CHAPTER II

TESTS OF INTELLIGENCE IN ANCIENT INDIA

Prehistoric Ages

"Mental tests are as old as human race", as has been rightly said by Ballard.[1] "The roots of the measurement of man lie in antiquity", says Thorndike[2]. Even from prehistoric ages, some crude methods of measurement might have possibly been in vogue to judge the ability of men, such as in terms of strong and weak, big and small, sensible and dullard, and so on

The Rigvedic Age

The methods of testing the ability of man in use in the Rigvedic period are, in fact, shrouded in mystery. In the Vedic period, Brahamchari, the student, was imparted book knowledge solely for the sharpening of his intelligence and the development of character. This is clear from the celebrated Giayatri Verse (Rig. III 62,10) in which God Savitar is prayed for a stimulus to one's intelligence.

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1 Ballard, P.B.: "Mental Tests", University of London, 1949. p.2.

2 Thorndike, R.L. & Hagen, E; "Measurement & Evaluation in paychology and Education. John Wiley & Sons, New York, 1955. p.1.

If a student was unfit by character for calibre to receive the Vedic education, he was not admitted to the privilege of the caremony of initiation (Upanayana). According to Nirkuta, II, 4, i, a person having jealousy and crookedness, and lazy by habit was debarred from receiving education. This shows that a man's intelligence, character and habits were measured by simple observation to judge his eligibility for being accepted as a Vedic student or in other words to be admitted to the Upanayana ceremony.

The Age of the Later Samhitas

The ceremony of Upanayana, which in fact goes back to hoary antiquity, is mentioned in detail in Atharva Veda XI.5;(Ait. Ar. III, 2,6,9; Chhand.III, ii, 5; Svetasva. VI, 22; Brih. VI,3.12). The ceremony was originally performed when a student commended his Vedic education under a teacher. Upanayana meant also the formal acceptance of the pupil by the teacher for a course of Vedic studentship. The stories in the Aitiriya and Taitiriya Brahmanas give a vivid picture of the educational systems of those days, with its insistence on the qualifications like truthfulness, observance of duty (Dharma), devotion to the Acharya or Guru (teacher) and to one's parents, hospitality, faith, generosity etc. These qualifications were found

* The antiquity of this ritual goes back to prehistoric times. If existed in the Indo-Iranian period & is clearly presupposed by the Rigveda (X,109,5;III,8,425). The Atharva Veda describes it in detail.

as a criterion for fitness for Vedic studentship and one lacking them was dismissed from Gurukula, i.e. the residence of the teacher, where originally education was given to students. It was later that Brahmana- charanas (schools), centres of learning, got established all over the country.

Upanisadic Age

The Upanisads are a living testimony to the high intellectual attainments of the age. Upanayana and Vedic studies were obligatory for all. Upanayana meant the formal initiation into an educational career of boys of three castes. Personal purity & good health were essential conditions for study. Moral training, therefore, formed the very pivot and the backbone of the educational system, and the development of character was the one ideal that dominated it. Acceptance of the pupils by the teacher entailed on the former the most rigorous discipline for a prescribed period. The maintenance of chastity was obligatory on the Brahmachari. Memory was a specially valued faculty and was most assiduously cultivated. Certain vows and duties were also to be discharged by the Vedic student. Admission to study depended upon the pupil's fitness for it. The above said qualifications were observed as test of abilities for learning and whoever was found lacking the same was dismissed from Vedic studentship (Brahmacharya).

In the older Upanisads we repeatedly come across the prohibition to communicate a doctrine to any one except a son or a pupil adopted by the rite of Upanayana. It seems that only a son or a pupil was considered eligible for learning secret doctrines, because of his known or tested abilities.

In The Epics

The eligibility for studentship is strictly laid down, the teaching of the Vedas must not be imparted to one who has not formally become a disciple, who has not observed vows, or who is of impure soul. No knowledge should be imparted to one whose character is not previously known. It is also laid down that the studies prescribed should be according to capacity. The pupil is to live at the preceptor's house; where he is/to put himself under a rigorous course of mental & moral discipline. He should perform Vedic rites and practice restraints, vows and humility. He should shake off all idleness and proscrastination and purify his soul by constant study. He is to lead a life of celibacy and to be simple and courteous.

The Mahabharata tells us of typical hermitage where pupils from distant parts gathered for instruction round some far-famed teacher. The most famous for such hermitages was Naimisha forest, which was like a University. Saunaka was its presiding personality (Kulapati). The hermitage of Kanva was another famous centre of learning.

There was , in fact, an assemblage of numerous hermitages round the central one of Kanva. The pupil's first introduction to education was made by the performance of a ceremony called Vidyarambha, with which the children of all castes were to commence the learning of alphabet. The next came the Upanayana ceremony, which according to texts means the introduction of the student to Brahmacharya by the teacher himself. When the intending pupil is thus properly dressed, he has to satisfy some preliminary querries put to him by the teacher before he initiates him. The first query is as regards his name and lineage. The second asks him to declare formally that he wants admission as a pupil. Certain moral conditions are also laid down qualifying a pupil for admission. He is to be pure, attentive, one of controlled passion, possessed of good memory, chaste and well-behaved. Education was denied to women, the Upanisads mention several women as teachers, such as Gargi and others. Even in case of women also, Upanayana ceremony was obligatory.

In the Smriti Sastra

Besides the performance of the ceremony called Vidyarambha, the formal and regular introduction to education was made by the ceremony of Upanayana, which was ordained for the Brahmnas, the Kshatriyas and the Vaishyas, under different rules. Members of those castes, however, who had committed misdeeds, as also the Sudras, were not eligible for this ceremony.

It was a system of universal education for the Indo-Aryan people that is depicted in the Smriti texts. The state enforced the system of compulsory education. Requisite qualifications of a student were, however, strictly adhered to. He must assidously clutivate certain moral qualities, such as freedom from sensual desire, anger, envy and covetousness. He is to avoid gossipping, back-biting and lying. He must not injure living beings. He must not talk with women more than is strictly necessary. Besides, he is urged regularly to bathe and to purify himself. He must also avoid all kinds of luxuries. Strict adherence to these rules was considered as a test of ability and fitness of a student. One who did not abide by these rules and lacked moral qualities and personal discipline was considered unfit for study. This shows that there were not any scientific methods of testing ability or intelligence in ancient India, but man's actions and habits only indicated his intellectual aptitude.

The system of education in ancient India did not prescribe any periodical or annual examinations. A new lesson was given only when the teacher was satisfied that the old lesson had been thoroughly mastered. The end of the education course was not marked by any lengthy and exhaustive examination, but by the pupil reciting & explaining the last lesson (Mil. Pan. I P 19). The modern system of examination, according to which a student is asked to answer certain questions from the prescribed books, is not mentioned in ancient books. At the end of his education the scholar was presented to

the local learned assembly where occasionally some questions were asked (Br. U., VI, 21). This presentation took place when the Samavatana (Convocation) ceremony was over (Dr. Gr. S.III, i, 26, Ap. Gr. S.I, ii,5). The system of awarding degrees or diplomas appea-rs to have been evolved only at some rare universities like Vikramasila during the next period (Altekar : Education in Ancient India 1957, pp.168-70, 273-74). The practice of giving degrees and titles seems to be a new innovation of medieval times. It is clear from the above that tests of ability were judged on the basis of the answers given by a scholar to the question put to him by an assembly of learned men.

In Budhhist & Chinese Records

Fa-Hien visited India in fifty century A.D., Patliputra was one of the most prominent centres of Buddhist learning in those days. The monasteries served as centres of advanced learning for the mature monks who resorted to them from all quarters. Even before Fa-Hien's visit, monasteries of Buddhism had become such important and flowering centres of Buddhist education and learning that their fame travelled beyond the limits of India and caused large movement of foreign scholars towards them for instruction. The monasteries were like colleges, to which students were admitted on completion of their preliminary education.

Hiuen Tsang who visited India in 7th century A.D., found that the system of education then in India was a unique achievement of the Hindue genius, 'which fulfilled the highest aim of a school of learning, namely, to produce in its alumnii an absorbing love of learning for its own sake'.

The most famous seat of learning in It-singh's time (7th century A.D.) was Nalanda monastery in central India. The next equallu famous centre of learning was the monastery at Valabhi, in Western India. Nalanda in Magadha was renowned for the magnificence of its establishment and the intellectual as well as moral pre-eminence of its inmates. It attracted students from abroad, but no strict was the examination test (held at the gate of the University) that only two or three out of then succeeded in getting admission. It is understood that the test was held by one professor, known as Dvara-pandit, who was stationed at the gate (classical Age p. 590). Education in the monasteries aimed at both intellectual and moral growth. They produced some of the highest types of intellect and character. In Itsingh's time, the institutions most successful in producing this kind of intellectual eminence were Nalanda and Valabhi.

The methods of testing abilities during those times were peculiar. For instance, a scholar was asked to answer some questions in some learned assembly, and his intelligence was judged from his response. A man's fitness was also known from his actions and behavior.

One celebrated medical student, Jivaka, who was, in the sourse of his final examination in Botanical Science at the University of Taxila, asked by his examiner, "Take this spade and seek round about Takkasila, a Yojan on every side, and whatever plant you see which is not medicinal, bring it to me". He could not discern any plant which was devoid of medicinal properties. The examiner was satisfied with his intelligence and he was granted the licence or the diploma in Medical Science. According to some information, Jivaka was asked to collect, describe, identify and fully describe the properties of plants that were to be found within four Yojans of the University town, and this Jivaka is said to have done it to the entire satisfaction of his examiners. (Preface to B.C. Sengupta's Vanausadi Darpana, I, 1908; History and Culture of Indian People, II, p. 588).

Kautilya, in connection with the study in zncient India, states that a student should be capable of (1) Sushrusha (eager to listen to the words of the teacher as they fall from his lips), (2) Sravanam (grasping by the ear the lessons of the teacher), (3) Grahanam (apprehension of the teacher's words), (4) Dharanam (retention), (5 & 6) Uhapuha (discussion) and Vijnana (full knowledge of the meaning conveyed by the teacher's words or lessons), and (7) Tattvabhinvesa (comprehension of the underlying truths of the teachers lessons). (Age of Imperial Unity, pp. 584-85).

These faculties in a student served as the test of his intelligence.

In Philosophical Systems (Darsanas)

Necessary qualifications are laid down by different philosophical schools like Vedanta, Sankhya, Saiva and other schools, for students desirous of learning a doctrine, for instance, the Vedanta system prescribes the following qualifications : Nitya-nitya-vastu-vivekah (Discrimination of what is of lasting value and what is ephemeral), Vairaga (indifference towards what is pleasant and what is unpleasant, sama, dama sraddha, samadhan, uparama and titiksa (self-restraint, control on one's senses, faith, concentration of thought, abstinence from evil and toleration and also mumuksata (desire for perfection and liberation). A person possessing these qualities was recognised to be a deserving recipient (Adhikari) of a sacred doctrine.

It is known by tradition that in good old days, one of the Gurus tested his pupils by asking them questions as to how to get water, food, fire wood and vessel within the cost of one copper coin, on condition that the water should be neither of well nor of river nor of rains; food should be neither corn nor pulse and the vessel should neither be earthen nor the metallic. All the pupils failed except one whose answer was "coconut" which satisfied all the conditions.

In Hindu religion some ceremony was performed at the time of the first hair cut. This was called Mandan Ceremony. At that time, Guru desired to provide various things to the child and the child was allowed to select any one. Thus on that basis too the Guru was able to predict about the boy. However, the crude methods of intelligence testing which were mainly used for the sake of amusement or pleasure of Maharajas can be traced back to the ancient India in the form of puzzles. For testing the intelligence of learned scholars, such puzzles were placed before them with the time limit in the courts of Hindu kings and Muslim rulars in the Medieval times.

Tests in Education Before 1900 A.D.

Before 1850 school children were tested orally. Old Gurus of Pathashallas and Molvis in Maktabs were trying the same oral methods for testing their pupils. In general the same was the case with testing methods, in other countries. There were however slight differences in the methods of oral testings. The oral tests were defective because they were never recorded and the questions put were uncertain and never uniform.

This type of oral examination was replaced by written examination known as essay type of examination. This type of examination was somewhat superior to oral type of examination as the question and asnwers were recorded and questions were uniform.

The assessment of such essay type was very subjective. The particular objective types were not in vogue upto 1900 A.D.

Physiological Measurements

Upto 1850 paychology was a part of philosophy. It was mainly related to mind, soul and moral philosophy. It was almost non-experimental. Some paychologists believed that the mental potentialities of a person could be guessed at by a study of the head, some others believed that these could be known by a study of the face.

The pioneers of these ideas are as under:

In 1772 Lavator published his essay on physiogonomy

(i) He was of the opinion that face was the index of mind.

(ii) Mr. Gall, a French man, in 1807 pronounced his system of phrenology. He declared that Head was the index of the mind.

According to him there were twenty-six prominent areas in human brain which were responsible for the various complex propensities, these prominent areas could be studied by a careful study of the structure of the skull.

Both these attempts failed to stand the test of the time and were found wanting in many respects. Physiogonomy as the Greek literature reveals is a very old science but it was often criticised. It was a popular science during the age of Socrates but it was found to be defective for evaluating the mental calibre of a man.

Moreover, it was felt that physiognomy as a guide for selection to a teacher would be like a wild goose chase because it would render it necessary for him to study every individual pupil, which is quite impossible in the modern age of a wide educational expansion. In the same manner Phrenology as a guide to determine the mental calibre of a man was found to be misleading. Wilkies[3] criticised it on the ground that the mental power of an individual is independent of the structure of the head.

Age of the Experimental Paychology

The age of 17th and 18th centuries was the age of Sciences. The experiments of psychology were centred round the physiological aspects. The psychologists of Germany and other countries were more interested in the Physiological aspect like learning, seeing, etc. than in the psychological ones. Towards the end of the 19th century psychology started becoming experimental. The first laboratory of the experimental psychology was started by Willhelum Wundt at Leipzig in 1879 where many of the early experimental psychologists received their training. But there was no definite aim behind this experimentation. Murphy[4] says, "There was no real aim in experimentation except the ordering of data with reference to those patterns of time and space with which physical science was already dealing".

3 Wilkie, J.S.: The Science of Mind & Brain. Hutchinson House, London, 1953, pp. 117-18.

4 Gardner Murphy : Historical Introduction to Modern Psychology. Routledge and Kegan Paul Ltd., London, 1959. p. 351.

The experimental psychology has contributed considerably to mental measurements. The various schools of experimental psychology are as under:

1. The physiological psychology of 19th Century.
2. The Biological school of psychology.
3. The clinical theory of the under-developed children.

1. The Physiological Psychology

Towards the close of the 19th Century psychologists experiemmented on the matters which were more psychological than measuring the speed of motor responses. This physiological branch of psychology was also known as psychophysics. It throws light on the physical & mental behavior. Secondly, the contribution was towards its method of experiments. It gave methods and statistical techniques which helped a lot in the further development of psychology.

2. Biological Studies

The second contribution to psychological measurements was the biological method of Darwin. The main factor of Darwin's hypothesis was about the variation among the members of the species, i.e. individual differences. Darwin's work was followed up in Englandparticularly by Sir Francis Galton, an English Biologist, who was previously responsible for launching the testing movement on its course and putting into practice the idea of measuring intelligence by sensory discrimination. Galton was stimulated by Darwin to study the inheritance of traits. He became interested primarily in the differences among people and gathered data both on physical

and psychological characteristics.

The study of these individual differences required better statistical tools and the British group under the leadership of Karl Pearson [5] developed improved techniques for analysing and describing the patterns of individual differences. Some prominent psychologists like Wall ~~Opine~~ were of the opinion that scientific child study owes much to the biological school of pschology. Wall ~~Opine~~[6] says, "The origin of scientific child study is to be found out in the work of the evolutionary biologist of the later half of the 19th century".

3. Clinical Study

During the psychological and biological periods a humanitarian outlook on the feeble-minded persons was developing amongst the psychologists.

The active research work done in the clinics, particularly in France, showed wonderful results in the history of Mental measurements.

Measurement in the 20th Century

The work of mental measurement of the 20th century may roughly be divided into three main periods.

From 1900 - 1915

From 1915 - 1930

From 1930 onwards

5. Thorndike and Hagen: Measurement and Evaluation in Psychology and Education. John Wiley and Sons New York, 1955. p.4

6 Wall W.D.: Psychological Service for schools. Unesco Institute for Education, Humburg, 1956. p.14.

Foundation Period

This period between 1900-1915 is considered to be the foundation of psychological measurements and is known as "The Pioneer Period".[7] The methods of educational measurement were developed in this period with the removal of barriers which came in the way of early experimenters. Biuet, a French psychologist devised and presented to the world a measuring instrument of general intelligence. His methods of approach were quite novel from those of his predecessors. He believed that intelligence could be most reliably observed in activities which called for combined activity of the various factors. Binet and Simon, a French physician, devised 30 tests to be used in separating the subnormal children from the normal children in two public schools of France.

Without going into discussion of the nature of intelligence they framed these tests from the most common experience of the children. The tests were given to two hundred children in Paris and were graded according to their difficulty level.

They thoroughly revised the tests in 1908 and re-arranged them in age scale. Various types of tests such as Arithemetic tests, spelling, and Language tests

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[7] Walter S. Monroe : Ten Years of Educational Research. University of Illionois, Bulletin XXV, No. 51,21st August 1928. Chapter 2.

were first in this period. Thorndike prepared his hand writing test and Otis and others were preparing the group tests of intelligence.

Biuet's final revision of 1911 stopped all controversies raised by Decroly and Degend in Belgium, Bobertag in Germany and Goddard in U.S.A.

Boom Period

During this period tests multiplied like rabbits.[8] All types of standardized tests like performance tests, achievement tests, army alpha tests and many group tests of intelligence were out in this period.

Terman's improvement on Binet tests, Standford Revision, Terman Merrill revision belonged also to the same period.

The London Revision

This is perhaps the most comprehensive of all these revisions of the Binet scale for English children. Cyril Burt in co-operation with Simon translated the test with suitable modifications. In U.S.A. Prof. H.H. Goddard was the first man to adopt Binet's tests. His revision is named "The Vine Land Revision".

The Italian Revision

In Italy Prof. L.L. Saffotic and Z-Travers published a revision known as the Traves Saffotic Methods.

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8 Thorndike and Hagen: Measurement and Evaluation in Psychology and Education. John Wiley & Sons, New York, 1955. p.5

In Rome the revised and adopted revision of Prof. De Sarectis was widely used. Thus it seems that the tests were widely revised in this period.

Period of Criticism

From 1915 - 1930 most of the countries accepted various types of the tests and the results were accepted without any criticism. When the same pupil was tested by different tests in the same trait, the results did not always necessarily tally and hence the people began to think about the validity of these tests. More and more criticism directed the psychologists for preparing more accurate tests with various characteristics of measuring instruments like economy and reliability, validity, objectivity and administrability. More statistical methods were found out to make the tests standardized.

Many methods of item analysis came in vogue and standardized tests of various types were published in most of the countries.

Work in U.S.A.

In the United States of America all the branches of psychology, i.e. experimental, biological and clinical have influenced the psychological research. Cattal was a student in Germany where he received the knowledge of experimental psychology.

He was also interested in the work of Galton. He administered intelligence tests of his pupils & statistically studied the individual differences.

He studied the sensory efficiency of a pupil through his tests and on the basis of the results obtained, he would predict about the academic success or the failure of the pupil. Prof. Terman improved upon Binet's methods. He utilized mental age concept, and applied sterns. He added new items of vocabulary and fable tests to his revision. It was followed by Stanford Revision which improved the reliability and the validity of the test.

This was done in 1916 after five years of continous work. Again in 1937, he in close collaboration with Dr. M.A. Merril published the second revision of the tests in two parallel forms. The characteristic features of Terman-Merril joint effort were, that, it developed tests for two years old children and more reliable tests for three to five year children and further showed improvement of adult tests. But it has been severely criticized by Burt, Cattel and Spearman, chiefly on the basis that many of its problems depend too little on general intelligence and too much on group factor and that some of them are not assigned to the appropriate ages.

The work in England

In England Galton by his biological study and Kari Pearson by his statistical study contributed to the growth of psychological measurements. Thorndike describes the work of these two psychologists as two main contributors of the British group to the growth of psychological measurements.

Galton and Pearson showed a deep concern for studying the difference among the people as they were interested in finding out significant facts and appropriate statistical techniques and tools for carrying out this study.[9]

Dr. Cyril Burt carried out researches among school children in Oxford and Liverpool. To him chiefly goes the credit of having shown what problems can measure intelligence with greater reliability and accuracy.

The Work In Itlay

Prof. U. Saffolti and Z- Traves published a revision known as the Traves - Saffote Method. In Rome the widely used revision is the De Sabctis Tests revised and adopted by Prof. De Santis.

The Work In India

Individual Tests:- The pioneering work in intelligence was done in India by Dr. Harbart Rice in 1922. He gave Punjabi and Hindi version of Terman's 1916 revision of Binet scale, with the addition of some non-verbal items from Printer and Patterson. A useful version was of Terman's Merril scale by Dr. Kamat[10] in 1937. The work was done in two languages ~~English~~ kannad and Marathi. E.W.Menzel[11] gave the general

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9 Thorndike and Hagen: Op.cit.,p.4

10 Kamat, V.V.: Measuring Intelligence of Indian Children Oxford University Press, Bombay, 1951

11 Menzel, E.W.: Suggestions for the Use of New Type Tests in India. Oxford Press, Calcutta, 1952.

intelligence tests of children of Madras.

Dr. N.N. Shukla[12] translated Kamat's tests into Gujarati for Gujarati speaking children on the basis of Terman Revision.

Group Tests of Intelligence

Dr. J. Maury,[13] the professor of Christian College of Alliahabad is the pioneer worker in the field of group tests of intelligence. He gave tests of classification in Urdu, Hindi and English.

Pandit Lajja Shanker Jha[14] translated and adopted Simplex Mental Tests of Richardson into Hindi in 1933. He also adopted Terman group tests of mental ability. Banaras Hindu University and Paychological Bureau of Government of U.P have also prepared the group tests in Hindi. Prof. S.Jalota[15] has prepared group verbal test for use among college students. Dr. K.G. Desai[16] has prepared a battery of group tests of intelligence in 1954. The work is meant for Gujarati speaking children for the age group 12 plus - 18 plus.

Central Institute of Education, Delhi, has also prepared a group test of intelligence for the age group 11-14 plus. The test is in Hindi, the medium of instructions in Delhi schools. The test has been standardized in 12 to 14 years children including 633 boys and 581 grils from 88 schools in Delhi.

The test should be considered more useful for selection and guidance purpose than for applying them for determining I.Q.s.

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12 Shukla, N.N. : Gujarati Balakonum Buddhi Mapan, Indian Institute of Education, Bombay, 1950

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Performance Tests of Intelligence

All the tests discussed above involve the use of one or the other language on the part of the examiner or the examinee. Those who are unable to follow the language of the examiner or those who cannot express themselves adequately are at a great disadvantage in such tests. Moreover, the defective cases, i.e. deaf and stammering persons cannot respond to the verbal tests. To avoid the use of language etc. performance tests have been devised in which testee has to perform certain tasks.

The tests actually involve the construction of certain patterns with the help of given materials or the solving of certain problems set in terms of concrete materials. Intelligence is thus manifested through the medium of material objects rather than that of words. These tests have not been much tried, perhaps because in the countries of their origin the percentage of illiteracy is not quite so high as to necessitate their employment but in our country such tests are urgently needed, if we are to assess the mental ability of the vast masses of our people.

U. S. A.

Performance tests standardized in America are :

1. Pinta and Paterson, a carefully assembled, Practical scale.
2. Segui, and Goddard Form Boards. a complete series of mazes of increasing difficulty.

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13 Maury, J. : Preliminary Classification Tests. North Indian Trach and Book Society, Clive Road Allahabad, 1927.

India

Dr. C.M. Bhatia,[17] the Director of Bureau of Psychology, Allahabad, had devised " Bhatia Performance Battery". The battery comprises of Kohs Blocks, Pass-along, Picture Construction, Pattern Drawing and immediate Memory. The Department of Paychology, M.S. University of Baroda undertook the work of determining the norms for Koh's Block Design Test and Pass-along Test in 1952.

The Department of Psychology, Calcutta University, took up the work of adapting the Wechsler-Bellevue Scale (I and II) for determining norms for Indian children for Raven's Coloured Matrix Test.

Age norms for different performance tests have been prepared and published.

The Department of Psychology, Mysore University, has used the performance scale of Collins and Drever as a general ability measure.

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14 Jha Lajja Shanker : A Report of Teachers Training College, Banaras Hindu University, 1933.

15 Jalota, S. : Group Verbal Tests for Use Among College Students. Teaching Sept. 1936 and March 1937.

16 Desai, K.G. : The Construction of Standard of a Batteries of Group Tests of Intelligence in Gujarati. Ahmedabad, 1954.

17 Bhatia, C.M.: Mental Survey of a Village. Indian Journal of Psychology, 1951, 26, III.p.115.

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