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An investigation into educational and occupational differences in test performance on a battery of adaptability tests for Africans

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thing possible must be done to put them at their ease - not only in Leaderless Group situations, but in all testing situations. One must always avoid creating the impression that selection or rejection is solely dependent upon test performance. One must avoid the use of such terms as "test" and "examination" and refer rather to the "job" or the "work" to be done. And above all one must avoid practices that can be constructed to be discriminatory in any way.

The present study has dealt with only one aspect of the total problem of increasing African efficiency and productivity.

The industrial situation is a social situation, the productive potential of an industrial plant depends upon both its technological and social organisation.

One must not become so preoccupied with the use of selection techniques as a means of increasing productivity, as to overlook the crucial social problems involving the creation and distribution of human satisfactions, which exert so great an influence upon a worker's efficiency and productivity.

The effective use of African labour involves much more than the development of suitable selection techniques and training methods, it requires a comprehensive study of certain social factors such as, job attitudes, worker morale and job satisfactions, which influence the productivity of the African worker.

The search for better industrial relations and increased efficiency may begin with selection, training and placement, but it should be continued to an analysis of industrial morale, productivity and teamwork.

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APPENDIX : A

1. Job Analysis Blank
2. Industrial Biographical Blank
3. School Biographical Blank
4. Score Sheet.
5. Scorebook for Mechanical Computation.

JOB ANALYSIS SHEET

PI TS NAME: NO:

LCCATION OF JOB: TITLE OF JOB:

JOB DESCRIPTION(+ = CRIT. REQS.)

1.

2.

3.

4.

5.

EQUIPMENT, MACHINES & TOOLS USED:

CONTENT OF TRAINING:

LENGTH OF TRAINING:

BASIC REQS. OF A GOOD JOB: 1.

2.

3.

RESULTS OF POOR WORKMANSHIP: 1.

2.

3.

RELATION OF THIS TO OTHER JOBS:

SPECIAL REQS. OR SKILLS: 1.

2.

EUROPEAN SUPERVISORS COMMENTS:

AFRICAN SUPERVISORS COMMENTS:

WORKERS COMMENTS:

WORKER REQS: 1. 5.

2. 6.

3. 7.

4.

2. 3. 4. 5. 6. 7. 8. 9. 10. 11.

DG.

N.I.P.R. 638.

BIOGRAPHICAL INVENTORY.

INDUSTRIAL SAMPLE.

TESTING CENTRE: _____ DATE: _____

NAME: _____

ALLOTED NO: _____

IDENTITY NO: _____

SEX: _____

AGE: _____

TRIBE: _____

EDUCATION _____

MARRIED: _____

CHILDREN: _____

LENGTH OF STAY IN URBAN AREAS: _____

MILITARY SERVICE LENGTH: _____ RANK: _____

PLACE OF BIRTH:

(1) LOCATION

(2) FARM

(3) RESERVE

TRIBE OF FATHER	OCCUPATION	EDUCATION
_____	_____	_____
TRIBE OF MOTHER	OCCUPATION	EDUCATION
_____	_____	_____

SIZE OF FAMILY: _____ S. POSITION IN FAMILY: _____

PRESENT JOB: _____

EXPERIENCE IN PRESENT JOB: _____

PREVIOUS JOBS: EXPERIENCE LENGTH IN PREVIOUS JOBS:

N.I.P.R. 578.

BIOGRAPHICAL INVENTORY

Schcol Sample.

TESTING CENTRE: ..... DATE: .....

Name: .....

Alloted No.: ..... Length of stay in urban areas: .....

Sex: .....

Age: .....

Tribe: .....

Present Std. of Education: .....

Changes of Schools:

(1) .....

(2) .....

(3) .....

Place of Birth:

(1) Location .....

(2) Farm .....

(3) Reserve .....

Education Continuous: .....

Position in last 3 examinations: (1) ..... in Std. .....

(2) ..... in Std. .....

(3) ..... in Std. .....

No. of double removes : (1) ..... in Std. .....

(2) ..... in Std. .....

No. of times failed (1) .....

(2) .....

Home language: .....

....
Tribe of Father Occupation Education

....
Tribe of Mother Occupation Education

Size of family: ..... Position in family: .....

Previous jobs (if any): (1) .....

(2) .....

TESTING CENTRE:_____ DATE:_____

GENERAL ADAPTABILITY BATTERY.

COY. NO.

ALLOTED NO.

1.	SCREWS TEST	1										
2.	SORTING TEST (1)	1										
		2										
		T										
3.	SORTING TEST (2)	1										
		2										
		T										
4.	CUBE CONST. TEST	1										
		2										
		3										
		T										
5.	TRIPOD ASS. TEST	1										
		2										
		3										
		T										
6.	FORMBOARD TEST	1										
		2										
		3										
		T										
7.	MECH. PEGBD. TEST	1										
		2										
		T										
8.	WIGGLY BLOCKS	1										
		2										
		3										
		T										
9.	KOHS BLOCKS	1										
		2										
		3										
		4										
		5										
		6										
		7										
		8										
		9										
		T										
10.	COCOPAN TEST	T										
11.	MECCANO TEST	T										

TESTING CENTRE:_____ DATE:_____

GENERAL ADAPTABILITY BATTERY.

COY. NO.

ALLOTED NO.

1.	SCREWS TEST	1										
2.	SORTING TEST (1)	1										
		2										
		T										
3.	SORTING TEST (2)	1										
		2										
		T										
4.	CUBE CONST. TEST	1										
		2										
		3										
		T										
5.	TRIPOD ASS. TEST	1										
		2										
		3										
		T										
6.	FORMBOARD TEST	1										
		2										
		3										
		T										
7.	MECH. PEGBD. TEST	1										
		2										
		T										
8.	WIGGLY BLOCKS	1										
		2										
		3										
		T										
9.	KOHS BLOCKS	1										
		2										
		3										
		4										
		5										
		6										
		7										
		8										
		9										
		T										
10.	COCOPAN TEST	T										
11.	MECCANO TEST	T										

1

GENERAL ADAPTABILITY BATTERY

RAW SCORES

Sorting I			Sorting II		Card No.
I	II	Total	I	II	
2 3 4 5 6 7 8			9 10 11 12 13 14		15 16

2.

GENERAL ADAPTABILITY BATTERY

RAW SCORES

ching Total	Cube Constr. I	II	III	Total	Tripod I	II	Card No.
2 3	4 5	6 7	8 9	10	11 12	13 14	15 16

ENERAL ADAPTABILITY BATTERY

RAW SCORES

ipod	Formboards									Mech. Reg.		Card No.
	Total	I		II		III		Total		I		
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

GENERAL ADAPTABILITY BATTERY

RAW SCORES

Mech. Aboard	Wiggly Blocks				Koh's Blocks				Card No.
I	Total	I	II	III	Total	I	II	III	
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

GENERAL ADAPTABILITY BATTERY
RAW SCORES

Koh's Blocks														Total	Card No.
I	II	III	IV	V	VI	VII	VIII	IX							
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	

6

GENERAL ADAPTABILITY BATTERY

RAW SCORES

Co-n	Mec-cano													
	Total												Card No.	
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

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GENERAL ADAPTABILITY BATTERY

GROUPED SCORES

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Sorting I	Sorting II	Cube Constr.	Tripod	Form boards	Mech. Aptd	Wiggly Blocks	Kohs Blocks	Cocoppad Test	Mac-Gregor Test			Card No.	

8

BIOGRAPHICAL INVENTORY
INDUSTRIAL SAMPLE

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Project number			Test centre	Month tested	Year tested		Sex and age in years		Education	Place of birth			Card No.	

OGRAPHICAL INVENTORY (CONT'D)
INDUSTRIAL SAMPLE

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Length of military service in months	Military rank attained	Length of residence in Urban area	Marital status	Religion	No. of children	Father's tribe		Father's occupation			Father's educ.	Card No.	

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BIOGRAPHICAL INVENTORY (CONT'D)

INDUSTRIAL SAMPLE

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Mother's occupation			Mother's educ.	Size of family	Rank order in family	Present job			Experience in present job			Card 10.	

IOGRAPHICAL INVENTORY (CONT'D)

INDUSTRIAL SAMPLE

Jobs	2	3	4	5	6	7	8	9	10	11	12	13	14	Card NO	
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

OGRAPHICAL INVENTORY (CONT'D)

INDUSTRIAL EAMPLE

2	3	4	5	6	7	8	9	10	11	12	13	14
	No. Previous Jobs											

Card No.		Identity No.					Company Number	Name
15	16	17	18	19	20	21		

APPENDIX : B

1. Industrial Sample Test Instructions:
   a) the Zulu instructions
   b) the Sotho instructions
   c) the English translation
2. School Sample Test Instructions:
   a) the English instructions given from Std. 3 to the Matriculation class
   b) the Zulu instructions given to subjects below Std. 3
   c) the Sotho instructions given to subjects below Std. 3
   d) the English translation of the Zulu and Sotho instructions given to subjects below Std. 3
3. The reassurance given to pupils between Std. 3 and the Matriculation class

Industrial Sample Test Instructions:

Zulu Version:

Nizo sebenza lapha namhlanje madoda Lalelanike imithetho yomsebenzi lo.

Kufuneka ningakhulumi. Buka umsebenzi wakho kuphela, ungaphazamisi enyu indoda.

Lapha ebioscope nizabona amadoda esenza umsebenzi ofana nolo enizowuse esenza. Bekisisani kahle ukuthi basebenza kanjani.

Insimbi yokugala (demonstration with the gong) ikhuluma ukuthi galani umsebenzi, nitshetshise, ngoba isikhathi sincane. Eyesibili insimbi (demonstration with the gong again) ikhuluma ukuthi yekela, susa izandla phezukwetafula.

Sebenzani njengamadoda.

Sotho Version:

Le tha sebetsa mona kajeno banne. Mamelang he, melao ea mosebetzi ona.

Hobatleha le seke la bua. Talima mosebetsi oa hao feela. O se ke sa phatsamisa motho e mong.

Mona bioscope le tla bona banna ba sebetsa. Talimang hantle hore na basebetsa joang.

Tsipe ea ho gala (demonstration with gong) e bolela hore galang mosebetsi, le phakise, hobane nako ekhuboanyane. Ga bobelitsipe (demonstration with the gong again) e bolela hore tlohela, tlosa matsoho tafoleng.

Sebetsang joaleka banna.

English translation (of both the Zulu and Sotho versions)

You will work here today. Pay attention to the work

instructions. You are not to talk. Attend to your own work; do not disturb the next man.

On the screen you will observe men doing work similar to that which you will do. Pay attention to the demonstration.

The first gong (demonstration) means start work; work fast because there is very little time. The second gong (demonstration again) means stop work, remove your hands from the table.

Work like men.

School Sample Test Instructions:

English instructions - given from Standard 3 to Matriculation:

You have come here to do some tests. Pay attention to the instructions I am now going to give you.

You are not to talk; keep perfectly quiet. Attend to your own work. You will not be told how to do these tests. Instead a demonstration of how to do the tests is made on the screen. Pay attention to the demonstration.

The first gong (demonstration) means start work. You start at once and work fast because each test is timed. When the second gong rings (demonstration again) you stop work immediately and take your hands away from the table.

You should do your best.

The following are the Zulu and Sotho versions given to subjects below Standard 3:

Zulu Version:

Namhlanje inzongena isikolo lapha. Ni lalele kahle imithetha engizonitshela yona.

Umthetho wokuqala. Kufuneka ni thule nithi du-ningakhulumi. Yuka umsebenzi wakho kuphela; ungaglazi ngapha nangapha.

Yibioscope le. Nizabona amadoda lapha ebioscope asebenza umsebenzi ofano nalo enizowusebenza. Manje nibekisise kahle ukuthi basebenza kanjani; nani nisebenza kanjalo.

Insinibi yokugala uma ikhala kanje, (demonstration) ikhuluma ukuthi galani umsebenzi. Nigale masinyane, nitshetshise ngoba isikhathi sincane. Uma ikhala

obwesibili kanje (demonstration again) ikhuluma ukuthi yekela, susa izandla phezukwetafula.

Kufuneka ningasabi; nisebenze kahle kakhulu.

Sotho Version:

Kajeno le tla kena sekolo mona. Mamelang hantle melae oe ke tlang ho le bolella eona.

Molae oa pele. Ho batleha lo khutse lere tuu - le seke la bua. Talima mosebetsi oa haofeela; o se ke oa talima koana le koane.

Ke bioscope ena. Le tla bonabanna mona bioscope ba sebetsa mosebetsi o tsoana g le ona oo le tlang ho o sebetsa. Joale, le talime hantle hore na ba sebetsa joang; le bona le sebetse joalo.

Teipe ea ho gala ha e lla tjena (demonstration) e bolela hore galang mosebetsi. Le gale kapele, le phalise hobane naka e khutsoanyane.

Ha ella khetle la bobeli tjena (demonstration again) e bolela hore tlohela, tlosa matsoho tafoleng.

Ho batleha le se ka la tsaha; le sebetse hantle haholo.

English translation (of the afore Zulu and Sotho instructions)

You will attend school here today. Pay particular attention to the instructions I am going to give you.

The first instruction: You must be perfectly silent - you must not talk. Attend to your own work; you must not look this way or that way. (demonstration by tester who moves his head to the left and right of one of the screens).

This is a bioscope (pointing to the screen). You will see men on the screen doing the same work that you are going to do. Therefore pay attention to what they do.

When the first gong rings like this (demonstration) it means start work. Start at once; work fast because there is very little time. When it rings for the second time like this (demonstration) it means stop work, remove your hands from the table.

You must not be afraid; you must all do your best.

The Reassurance given to pupils between Std. 3 and the Matriculation class:

Boys and girls (if any girls) we have now come to the end of our testing programme. And I wish to thank you all for helping us today. You all behaved very well and I think you all did your best.

I must remind you that this testing is not connected with your school-work in any way. Therefore if you have done badly on the tests do not think that this will affect your examination marks, also if you have done very well on these tests do not think that it will help you at the end of the year - it will not, because your teachers will not be shown these marks.

Thank you.

APPENDIX : C

1. Complete Test Administration, Time and Scoring Sheet.

TEST.	TIME.	ADMINISTRATION	SCORING.
SCREWS	2 MINUTES		1 Point for each correct solution.
SORTING 1.	TRIAL 1 : 2½ MINUTES TRIAL 2 : 1½ MINUTES		1 Point for each correctly sorted item in both trials.
SORTING 2.	TRIAL 1 : 5 MINUTES TRIAL 2 : 3 MINUTES		1 Point for each correctly sorted disc in both trials.
CUB CONSTRUCTION 1. 2. 3. 4.	2 MINUTES 5 MINUTES 7 MINUTES 10 MINUTES	8 Cubes, 3 sides red. Plus 4 Cubes, 2 sides red. Plus 4 Cubes, 2 sides red. Plus 2 Cubes, 1 side red. Plus 4 Cubes, 2 sides red. Plus 4 Cubes, 1 side red. Plus 1 Cube, plain.	
TRIPOD ASSEMBLY 1. 2. 3.	3 MINUTES 2 MINUTES 2 MINUTES	Preceded by a still of 20 seconds Preceded by a still of 10 seconds	1 Point for each correct assembly except the weight which gets 2 pts. If weight hangs incorrectly, only 1 pt.
FORMBOARD 1. 2. 3. 4.	30 SECONDS 1¾ MINUTES 3½ MINUTES 15 MINUTES		Practice trial One pt. for each correct solution One pt. extra per recess if all pieces fit correctly i.e: 2 or more pieces.

TEST.	TIME.	ADMINISTRATION.	SCORING.
MECHANICAL PEGBOARD	6 MINUTES		1 Point for each correctly positioned peg.
WIGGLY BLOCK 1. 2. 3.	1 MINUTE 4 MINUTES 10 MINUTES		1 Point for each pair of pieces correctly assembled in each block, and 1 pt. for each block completely correct.
KOHS BLOCKS.	PATTERN 1 - 30 SECONDS PATTERN 2 - 30 SECONDS PATTERN 3 - 30 SECONDS PATTERN 4 - 1½ MINUTES PATTERN 5 - 2 MINUTES PATTERN 6 - 4 MINUTES PATTERN 7 - 6 MINUTES PATTERN 8 - 6 MINUTES PATTERN 9 - 6 MINUTES PATTERN 10- 5 MINUTES	2 Cubes red, 2 Cubes white 2 Cubes red, 2 Cubes ½ Red and ½ white. 2 Cubes white, 2 Cubes ½ red and ½ white. 4 Cubes ½ red and ½ white. 4 Cubes white, 4 Cubes ½ red and ½ white. L Cube red. 9 Cubes ½ red and ½ white. 16 Cubes ½ red and ½ white. 16 Cubes ½ red and ½ white. 16 Cubes ½ red and ½ white. 5 Cubes ½ red and ½ white. 3 Cubes red, 1 Cube white.	

APPENDIX : D

1. Suggested Alterations in Kohs Blocks patterns.



1



2



3



5



6

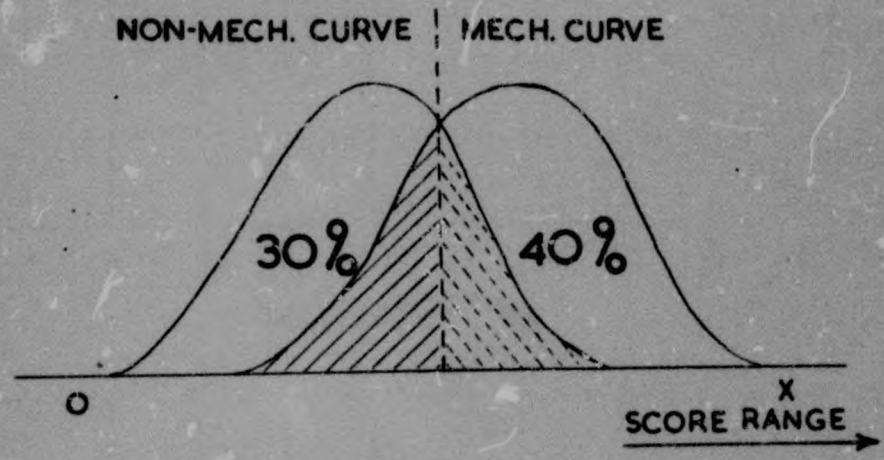
SCALE: ½" = 1"

SUGGESTED ALTERATIONS OF KOHS PATTERNS:

Kark

APPENDIX : E

1. Efficiency of Selection Graphs.

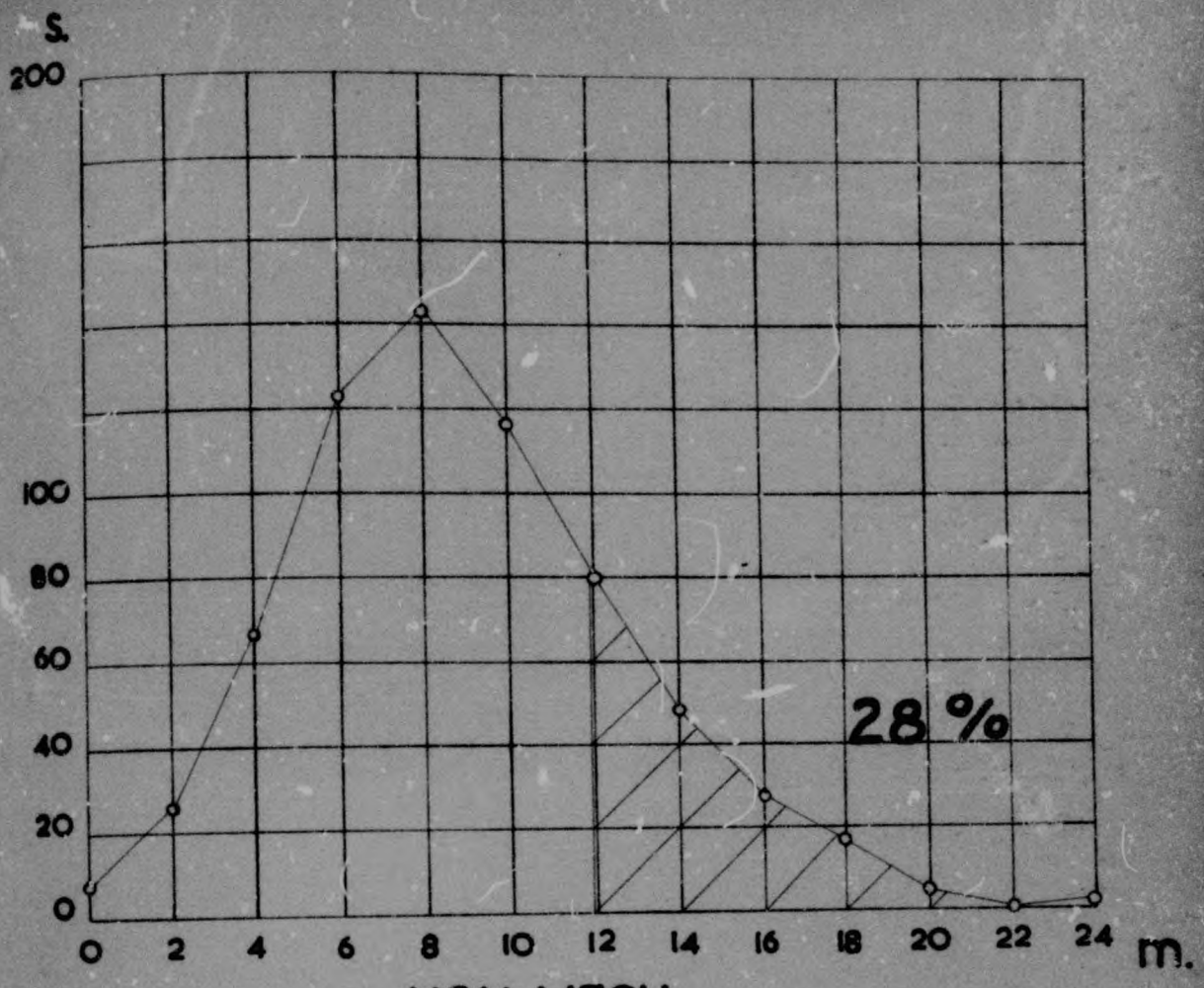


NOTE :

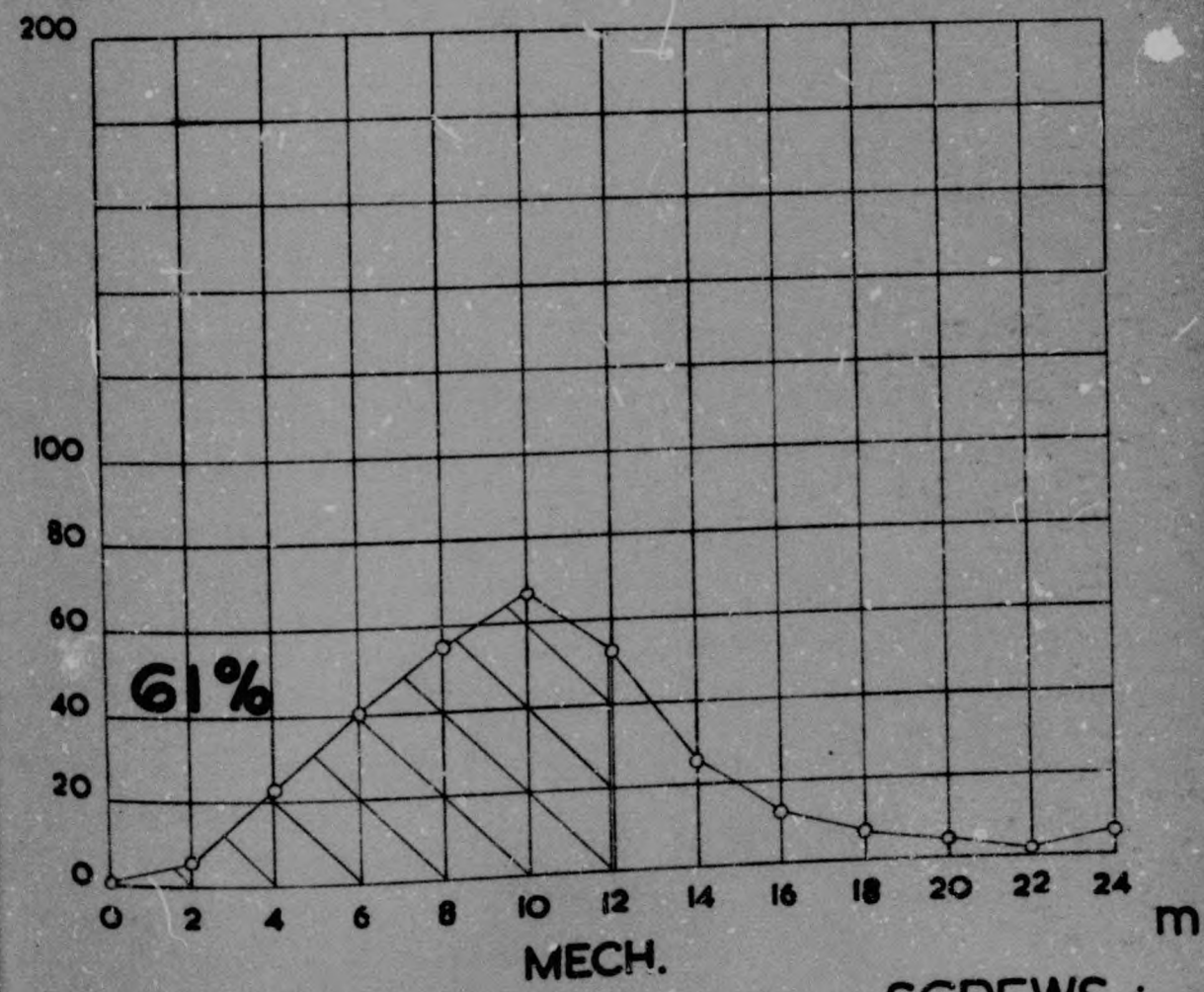
IF INDUSTRIAL SELECTION IS A 100% CORRECT,
THE TESTS HERE REJECT 30% OF THE MECH. GROUP
AND ACCEPT 40% OF THE NON-MECH. GROUP.

AN EXAMPLE OF THE PRINCIPLE OF THE FOLLOWING EFFICIENCY GRAPHS

Mark



NON-MECH.



MECH.

SCREWS :

Author De Ridder J C
Name of thesis An investigation into educational and occupational differences in test performance on a battery of adaptability tests designed for Africans 1956

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