7				62	
Ray, A.	15 7	42		0	28	
Mégin, J.	15 5	54		27	59	
Larose, B.	15 4	43		7	54	
Hault, C.	15 4	47		1	51	
Guillet, G.	15 3	46		22	55	
Racine, C.	15 3	38		3	39	
Rousseau, P.	15 0	51		6	53	
Perrault, M.	14 7	42		11	54	
Richard, G.	14 5	56		16	71	

Noms	Age		Test I		Exp.	Test II	
			Résultat	Norme		Résultat	Norme
Sauvé, L.	24	1				58	
Bergeron, R.	20	2	67		20	66	
Bourdon, G.	19	11	52		20	54	
Bohémier, M.	19	10	26		15	42	
Belisle, R.H.	19	9				62	
Brisson, P.-E.	19	5	47		25	60	
Poulin, F.	19	2	45		20	64	
Boudreault, G.	18	11	34		5	37	
Ranger, A.	18	11	73		14	64	
Fournier, J.	18	10	50			65	
Lévesque M.	18	8	43		4	58	
Derouin, N.	18	5	53		16	56	
Gingras, M.	18	1	54		20	64	
Paradis, C.	18	1	59		18	59	
Perrier, R.	18	1	44		8	61	
Brind'Amour, G.	18	0	54		20	53	
Beauchemin, J.	17	11	49		15	59	
Belleau, H.-G.	17	11	44		6	57	
Bondy, E.	17	11	64		24	64	
Lachance, R.	17	7	52		8	57	
Rochon, B.	17	5	30		17	44	
Provost, M.	17	3	49		15	45	
Trudeau, J.R.	17	3	54		15	60	
Rouleau, G.	17	1	57		20	59	
Ranger, C.	17	0	52		19	57	
Biron, M.	16	11	46		15	59	
Brissen, G.	16	11	49		31	63	
Daviault, P.	16	11	72		19		
Henry, F.	16	10	46		20	56	
Monforton, N.	16	10	53		19	57	
Gagnon, J.	16	9	45		13	51	
Laframboise, A.	16	9	64		21	66	
Patenaude, R.	16	7	54		19	66	
Villeneuve, A.	16	7	35		24	50	
Lafleur, J.	16	6	26		14	55	
Villeneuve, P.	16	6	41		10	61	
Bertrand, E.	16	4	46		13	47	
Hurtubise, F.	16	4	47		13	61	
Allen, P.	16	2	55		23	60	
Boyle, D.	16	0	45		20	59	
Coderre, P.	15	11	52		27	59	
Genest, P.	15	8	38		13	46	
Colonnier, M.	15	7	51		5	62	
Gratton, H.	15	3	55		5	55	
Rouleau, P.	15	2	42		9	41	

TESTS D'APTITUDE MECANIQUE STENOQUIST-OTTAWA, 4B Univ. O.

Noms	Age		Test I			Test II	
			Résultat	Norme	Exp.	Résultat	Norme
Poisson, J.D.	21	4	54		12	53	
Lécuyer, A.	20	1	43		22	32	
Côté, P.	19	11	44		14	53	
Courval, H.	19	7	64		6	51	
Larouche, R.	19	6			-	71	
Lalonde, P.	19	6	73		22	64	
Larouche, P.	17	11	65		4	49	
Smith, R.	17	11	65		7	63	
Dumont, G.	17	8	43		3	50	
Veilleux, R.	17	8	50		13	53	
Angotte, M.	17	7	56		21	51	
Germain, P.	17	6	38		11	65	
Arhambault, J.-P.	17	2	70		15	70	
Mercure, L.	16	8	43		15	60	
Pepin, D.	16	6	43		2	60	
Denis, G.	16	5	76		25	60	
Laurin, J.	16	5	42		17	53	
Parent, L.	16	5	56		21	70	
Beily, R.	16	0	49		10	56	
Caron, P.	15	11	55		20	60	
Desjardins, D.	15	10	52		18	66	
Fertin, R.	15	2	46		25	58	

TEST D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 6^e année, école Larocque

Noms	Age	Résultat	Test I		Test II	
			Norme	Expér.	Résultat	Norme
Groulx, L.	15 7	44				
Sylvestre, G.	15 7	30		12		
Dubois, A.	15 4	58		29		
Sioui, R.	15 4	42				
Henley, L.P.	15 3	29		4		
Beaudoin, R.	15 1	31				
Belley, M.	15 0	31				
Bilodeau, E.	15 0	59		15		
Briand, A.	15 0	54		9		
Charron, B.	15 0	33				
Doran, R.	14 11	55		16		
Gauthier, J.P.	14 9	35				
Lebeau, E.	14 9	50		10		
Lefebvre, G.	14 9	30		4		
Verner, Y.	14 9	28		15		
Barrette, A.	14 8	30		12		
Charron, R.	14 8	43		15		
Leblanc, M.	14 8	29		15		
Lefebvre, J.-P.	14 8	40		28		
Brisebois, G.	14 6	41		18		
Aubin, G.	14 5	23		14		
Chénier, R.	14 4	31				
Rodier, R.	14 4	31		17		
Charron, J.-P.	14 2	29		12		
Levergneux, J.-C.	14 2	51				
McKinnon, R.	14 2	53		7		
Amyot, J.	14 1	41				
Baizana, G.	14 0	25				
Comeau, A.	14 0	40		14		
Durant, R.	14 0	25		20		
Girard, M.	13 10	43				
Lamoureux, D.	13 10	15				
Verner, G.	13 10	45				
Deslauniers	13 9	39		19		
Trépanier, H.	13 9	33		2		
Gingras, R.	13 8	39		13		
Lapointe, B.	13 8	22				
Tremblay, P.	13 7	46		28		
Bisson, R.	13 6	32				
Amyot, C.	13 5	53		2		
Beauparlant, J.-P.	13 5	46				
Chénier, B.	13 5	31				
St-Louis, B.	13 5	28		11		
Berthelotte, A.	13 2	35				
Fournier, G.	13 2	32				
Beaudry, M.	13 0	40				
Mercier, R.	13 0	23		2		
Séguin, R.	13 0	40				

Ecole Larocque, 6e année (suite)

Noms	Age		Test I			Test II	
			Résultat	Norme	Exp.	Résultat	Norme
Berthelotte, J.	12	11	27		8		
Chrétien, J.	12	11	49		12		
Gravelle, E.	12	11	39				
Labelle, J.C.	12	11	32		29		
Roy, R.	12	11	58				
Parker, E.	12	10	40		13		
Guindon, R.	12	9	30		12		
Gunville, R.	12	8	40				
Savard, E.	12	7	32		16		
St Amour, C.	12	7	26		12		
Cousineau, M.	12	6	42		18		
Laurin, R.	12	6	38		18		
Thibault, J.P.	12	6	67				
Leblanc, G.	12	5	43				
Fleury	12	4	38		14		
Richer, L.	12	4	27		18		
Danis, G.	12	3	58		15		
Meilleur, R.	12	3	33		17		
Latulippe, Y.	12	2	46				
Trépanier, E.	12	2	3		13		
Lupien, M.	12	1	30				
Doran, C.	12	0	29				
Gauthier, F.	12	0	34				
Gervais, J.	12	0	39				
Waters, G.	12	0	35		16		
Blanchette, J.-G.	11	11	51				
McMartin, J.	11	11	41				
Parent, J.	11	11	35				
Brissette, M.	11	10	34				
Legault, C.	11	9	36				
Fortin, R.	11	8	39		13		
Régimbald, G.	11	6	23		7		
Dupuis, F.	11	5	38				
Vanasse, C.	11	2	51		13		
Duquette, O.	11	0	31				
Larose, M.	11	0	40		9		
Lalonde, M.	10	11	39				

TESTS D'APTITUDE MECANIQUE STENQUIST -OTTAWA, 7e année Ecole Larocque

Noms	Age		Résultat	Test I		Test II	
				Norme	Exp.	Résultat	Norme
Loyer, G.	18	7	55		4		
Trempe, P.-E.	16	3	62		23		
Lefebvre, R.	16	2	48		22		
Girard, L.	15	7	48		8		
Amyot, L.	15	5	49		25		
Clairmont, R.	15	4	45		8		
Cléroux, G.	15	2	44		14		
Lafrance, M.	14	11	35				
Lapalme, G.	14	11	56		17		
Mainville, B.	14	11	61		20		
Lacombe, J.-M.	14	9	45		20		
Desjardins, J.	14	7	59		22		
Gervais, R.	14	5	54		20		
Miron, A.	14	5	33		16		
Normand, F.	14	5	35		8		
Girard, R.	14	4	58		19		
St Amour, G.	14	3	37		25		
Gunville, R.	14	1	36		8		
Guindon, R.	14	0	51				
Beaudoin, R.	13	11	55		14		
Meilleur, M.	13	11	43		15		
Morissette, J.	13	11	39		2		
Tellier, R.	13	11	40		14		
Berry, R.	13	10	45		12		
Bertrand, J.-L.	13	9	40		12		
Deslauriers, R.	13	9	34				
Lavigne, G.	13	9	41		18		
Roger, A.	13	9	35		21		
Régimbal, A.	13	8	40		15		
Charlebois, J.-G.	13	7	32		3		
Paquette, A.	13	5	55		22		
Ricard, A.J.	13	5	71				
Lebeau, L.	13	3	36		19		
Desjardins, Y.	13	2	29		11		
Dériger, G.	13	1	43		21		
Mongeon, R.	13	1	2		17		
Potvin, J.-G.	13	1	32		16		
Parent, J.-L.	13	0	33		2		
Labrecque, J.-L.	12	11	51		34		
Touchette, P.	12	10	30		16		
Michaud, M.	12	9	36		15		
Poulin, P.	12	9	44		11		
Bertrand, F.	12	7	53		19		
Langevin, J.H.	12	7	28		8		
Séguin, R.	12	7	32		8		
Lafleur, P.-E.	12	6	47		15		
Régimbald, L.	12	6	34		15		
Salvail, N.	12	6	50				
Paquette, G.	11	6	58		14		

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 8e année, Ecole Larocque

Noms	Age		Test I			Test II	
			Résultat	Norme	Exp.	Résultat	Norme
Lebeau, M.	16	4	48		14		
Demers, P.	16	1	40				
Lagacé, R.	16	1	73		21		
Carrière, R.	15	11	49		10		
Cusson,	15	11	37				
Hélie, F.	15	10	47				
Dériger, P.	15	10	49		25		
Beauparlant, B.	15	9	65		20		
Presseau, B.	15	8	42		6		
Beaudoin, J.-L.	15	5	39		18		
Picard, Y.	15	4	38				
Dompierre, R.	15	3	43		26		
Beaudin, E.	15	2	33		14		
Bergeron, R.	15	1	46		19		
Bégin, J.G.	14	11	50		3		
Blais, Royal	14	11	45		21		
Lacasse, L.	14	10	30				
Séguin, R.	14	10	38				
Presseau, M.	14	9	44				
Simard, J.	14	9	46				
Laframboise, J.-P.	14	8	36				
Bédard, G.	14	7	39		21		
Châteauvert, J.	14	7	52		15		
Huchon, C.	14	7	41				
Laflamme, J.	14	7	38		27		
Larche, J.G.	14	7	39		11		
Légaré, J.D.	14	7	43		18		
Gariépy, A.	14	6	63				
Charron, J.-C.	14	2	29				
Fournier, C.	14	1	39				
Laurin, A.	14	1	41		18		
Berniquez, E.	13	11	32				
Hélie, J.	13	10	52		9		
Nadon, C.	13	7	37		11		
Tessier, G.	13	7	42		13		
Séguin, P.E.	13	6	34				
Brissette, B.	13	5	62				

TESTS D'APTITUDE MECANIQUE UL STEER, U. ST-OTTAWA, 9e année Ecole Larocque

Noms	Age		Test I		Exp.	Test II	
			Résultat	Norme		Résultat	Norme
Rainville, J.R.	17	5	57		27		
Simoneau, R.	17	5	40		13		
Blais, B.	16	11	30		26		
Gavard, R.	16	5	52		27		
Galarneau, A.	16	5	42		12		
Rey, G.	16	2	62		26		
Monette, L.	15	11	50		26		
Régimbal, M.	15	11	35		17		
Tessier, M.	15	11	44				
Godmaire, A.	15	10	37		20		
Monette, J.B.	15	6	49		17		
Desjardins, J.-A.	15	2	38		19		
Rey, E.	15	1	44		14		
Tessier, A.	14	11	47		22		
Brissette, A.	14	10	45		18		
Roger, R.	14	10	50		18		
Bonneville, M.	14	9	36		8		
Madon, J.	14	8	31		18		
Denis, L.	14	6	41		11		
Lacasse, M.	14	6	41		17		
Schryer, M.	14	3	49		22		

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 9e année Ecole Larocque

Noms	Age		Test I			Test II	
			Résultat	Norme	Exp.	Résultat	Norme
Rainville, J.R.	17	5	57		27		
Simoneau, R.	17	5	40		13		
Blais, B.	16	11	30		26		
Gavard, R.	16	5	52		27		
Galarneau, A.	16	5	42		12		
Roy, G.	16	2	62		26		
Monette, L.	15	11	50		26		
Régimbal, M.	15	11	35		17		
Tessier, M.	15	11	44				
Godmaire, A.	15	10	37		20		
Monette, J.B.	15	6	49		17		
Desjardins, J.-A.	15	2	38		19		
Roy, E.	15	1	44		14		
Tessier, A.	14	11	47		22		
Brissette, A.	14	10	45		18		
Roger, R.	14	10	50		18		
Bonneville, M.	14	9	36		8		
Nadon, J.	14	8	31		18		
Denis, L.	14	6	41		11		
Lacasse, M.	14	6	41		17		
Schryer, M.	14	3	49		22		

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 8e année, Ecole Larocque

Noms	Age		Test I			Test II	
			Résultat	Norme	Exp.	Résultat	Norme
Lebeau, M.	16	4	48		14		
Daners, P.	16	1	40				
Lagacé, R.	16	1	73		21		
Carrière, R.	15	11	49		10		
Cusson,	15	11	37				
Hélie, P.	15	10	47				
Dériger, P.	15	10	49		25		
Beauparlant, B.	15	9	65		20		
Presseau, B.	15	8	42		6		
Beaudoin, J.-L.	15	5	39		18		
Pitard, Y.	15	4	38				
Dompierre, R.	15	3	43		26		
Beaudin, E.	15	2	33		14		
Bergeron, R.	15	1	46		19		
Bégin, J.G.	14	11	50		3		
Blais, Royal	14	11	45		21		
Lacasse, L.	14	10	30				
Séguin, R.	14	10	38				
Presseau, M.	14	9	44				
Simard, J.	14	9	46				
Laframboise, J.-P.	14	8	36				
Bédard, G.	14	7	39		21		
Châteauevert, J.	14	7	52		15		
Hachon, C.	14	7	41				
Lafamme, J.	14	7	38		27		
Larche, J.G.	14	7	39		11		
Légard, J.D.	14	7	43		18		
Gariépy, A.	14	6	63				
Charron, J.-C.	14	2	29				
Fournier, C.	14	1	39				
Laurin, A.	14	1	41		18		
Berniquez, E.	13	11	32				
Hélie, J.	13	10	52		9		
Nadon, C.	13	7	37		11		
Tessier, G.	13	7	42		13		
Séguin, P.E.	13	6	34				
Brissette, B.	13	5	62				

TESTS D'APTITUDE MECANIQUE STENQUIST -OTTAWA, 7e année Ecole Larocque

Noms	Age		Test I		Exp.	Test II	
			Résultat	Norme		Résultat	Norme
Loyer, G.	18	7	55		4		
Trempe, P.-E.	16	5	52		23		
Lefebvre, R.	16	2	48		22		
Girard, L.	15	7	48		8		
Amyot, L.	15	5	49		25		
Clairmont, R.	15	4	45		6		
Cléroux, G.	15	2	44		14		
Lafrance, M.	14	11	35				
Lapalme, G.	14	11	56		17		
Mainville, B..	14	11	61		20		
Lacombe, J.-M.	14	9	45		20		
Desjardins, J.	14	7	59		22		
Gervais, R.	14	5	54		20		
Miron, A.	14	5	33		16		
Normand, F.	14	5	35		8		
Girard, R.	14	4	58		19		
St Amour, G.	14	3	37		25		
Gunville, R.	14	1	36		8		
Guindon, R.	14	0	51				
Beaudoin, R.	13	11	55		14		
Meilleur, M.	13	11	43		15		
Morissette, J.	13	11	39		2		
Tellier, R.	13	11	40		14		
Berry, R.	13	10	45		12		
Bertrand, J.-L.	13	9	40		12		
Deslauriers, R.	13	9	34				
Lavigne, G.	13	9	41		18		
Roger, A.	13	9	35		21		
Régimbal, A.	13	8	40		15		
Charlebois, J.-G.	13	7	32		5		
Paquette, A.	13	5	55		22		
Ricard, A.J.	13	5	71				
Lebeau, L.	13	3	36		19		
Desjardins, Y.	13	2	29		11		
Dériger, G.	13	1	43		21		
Mongeon, R.	13	1	2		17		
Potvin, J.-G.	13	1	32		16		
Parent, J.-L.	13	0	33		2		
Labrecque, J.-L.	12	11	51		34		
Touchette, P.	12	10	30		16		
Michaud, M.	12	9	36		15		
Poulin, P.	12	9	44		11		
Bertrand, F.	12	7	53		19		
Langevin, J.H.	12	7	28		8		
Séguin, R.	12	7	32		8		
Lafleur, P.-E.	12	6	47		15		
Régimbald, L.	12	6	34		15		
Salvail, N.	12	6	50				
Paquette, G.	11	6	58		14		

TEST D'APTITUDE MECANIQUE STENQUIST-OTTAWA, 6^e année, école Larocque

Noms	Age		Résultat	Test I		Test II	
				Norme	Expér.	Résultat	Norme
Groulx, L.	15	7	44				
Sylvestre, G.	15	7	30		12		
Dubois, A.	15	4	58		29		
Sioui, R.	15	4	42				
Henley, L.P.	15	3	29		4		
Beaudoin, R.	15	1	31				
Belley, M.	15	0	31				
Bilodeau, E.	15	0	59		15		
Briand, A.	15	0	54		9		
Charron, B.	15	0	33				
Doran, R.	14	11	55		16		
Gauthier, J.P.	14	9	35				
Lebeau, E.	14	9	50		10		
Lefebvre, G.	14	9	30		4		
Verner, Y.	14	9	28		15		
Barrette, A.	14	8	30		12		
Charron, R.	14	8	43		15		
Leblanc, M.	14	8	29		15		
Lefebvre, J.-P.	14	8	40		26		
Brisebois, G.	14	6	41		18		
Aubin, G.	14	5	23		14		
Chénier, R.	14	4	31				
Rodier, R.	14	4	31		17		
Charron, J.-P.	14	2	29		12		
Levergneux, J.-C.	14	2	51				
McKinnon, R.	14	2	53		7		
Amyot, J.	14	1	41				
Baizana, G.	14	0	25				
Comeau, A.	14	0	40		14		
Durant, R.	14	0	25		20		
Girard, M.	13	10	43				
Lemoureux, D.	13	10	15				
Verner, G.	13	10	45				
Deslauriers	13	9	39		19		
Trépanier, H.	13	9	33		2		
Gingras, R.	13	8	39		13		
Lapointe, B.	13	8	22				
Tremblay, P.	13	7	46		28		
Bisson, R.	13	6	32				
Amyot, C.	13	5	53		2		
Beauparlant, J.-P.	13	5	46				
Chénier, B.	13	5	31				
St-Louis, B.	13	5	28		11		
Berthelotte, A.	13	2	35				
Fournier, G.	13	2	32				
Beaudry, M.	13	0	40				
Mercier, R.	13	0	25		2		
Séguin, R.	13	0	40				

Ecole Larocque, 6e année (suite)

Noms	Age		Test I		Exp.	Test II	
			Résultat	Norme		Résultat	Norme
Berthelotto, J.	12	11	27		8		
Chrétien, J.	12	11	49		12		
Gravelle, E.	12	11	39				
Labelle, J.C.	12	11	32		29		
Roy, R.	12	11	58				
Parker, E.	12	10	40		15		
Guindon, R.	12	9	30		12		
Gunville, R.	12	8	40				
Savard, E.	12	7	52		16		
St Amour, C.	12	7	26		12		
Cousineau, . .	12	6	42		18		
Laurin, R.	12	6	38		18		
Thibault, J.P.	12	6	67				
Leblanc, G.	12	5	45				
Fleury	12	4	58		14		
Richer, L.	12	4	27		18		
Danis, G.	12	3	58		15		
Meilleur, R.	12	3	33		17		
Latulippe, Y.	12	2	46				
Trépanier, E.	12	2	5		15		
Lupien, M.	12	1	30				
Doran, C.	12	0	29				
Gauthier, F.	12	0	34				
Gervais, J.	12	0	39				
Waters, G.	12	0	35		16		
Blanchette, J.-G.	11	11	51				
McMartin, J.	11	11	41				
Parent, J.	11	11	55				
Brissette, M.	11	10	34				
Legault, C.	11	9	36				
Fortin, R.	11	8	39		15		
Régimbald, G.	11	6	23		7		
Dupuis, F.	11	5	38				
Vanasse, C.	11	3	51		15		
Duquette, O.	11	0	31				
Larose, M.	11	0	40		9		
Lalonde, M.	10	11	39				

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-Charles
6e année

Noms	Age		Test I		Exp.	Test II	
			Résultat	Norme		Résultat	Norme
Smith, L.	14	5	----		----	39	
Beauséjour, J.	12	9	15		17	14	
Laurin, R.	12	4	25		22	35	
Lusignan, R.	12	1	31		26	27	
Charron, A.	11	9	36		11	28	
Parent, J.-G.	11	9	23		17	10	
Desjardins, G.	11	8	24		23	17	
Boivin, R.	11	4	30		21	38	
Barnabé, M.	11	2	25		35	30	
Gravel, J.-P.	11	2	29		16	25	
Pépin, R.	11	2	26		21	25	
Gauvreau, G.	10	11	27		20	18	
Trépanier, J.M.	10	11	20		21	20	
Bonin, P.	10	1	24		28	26	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-Charles
7e année

Noms	Age		Test I			Test II	
			Résultat	Norme	Exp.	Résultat	Norme
Beauchamp, R.	15	10	58		---	---	
Legault, M.	15	5	32		16	30	
Courville, R.	15	1	42		29	45	
Tessier, R.	14	8	51		20	41	
Richer, S.	14	7	52		18	63	
Charbonneau, J.	14	4	38		16	25	
Larocque, J.P.	14	4	35		18	35	
Ouellette, J.	14	3	47		15	38	
Thibault, P.-E.	14	3	--		--	32	
Monette, J.-P.	14	2	42		25	38	
Laurin, M.	14	1	38		16	49	
Dagenais, J.	14	0	55		10	37	
Laviolette, J.-N.	14	0	37		24	51	
Brault, J.	13	11	47		15	47	
Lacroix, E.	13	11	48		17	30	
Dagenais, G.	13	10	40		14	47	
Jetté, A.	13	9	53		17	51	
Richer, F.	13	8	40		15	36	
Dubois, R.	13	7	47		19	30	
Jolicoeur, G.	13	6	42		15	53	
Corriveau, G.	13	4	56		28	53	
Gravel, R.	13	3	50		27	34	
Couvillon, H.	13	2	39		23	39	
Valiquette, P.	13	2	35		10	25	
Charron, L.P.	12	11	48		13	39	
Gagnon, R.	12	11	42		21	34	
Lafleur, J.	12	9	37		16	33	
Maisonnette, M.	12	9	35		19	36	
Pelletier, P.	12	5	37		21	35	
Vézina, R.	12	5	29		17	36	
Hotte, L.	12	4	35		7	47	
Gauthier, M.	12	0	34		6	33	
Rodier, G.	11	11	45		29	53	
Sincennes, C.	11	11	44		24	41	
St Amand, A.	11	8	37		22	38	
Séguin, C.	11	5	33		23	28	
Meloche, G.	11	4	30		23	28	
Vallée, R.	11	3	46		22	36	
Richard, J.	10	10	45		21	24	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-Charles
8e année

Noms	Age		Test I		Expér.	Test II	
			Résultat	Norme		Résultat	Norme
Jetté, A.	15	6	52		18	53	
Grégoire, R.	15	3	63		31	56	
Martel, R.	15	2	39		19	41	
Cousineau, J.M.	14	8	69		9	49	
Beauséjour, G.	14	6	45		27	27	
Marleau, R.	14	6	54		14	57	
Legault, R.	14	5	67		19	--	
Thérien, P.	14	5	41		17	42	
Breton, M.	14	1	37		18	48	
Hupé, G.	14	1	41		6	31	
Lizotte, R.	14	1	60		26	49	
Ethier, G.	14	0	37		15	46	
Leblanc, M.	13	11	38		17	44	
Robineault, J.M.	13	10	38		21	42	
Bissonette, V.	13	5	38		27	47	
Charbonneau, W.	13	5	44		7	37	
Robillard, G.	13	2	36		20	39	
Asselin, R.	13	0	45		13	53	
Beauchamp, G.	12	11	40		9	48	
Drouin, J.	12	11	59		17	53	
Latour, R.	12	11	23		21	29	
Cousineau, R.	12	10	53		17	46	
Marleau, G.	12	9	48		19	46	
Guilbault, R.	12	6	51		24	42	
Foisy, J.	12	5	36		13	40	
Liston, A.	12	4	42		16	50	
Drouin, A.	11	11	31		6	37	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA

Ecole Genest
6e année

Noms	Age		Test I			Test II	
			Résultat	Norme	Exp.	Résultat	Norme
Morier, R.	16	2	26		17	34	
St Amour, E.	15	5	45		24	58	
Dagenais, R.	15	1	42		32	49	
Champagne, R.	14	11	--		--	46	
Vallée, G.	14	10	33		17	26	
Groleau, M.	14	9	48		14	--	
Whissell, R.	14	8	28		23	47	
Paquette, A.	14	7	37		16	45	
Roussy, M.	14	6	34		24	28	
Gravel, R.	14	4	--		--	29	
Robillard, R.	14	4	41		28	37	
Bériault, C.	14	2	44		34	39	
Séguin, R.	14	1	33		22	20	
Gravelle, M.	14	0	29		18	17	
Hackey, A.	13	8	52		29	36	
Gagnon, R.	13	7	56		33	49	
Portugaise, J.M.	12	10	24		24	33	
Côté, M.	12	7	34		36	--	
Richer, H.	12	7	39		26	43	
Gagné, J.	12	2	22		13	34	
Charbonneau, G.	12	0	26		23	35	
Gravelle, A.	12	0	24		14	31	
Charbonneau, A.	11	11	29		15	31	
Chartrand, M.	11	9	32		24	43	
Dubé, F.	11	9	37		28	48	
Larivière, J.	11	8	35		20	38	
Houison, G.	11	5	23		18	35	
Valiquette, M.	11	4	20		21	24	
Portugaise,	11	3	25		18	23	
Dupuis, R.	11	2	36		22	44	
Marleau, R.	10	11	17		15	30	
Léveillé, J.L.	10	10	40		27	49	
Demers, R.	10	5	29		20	33	
Tissot, G.	10	4	29		20	45	
Brunette, A.	10	0	29		18	19	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-François
6e année

Noms	Age		TEST I		Exp.	TEST II	
			Résultat	Norme		Résultat	Norme
Dinelle, L.	14	4	29		14	22	
Villeneuve, A.	14	4	----		----	47	
Dostaler, G.	14	2	37		22	----	
Tremblay, A.	14	2	34		7	37	
Aspeck, R.	13	10	27		11	34	
Soublière, A.	13	7	32		4	30	
Boileau, P.	13	5	50		5	34	
Tessier, M.	13	3	74		16	46	
Renaud, B.	13	1	26		10	----	
Villeneuve, A.	13	0	47		5	40	
Charbonneau, N.	12	7	35		2	28	
Sauvé, M.	12	7	39		5	----	
Diotte, L.	12	4	30		7	20	
Ouellette, R.	12	4	29		17	----	
Lanctôt, G.	12	3	36		15	25	
Poirier, C.	12	2	29		14	40	
Boileau, G.	12	1	33		11	38	
Denis, D.	12	1	42		6	26	
Nadeau, G.	11	11	4		----	22	
Proulx, R.	11	10	29		11	35	
Trempe, A.	11	10	39		4	31	
Chartrand, R.	11	9	26		3	27	
Desroches, G.	11	9	40		6	28	
Goderre, R.	11	9	31		5	35	
Mitchell, D.	11	8	39		2	44	
Norris, P.	11	8	44		16	32	
Brazeau, R.	11	5	27		8	25	
Potvin, E.	11	5	33		20	37	
Sauvé, E.	11	3	----		----	34	
Léger, R.	11	1	37		9	29	
Marion, J.G.	10	11	41		3	35	
Berlinguette, R.	10	5	30		10	34	

Norman, G.	12	5	38	6	32
Fox, J.P.	12	4	31	9	42
Clairoux, J.	12	3	40	6	38
Berlinguette, G.	12	1	44	12	52
Dupuis, R.	12	1	43	8	40
Tardif, P.	10	3	35	8	40

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-François
7e année

Noms	Age	Test I			Test II	
		Résultat	Norme	Exp.	Résultat	Norme
Charette, P.	15 11	61		--	53	
Major, L.	15 9	40		13	--	
Beauchamp, G.	15 1	50		8	33	
McNally, E.	15 1	41		--	44	
Murray, M.	15 0	65		26	48	
Martel, L.	14 11	49		2	41	
Rousson, R.	14 11	57		14	51	
Clermont, B.	14 10	39		--	37	
Clermont, C.	14 9	50		13	49	
Leclair, M.	14 9	29		9	35	
Longchamp, K.	14 9	52		9	44	
Dionne, M.	14 8	38		6	53	
Bonenfant, D.	14 7	37		6	31	
Rochon, R.	14 7	46		20	39	
Parsons, R.	14 6	59		8	38	
Dinelle, L.	14 4	36		6	40	
LeBrun, E.	14 4	48		8	39	
Diotte, R.	14 2	42		2	47	
Levac, A.	14 1	43		9	39	
Trottier, R.	14 0	36		6	41	
Sarazin, R.	13 11	48		14	42	
Bédard, R.	13 10	47		8	35	
Labonté, R.	13 10	42		7	45	
Nault, G.	13 10	47		5	43	
Pomminville, R.	13 9	37		3	20	
Laflamme, R.	13 9	41		6	40	
Duford, J.	13 8	37		10	29	
Duford, P.	13 8	33		7	50	
Potvin, R.	13 8	48		19	46	
Chéné, D.	13 5	30		12	46	
Lessard, G.	13 5	45		9	42	
Bertrand, J.J.	13 4	32		8	30	
Labrecque, A.	13 3	38		7	28	
Houle, L.	13 2	55		10	58	
Trépanier, G.	13 2	51		6	32	
Jodoin, V.	13 1	33		14	40	
Speer, N.	13 1	45		6	51	
Chatelain, R.	13 0	35		2	45	
Joanisse, R.	13 0	35		8	35	
Vachon, J.P.	13 0	53		6	20	
Viau, M.	13 0	49		--	43	
Wallace, P.	13 0	39		6	29	
LeBrun, M.	12 11	37		8	38	
St.Denis, V.	12 11	34		8	37	
Vanasse, R.	12 11	45		9	36	
De la Durantaye	12 10	40		5	31	
Hill, R.	12 10	31		8	46	
Blair, S.	12 9	43		15	43	
St Laurent, B.	12 9	36		9	18	
Bonenfant, R.	12 8	43		10	34	
Sarazin, R.	12 7	51		11	54	
Lévesque, L.	12 6	45		12	40	
Grenon, G.	12 5	46		0	42	
Jodoin, R.	12 5	44		5	44	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-François
8e année

Noms	Age	Test I		Exp.	Test II	
		Résultat	Norme		Résultat	Norme
Ouellette, E.	16 1				42	
Régimbald, G.	16 1	46		18	46	
Leduc, R.	15 11	51		24	36	
Robillard, R.	15 11	58		13	42	
Doré, R.	15 10	45		22	43	
Tremblay, D.	15 9	61		12	42	
McSorley, R.	15 8	28		14	--	
Beauchamp, R.	15 7	45		10	42	
Pomminville, G.	15 7	34		16	26	
Charron, G.R.	15 5	44		20	32	
Levac, W.	15 4	60		13	42	
Laflamme, J.P.	15 2	46		12	44	
Séguin, B.	15 2	46		18	39	
Villeneuve, A.	15 1	32		5	34	
Prudhomme, E.	15 0	64		17	42	
Cyr, G.	14 11	53		21	52	
De la Durantaye, J.	14 11	44		6	32	
Lafontaine, L.	14 11	63		21	50	
Deslauriers, M.	14 10	41		8	47	
Sarazin, H.	14 10	73		18	44	
Doré, G.	14 9	40		2	33	
Lepage, R.	14 7	30		4	34	
Marois, R.	14 6	32		12	36	
Mercier, R.	14 3	40		7	21	
Sauvé, E.	14 2	37		16	34	
Stafford, M.	14 1	--		--	24	
St-Laurent, R.	14 0	36		26	42	
Nadeau, F.	13 11	34		16	36	
Tourangeau, R.	13 11	44		10	50	
Albert, C.	13 10	42		12	35	
Boivin, R.	13 7	39		13	47	
Chassé, R.	13 7	--		--	42	
Simard, A.	13 7	37		14	34	
Touchette, E.	13 7	35		14	42	
Forget, D.	13 5	34		17	31	
Leduc, A.	13 5	37		3	--	
Pitre, J.G.	13 5	30		5	28	
Pitre, J.M.	13 5	29		10	48	
Guilbeault, A.	13 4	36		8	29	
Gatineau, R.	12 2	45		4	38	
Sigouin, G.	13 2	30		11	26	
Lavergne, V.	13 1	28		--	22	
Leroux, H.	12 5	38		6	48	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-François
9e année

Noms	Age		Test I		Exp.	Test II	
			Résultat	Norme		Résultat	Norme
Sabourin, M.	16	0	47		16	50	
Denis, J.G.	15	7	64		17	57	
LeBrun, R.	15	7	66		--	58	
Tremblay, R.	15	3	41		26	61	
Vachon, J.P.	15	2	32		8	--	
Calvari, G.	15	0	46		--	51	
Laframboise, L.	15	0	51		7	53	
Lebeau, R.	14	11	56		--	52	
Dugas, R.	14	8	38		9	40	
Charette, R.	14	7	49		9	52	
St Denis, P.E.	14	2	51		14	49	
MacDonald, I.	13	11	58		22	54	
Bédard, P.E.	13	9	56		20	51	
Parent, P.	13	7	50		18	56	
Mitchell, G.	12	6	37		13	51	
Nezan, J.C.	12	5	48		20	62	
Bédard, H.	11	11	52		12	44	

Ecole St-François
10e année

Lamothe, G.	16	7	42		14	52	
Beauchamp, R.	15	7	37		20	51	
Pagé, R.	15	5	52		18	56	
Vachon, J.P.	15	3	--		--	41	
Bray, G.	14	4	56		28	56	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-François
11e année

Noms	Age	Test I		Exp.	Test II	
		Résultat	Norme		Résultat	Norme
Vaillancourt, G.	18 6	54		--	61	
Verdon, G.	17 11	46		20	62	
Larocque, M.	17 8	69		26	66	
Tessier, J.	17 2	58		25	50	
Carr, E.	17 0	48		19	45	
Saumur, L.	16 10	52		13	61	
Legault, R.	16 4	46		14	46	
Mercier, R.	16 2	43		16	53	
Bellefeuille, R.	16 1	55		26	60	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole Montfort
8e année

Noms	Age	Test I		Exp.	Test II	
		Résultat	Norme		Résultat	Norme
Potvin, J.	16 11	47		22	38	
Richard, P.	16 11	15		6	26	
Carisse, R.	16 3	51		18	23	
Rinfret, R.	16 3	59		31	41	
Legault, R.	16 1	46		10	40	
Leduc, L.	15 11	73		18	56	
Diotte, P.	15 9	37		9	33	
Dumoulin, M.	15 8	50		21	53	
Bussière, R.	15 3	42		22	--	
Dubé, J.M.	15 3	38		21	--	
Auger, G.	15 2	36		23	50	
Picotte, L.	15 1	37		23	47	
Carrière, M.	14 11	38		16	28	
De la Salle, J.G.	14 11	34		16	33	
Pitre, L.	14 11	67		33	46	
Potvin, M.	14 3	51		18	45	
Valiquette, N.	14 3	44		13	40	
Cyr, P.	14 2	30		13	40	
Sabourin, P.	13 8	41		30	44	
Morris, W.	13 7	39		20	40	
Lurette, G.	13 6	21		24	30	
Maheux, L.	13 5	62		13	55	
Veilleux, G.	13 5	49		10	36	
Bélair, E.	13 3	62		14	38	
Métivier, J.G.	13 3	51		16	54	
Vincent, R.	13 2	50		20	52	
Caron, A.	13 1	41		28	--	
Lavigne, M.	12 10	48		15	38	
Houle, A.H.	12 9	37		13	31	
Daoust, M.	12 8	--		--	44	
Labelle, J.P.	12 6	39		13	28	
Cléroux, A.	12 5	26		10	29	
Girouard, A.	12 5	50		--	34	
Goddard, P.	12 4	44		14	--	
Clairoux, S.	12 3	55		21	54	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole Montfort
9e année

Noms	Age	Test I		Exp.	Test II	
		Résultat	Norme		Résultat	Norme
Leduc, R.	17 10	57		23	60	
Brunette, R.	17 0	55		29	57	
Emard, E.	16 7	42		22	45	
Dumoulin, P.	16 4	--		--	39	
Beaulne, A.	15 11	54		24	45	
Goddard, F.	15 11	38		29	48	
Rose, R.	15 11	36		19	45	
Brunette, G.	15 4	47		18	52	
Côté, L.	15 4	38		14	30	
Leduc, D.	15 1	46		22	47	
Veilleux, L.	14 9	38		16	43	
Beauchamp, R.	14 8	55		24	59	
Caron, P.	14 7	38		15	42	
Beaudry, R.	14 4	63		37	63	
Deschamps, R.	13 8	26		16	41	
Perrier, G.	13 7	40		20	46	
Loshuk, M.	13 6	43		24	49	
Goddard, R.	13 5	32		6	37	
Pitre, M.	13 5	48		32	50	
Richard, R.	12 11	37		11	50	
Kipp, B.	12 5	46		10	46	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole Montfort
10e année

Noms	Age		Test I		Exp.	Test II	
			Résultat	Norme		Résultat	Norme
Léger, B.	17	4	47		12	28	
Grand'Maitre, J.P.	16	4	49		11	56	
Caron, M.	16	3	65		24	68	
Lafleur, J.J.	16	2	68		24	63	
Lanoue, M.	15	11	59		19	66	
Laviolette, G.	15	7	55		16	--	
Tousignant, R.	15	4	77		21	66	
Raymond, L.	15	2	53		19	50	
Sabourin, R.	14	11	51		16	57	
Desjardins, M.	14	9	55		24	66	
Cléroux, N.	14	7	63		23	61	
Bélanger, G.	14	6	40		18	46	
Nault, B.	14	2	42		4	54	
Brulé, B.	13	10	53		22	56	
Bégin, J.M.	13	4	48		5	59	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-Charles
6e année

Noms	Age	Test I			Test II	
		Résultat	Norme	Exp.	Résultat	Norme
Smith, L.	14 5	----		----	39	
Beauséjour, J.	12 9	15		17	14	
Laurin, R.	12 4	25		22	35	
Lusignan, R.	12 1	31		26	27	
Charron, A.	11 9	36		11	28	
Parent, J.-G.	11 9	23		17	10	
Desjardins, G.	11 8	24		23	17	
Boivin, R.	11 4	30		21	38	
Barnabé, M.	11 2	25		35	30	
Gravel, J.-P.	11 2	29		16	25	
Pépin, R.	11 2	26		21	25	
Gauvreau, G.	10 11	27		20	18	
Trépanier, J.M.	10 11	20		21	20	
Bonin, P.	10 1	24		28	26	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-Charles
7e année

Noms	Age		Test I			Test II	
			Résultat	Norme	Exp.	Résultat	Norme
Beauchamp, R.	15	10	58		---	---	
Legault, M.	15	5	32		16	30	
Courville, R.	15	1	42		29	45	
Tessier, R.	14	8	51		20	41	
Richer, S.	14	7	52		18	63	
Charbonneau, J.	14	4	38		16	25	
Larocque, J.P.	14	4	35		18	35	
Ouellette, J.	14	3	47		15	38	
Thibault, P.-E.	14	3	--		--	32	
Monette, J.-P.	14	2	42		25	38	
Laurin, M.	14	1	38		16	49	
Dagenais, J.	14	0	55		10	37	
Laviolette, J.-N.	14	0	37		24	51	
Brault, J.	13	11	47		15	47	
Lacroix, E.	13	11	48		17	30	
Dagenais, G.	13	10	40		14	47	
Jetté, A.	13	9	53		17	51	
Richer, F.	13	8	40		15	36	
Dubois, R.	13	7	47		19	30	
Jolicoeur, G.	13	6	42		15	53	
Corriveau, G.	13	4	56		28	53	
Gravel, R.	13	3	50		27	34	
Couvillon, H.	13	2	39		23	39	
Valiquette, P.	13	2	35		10	25	
Charron, L.P.	12	11	48		13	39	
Gagnon, R.	12	11	42		21	34	
Lafleur, J.	12	9	37		16	33	
Maisonnette, M.	12	9	35		19	36	
Pelletier, P.	12	5	37		21	35	
Vézina, R.	12	5	29		17	36	
Hotte, L.	12	4	35		7	47	
Gauthier, M.	12	0	34		6	33	
Rodier, G.	11	11	45		29	53	
Sincennes, C.	11	11	44		24	41	
St Amand, A.	11	8	37		22	38	
Séguin, C.	11	5	33		23	28	
Meloche, G.	11	4	30		23	28	
Vallée, R.	11	3	46		22	36	
Richard, J.	10	10	45		21	24	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-Charles
8e année

Noms	Age		Test I		Expér.	Test II	
			Résultat	Norme		Résultat	Norme
Jetté, A.	15	6	52		18	53	
Grégoire, R.	15	3	63		31	56	
Martel, R.	15	2	39		19	41	
Cousineau, J.M.	14	8	69		9	49	
Beauséjour, G.	14	6	45		27	27	
Marleau, R.	14	6	54		14	57	
Legault, R.	14	5	67		19	--	
Thérien, P.	14	5	41		17	42	
Breton, M.	14	1	37		18	48	
Hupé, G.	14	1	41		6	31	
Lizotte, R.	14	1	60		26	49	
Ethier, G.	14	0	37		15	46	
Leblanc, M.	13	11	38		17	44	
Robineault, J.M.	13	10	38		21	42	
Bissonette, V.	13	5	38		27	47	
Charbonneau, W.	13	5	44		7	37	
Robillard, G.	13	2	36		20	39	
Asselin, R.	13	0	45		13	53	
Beauchamp, G.	12	11	40		9	48	
Drouin, J.	12	11	59		17	53	
Latour, R.	12	11	23		21	29	
Cousineau, R.	12	10	53		17	46	
Marleau, G.	12	9	48		19	46	
Guilbault, R.	12	6	51		24	42	
Foisy, J.	12	5	36		13	40	
Liston, A.	12	4	42		16	50	
Drouin, A.	11	11	31		6	37	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA

Ecole Genest
6e année

Noms	Age		Test I		Exp.	Test II	
			Résultat	Norme		Résultat	Norme
Morier, R.	16	2	26		17	34	
St Amour, E.	15	5	45		24	58	
Dagenais, R.	15	1	42		32	49	
Champagne, R.	14	11	--		--	46	
Vallée, G.	14	10	33		17	26	
Groleau, M.	14	9	48		14	--	
Whissell, R.	14	8	28		23	47	
Paquette, A.	14	7	37		16	45	
Roussy, M.	14	6	34		24	28	
Gravel, R.	14	4	--		--	29	
Robillard, R.	14	4	41		28	37	
Bériault, C.	14	2	44		34	39	
Séguin, R.	14	1	33		22	20	
Gravelle, M.	14	0	29		18	17	
Hackey, A.	13	8	52		29	36	
Gagnon, R.	13	7	56		33	49	
Portugaise, J.M.	12	10	24		24	33	
Côté, M.	12	7	34		36	--	
Richer, H.	12	7	39		26	43	
Gagné, J.	12	2	22		13	34	
Charbonneau, G.	12	0	26		23	35	
Gravelle, A.	12	0	24		14	31	
Charbonneau, A.	11	11	29		15	31	
Chartrand, M.	11	9	32		24	43	
Dubé, F.	11	9	37		28	48	
Larivière, J.	11	8	35		20	38	
Houison, G.	11	5	23		18	35	
Valiquette, M.	11	4	20		21	24	
Portugaise,	11	3	25		18	23	
Dupuis, R.	11	2	36		22	44	
Marleau, R.	10	11	17		15	30	
Léveillé, J.L.	10	10	40		27	49	
Demers, R.	10	5	29		20	33	
Tissot, G.	10	4	29		20	45	
Brunette, A.	10	0	29		18	19	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-François
6e année

Noms	Age		TEST I		Exp.	TEST II	
			Résultat	Norme		Résultat	Norme
Dinelle, L.	14	4	29		14	22	
Villeneuve, A.	14	4	----		----	47	
Dostaler, G.	14	2	37		22	----	
Tremblay, A.	14	2	34		7	37	
Aspeck, R.	13	10	27		11	34	
Soublière, A.	13	7	32		4	30	
Boileau, P.	13	5	50		5	34	
Tessier, M.	13	3	74		16	46	
Renaud, B.	13	1	26		10	----	
Villeneuve, A.	13	0	47		5	40	
Charbonneau, N.	12	7	35		2	28	
Sauvé, M.	12	7	39		5	----	
Diotte, L.	12	4	30		7	20	
Ouellette, R.	12	4	29		17	----	
Lanctôt, G.	12	3	36		15	25	
Poirier, C.	12	2	29		14	40	
Boileau, G.	12	1	33		11	38	
Denis, D.	12	1	42		6	26	
Nadeau, G.	11	11	4		----	22	
Proulx, R.	11	10	29		11	35	
Trempe, A.	11	10	39		4	31	
Chartrand, R.	11	9	26		3	27	
Desroches, G.	11	9	40		6	28	
Goderre, R.	11	9	31		5	35	
Mitchell, D.	11	8	39		2	44	
Norris, P.	11	8	44		16	32	
Brazeau, R.	11	5	27		8	25	
Potvin, E.	11	5	33		20	37	
Sauvé, E.	11	3	----		----	34	
Léger, R.	11	1	37		9	29	
Marion, J.G.	10	11	41		3	35	
Berlinguette, R.	10	5	30		10	34	

Norman, G.	12	5	38	6	32
Fox, J.P.	12	4	31	9	42
Clairoux, J.	12	3	40	6	38
Berlinguette, G.	12	1	44	12	52
Dupuis, R.	12	1	43	8	40
Tardif, P.	10	3	35	8	40

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-François
7e année

Noms	Age	Test I			Test II	
		Résultat	Norme	Exp.	Résultat	Norme
Charette, P.	15 11	61		--	53	
Major, L.	15 9	40		13	--	
Beauchamp, G.	15 1	50		8	33	
McNally, E.	15 1	41		--	44	
Murray, M.	15 0	65		26	48	
Martel, L.	14 11	49		2	41	
Rousson, R.	14 11	57		14	51	
Clermont, B.	14 10	39		--	37	
Clermont, C.	14 9	50		13	49	
Leclair, M.	14 9	29		9	35	
Longchamp, K.	14 9	52		9	44	
Dionne, M.	14 8	38		6	53	
Bonenfant, D.	14 7	37		6	31	
Rochon, R.	14 7	46		20	39	
Parsons, R.	14 6	59		8	38	
Dinelle, L.	14 4	36		6	40	
LeBrun, E.	14 4	48		8	39	
Diotte, R.	14 2	42		2	47	
Levac, A.	14 1	43		9	39	
Trottier, R.	14 0	36		6	41	
Sarazin, R.	13 11	48		14	42	
Bédard, R.	13 10	47		8	35	
Labonté, R.	13 10	42		7	45	
Nault, G.	13 10	47		5	43	
Pomminville, R.	13 9	37		3	20	
Laflamme, R.	13 9	41		6	40	
Duford, J.	13 8	37		10	29	
Duford, P.	13 8	33		7	50	
Potvin, R.	13 8	48		19	46	
Chéné, D.	13 5	30		12	46	
Lessard, G.	13 5	45		9	42	
Bertrand, J.J.	13 4	32		8	30	
Labrecque, A.	13 3	38		7	28	
Houle, L.	13 2	55		10	58	
Trépanier, G.	13 2	51		6	32	
Jodoin, V.	13 1	33		14	40	
Speer, N.	13 1	45		6	51	
Chatelain, R.	13 0	35		2	45	
Joanisse, R.	13 0	35		8	35	
Vachon, J.P.	13 0	53		6	20	
Viau, M.	13 0	49		--	43	
Wallace, P.	13 0	39		6	29	
LeBrun, M.	12 11	37		8	38	
St.Denis, V.	12 11	34		8	37	
Vanasse, R.	12 11	45		9	36	
De la Durantaye	12 10	40		5	31	
Hill, R.	12 10	31		8	46	
Blair, S.	12 9	43		15	43	
St Laurent, B.	12 9	36		9	18	
Bonenfant, R.	12 8	43		10	34	
Sarazin, R.	12 7	51		11	54	
Lévesque, L.	12 6	45		12	40	
Grenon, G.	12 5	46		0	42	
Jodoin, R.	12 5	44		5	44	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-François
8e année

Noms	Age	Test I		Exp.	Test II	
		Résultat	Norme		Résultat	Norme
Ouellette, E.	16 1				42	
Régimbald, G.	16 1	46		18	46	
Leduc, R.	15 11	51		24	36	
Robillard, R.	15 11	58		13	42	
Doré, R.	15 10	45		22	43	
Tremblay, D.	15 9	61		12	42	
McSorley, R.	15 8	28		14	--	
Beauchamp, R.	15 7	45		10	42	
Pomminville, G.	15 7	34		16	26	
Charron, G.R.	15 5	44		20	32	
Levac, W.	15 4	60		13	42	
Laflamme, J.P.	15 2	46		12	44	
Séguin, B.	15 2	46		18	39	
Villeneuve, A.	15 1	32		5	34	
Prudhomme, E.	15 0	64		17	42	
Cyr, G.	14 11	53		21	52	
De la Durantaye, J.	14 11	44		6	32	
Lafontaine, L.	14 11	63		21	50	
Deslauriers, M.	14 10	41		8	47	
Sarazin, H.	14 10	73		18	44	
Doré, G.	14 9	40		2	33	
Lepage, R.	14 7	30		4	34	
Marois, R.	14 6	32		12	36	
Mercier, R.	14 3	40		7	21	
Sauvé, E.	14 2	37		16	34	
Stafford, M.	14 1	--		--	24	
St-Laurent, R.	14 0	36		26	42	
Nadeau, F.	13 11	34		16	36	
Tourangeau, R.	13 11	44		10	50	
Albert, C.	13 10	42		12	35	
Boivin, R.	13 7	39		13	47	
Chassé, R.	13 7	--		--	42	
Simard, A.	13 7	37		14	34	
Touchette, E.	13 7	35		14	42	
Forget, D.	13 5	34		17	31	
Leduc, A.	13 5	37		3	--	
Pitre, J.G.	13 5	30		5	28	
Pitre, J.M.	13 5	29		10	48	
Guilbeault, A.	13 4	36		8	29	
Gatineau, R.	12 2	45		4	38	
Sigouin, G.	13 2	30		11	26	
Lavergne, V.	13 1	28		--	22	
Leroux, H.	12 5	38		6	48	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-François
9e année

Noms	Age		Test I		Exp.	Test II	
			Résultat	Norme		Résultat	Norme
Sabourin, M.	16	0	47		16	50	
Denis, J.G.	15	7	64		17	57	
LeBrun, R.	15	7	66		--	58	
Tremblay, R.	15	3	41		26	61	
Vachon, J.P.	15	2	32		8	--	
Calvari, G.	15	0	46		--	51	
Laframboise, L.	15	0	51		7	53	
Lebeau, R.	14	11	56		--	52	
Dugas, R.	14	8	38		9	40	
Charette, R.	14	7	49		9	52	
St Denis, P.E.	14	2	51		14	49	
MacDonald, I.	13	11	58		22	54	
Bédard, P.E.	13	9	56		20	51	
Parent, P.	13	7	50		18	56	
Mitchell, G.	12	6	37		13	51	
Nezan, J.C.	12	5	48		20	62	
Bédard, H.	11	11	52		12	44	

Ecole St-François
10e année

Lamothe, G.	16	7	42		14	52	
Beauchamp, R.	15	7	37		20	51	
Pagé, R.	15	5	52		18	56	
Vachon, J.P.	15	3	--		--	41	
Bray, G.	14	4	56		28	56	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole St-François
11e année

Noms	Age		Test I		Exp.	Test II	
			Résultat	Norme		Résultat	Norme
Vaillancourt, G.	18	6	54		--	61	
Verdon, G.	17	11	46		20	62	
Larocque, M.	17	8	69		26	66	
Tessier, J.	17	2	58		25	50	
Carr, E.	17	0	48		19	45	
Saumur, L.	16	10	52		13	61	
Legault, R.	16	4	46		14	46	
Mercier, R.	16	2	43		16	53	
Bellefeuille, R.	16	1	55		26	60	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole Montfort
8e année

Noms	Age	Test I		Exp.	Test II	
		Résultat	Norme		Résultat	Norme
Potvin, J.	16 11	47		22	38	
Richard, P.	16 11	15		6	26	
Carisse, R.	16 3	51		18	23	
Rinfret, R.	16 3	59		31	41	
Legault, R.	16 1	46		10	40	
Leduc, L.	15 11	73		18	56	
Diotte, P.	15 9	37		9	33	
Dumoulin, M.	15 8	50		21	53	
Bussiére, R.	15 3	42		22	--	
Dubé, J.M.	15 3	38		21	--	
Auger, G.	15 2	36		23	50	
Picotte, L.	15 1	37		23	47	
Carrière, M.	14 11	38		16	28	
De la Salle, J.G.	14 11	34		16	33	
Pitre, L.	14 11	67		33	46	
Potvin, M.	14 3	51		18	45	
Valiquette, N.	14 3	44		13	40	
Cyr, P.	14 2	30		13	40	
Sabourin, P.	13 8	41		30	44	
Morris, W.	13 7	39		20	40	
Lurette, G.	13 6	21		24	30	
Maheux, L.	13 5	62		13	55	
Veilleux, G.	13 5	49		10	36	
Bélair, E.	13 3	62		14	38	
Métivier, J.G.	13 3	51		16	54	
Vincent, R.	13 2	50		20	52	
Caron, A.	13 1	41		28	--	
Lavigne, M.	12 10	48		15	38	
Houle, A.H.	12 9	37		13	31	
Daoust, M.	12 8	--		--	44	
Labelle, J.P.	12 6	39		13	28	
Cléroux, A.	12 5	26		10	29	
Girouard, A.	12 5	50		--	34	
Goddard, P.	12 4	44		14	--	
Clairoux, S.	12 3	55		21	54	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole Montfort
9e année

Noms	Age	Test I		Exp.	Test II	
		Résultat	Norme		Résultat	Norme
Leduc, R.	17 10	57		23	60	
Brunette, R.	17 0	55		29	57	
Emard, E.	16 7	42		22	45	
Dumoulin, P.	16 4	--		--	39	
Beaulne, A.	15 11	54		24	45	
Goddard, F.	15 11	38		29	48	
Rose, R.	15 11	36		19	45	
Brunette, G.	15 4	47		18	52	
Côté, L.	15 4	38		14	30	
Leduc, D.	15 1	46		22	47	
Veilleux, L.	14 9	38		16	43	
Beauchamp, R.	14 8	55		24	59	
Caron, P.	14 7	38		15	42	
Beaudry, R.	14 4	63		37	63	
Deschamps, R.	13 8	26		16	41	
Perrier, G.	13 7	40		20	46	
Loshuk, M.	13 6	43		24	49	
Goddard, R.	13 5	32		6	37	
Pitre, M.	13 5	48		32	50	
Richard, R.	12 11	37		11	50	
Kipp, B.	12 5	46		10	46	

TESTS D'APTITUDE MECANIQUE STENQUIST-OTTAWA, Ecole Montfort
10e année

Noms	Age		Test I		Exp.	Test II	
			Résultat	Norme		Résultat	Norme
Léger, B.	17	4	47		12	28	
Grand'Maitre, J.P.	16	4	49		11	56	
Caron, M.	16	3	65		24	68	
Lafleur, J.J.	16	2	68		24	63	
Lanoue, M.	15	11	59		19	66	
Laviolette, G.	15	7	55		16	--	
Tousignant, R.	15	4	77		21	66	
Raymond, L.	15	2	53		19	50	
Sabourin, R.	14	11	51		16	57	
Desjardins, M.	14	9	55		24	66	
Cléroux, N.	14	7	63		23	61	
Bélanger, G.	14	6	40		18	46	
Nault, B.	14	2	42		4	54	
Brulé, B.	13	10	53		22	56	
Bégin, J.M.	13	4	48		5	59	