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REPORT AND SYNTHESIS
OF THE PSYCHOLOGICAL STUDY OF REMOTE AREAS

by

Jacques Kurtness

IAND 1973

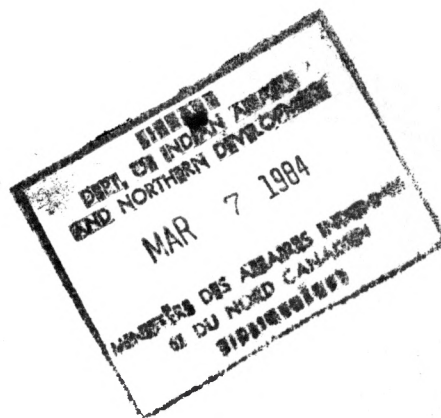
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Report and Synthesis of the Psychological Study of Remote Areas

When atoms are involved, we let the physicist talk and we listen to him. But when man is the subject-matter, we all have our say and take nothing for granted.

Marc Richelle

Introduction:

It is a known fact that decisions concerning the future education of children are made on the basis of intelligence tests taken when the children are eleven or twelve years old; indeed, the entire modern education system is based on relatively recent psychological discoveries and theories. In many cases, Amerindian children are not the exception to the rule. It is therefore worthwhile to ask ourselves if the mathematical models of the tests correspond to the psycho-social and psycho-cultural reality. To what extent can these behaviour models be adapted to an Amerindian environment?

Importance of the time factor and of behaviour:

Before looking into the models and mathematical theory underlying the tests in general, there is one very important factor which we must consider: time. The fact that the psychologist feels that he has to express himself in every-day terms or that he has to vulgarize his knowledge is not the only reason which prompts us to discuss, reject or ignore his recommendations. Apart from emotional resistance, insecurity and false rationalizations, the fact remains that the person who gives rise to these often senses no urgency or constraint.

The psychological environment always has a temporal dimension:
NOTHING IS DONE OR UNDONE QUICKLY. If I refuse to follow a psychologist's recommendations regarding the reorganization of my business firm, there will result no catastrophe in the short run. A school psychologist informs parents of a difficulty that can still be easily solved, but the parents refuse to become concerned. They are indifferent to the consequences since they are for later on. An expert warns industrialists of the dangers of a defect in communications within their enterprise, but the industrialists prefer to make material investments, which will increase productivity in a spectacular manner, rather than to carry out costly changes which will have long-term effects.

Organisms and societies live in biological time. The history of an individual as well as that of a people confirm this. It is illusory to think that Amerindians will, without thinking, immediately adopt all of the Department's programs. This does not mean that the programs are not important, but that people change when they see a good reason to change, otherwise, all our exhortations are regarded as irrelevant nuisances.

Experience has taught me that the more an individual is understood and accepted as he is, the more he tends to give himself a positive orientation in life and to give up his false defences. In other words, the more one wants to change a person, the less that person

changes and there results the development of the sub-development. In this respect, the Amerindian is similar to others and yet different from them.

Investigating the intellect:

Without giving the entire history of intelligence tests in general, and in an Amerindian environment in particular, it does seem relevant, nevertheless, to give a list of the models most commonly used to investigate the intellect. The first models, as you know, had a distinctly philosophical flavour whereas the latest models are carefully defined in terms of statistical and experimental procedures, according to the scientific method. What we called 'MENTAL FACULTIES' were derived from non-systematic observation and form the verbalization of certain stereotypes and prejudices common at that time. Nowadays, the 'FACTORS' of intelligence are quite differentiated and their organization profiles well standardized.

1905 Binet and Simon Scale:

1. Visual coordination.
2. Prehension by touch (grasping a cube after having touched it)
3. Prehension by sight (staring at an object)
4. Recognizing food (choice between wood and chocolate)
5. Searching for food (chocolate wrapped in paper)
6. Following simple orders and repeating the movements
7. Showing body parts (head, nose, etc..)

8. Recognizing objects in a picture
9. Naming objects in a picture
10. Choosing between two lines as regards length
11. Repeating three numbers
12. Differentiating two weights
13. Resisting to suggestions
14. Defining simple words
15. Repeating a 15-word sentence
16. Giving differences between pairs of objects
17. Visual memory
18. Drawing forms from memory
19. Memorizing numbers
20. Finding similarities between objects
21. Differentiating lines quickly
22. Arranging five weights in order
23. Identifying the missing weight (Among the five in No. 22)
24. Giving synonyms
25. Completing sentences
26. Making a sentence containing three given words
27. Answering questions - Ex: "What do you do when you are somnolent?"
28. Giving the time after the hands of a clock have been moved
29. Folding and cutting paper
30. Distinguishing between abstract terms

What does the general composition of the Binet-Simon scale reveal? The first three tests on the list deal with motor development and the 27 other tests can generally be designated as "mental" tests. Of the 27 tests, 18, or 2/3, seem to be cognitive aptitude tests, i.e., tests of understanding or of "deciphering of information" to use the technology of the computer. Five of the tests are well-known memory tests (11, 15, 17, 18 and 19). Three are creativity tests (24, 25 and 26) or "divergent-production" tests, in which the child must rely on his "storage" of mnemonic information to meet a specific need.

Binet's objective was to discriminate between normal and mentally deficient children in Paris schools, by means of a more direct method than the physical, social and educational signs of deficiency. The practical purpose was a graduated scale of tests, varying in difficulty, with standards for different ages, by means of which it is possible to determine if the child is intellectually advanced or retarded. Later on, there was greater interest for a more precise differentiation between the normal children and for a formulation of the scientific laws of intellectual development. Another principle is that a child's intellect is not merely a miniature adult intellect. This principle will be taken up again by Piaget who had noticed that certain false answers were as informative as good answers on the Binet scale. This test is still used in several parts of the world.

The Wechsler Scales:

Verbal tests:

- information
- comprehension (measuring judgment or common sense)
- arithmetic
- repeating numbers (upwards and backwards)
- similarities (how two things go together)
- vocabulary

Performance tests (non-verbal):

- completing figures (giving what is missing)
- arranging pictures (in the chronological order)
- assembling objects
- blocks (reproducing models)
- substitution (term to term correspondence of a symbol and a digit)

The point of interest of the WBIS¹, WISC² and WAIS³ is the fact of recognizing the multiple aspects of this thing called "INTELLIGENCE". Besides Wechsler, J. McCattell and Terman contributed to development of the psychometric material in the U.S.A.

Later on, researchers developed a battery of tests applicable not only in an individual manner, but also collectively. The last world war promoted research in every field of human activity. The "ALPHA Army" and the "BETA Army" also played a part in drawing attention on

1. Wechsler-Bellevue Intelligence Scale
2. Wechsler Intelligence Scale for Children
3. Wechsler Adult Intelligence Scale

these tests. L.L. Thurstone developed his first PMA⁴ battery according to three age-groups, each battery including six tests and each measuring a particular aptitude according to the factor analysis method.

The United States Employment Service, with Thurston as consultant, developed the GATB⁵ made up of approximately twelve parts. The Guilford-Zimmerman Aptitude Survey was based on the experiments in factor analysis carried out during the Second World War.

-
4. Primary Mental Abilities
 5. General Aptitude Test Battery

EVOLUTION OF MODELS OF INTELLIGENCE CONCEPTS

Fig. 1.1 Graphic illustration of SPEARMAN's concepts of relations education (A) and correlates education (B).

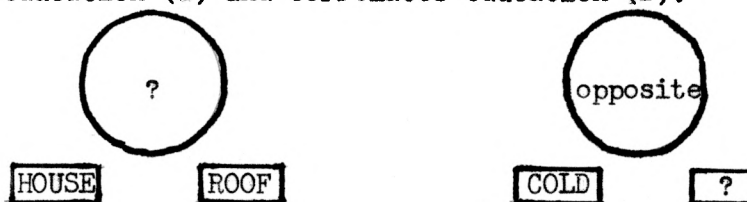


Fig. 1.2 BURT's concept of an ideal hierarchical model of aptitude factors, with successive dichotomizations at various levels of mental abstraction.

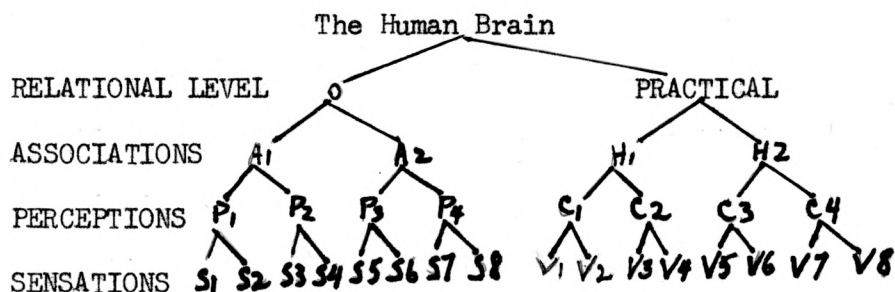


Fig. 1.3 VERNON's Diagram

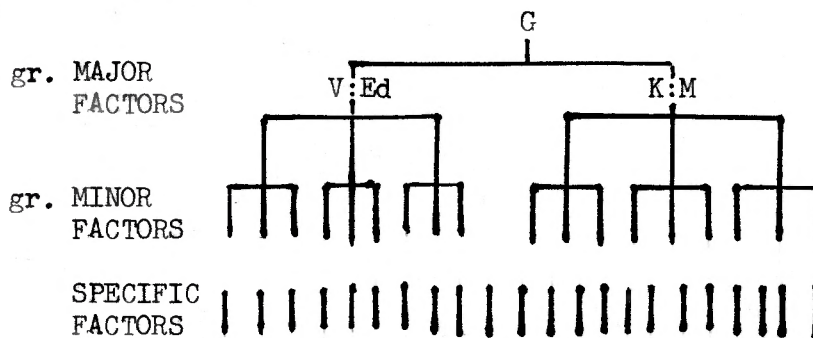
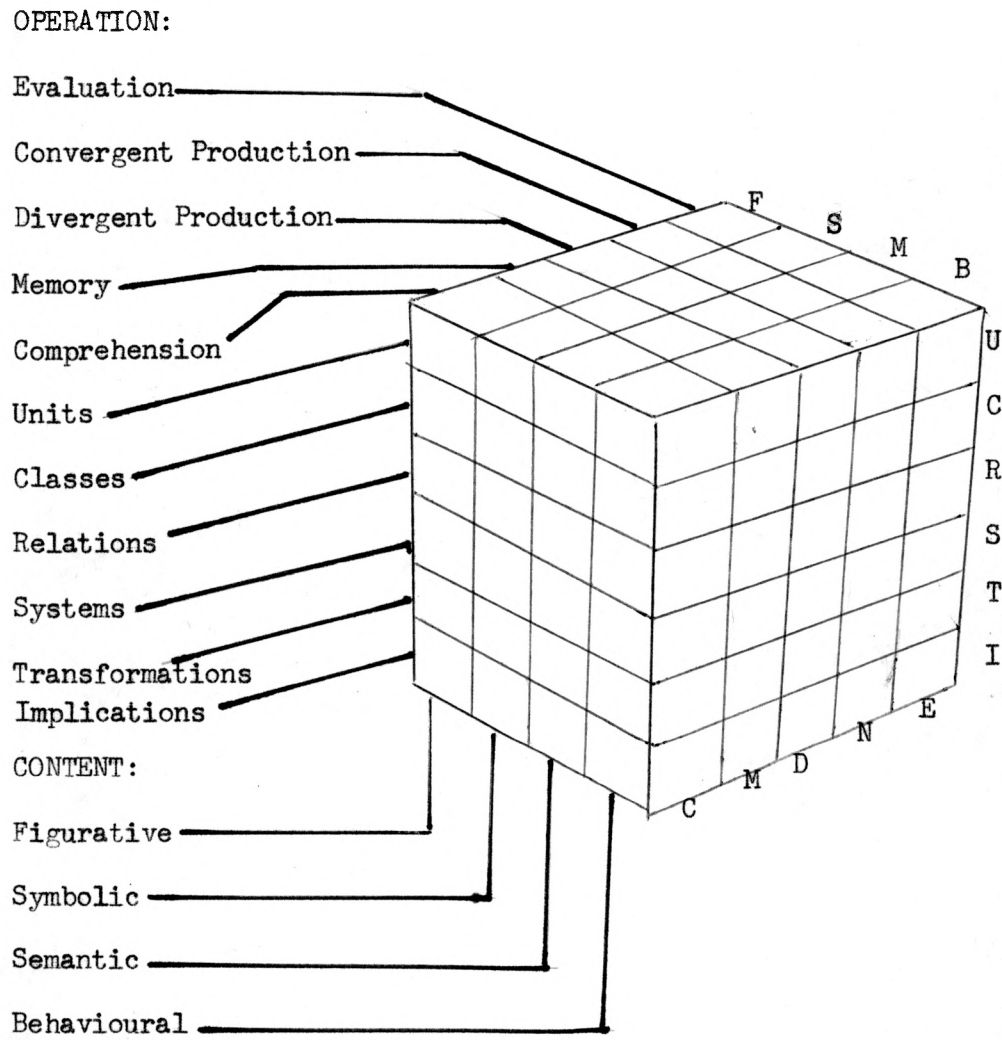
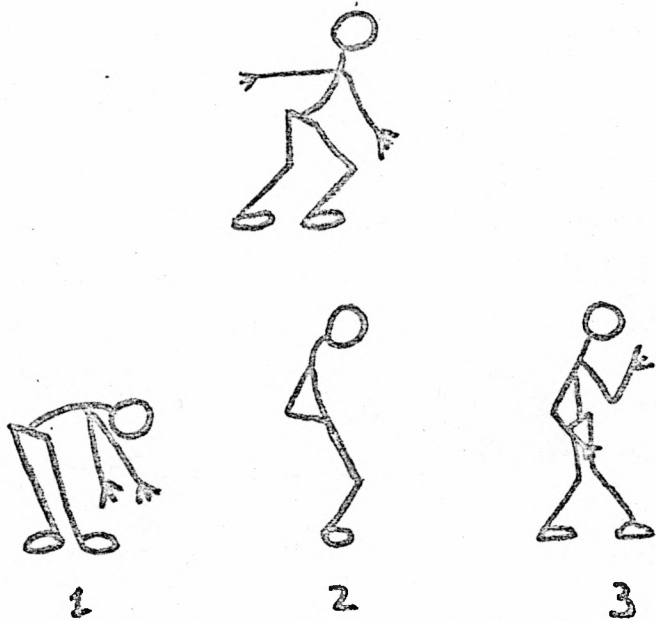


Fig. 1.4 GUILFORD's model of the structure of the intellect, with three parameters



ILLUSTRATIONS AND EXAMPLES OF DIFFERENT FACTORS

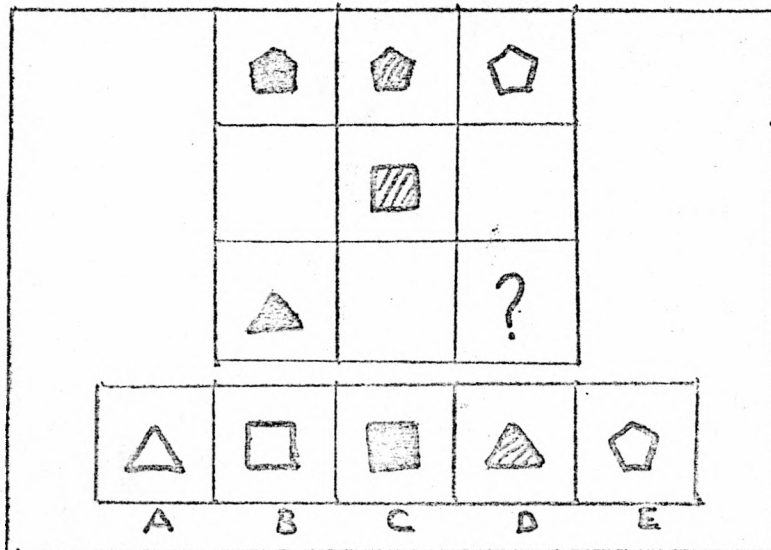
1. Example of comprehension of behavioural relations (CBR¹).
(Operation) (content) (product)



Q. Which of the three figures expresses the mental disposition that is contrary to the one above?

A. The opposition seems to be between an alert and active disposition and a tired and relaxed disposition, as in No.2.

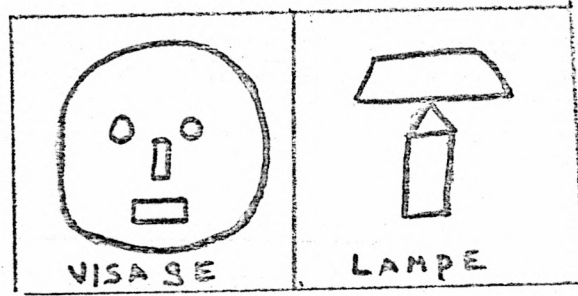
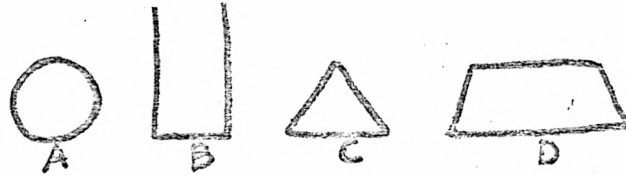
2. Example of comprehension of figural relations (CFR²).



1. CBR: Cognitive behavioral relations.

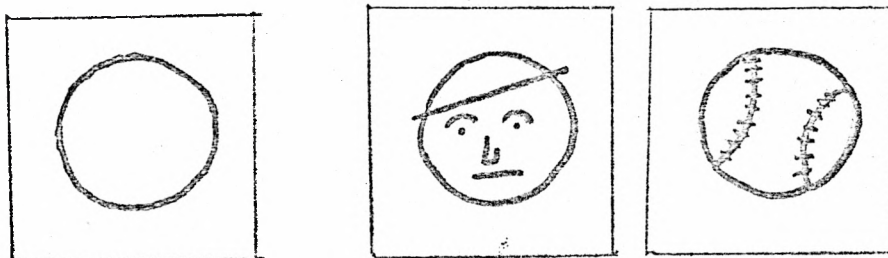
2. CFR: Cognitive figural relations

3. Example of a divergent figural system (DFS3) or of creativity of a figural system.



4. Example of a divergent figural unit (DFU⁴).

The items A.B.C.D. must be combined in different ways to make identified objects. (Sheridan psychological Services Inc.)

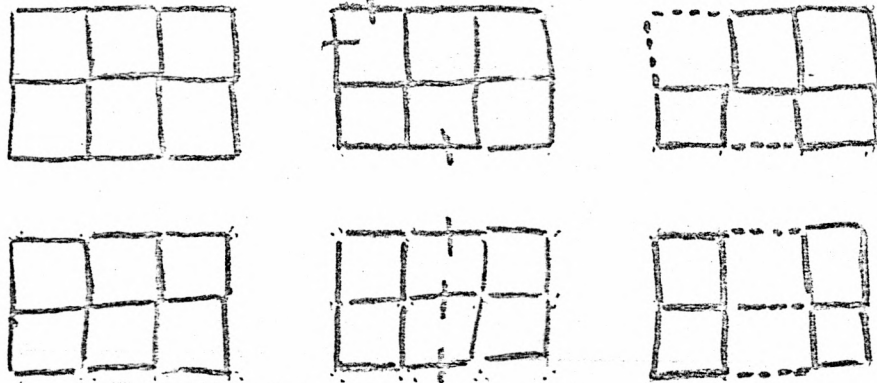


From a simple shape, ex: a circle, make several real objects by adding as few lines as possible.

3. DFS: Divergent figural system.
4. DFU: Divergent figural unit.

5. Example of a divergent figural transformation (DFT5)

A



A. Problems with matches where two solutions are given: the problem is to remove three matches and to keep four squares.

B

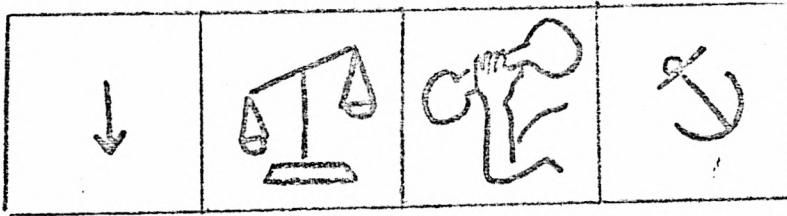


B. The problem consists in removing four matches and in leaving three complete squares.

5. DFT: divergent figural transformation.

6. Example of a divergent semantic transformation (DMT⁶)

HEAVY



Symbolic alternatives of a concept. The four figures were given as an answer to the concept "heavy"

7. Example of a divergent semantic implication (DMI⁷)

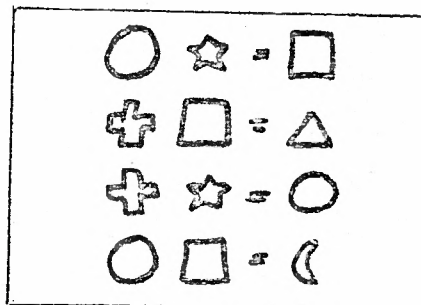
Q. From a given symbol, the subject must find occupations which go with the symbol, in this instance, a light-bulb.



- A. Electrician
- B. Manufacturer of electrical appliances.
- C. Communications
- D. Teacher
- E. Ford
- F. Electrical Engineering.

(Sheridan Psychological Services)

8. Example of a convergent symbolic implications (NSI⁸)



Q.



Q. From the equations given in the above square, what is implied by the combination of the three items?

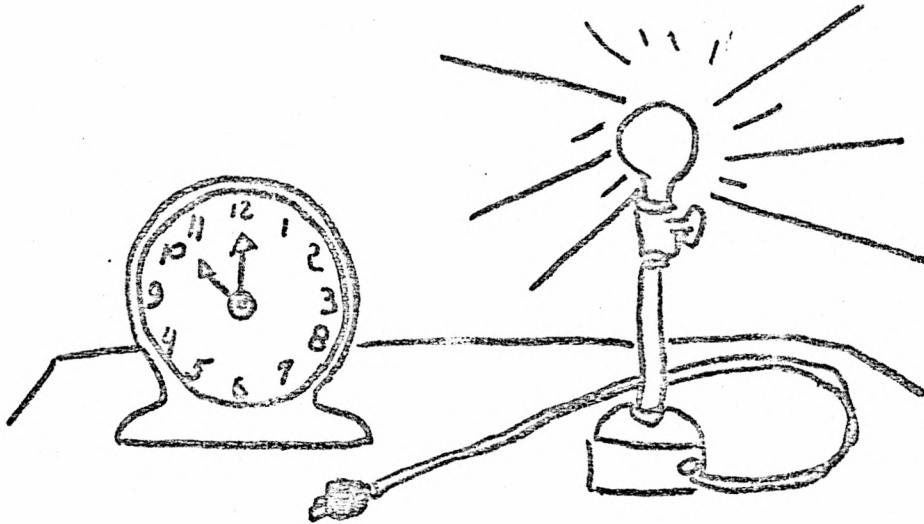
A. A.

6. DMT: divergent semantic transformation.

7. DMI: divergent semantic implication.

8. NSI: convergent symbolic implication.

9. Example of evaluation of a semantic system.



- Q. What is wrong in this picture?
- A. a) the bulb is lit, but the lamp is not connected.
- b) a few digits on the face of the clock are not in order.

Analysis and Operational Description of the Main Factors of Intelligence

1. Motricity:

The motor aptitude is not often tested in older children because it reaches its level of maturity sooner, with the cerebral myelination, and because it influences academic performance in the first years of school only. Under this factor, there is the sub-factor (A), or visuo-manual co-ordination (aim) ability to co-ordinate eyes and hands or fingers with precision to ensure precise and rapid movements.

The sub-factor (T), or motor speed, which could be related to the time of reaction. It is the ability to make a rapid and fluid movement, to carry out hand movements, like hitting rapidly.

The sub-factor (M) or manual dexterity which is the ability to move the hands easily and with assurance, the ability to make placing and turning movements.

The sub-factor (F) or digital dexterity ability to move the fingers and to manipulate small objects with the fingers rapidly and with precision.

2. Spatial Aptitude

The ability to visualize geometric forms and to understand two-dimensional representations. It is the ability to recognize relations resulting from the movements of objects in space.

3. Perception of Forms (P)

It is the aptitude to quickly and correctly locate visual details. Any activity requiring the recognizing of similarities or differences calls for this aptitude. It is the ability to perceive pertinent details of objects or of graphic or pictorial material. It is the ability to make visual comparisons and discriminations and to perceive small differences in the shape and shade of figures and in the length and width of lines.

4. Numerical Aptitude (N)

Ability to perform arithmetic operations rapidly and correctly. This could be a factor of automated use of symbols.

5. General Reasoning (R)

Ability to discover a principle or a rule in a given context and to apply this rule or this principle in a different context. INDUCTION AND DEDUCTION ARE CONNECTED. It is the aptitude to solve logical problems, to work out a plan.

6. Verbal Aptitude (V)

The ability to understand the meaning of words and the ideas associated to these words, and to use them properly. It is the ability to understand the language, to understand the relations between words, the meaning of sentences and entire paragraphs. It is the ability to give information or ideas clearly.

7. Verbal Fluidity (W)

Ability to talk and write with ease. It deals with the speed and the ease with which words can be used rather than with the degree of comprehension of verbal concepts (W≠V)

8. General Intelligence (G)

What is measured by the traditional intelligence tests, i.e. general ability to learn, to take and understand instructions and the underlying principles. Closely connected with academic success (RS)

9. Memory

Ability to retain information and to use it. It can be short-term or long-term memory. It can be verbal, non-verbal, aural or figurative, etc.

These are only a few of the main factors that were isolated through experiments by the method of factorial analysis, but, already, we can see that a person's intelligence is made of more than a simple intellectual quotient. Moreover, so far, we have never taken into account the personality factors which can be of primary importance when interpreting human behaviour.

Specific Analysis of Intelligence Factors in a Traditional Amerindien
Environment

1. M(A-T-M-F)- $S_{1,2}$ - P_1P_2 - N-R-V-W-G Factors of Intelligence
2. M(A-T-M-F) - $S_{1,2}$ - P_1P_2 -N----- Non-verbal factors (NV)
3. R-V-W-G----- Verbal Factors.

Generally speaking, Amerindians are equal to or above the national average as regards non-verbal factors (2) and they are considerably inferior as regards the verbal factors (3). More specifically, they excel in the spatial and perceptual factors, as demonstrated by their aptitudes in the fields of mapping, drawing, mechanics, spatial and perceptual analysis and of figurative memory. We have a few examples of this in Fig. 1.5, 1.6 and 1.7 on the following pages.

Needless to say, these exceptional aptitudes in the non-verbal factors can have significant consequences with respect to the educational methods which too often stress the importance of verbal factors. This exploratory analysis explains why we were unable, so far, to fully develop the academic potential of Amerindien students. It is interesting, for it indicates future progress.

Figure 1.5

Maps of an Aivilik Eskimo (Inuit) (a & B) and aerial map.



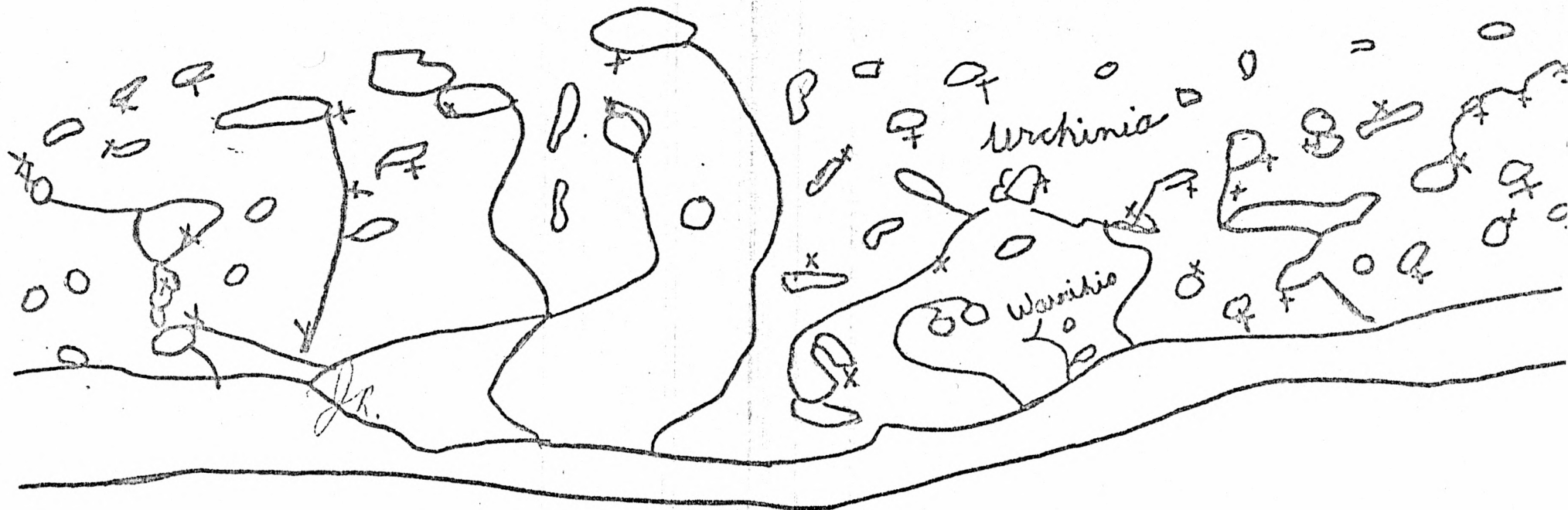
Source: Carpenter, E.S., Space concepts of the Aivilik Eskimo Explorations, 1955, 131-145.

Figure 1.6

Hunting territory of Noah Benjamin (drawn by Noah Benjamin himself)
The crosses indicate that beaver dams were found there and the names mark
the camping spots.

NOAH BENJAMIN

50 Beaver Homes



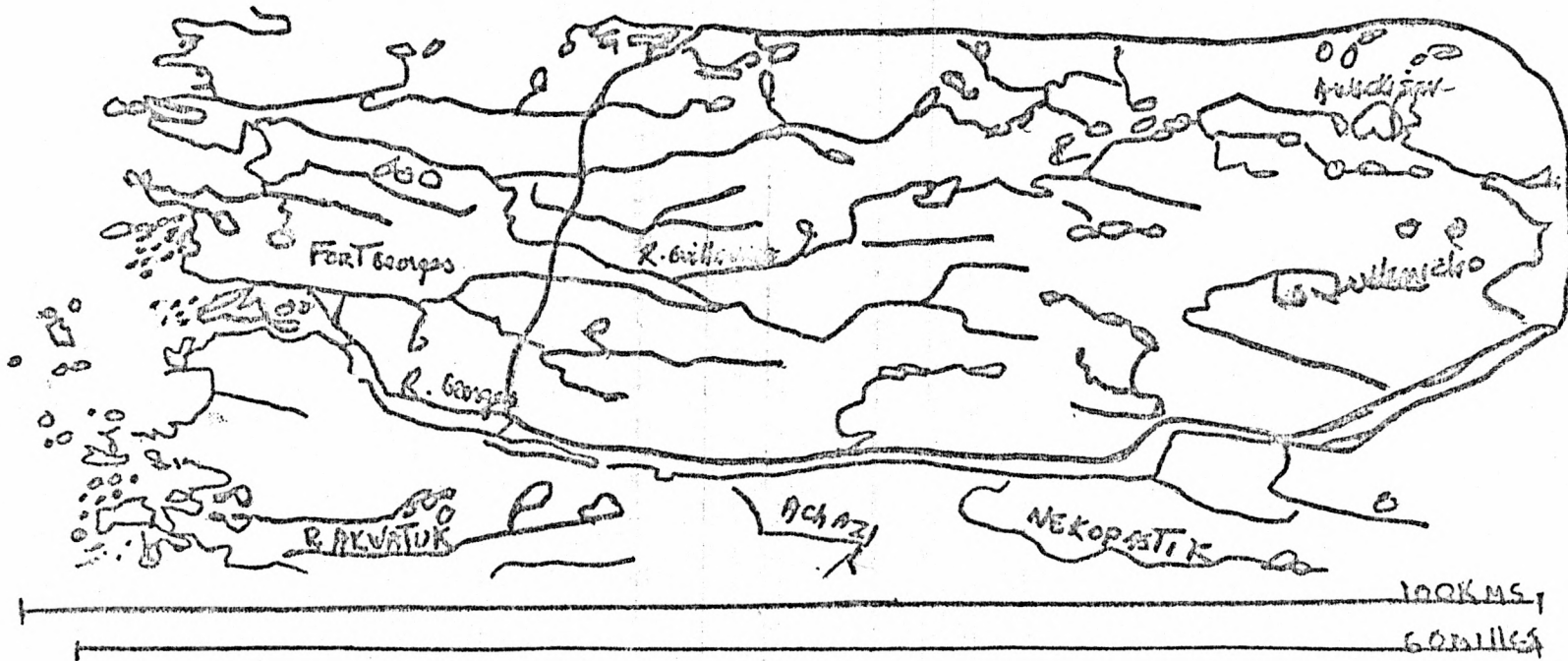
Awienevra

WAWICHE

Figure 1.7

The same territory P/R

according to the map.



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