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The effect of cultural variables on the Goodenough-Harris Drawing Test and the Standard Progressive Matrices

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4.3 IQ and Capital

What must now be answered is how has capital been able to dominate scientific theory - specifically IQ in this case, - and how has it been able to use IQ for its own ends?

Milliband (1972) and Karier (1977) argue comprehensively that the Corporate Liberal State is dominated by capital. Capital mainly puts the State into power, keeps it there, and 'is the power behind it.' Most state policies are there to aid the owners of capital. Answering the above question becomes relatively simple if one accepts this premise. The logic then runs:- The bourgeoisie are out to make profit. State policy in the hands of capital aids profit. Research in the twentieth century (amongst other things) makes policy scientific. Capital dictates research through its economic leverage - directly in the form of grants, and indirectly through state policy e.g. educational policy. Science justifies the profit. There can be no doubt whatever that research could not be carried out without the aid of private enterprise and the state. (Even grants to universities are from the state and capital). The suggestion that capital should back much research which will undermine its profits, is absurd. Thus the bourgeoisie dictates research they <u>want</u> , and uses it

to justify their profit. Karier sums up the situation when he says:-

> One does not need to conjure up a conspiracy theory of history to recognize that the (corporate) foundations did not consciously, over an extended period of time, support that which threatened to betray the basic framework of the corporate liberal state (1977, pg 342).

IQ tests have further protected profits in another way. It has served to mask the power of any real revolutionary opposition. If a person truly believes that they have a marginal standard of living because they are inferior beings, they are perhaps less likely to take violent measures against the social system, than if they believed in their position as a product of social privilege. (ibid)

The practical process by which capital dominates research and uses IQ will now be illustrated by examples of their use in Britain, the USA and South Africa.

Firstly Britain. From the early 1920's right through to the 1960's Sir Cyril Burt dominated the psychometric field. He was an expert witness on the extremely influential conciliatory Committee on the Board of Education. It was on Burt's advice that intelligence testing became both the <u>instrument</u> and the <u>rationale</u> for introducing the practice of

streaming, selection and differentiation of type of secondary school, which affected the lives of millions of British school children. Simon says that

> the entire system of classification and subsequent differentiation of pupils from the age of seven was based in Burts theory concerning the dominance of heredity in intellectual development (1980, pg 13).

(As has been noted Burt's theory was based on false data and was even possibly fraudulent).

Simon goes on to say that

> It is not too much to say that the theories expoused and promulgated by Burt were the <u>most important ideological factor moulding and legalizing</u> the highly instructive, hierarchical educational system in this country (my italics) (ibid, pg 13).

Later when attempts were being made to change the streaming system it was the Black Papers of Burt (along with Eysenck and Lynn) which tried "to halt the positive movement to comprehensive education and the abolition of streaming which aims to open up the education system more effectively to the mass of the people" (ibid, pg 13).

There can be no doubt that an educational hierarchy suited the needs of capital. For example, capital needs both blue and white collar labour, and the 'correct amount of each' for optimal functioning. If education 'produces' 'wrong amounts' of one or the

other, then capital suffers. If there is a shortage of 'blues,' the 'whites' don't want those jobs and so capital suffers. If there is a surplus of 'blues' they are unable to do white colour labour effectively. Capital suffers, and the education system is at fault for not producing capital's needs. Thus if an economic hierarchy is needed one must create, by whatever means a parallel educational hierarchy. It seems reasonable to hypothesize that if Burt's conclusions were not to the likes of capital, funds would have been pumped into research which would have shown up Burt's results to be false long before Kamin discovered the 'inconsistencies' in 1974.

Secondly the United States. Karier, in his article, 'Testing for Order and Control in the Corporate Liberal State' (1976) has shown how testing has been used to rationalize and standardize manpower for the production of goods and services, and how the testing movement, financed largely by corporate foundations, has been instrumental in this. Aspects from this article will now be summarized.

Since the early 1900's in the U.S. corporate foundations have been the main sponsors of research and the major influence on education policy. As early as 1903 the John D. Rockerfeller's General Education Board and in 1904 the Carnegie Institute in Washington

were directly involved in shaping a hierarchical education policy. However, scientific rationalization in the form of the IQ test only followed later and provided the instrument that 'scientific' capital was looking for. In 1916 Cubberty, an educationalist, wrote:-

> Our schools are, in a sense, factories in which the raw products (children) are to be shaped and fashioned into products to meet the various demands of life. The specifications for manufacturing came from the demands of twentieth century civilization, and it is the business of the school to build its pupils according to the specifications laid down. This demands good tools, specialized machinery, continuous measurement of production to see if it is according to specifications, the elimination of waste in manufacture, and a large variety in the output (In Kamin, 1981, page 344).

Testing not only provided the device whereby people became dehumanized 'products' for the use of industry - measured and standardized - but also provided capital with the 'variety' it wanted. The IQ meritocracy (normal curve) was exactly what was needed to justify and produce a hierarchy. And as requested, meritocratic education systems were developed with IQ at the centre. In Britain the process was called streaming, in the U.S., tracking and segregation. In Washington D.C. for instance, schools began operating on a 'four-track' system. An honors track for the gifted, a college preparatory track, a general education track, and a special track for 'slow

learners.' (This is other than colour segregation). This system was based on intelligence theory, and IQ tests were used to fit people into their most 'appropriate' track. Burt laid down the policy in Britain and it was taken up in the U.S.A.

> Our aim should be to discover which ration of intellect nature has given to each individual child at birth, then to provide him with an appropriate education, and finally to guide him into the career for which he seems to have been marked out at birth
> (Burt, in Simon pg 18).

By way of example, the momentum for the implementation of schooling which would determine a person's future, measured by IQ at age 6 or 7, was supplied by the following corporate grants:-

(1) The Carnegie Foundation supported Thorndike to the tune of $325,000 between 1922 and 1938 - this through the depression. When one looks at Thorndike's view this is not surprising. "The argument for democracy is not that it gives power to men without distinction, but that it gives greater freedom for ability and character to attain power" (In Karier 1977, pg 351).

(2) The Educational Testing Service, with a grant from the Carnegie Foundation was set up in 1947 with a board of trustees drawn from various foundations, the American Council on Education, public and private colleges, as well as other

businessmen and government officials. The operational costs of ETS increased from about $2 million in 1947 to $29.7 million in 1969 and with this, according to Karier "The doorway, to virtually every profession in the corporate liberal state came under the influence and control of the new organization" (1974, pg 362).

(3) In the thirties when 'child-centered' schooling was predominant the Carnegie Foundation supported the Progressive Education Association with over $4 million. In the fifties when 'society-determined' capital needs were predominant, the same foundation sponsored Conant and Sibbeman who were both proponents of this view.

Marks (1979) has shown how the heredity/environment argument has shifted with the social reform policies needed at the time. For example in the 1920's business leaders wanted to restrict immigration, thus conclusions about innate racial inferiority were presented to the public, thus allowing Northern Europeans into American, but not Southern Europeans. On the other hand, when school intergration was favoured - after the Second World War - environmental conclusions about racial equality were put forward.

Thirdly South Africa. Here the situation is slightly different from both Britain and the U.S. Whereas in

Europe and the U.S.A. politicians and educationalists throughout the 20th Century have been extremely concerned with giving scientific justifications to their policies, in South Africa it was not until 1980 and the HSRC de Lange report on education that policy makers turned to 'scientific' arguments in this area. Thus up to this point there had not been much use made of the 'scientific' IQ test, to justify policy.

The complex racial situation in South Africa and specifically that between the working class Afrikaner and the black population made it somewhat easier for white leadership to espouse racial segregation policies without turning to science to justify them. The threat which blacks posed to white peoples' social and economic privileges allowed policy makers to make decisions which European and American leadership would probably have needed scientific explanations to justify. For example, when 'Bantu Education' was implemented in 1953 the then Minister of Native Affairs needed no justifications from science when he said:-

> Natives will be taught from early childhood that equality with Europeans is not for them .... What is the use of teaching the Bantu child mathematics which it cannot use in practice? .... There is no place for him above the level of certain forms of labour (A.F. Verwoerd, 1953).

Nonetheless, IQ tests were being used. They were

implemented to stream people, to label them and to exclude them from jobs (as well as all the other IQ uses [see pg 1]). They were 'working' in the background, doing what they were designed to do, standardizing and categorizing people and fitting them into an educational and economic hierarchy. The policies were in line with capitalist ideology, and the IQ test was often used to implement it even though it was not being used to justify it.

In 1980 a 'scientific enquiry' into education was carried out on government recommendation. One must ask why after managing so long without scientific justification, was it necessary to begin a scientific enquiry in 1980. Secondly one must ask how scientific this study was, and finally one must see and hypothesize what the role of the 'scientific' IQ test will be if the recommendations of this Commission are implemented.

One of the main aims of the present S.A. Government's 'Total Strategy' campaign is to 'win the hearts and minds of the people.' In order to do this it is important for policy to be implemented because it is 'fair.' Scientific justification makes policy seem 'fair.' This would appear to be a major motivation for making the investigation scientific, but it is imperative to look behind the decision to be fair.

The Prime Minister instructed the HSRC to carry out the investigation because of a "triple crisis" in education (Africa Perspective 1980). These were the school boycotts of 1980, the "skilled manpower shortage" and the crisis and dissatisfaction among teachers. The third crisis involved mainly white teachers, and it seems to have been a result of an economic boom which drew teachers into industry. This 'crisis' would appear to be secondary to the other two - for the purposes of this thesis anyway.

The 1980 school boycotts cannot be seen in isolation. They were, to a large extent, a continuation of the school revolts and civil unrest of 1976. The periodic boycotts by both black and coloured pupils were indeed a 'crisis' for the government. The gross dissatisfaction which June 1976 and the boycotts marked, could no longer simply be dismissed. An 'unstable' country and workforce could have dire consequences for the country. It would discourage overseas investment, and cause many 'privileged' people to leave the country to seek a better life elsewhere, thus effecting the economy. It would also cause many underprivileged people to leave the country to train as guerillas or by continued violent protest make the country 'unstable'. In short, the country would be 'dangerous' to live in, both economically and from the view of physical safety.

The government had to do something to placate an angry school population.

The next fact was that the development of monopoly capital changed labour demands from cheap unskilled labour (which could be supplied from the homelands) to requiring a much greater semi-skilled labour force. More and better schooling was needed for this and parts of thus far untapped black resources now seemed appropriate. Further, providing some blacks with a chance to achieve "middle-class" status could serve as a model to other blacks that one is not restricted by colour from achieving higher economic status (see Buckland, 1981).

This, in brief, was the climate which gave rise to the 'scientific' enquiry. But how scientific was it? In the first place it is difficult to even conceive of an investigation dealing only with 'facts' - aside from any political or ideological position - when the facts to be investigated are a mixture of political, economic and social issues. The commission itself asserted "systems of education are a part of the social, economic and political structure of a country" (HSRC report 1980) and then went on to ignore this in favour of 'scientific investigation'.

Then what about the people who served on the

commission - were they value free or at least representative of a myriad of opinions? The fact is that all the members were elected by the HSRC (a government body) and it was "dominated by white male Afrikaners, with a heavy predominance of education bureaucrats" (Buckland, 1981, pg 60). Certain assumptions were taken for granted by the members of this scientific commission. For example that the political and economic status quo would be essentially maintained. In other words the present capitalist mode of production and relations of production were never in question. Further, capitalist economic and industrial growth is seen as a priority and thus the manpower and educational needs of the country should be to secure and facilitate this.

Whatever one's views on these assumptions are, one cannot claim, given these assumptions, that the study is value free. (The examples of value intervention presented here are not even a comprehensive sample of ideological assumptions.) (ibid 1981).

The final question on this issue is how is the 'scientific' IQ going to be used in the new 'scientific' scheme of things - if it is ever implemented. Thus far in this thesis the recommendations of the De Lange report have not been given, as this is too vast a task. However, what is

probably the main recommendation of the report will be outlined as it could be crucial to the future use of the IQ test in South Africa. The report recommends that education should no longer be separated on racial grounds but on the ability of the individual students. The report recommends that school education be divided into 'academic,' 'vocational,' and various levels of 'special' education. This recommendation can be seen to fit with the needs, outlined earlier, to appease a militant school population and create a black middle-class. This would serve the needs of the South African economy by allowing a small percentage of blacks to acquire more skills.

Though the commission did not specifically state how 'ability' would be measured between those who are to receive 'acedemic' and those who are to receive 'vocational' education, the assessment of the 'mentally retarded' who will receive 'special' education is clear.

> The handicap (mental retardation) indicates a primary intellectual deficiency and in terms of intellectual ability means an IQ of 80 or less. The scholastically educable child is a mentally handicapped pupil who is regarded as scholastically educable if his IQ lies somewhere between 50 and 80 ... The seriously mentally handicapped child is ineducable but trainable and has an IQ of between 25 and 50
> (De Lange Report, 1981, II pg 39).

The use of IQ in determining who will receive which

kind of education would ensure that the majority of blacks would not receive the same education as whites. However due to an overlap between the IQ normal curve of blacks and that of whites, some blacks would receive the same education as whites. As it has been shown (see footnote 3) that IQ tests have a good predictive validity vis-a-vis educational capabilities one may argue (as does the commission) that it is in the child and society's interests that those with greater intellectual ability receive higher level education.

In this way the focus of 'type' of education is shifted away from 'race' to 'ability,' even though black/white differences in the schools would be largely maintained. This would be ensured as IQ tests, or any other known 'ability' test with a high scholastic predictive validity would discriminate against cultural groups.

If all people are competing for the same positions in schools then the same tests must be administered to all groups of people i.e. a test with a high predictive validity. However unless a 'culture-free' or 'culture-fair' ability test with high scholastic predictive validity is discovered, the use of pychometric testing in the implementation of any of the De Lange report recommendations will discriminate

against cultural groups. In the guise of being 'scientific' and 'fair' racial discrimination would continue.

4.4 Summary

It appears then that it is not co-incidental that capitalism has benefited, and is continuing to benefit from IQ test use. In fact it may be definitively argued that capital has been instrumental in the derivation of IQ tests in order to facilitate its own manpower needs, as well as ensuring their continued use.

The claim that IQ tests are value-free is belied by capital and state involvement at every stage of their design and use. The 'scientific IQ' typifies 'technocratic rationality' where social and political direction are 'entailed' but not 'acknowledged.' Though gains from IQ tests are accrued by capital in industry itself (for example in the use of IQ tests in job selection), the primary gain is at the level of education policy and the implementation of this. It is at school level that a hierarchy begins and this 'feeds' into industrial needs. Though IQ test-use, as an instrument of capitalist gain, is thus not immediately obvious, its importance to the capitalist system should not be underestimated.

Its role in classifying and categorizing people, in creating hierarchies and in justifying and implementing 'racial capitalism' is extensive.

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CHAPTER V

AIMS, RATIONALE AND HYPOTHESES

5.1 Culture and Intelligence

This thesis has outlined two ways in which one may view 'intelligence.' Firstly as a 'capacity' which is able to be classified into measurable units, and secondly as a 'process' which has been developed in socio-historical circumstances.

The choice that one makes on this issue determines, to a large extent, the view that one is likely to take when looking at 'culture and intelligence.' For example, if one takes the view that cognitions are 'capacities' then one may believe that it is possible to eliminate the effects of 'culture' on intelligence and thus measure 'true intelligence.' This was the view of Cattell in 1940. He noted that the traditional IQ tests at that time measured a good deal of obviously acquired knowledge and skill, and that they were heavily weighted with scoring of special abilities distinct from intelligence. However, he thought that tests could be "wiped clean" of these influences and one could "begin afresh" with tests which would strip the individual of his/her cultural veneer and reveal and expose a person's 'true' and

inherent abilities (Cattell, 1940, pg 162). This was the notion of a 'culture-free' test. Within this 'ability' framework, when it was seen that one could not separate 'nature' from 'nurture,' a 'culture-fair' movement developed. The aim of these tests was to "keep cultural differences from permeating the tests by selecting only those experiences, knowledge and skills common to different cultures" (Samuda, 1974, pg 134). Both culture-fair and culture-free tests were thus devised.

Yet though not all theorists seeing 'intelligence' as a 'capacity' have agreed that 'culture' can be eliminated from IQ tests (e.g. Anastasi, 1982), 'capacity' theorists see 'environment' as 'acting on' an individual. From a 'process' point of view this is inadequate as the 'two factor theory,' of heredity and environment and their interaction as determining IQ scores leaves no room for the persons <u>own</u> movement. As Simon (1980) says:

> Marxism does not see the child as a given product (heredity) impacted (as it were) by a kind of global 'environment.' On the contrary, the child, by finding activity in the given circumstances, both changes his environment and changes himself. ....the major influence in a child's development lies in the nature of his <u>activity</u> - not in the 'environment'

> as such, but in the child's activity in that environment: in his relations with adults, other children, the school, natural and artificial (man-made) phenomena generally with which he is surrounded from birth. It is this activity which shapes (or determines) the child's development. (Simon, 1980, pg 21)

Cognitions <u>are</u> cultural. They are developed within specific cultural demands. But the human being is not a passive receptor but an active participator in her/his socialization.

<u>Aim I</u> :-

This thesis aims to investigate whether differences in socio-historical conditions, and thus differences in activities, affects performance on 'culture-fair' intelligence tests.

But 'culture-fair' intelligence tests, though all claiming to measure 'intelligence' are not homogeneous. It is therefore possible that different tests would be affected by different cognitions within a culture, and that the ability to do well on one test but not on another is a product of 'cognitive style' developed in a culture.

If it is found that culture influences different 'culture-fair' intelligence tests to varying extents, then either (from the 'capacity' framework) one or

both of the tests must withdraw its claim to be measuring 'intelligence,' or (from a process framework) the tests are not measuring 'intellectual capacity' but different cognitive samples of socio-historical thought processes.

Aim II :-

This thesis aims to investigate whether different so-called 'culture-fair' tests are affected to different extents within the same socio-historical framework.

5.2 The Dependent Variables

Two of the most widely used 'culture-fair' intelligence tests are the Raven's Progressive Matrices and the Goodenough-Harris Draw-A-Person Test. These form the dependent variables of the present study. Carlson (1970) found a .55 correlation between the DAP and the Ravens while Welshire and Gray (1969) correlated the tests at .53. The overall correlation between fourteen different intelligence tests (e.g. the Stanford-Binet, WISC-R) was found to be .51. Thus the correlation between the DAP and the SPM in a white Western population is just above the average of that found between IQ tests in general. Whether this correlation holds within other cultures is not clear.

Details of these two tests will be outlined under the section "Apparatus" (pg 130) in terms of their validity, reliability and cultural influences on them, therefore further exposition of the tests is reserved at this stage.

5.3 The Independent Variables

The four cultural variables which this study hypothesizes may affect intelligence test performance - rural/urban, ethnic group membership, sex and age - will now be outlined from a socio-historical perspective.

5.3.1 Urbanization

Studies conducted as early as the 1930's and many subsequently *6, have found that urbanization affects IQ score. Hereditarians reacted against this 'infringement' of their theory by asserting that the differences were a result of 'brighter' people choosing to migrate to urban areas. This theory was proved to be inadequate by Klineberg (1935) and Lee (1951). Klineberg tested three hundred Harlem school children matched by sex, age, schools attended, socioeconomic status and birthplace (all Southern born), but differing in the number of years they had lived in New York city. Results indicated that

without exception, blacks who had arrived from the South most recently had the lowest scores. In fact he found a relation between test score and length of residence in New York city. Lee, in a study with Philadelphia born and Southern migrant black students, but using a longitudinal rather than a cross-sectional approach (as was used by Klineberg), arrived at the same conclusions. Samuda (1975) says that this "... gave way to the more adequate explanation that improved environment means improved test scores" (pg 107). Although this is indeed more adequate, Samuda does not go far enough. It is all very well to say that an 'improved environment' - say more books in the house, intellectual conversation, educational toys, more adequate school teachers etc. etc. - improves test scores, but one would need to move to a meta-level to truly <u>explain</u> the differences. What is being confused here is a description with an explanation.

A very brief socio-historical explanation of urbanization in the South African context shall now be put forward.

At the centre of this explanation is the notion that one's world view is determined primarily through systems developed around a pivot, which is activity within a mode of production. In consequence then,

changes in cognitions are largely determined by changes in that mode.

Traditionally Southern African economy was a subsistence one. The people were hoe-cultivators and pastoralists, and sometimes supplemented the products of herds and fields by hunting and gathering wild food. Variations in the economic 'styles' between groups were due to differences in natural environment. On the Western side of Southern Africa, the people concentrated their dwellings, but dispersed their economic activities over a wide territory. Because of uncertainty about crop failure, cattle disease, drought, pests, shortage of game etc., they built an economy over a large area. If there was failure in one section, it was unlikely that there would be failure over the whole area. This also involved distribution of relationships between people, so that goods could be handed over from a far distance away if one crop area failed. On the Eastern side of Southern Africa, more fertile soil and ecological conditions allowed various crops to be grown on surrounding ground. A failure in one crop could be supplemented by success in another crop. Thus tribesmen in this area pursued their subsistence activities within a zone centered on their kraal. Kraals on the Eastern side were therefore much further separated than on the Western side, while their economic activity was more

concentrated.

The political structure of the traditional societies can be seen as largely set up to control the economy. The chief regulated public access to the means of production. He controlled economic suicide by ensuring that the people would, for instance, not graze their cattle anywhere, or burn veld indiscriminately to promote spring growth, or trample the fields of others. The chief would use his authority to set boundaries in both time and space. He would define areas for pasture and lands for fields. He declared open and closed seasons. In this way he patterned work for his people and saw to it that resources were used correctly.

Traditional religious world views also tied in with the effective running of the economy. For example, new fruits and crops would not be eaten until a ceremony had been held to please the ancestors. In this way it was ensured that maximum rewards were gained from the yields.

Similarly grass for thatching could only be picked once the chief (and a judge) had made a decision and a ceremony held. Thus the thatch was not cut before it had reached its peak, but also not left to get too dry and so be vulnerable to catching alight. Samson

(1980) says:-

> In imposing patterns of work and use, the chief orchestrates subsistence activities. His control is over access to the means of production, and, in exercising it, he sets the bounds to individual action. As rights held by one man are held against others, the chief both limits individuals and creates the privileged rights that they enjoy
> (pg 138).

The system of kinship and marriage, and the differences between different groups, in this regard, is also inextricably linked to subsistence. *7

In short, every aspect of living appears to have centered around maintaining subsistence. Elaborate norms and mores developed around this, so that reproducing their peasant economy was just 'a way of life', - the only one they knew. Children were socialized into this without question. The peasant economy, analogous to the peasants studied by Vygotskii, takes place within a practical mode of subsistence.

Then came contact with white colonists. The members of the Bantu-speaking people were gradually drawn away from their traditional agricultural and pastoral economy and pulled into a highly developed industrial economy based on mining and manufacture.

From the first colonizers in 1652 to the 1850's few Africans were drawn into the economy of the white-settlers. However in the Cape the "Cattle Killing" in 1857 by the Xhosa prompted many of the remaining people to look for work on the white farms. Nonetheless, this incorporation was minor compared to the change in conditions and way of life for the Bantu-speaking people that the discovery of diamonds, and later gold on the Witwatersrand, brought. It can safely be said that the reason why blacks left their traditional economies for the cities was to earn money and that gold was the main source for this shift.

But why would blacks who were maintaining a subsistence economy need money? (In answering this one sees how a mode of production changes and how cognitions are forced to change with it). The first reason was pressure on the land. Traditional economies depended to a large extent on the ability to move when old land became exhausted, and with being able to spread themselves out on a territory. With the arrival of the whites and the setting up of boundaries, territorial freedom was limited and so production suffered. Further, land restrictions stopped the allocation of plots to each married man by the headman and so a group of landless men developed.

Secondly, mainly because the white mining entrepeneurs needed labour to mine their gold, a tax was imposed on all black people. As their economies were geared towards subsistence, by definition they could not tolerate their goods being expropriated as tax. Many men were thus compelled to offer themselves for paid employment.

Thirdly, contact with 'white' commodities such as textiles, salt, bicycles, iron pots and knives, tobacco, soap, sweets, paraffin cookers etc. whet the appetites of the traditional people and they, too, wanted to acquire these goods. In order to do this they needed money, and their labour was ready to be utilized. And finally, once a precedent of urban life had been set many people wanted to go there out of curiosity or a sense of adventure.

What the rural dweller met when he came to town was a radically different way of life from what he had been used to. With the economic mode changing, so did everything else. Firstly the work demanded regular hours, and was for the most part devoid of any meaning other than the wages at the end. Secondly he was often compelled to work and co-operate with people who, in terms of traditional criteria of association such as kinship, neighbourhood, tribe and political allegiance, could never have been part of his social

universe. Thirdly, whereas before economic relations were based on reciprocity between neighbours and kinsmen, now it was largely impersonal and based on monetary exchange. Fourthly residential arrangements changed drastically. From a homestead with fields all around it and a hut for each wife, a man may have been forced into a hostel with hundreds of others with almost no room to move monitored by guards. Or perhaps forced to live in a developing urban slum where each house was packed closely against the next with no sanitation facilities. Fifthly, cattle which had played such an important symbolic and practical part to existence had no role to play at all.

The situation is well summed up by Dubb:-

> .... we may say that traditional tribal institutions were developed in a rural setting in which there was a simple technology and a simple division of labour. Relatively small closed groups co-operated on the basis of kinship and/or neighbourhood, while authority was based on age, seniority and political position. In town .... (people) have to fend for themselves as individuals. Kinship, neighbourhood and, frequently even common tribal affiliations have receded in importance as new systems of norms for defining and regulating relations have developed to meet the needs of urban life (pg 447).

In short, the child in the urban area is 'encultured' into a completely different environment from the child in the rural area. He/she is reared into a world

dominated by Western perception, abstraction and logic, historical circumstances are different, social circumstances are different, economic mode is different. His/her activities are different and, as has been hypothesized, it is these which largely form cognitions. Thus it is to be expected that style of cognition will be different between children reared in an urban environment and children reared in a rural environment.

5.3.2 Ethnic Group

It is imperative to begin this section by emphasizing that the comparison of ethnic groups in this study was not undertaken to ascertain whether one group is more 'intelligent' than another. If one assumes, as this thesis has done, that 'intelligence' develops through a socio-historical process, then it will be obvious that this would be a meaningless endeavour. However, cultural groups, by definition, are different, and the nature of the different tests are bound to evoke different cognitive responses from different cultural groupings. If the environments of different cultural groups are then stabilized as, say, through urbanization, then one would need to investigate whether these differences disappear or change in any way.

A cultural variable which has been found to be fundamental to DAP score is exposure to representational art, be it native or Westernized. Dennis (1966) administered the DAP to scores of children in eleven countries spread over three continents. He noted various anomalies which suggested that a DAP score was not a measure of innate ability but an internalization of an interaction with the environment, specifically, exposure to representational art. Firstly he found that certain cultural groups, the Bedouin and the Shelluk, have mean DAP IQs which would place them at the mildly retarded level in a Western population. A group with retarded IQs would not be able to function adequately as a community group, and these people were. Secondly, he found that it was not urbanization in itself which contributed to high DAP scores. For instance Hopi Indians isolated from Western influence, were found to have a mean DAP IQ of 123. Dennis concluded that higher scores in Western populations were due to representational art exposure; through newspapers, placards and photographs. In short, this test, which requires very different cognitive processes from other IQ tests (such as the Ravens Progressive Matrices (see pg 130 - 135), is reliant on very different cultural variables.

If Dennis' hypothesis is correct then one would expect