A sociological approach to intelligence.

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A SOCIOLOGICAL APPROACH TO INTELLIGENCE

BY

JOHN A. CONNOR

A Thesis
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ABSTRACT

Although a popular psychological concept, intelligence is of sociological interest because of the possible consequences of the application of measured intelligence and the less obvious social contingencies which enter into the development, measurement, and evaluation of intelligence. In this study, the question of intelligence will be considered in part as another aspect of rationalisation in advanced industrial society.

An examination of literature oriented to the debate over I.Q. testing and the nature-nurture controversy currently alive in psychological, biological, and educational circles reveals the lack of a coherent definition of intelligence.

Intelligence, viewed as a social product only anchored in the physiological, is taken to be those abilities which permit an individual to adapt in established manner in his society and is compared to the associated concept of creativity, those abilities which foster unorthodox or inventive adaptation. Hypothetical profiles of highly intelligent and creative people are constructed to relate personal qualities to the social role categories of technical intelligentsia and intellectual in order to see what use industrial society makes of its ability inputs. The societal trends which affect both the intellectuals and the technical intelligentsia are then looked at.
ACKNOWLEDGEMENTS

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INTRODUCTION

The purpose of this thesis is to delineate some of the sociological implications of the concept of intelligence - not to distill a rigid psychological definition from the plethora of literature. Far from being exclusively confined to psychological research and testing situations, the ramifications of the concept of intelligence can penetrate the deepest fibres of society. Unfortunately, the social meaning of intelligence is usually neglected and the subtle implications and properties of intelligence ignored.

Contemporary debates on I.Q. testing and the nature of intelligence expose the confusions which result from exchanges of polemics and opinion rather than coherent evidence. The intentions of this project are, first of all, to summarise the current discussions of I.Q. testing, locating some of the incongruencies, and assessing the conflicting hypotheses; secondly, to construct a comprehensive sociological concept of intelligence and its sister concept of "creativity" through the extension of psychological theory to the general functioning of society; and through location of the qualities of intelligence which make the present ferment understandable; and finally, an examination of the consequences of being intelligent or creative and the social mechanisms which affect those who are labelled as such.

A sociological perspective should prove useful in placing the intelligence question in better focus since
a more holistic approach will be possible. What seems to be required is essentially a sociological conceptualization of intelligence as it is found in advanced industrial society.

The discrepancies which occur in the psychological and educational considerations of the intelligence-I.Q. discussion can be traced back to assumptions which, though not voiced, colour the entire ability picture and have erroneously involved biologists and physiologists in questions which are primarily social. This paper is not concerned with the question of the existence of neurological capacities, even though the current controversy over intelligence places much emphasis in this area. One of the principal aims of this paper is to illustrate that intelligence is not a quantity to be measured neurologically but rather a quality to be evaluated socially, and indeed, social evaluation of intelligence is an ineluctable phenomenon which has manifested itself through many curious devices. This is the case because the social significance of intelligence is largely unrecognised.
CHAPTER I
THE I.Q. DEBATE

The relationship between intelligence and I.Q. test scores, and the resultant controversy over the efficacy and benefit of such testing, constitute issues which at one and the same time beg clarification, yet intimidate investigators. The conflict over the relevance and desirability of I.Q. testing transcends its scientific beginnings, because of the social significance of the topic and the possibly invidious, as well as benign, use which could be made of measured "intelligence".

I.Q. tests have been objected to on the grounds that they serve to limit the opportunities of disadvantaged sectors of the population, or that they are racist tools which unfairly label negatively on the basis of colour or national origin rather than by actually measuring the enigma of intelligence. Others support I.Q. testing because they feel that it is the best method for identifying children who can be helped by remedial educational programmes; or by identifying individuals, at the other end of the ability spectrum, who should be specially provided for and trained so that they might have the opportunity to fill the most important positions in society for everyone's benefit. In this respect, it might be argued that I.Q. testing is an egalitarian organon which allows for upward mobility in spite of any other ascribed qualities.

It is somewhat ironic that the endeavours of I.Q. testing can arouse so much excoriating lay responses and
yet be called by some psychologists the most refined element of their discipline. It is also interesting how apparently conscientiously conducted studies can often arrive at opposing results and thus add to the confusions of the argument until all that is clear is that no totally supportable disposition toward the matter is tenable. There are many unanswered questions. Are I.Q. tests socially desirable instruments? What do I.Q. tests measure? What is intelligence?

I.Q. testing began, benevolently enough, at the turn of the century in Paris. Alfred Binet devised a means of selecting out dull children in order that they might be afforded a more appropriate environment for learning. The Binet tests evaluated those skills which were necessary for success with the regular school curriculum. But Binet and many colleagues believed that the tests were measuring certain innate mental abilities which might be called "intelligence".

Binet's efforts were exceptionally fruitful, and the ability of the test to select out young children with apparent mental deficiencies was repeatedly established. Although Binet's test was able to identify low "intelligence" in a restricted population, there was no reason to necessarily believe that such an instrument would retain its efficacy across varying cultural and mental ranges.
As Richard Herrnstein writes:

A given test is only for people drawn from the same general population that the test was standardised on. Even if it is hard to locate the precise boundaries of this population, a useful intelligence test should incorporate at least some of the material of a culture, or it may miss gauging the child's ability to assimilate his surroundings. Virtually every child grows up in some culture or another, and his intelligence score (if that concept is to retain its ordinary meaning) must reflect his sensitivity to it. 1

Even given Binet's pragmatic success at measuring intelligence, he never satisfactorily defined it. Just as a child's score on any given instrument is ultimately culture limited, the whole concept of intelligence seems to be relativistically bound to the social milieu.

Several other notable attempts were made at the solution of the I.Q.-intelligence problem. Charles Spearman, noticing high correlations between the presence of several of the individual skills which could be identified by I.Q. tests, concluded that there must be a form of general intelligence which pervades each mental faculty. Spearman labelled this overriding ability "g". Spearman thought that what his "g" (or general intelligence) actually represented was the ability to identify relationships.

Louis Thurstone, in continuing with Spearman's theory, identified ability groupings subordinate to "g". Each of these groupings was called "s". Since then, there has been an expansion of the theory to include a profusion

1Richard Herrnstein, "I.Q.", in The Atlantic CCXXVIII (No. 3, 1971) p. 48
of basic intelligence components, and even a bifurcation of "g" on the basis of the complexity of the skill to be acquired.

Still the problem remains - what is intelligence?

Again from Herrnstein:

More data are not the final answer, for at bottom, subjective judgement must decide what we want the measure of intelligence to measure - physical as well as psychological. The idea of measuring length, weight, or time comes first; the instrument comes thereafter and the instrument must satisfy common expectations as well as be reliable and practical. In the case of intelligence, common expectations centre around the common purposes of intelligence testing - predicting success in school, suitability for various occupations, intellectual achievement in life. 2

Despite the debate over the use of I.Q. tests and their relationship to the arcane matter of intelligence, there are some concrete connections which manifest themselves on the social periphery of the dispute. There seems to be little dispute about the "correlations" between I.Q. and academic achievement, occupational prestige and performance, income, and social class. But it is not as easy a matter to interpret these correlations. A study done by Lewis Terman leads us to believe that those with high I.Q.'s are a group of social supermen. The relationships are outstanding, but do not readily warrant conclusions as to the causal direction in which the variables are associated. The validity of any such specious judgements would be

2 Richard Herrnstein, pp. 49-50
vitiating the realization that predictions made about future success in school on the basis of I.Q. scores could be reflexive, and that success on I.Q. tests, and in the academic and occupational fields could be the result of prior social status of the family. The exact nature of these relationships has yet to be sorted out; however, the correlations cannot be denied.

The success in application of the I.Q. measuring instruments, coupled with the social consequences associated with intelligence, has made the problems of working with an undefined subject seem to be of less importance. The latest source of dispute involves working out the balance between the two limiting or determining contributors to intelligence, i.e. heredity and environment.

The most recent and comprehensive work which precipitated copious reaction and raised the incubus of racism was done by Arthur Jensen, and appeared in the 1969 winter edition of the Harvard Educational Review, Vol. 39, p. 1-123. Basically, Jenson argues, through the presentation of information gathered in several studies, that intelligence is determined primarily by heredity. Black people, as a population, tend to perform at a significantly lower level on intelligent tests than white people. The principal thrust of Jensen's article was directed toward the general issue of the nature-nurture aspects of intelligence.

There are many skirmishes in the current I.Q. and
intelligence battle which have followed from the Jensen article, "How Much Can We Boost I.Q. and Scholastic Achievement?". Much of the evidence which the people supporting the primacy of heredity have presented comes from studies of I.Q. correlations between twins, siblings, and children and their parents. The point of such studies is that varying degrees of genetic similarity can be obtained, ranging from total identity with monozygous twins to totally random comparisons with members chosen from the general population. Some control for environment is possible with twins or siblings being brought up in the same family or by having siblings separated and put in different homes. If both heredity and environment can be controlled for, then conceivably the factor of heritability can be calculated.

The difference between the total variation and the environment component of variation leaves a component of the total variation that may be accounted for by genetic differences. This component, when expressed as a fraction of the total variation, is one possible measure of heritability. 3

Since Monozygous twins have identical heredity, the only factor which could account for any differences in intelligence (as measured by I.Q. tests) would be

3 Walter F. Bodmer and Luigi Luca Cavalli-Sforza, "Intelligence and Race", in Scientific American, CCXXIII (October, 1970), pp. 23-24
environment. If the twins have been separated from each other at an early period, then it is assumed that there is no reason to believe that in the ensuing milieux their experiences will be similar. It is assumed that these are subjects with identical heredity, but different environmental backgrounds. In most instances, the I.Q.'s of the monozygous twins correlated very highly. The differences in I.Q.'s for monozygous twins raised in separate homes is less than the variance between I.Q.'s of siblings raised in the same home (subjects of similar heredity and supposedly close to identical environment). When dizygous twins are examined and compared to monozygous twins, it is found that their I.Q.'s do not correlate as highly; therefore, the differences in heredity seem to account for the differences in phenotypic expression of intelligence.

Although most twin pairs differ by less than ten I.Q. points, it is possible that they may differ by up to 20 points. Since heredity is identical for the monozygous twins, environment is responsible for the variation - a variation which is comparable to that which can be found for the same person if tested more than once. The time lapse between testings and the age at which the individual was initially tested would account for variations in the score disparities.

A comparison of the average difference between the members of monozygous pair and the average difference between the members of a dizygous pair should be
a good index of the comparative importance of genetic factors and environmental ones... There are two major contrasting reasons why such a simple measure is not entirely satisfactory. First the difference between members of a dizygous pair represents only a fraction of the genetic differences that can exist between two individuals... Second, the environmental difference between members of a pair of twins encompasses only a fraction of the total environmental difference that can exist between two individuals, namely the difference between individuals belonging to the same family... In short, whereas the contrast between monozygous and dizygous twin pairs minimizes genetic differences, it also tends to maximise environmental differences. 4

Most advocates of the pre-eminence of genetic factors in the composition of intelligence set the heritability of intelligence from 80% to 85%. This would imply that variation in intelligence in the white North American and Western European population is due almost entirely to heredity and that the environment is relegated to a much subordinate role (20%). To elucidate this concept of heritability, Herrnstein uses the example of skin colour in two different populations. In Norway, adults often have swarthy skin due to climate. Even though this may be the case for the parents, the offspring may still be born with fair skin - indicating that the variation in skin colour is substantially controlled by environment. Therefore, swarthiness is not highly heritable in Norway. In the United States, if adults have swarthy skin it is probable that they were born with that complexion and that it is not the...

4 Walter Bodmer and Luigi Luca Cavalli-Sforza, pp. 22-23.
result of environment. It is quite likely that their children will also be born with swarthy skin. If this is the case, then, swarthiness is highly heritable in the United States.

In response to the use of the heritability concept in the study of intelligence, Bodmer and Cavalli-Sforza write that there is more than one way to calculate heritability, depending upon the particular genetic model which is being used. They also point out that estimates of heritability are linked to the population for which they are calculated, because it is assumed that environment and genetic makeup are not constant for all populations. Consequently, extrapolations from one population to another are unwarranted. It must be remembered that heritability is a statement of relationship between environment and heredity and that a change in one variable necessarily means a commensurate, negative change in the value of the other variable. It is therefore conceivable that a particular element in the environment could be uncovered which would nurture intelligence effectively to the extent that genetic considerations would have to assume a minor position. Variations in intelligence could then be controlled by manipulation of environmental elements.

Environmental control has had a crucial role in many of the polemics centred around the heritability of intelligence, and the differential distribution of
intelligence throughout the population. The advocates of genetic supremacy cite studies in which I.Q. tests have been administered to black and white individuals of the same socio-economic status. When it was found that the blacks scored consistently lower, it was concluded that, since they came from very similar environments, the factor which accounted for the variation in scores between the black and white subjects had to be heritability. Bodmer and Cavalli-Sforza question the validity of assuming that similar status does indeed indicate similar environment. In a recent study conducted by Dr. Jane Mercer, the importance of proper control for environment was made dramatically clear. In the study, Black, Chicano, and Anglo children were tested for I.Q. The usual discrepancies were found, with Anglos scoring higher than either Blacks or Chicanos. When sociocultural variables typical of the modal pattern for the community were identified and controlled for, there was a significant change in the I.Q. distributions for both of the ethnic groups. "When sociocultural differences were held constant, there were no differences in measured intelligence."

There are other factors which should be considered when evaluating reports of poor black performance on I.Q. tests. Many black children may not approach I.Q. tests with the same perception of the situation as white children.

5 Jane Mercer, "Pluralistic Diagnosis in the Evaluation of Black and Children: A Procedure for Taking Sociocultural variables into Account in Clinical Assessment", p. 21
First of all, white, and especially white middle-class, children define the I.Q. test as a task and a challenge while black or lower class children may not see it as such, and thus not feel compelled to perform as well as they might. Also, there is some evidence that black children and lower class children could suffer anxiety if having to write the test under the supervision of a white or middle-class examiner. Peter Watson, a British psychologist, noted the following when he tested black West Indian students in a London working class area:

When the test was identified as an I.Q. test, scores dropped by ten points. Watson is convinced that the variation can account for the average 15 points by which blacks fall behind whites in I.Q. tests - the basis for the claim that whites are, genetically speaking, superior intellectually to blacks. 6

When all of the evidence is considered, what are the reasonable conclusions which can be drawn? First there seems to be little unrefuted evidence to support the thesis of "genetic inferiority" in black intelligence. Even if it is completely accepted that the concept of heritability is valid, findings for one population cannot be totally transferred to another population. At this time there is little information on which to base estimates of heritability of intelligence for the black population. Also, studies which claim to have established the superiority of whites over

blacks on I.Q. scores in instances in which environment was supposedly equal have to be discounted in the light of Mercer's findings on the effects of a more extensive and comprehensive consideration of sociocultural factors. Finally, the social psychological contingencies of the test situation expose other complicating components of the I.Q.-intelligence puzzle.

Secondly, concerning the relative importances of environment and heredity, a blanket valuation of 80% heritability for intelligence seems questionable. Morton Hunt writes that the proper relationship between environment and heredity cannot be adequately appreciated if interpreted as a simple arithmetic sum and he suggests that they must be seen as a synthesis.

It begins, as the noted psychologist, I. I. Gottesman, of the University of Minnesota, points out, with the recognition that intelligence is not a lump sum, to which heredity contributes so many I.Q. points and environment the rest. The genotype and the environment do not add up, they interact - and the result is not a sum but a product. 7

In other words, I.Q., though rearrived as a simple ordinal (or interval) variable by psychologists, is inaccurately mathematically conceptualized. I.A. may be more than a matter for differential calculus. Still further restrictions can be applied to the implementation of the heritability argument when it is realised that different genetic

7 Morton Hunt, p. 194
compositions respond differently to a variety of environmental situations.

For some breeds, changing the environment made little difference while for others, it made a lot; and conversely, within some environments, differences in heredity didn't amount to much, while within others, differences in heredity assumed considerable proportions. 8

At present, then, we must realise the importance of both factors. The possibilities of both heredity and environment being able to limit what is called intelligence are undeniable. Impairments at the neurological level or intra-cellular flaws in nucleic acid certainly would reduce an individual's potential for intelligence. Similarly, a socioculturally deprived environment can be intellectually stifling. Even such physiological factors as prenatal environment, and immediate post natal care, have been convincingly introduced to the discussion of intelligence and have been proven to enter into the potential for development of an individual.

Discussions of intelligence lead to disagreement over the moral and social connotations of I.Q. testing, and the anathema of racist as well as liberal ideology as well as hypothesis regarding the steps to be taken in the future to assure us a fair society. However, there is no concise sociological definition of intelligence. There are a myriad of intuitive insights into the nature of intelligence, but

8 Morton Hunt, p. 194
little agreement on the qualitative nature of a phenomenon which has supposedly been so extensively quantified. Jensen is content to call intelligence that which is measured by I.Q. tests, but Morton Hunt reports:

"...Dr. Martin Deutch of New York University, tells me: "There is no scientific definition of intelligence at this time. It's a convenient label for certain kinds of behavior: but I suspect that, in actual fact, the thing itself doesn't really exist." 9

Intelligence appears to be a term used to refer to a set of separate traits but, since Spearman introduced the concept of "g", there is also some general agreement as to the existence of an underlying ability which ties most of the traits together. Psychometricians tend to think of intelligence as the ability for "generalisation and abstraction." 10 Reasoning and rationality are then the bases of intelligence. Piaget concurs, identifying rationality as the prime factor in intelligence.

Piaget, however, is more specific in his description of these abilities and defines them in terms of mental operations which have the properties of mathematical groupings in general and the property of reversibility in particular. An operational grouping is present when in the course of mental activity one can always get back to the starting point. 11

9 Morton Hunt, p. 94


11 David Elkind, p. 323.
Not only is rationality a commonly mentioned attribute of intelligence but the concept of adaptation is inferred as an explicit component of intelligence. Both Wechsler and Piaget mention the importance of dealing with or adapting to environment as an indicator, if not a component, of intelligence. The definition of mental deficiency which is used by the American Association of Mental Deficiency includes "impairment in adaptive behavior." The fact is that the terms "rationality and reasonableness" and "adaptive behavior", though being related to the phenomenon of "intelligence", are tied to social situations. Thus, there has to be an element of relativity in the definition and evaluation of any behavior which is called either reasonable or adaptive.

12 Jane Mercer, p. 2
CHAPTER II
TOWARD A SOCIOLOGICAL CONCEPT OF INTELLIGENCE

The purpose of this chapter is to situate the concept of intelligence in a sociological field, rather than to sort out and judge the psychological, physiological, and educational confusions which accrue to the concept. However, this does not mean that the inconsistencies encountered by other disciplines cannot be clarified through reference to a sociological approach. A new approach to the old dilemma may serve to re-shade areas of significance and help to relate divergent thoughts by placing them on a different plane of analysis.

This scheme rests on the assertion that "intelligence" and "ability" are not synonymous when considered sociologically. Psychologists have been fond of regarding intelligence as being equal to either a bundle of associated abilities, or a ubiquitous quality associated with all mental activities. Content that ability and intelligence are essentially one and the same, psychologists administer tests intended to expose this raw mental product. The flaw in this approach is the failing to recognise that ability itself cannot be measured without being expressed by the individual when confronted with a specific situation which demands a response. There has to be some medium, often in the form of a task, through which the mental potential can manifest itself. The task performed, or the
environment which elicits the behavior, is necessarily
defined socially by both subject and observer. Without
this social grid, the potential will never be allowed to
develop as a skill or ability and its existence will go
unrecognised by the subject and his fellow members of
society. Whether the potential is described as Spearman's
monolithic "g", Cattell's fluid or crystallised intelligence,
or as the usually conceived of body of correlated mental
traits, it is of little consequence in this discussion,
for the inherent nature of the potential is incidental at
this point. What is crucial is the realisation of the
existence of a potential and the location of a socially
bounded avenue for manifestation of the mental potential.
It is only through interaction with the environment -
physical and especially social - that these mental poten-
tials can be developed into skills or abilities and then
evaluated as such.

To further justify the use of sociology to examine
a question which is typically a citizen of other realms,
other social ramifications of the intelligence issue can be
mentioned. The relation between measured intelligence or
I.Q., and social and occupational status, the use of tests by
employers to screen applicants, the placing of children in
different educational programmes on the basis of test scores,
and the anxieties which are generated by being labelled
incompetent by society all beg for sociological consideration
of the problem.

In conjunction with the investigation of intelligence, attention must be paid to the related concept of "creativity" in order to unravel the intimate and unavoidable relationship between those two concepts. Once again, a sociological perspective is more fruitful in explaining some of the abstruse nuances associated with creativity.

From a Psychological Perspective.

The perusal of various psychological theories of intelligence can be helpful in the formulation of a sociological scheme. One popular method of approaching intelligence is to turn back to tests devised to measure "intelligence" and to speak of intelligence as being constituted by various traits revealed by the measuring instrument. The cause and further result of this reversed approach is a lack of criteria for selecting skills which are either part of the intelligence family, or which exhibit general intelligence. Consequently, researchers do not distinguish between quality and quantity of intelligence. The inclusion of traits is often contingent upon some ultimate application of the tests, whether this end is consciously realised or not.

Still working in the testing milieu, Cattell locates two types of intelligence which he relates to two different congregations of tasks found on I.Q. tests.

Crystallized general ability, "g" shows itself
in judgmental skills that have been acquired by cultural experience: vocabulary, good use of synonyms, numerical skills, mechanical knowledge, a well-stocked memory and even habits of logical reasoning. G is high on the subtests that traditionally have been built into intelligence tests: vocabulary size, analogies, and classifications involving cultural knowledge of objects in the problem. Crystallized ability stretches across the whole range of cultural acquisitions...

Tests of fluid ability, "gf", have little relation to a well-stocked memory. They are culture fair perceptual and performance tests and those specially developed tests of judgment and reasoning which have been considered relatively culture free. They involve solutions to tests of classifications, analogies, matrices, topology, and problems that do not involve much educational acquisition. 1

In Cattell's system, crystallized intelligence is hardly more than a set of learned responses; although he tries to make a case for the culture greeness of fluid ability, he is unable to avoid qualifications which confess to the ineluctable impingement of cultural and social factors. Even though innate individual ability is the subject of analysis, society is functioning to develop, define, and evaluate elements which many consider to be controlled exclusively by heredity and the physiological operations of the individual. Other psychologists are more open in the inclusion of social factors and the relation between intelligence and the environment.

As already mentioned, Jean Piaget develops the idea of adaptation which is critical to a sociological interpretation.

of intelligence.

He argues that intelligence is an extension of biological adaptation which, in lieu of the instinctive adaptations in animals, permits relatively autonomous adaptations which bear the stamp not only of our genetic endowment, but also of our physical and social experience. On the plane of intelligence we inherit the processes of assimilation (processes responsive to inner promptings) and of accommodation (processes responsive to environmental intrusions). Assimilative processes guarantee that intelligence will not be limited to passively copying reality, while accommodative processes insure that intelligence will not construct representations of reality which have no correspondence with the real world. 2

Reason is also integral to this conception of intelligence because it is through reason that we become aware of and practice in light of the organising principle operative in the universe. It appears that Piaget conceives of one absolute principle of organization in the universe, the explication of which should be the ultimate goal of intelligent man. Rather than there being a single route for reason to follow in adapting the individual to the environment, there are as many principles to adhere to as there are social systems. In each system, there will be paramount needs and values in accordance with the structure and orientation of the social system. Understanding the principles which operate in the achievement of the goals of the society will be the work of reason and intelligent action within that limited setting.

Piaget emphasises the importance of the environment in the development and expansion of intelligence. Intelligent activity is the means through which an individual may best adapt himself to the environment in accordance with his beliefs and perceptions of his environment. The intelligent mind must be able to structure the universe in models which conform to the reality of the universe, and be able to accommodate its models to new data from the universe. Since proper adaptation presupposes the functioning of reason, adaptive behavior would be synonymous with intelligent behavior.

The individual is born with certain potentialities - physical and mental. Through interaction with the environment, he develops these potentialities into skills which help him cope with the environment. The more useful and effective these abilities are in dealing with the environment, the more intelligent the individual is. Also the greater the number of these abilities which are developed, the more adaptive the individual; consequently, the more intelligent the individual. The type of mental abilities which are valued and required for adaptation, and the development of these skills, are both contingent upon the ambient environment. Also, there are quantitative (number of mental abilities) and qualitative (degree of development ability) aspects to intelligence. Thus, intelligence
is not an absolute innate feature but rather those abilities which each society recognises to be beneficial in meeting its functional exigencies.

From Piaget, George Herbert Mead is closer still to a sociological interpretation of intelligence. To Mead, intelligent actions are those which: "maintain or advance the interests of the form or the species to which it belongs. Intelligence is, then, a function of the relation of the form and its environment."³

Mead and Piaget are on common ground with their concepts of adaptation and reciprocity between the individual and the environment, but Mead is more open to a concept of social relativity which would allow for divergent principles of organisation in different societies. There are some goals which, with their concomitant adaptations, would be valued by all classes and individuals. There are other adaptations which would be parochial and be confined to particular classes or subcultures. Relating the importance of adaptation to that area of society to which it is most meaningful, i.e. the economic sphere, Arthur Jensen incorporates contemporary intelligence measurement with contemporary economic or adaptive concerns when he writes: "I.Q. is in a sense a measure of a person's ability to compete successfully in the world of work in all known civilized

societies."

**Intelligence and Creativity**

The psychological approach to creativity, as with intelligence, seems to have been confined to the testing stage. Similar to intelligence, mental potential and the development of adaptive mental skills are necessary conditions of creativity. Since "intelligent" and "creative" are positive labels, they both connote differing manifestations of adaptive mental ability.

Some psychologists see creativity and intelligence as being separate entities, and have found that those who were measured and found to be highly creative did not score commensurately high on I.Q. tests. Piaget interpreted intelligence and creativity as being related, both representing adaptive ability, but with creativity being more adaptive. Creativity transcends the existing limits of adaptation within which the intelligence functions, reaching out toward the ultimate principle of organisation in life. Using a relative social view of life goals, creativity would not necessarily be called more adaptive, but would be adaptive in a novel or innovative way, but still within limits which would be acceptable in that society. A somewhat similar view is found in the psychoanalytic approach

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to creativity: "...the creative process involves both more primitive and more realistic types of thinking." This statement reflects Piaget's concern for reality in adaptation and also suggests a temporary lessening of the impact of socialisation. To others, creativity involves flexibility, curiosity, and the propensity to seek gratification through channels other than those conventionally prescribed by society. Struggling to hit upon a consonant relationship between intelligence and creativity, Ellen V. Piers mentions that success does not demand originality and she adds:

To sum up, creativity and intelligence are not synonymous. They are positively correlated, but the degree of correlation apparently varies from slight to substantial, depending on the type of creativity."

Out of all the writing, there does seem to be agreement concerning the way in which a creative individual relates to his environment. The creative individual does not want to be shackled by the environment, and consequently acts with less regard for the traditions and precepts to which his peers adhere. As a result, he is able to adapt in inventive fashion. Of course there are limits within which novel abilities and actions can fall and still be adaptive and not radically violate the expectations of the society.


6Ellen V. Piers, p. 166
To be creative, an individual must possess inherent mental potential capable of development resulting in mental skills or abilities. The skills developed can be either adaptive or non-adaptive, depending upon the social milieu in which the development takes place. Also, the skills developed can be either novel or already existent in the social system. The intelligent individual is adaptive in an established manner while the creative individual is adaptive in an inventive manner.

If society were a physical entity moving in a straight line and obeying the laws of physics, then it would have a certain momentum directly related to its mass and velocity (speed and direction). Mass would be constituted by population size, number and nature of social institutions, related values and behavior patterns, sanctions, and other elements which lend substance to any social system. In this model, the social mass would be inversely proportional to the internal fluidity or capacity for change of the society. Social velocity would be represented by the speed at which a society is moving in a certain direction. The direction is determined by the goals which are sought by that society and the speed is determined by the rate at which the ultimate goals are reached or approached. The direction which any society takes is along the line known as "progress". Specifically, this may mean industrialisation, automation,
socialism, establishment of world empire, or now, improved quality of life. By adapting to his society, an individual contributes to the realisation of societal goals by attaining personal goals which are subsets of the larger aims.

Intelligence is a force which maintains societal momentum. The force of intelligence, manifested through the birth, education, and adaptation of a person serves to replenish the energy expended through internal friction (cost of training, death, and conflict), and inter-societal disputes. Ability is the energy, and what is known as intelligence is the resultant power or force on which the society functions. Rather than just maintaining momentum by keeping velocity constant, creativity causes acceleration by altering velocity through changes in either direction or speed. The potential energy of the individual has been developed into a force which through the novelty and efficacy of the particular mode of adaptation and the lack of social mass, or resistance to change is able to either deflect the society from its former course and steer it toward differing goals or to speed up the progress of the society and to reduce the time previously required to achieve the existing goal. If the proposed deviation is too severe, or if the methods of increasing efficiency are too remote from the established means of adaptation, then creativity may become eccentricity or even mental illness. In
retrospect, this type of eccentric or maniac was merely ahead of his time. It is apparent that this model is far from a perfect reproduction in the form of its physical counterpart, but it was presented to give some understanding of the macrosociological functions of intelligence and creativity.

**Creativity and Intelligence in Society**

The traits which are characteristic of the creative individual, such as flexibility or internal supervision, do not sound as though they would be useful in pursuing a career in most established economic institutions typically structured along bureaucratic lines. It is usually found that the creative individual prefers occupations which allow him freedom from the encumbrances of many aspects of the social structure. Getzels and Jackson conducted a study in which they compared a high I.Q. group with a high creativity group of children. Although there is little theoretical justification for using the standard tests for intelligence from a sociological point of view, the results interestingly correlate with what would be expected from the models which have been constructed. The high I.Q. group tended to aspire to "conventional" occupations in the professions, while the high creativity group more likely chose "unconventional" occupations (such as novelist or adventurer). The conclusion drawn
was that there were different preferences in the type of environment in which they would wish to function, with the creative type selecting the less restrictive. It was also noted that both groups achieved well in school, although the highly creative groups were not as well received by their teachers. As for the background of these two groups, it was found that high I.Q. children came from parents with more overall education and greater specialisation in education; high I.Q. children probably got more attention from their mothers than the high creativity children. The parents of the high I.Q. children seemed to be less secure and paid more attention to doing what they felt was expected of them. High I.Q. mothers seemed more likely to stereotype themselves socially. The parents of high I.Q. children were more critical of their children's performance in school, peer group friends were selected by the parents of the high I.Q. children on the basis of their display of acceptable behavior. Generally, the creative child comes from a home in which socialisation does not rigidly follow the tenets of society, and this relaxed social attitude follows through life. The attention paid in the homes of the high I.Q. children to socially acceptable procedures tends to increase the mobility potential of the children. The intelligent children tend to select the occupations which have the highest probability for social
rewards in the form of social status and power, while the creative children choose those occupations with intrinsic rewards but with low social status. Since the extrinsically rewarding occupations are also more involved in the established societal milieu, they are more easily recognised as being functional, and are rewarded with greater alacrity than are the more peripheral occupations which appeal to the creative person. In a study conducted by Liam Hydson, it was found that English schoolboys perceived physicists as being more valuable than novelists. Intelligence then is closely associated with several variables which contribute to higher social status. Intelligence would be what is meant as talent in the Davis and Moore functionalist theory of stratification.

In a study by Elliot White, it was found that I.Q., next to grade level, was the most reliable indicator of a child's sense of his ability to alter the outcome of events. This further indicates the connection between intelligence and personal adaptation within the social system, or more concisely, power. Intelligence can be interpreted as a product of socialisation in the middle-class mode, and as an indicator of future status potential.

I.Q. Tests and the Sociological Concept of Intelligence

Throughout this chapter, intelligence and I.Q. have been used almost interchangably; however, existing
I.Q. tests are not valid over a wide range of adaptive abilities. Modern I.Q. scores are increasingly a measure of the skills developed from potential to adapt to a middle-class environment. The tests are adequate indicators of the chances for success in our society. It is not surprising that those who are labelled successful and have developed the proper skills to cope with their social environment will be happier and healthier than those who have not developed the skills consonant with their aspirations. If the I.Q. tests are socially constructed by the middle-classes to determine which individuals will perform effectively and adapt well to established enterprises, the emphasis will be on their social reliability. It has been noted how well the scores on I.Q. tests correlated with other middle-class measures of adaptation such as scholastic performance, occupational prestige, and social success. If intelligence is adaptive ability, then I.Q. tests tend to be an accurate indicator of this adaptive ability in Western middle-class society. But I.Q. tests are not able to measure the "innate" mentalistic potential of individuals.
CHAPTER III

THE MEN OF KNOWLEDGE

The preceding chapters consisted of an attempt to summarise and resolve with the aid of a sociological perspective the present nature and meaning of I.Q. scores and of intelligence itself. The conclusion which was arrived at was that intelligence as measured by I.Q. tests was actually a socially instilled predisposition to adapt in society, in accord with the dominant or established mode. Creativity included an element of originality or inventiveness in adaptation which stems from, and reflects a less rigid socialisation of the individual.

This chapter will examine the consequences for those who are either intelligent or creative by looking at the phenomena of intelligence and intelligence testing in relation to trends which are evident in industrial society. By realising the need which the modern economy has developed for trained personnel, we begin to understand the rationale behind the adaptive definition of intelligence and the use of standardised tests to expose intelligence.

Galbraith has pointed out that, to a large extent, intelligence is being handled as another factor of production and the expanding importance of this particular factor of production is reflected in the attention being paid to the development and identification of intelligence and to those who possess it. Creativity also has a place in the
the modern economic sphere. The impact of technology upon the economic sector as well as upon society as a whole has been brought to bear upon the preparation of the population to better fill the offices of the principle organisations of the society. Galbraith suggests the importance of adequately prepared personnel in the modern corporation.

At the same time the requirements of technology and planning have greatly increased the need of the industrial enterprise for specialised talent and for its organisation. The industrial system must rely, in the main, on external sources for this talent. Unlike capital it is not something that the firm can supply to itself. To be effective this talent must also be brought into effective association with itself. It must be in an organisation. Given a competent business organisation, capital is now ordinarily available. But the mere possession of capital is now no guarantee that the requisite talent can be obtained and organised. One should expect, from past experience, to find a new shift of power in the industrial enterprise, this one from capital to organised intelligence. And one would expect that this shift would be reflected in the deployment of power in the society at large. 1

Galbraith makes explicit at least one crucial need for the identification and training of intelligent people and then speculates upon the possible consequences for the redistribution of power on the basis of the importance of the intelligent to the economy. The whole question of intelligence must be looked at in terms of the characteristics of advanced industrial society.

Viewed this way, the problem of intelligence becomes another exigency which faces the rationalising forces of modern society.

Knowledge and Society

The description of intelligence and creativity in their societal contexts can lead to the construction of hypothetical ideal types of highly intelligent or highly creative individuals in our society. Just as there were differences in the aptitudes and occupational preferences in the intelligent and creative children, there are differences in occupation and life style between the highly creative or highly intelligent adult. It must be remembered that the terms "intelligent" and "creative" are not being used in a strict psychological sense nor are these concepts generated by testing devices. These terms connote means of adaptation to the social and physical environment and include the abilities which an individual develops from his raw mental potential in conjunction with propensities which restrict or encourage his development and employment of skills. Consequently, differences in status and life style must be expected.

Whether the exceptionally able man is creative or intelligent or if his cognitive functions are typified by intellect\(^2\) or intelligence, his business was the

\(^2\)Richard Hofstadter makes the distinction between "intellect" and "intelligence" parallel to that made between "creativity" and "intelligence" in this paper. Intellect is: "...the critical, creative and contemplative side of mind...Whereas
augmentation, communication, and when practical, the application of knowledge. Traditionally, the man of knowledge has been referred to as the intellectual. The intellectuals have experienced varying degrees of acceptance, from outright persecution during waves of anti-intellectualism associated with totalitarian political movements, such as the Confucian literati under the Ch'in dynasty in China, up to modern intellectuals in the Soviet Union, to periods of considerable influence and even the achievement of top political positions as with Disraeli or Nehru. If it is possible to talk about the usual station of the intellectual, it is often that of influence based upon importance to those in power. Although it is claimed that knowledge is power, the intellectual typically did not wield power, even though much of the power of others might have been based on his knowledge and manipulation of the symbol system.

An understanding of the intellectuals' position relative to power can be gained from Parsons' treatment of the intellectual role category. Parsons relates the intellectual role to the cultural system rather than to involvement in the functioning of the society. Speaking

intelligence seeks to grasp, manipulate, reorder, adjust, intellect examines, ponders, wonders, theorises, criticises, imagines." Anti-Intellectualism in American Life, (New York, 1963), p. 25

3The term "intellectual" was coined to refer to the notable Dreyfusards and originally carried a negative connotation.
about such cultural achievements as the founding of modern science and the revival of law, art, and literature, Parsons writes:

These great developments could not have taken place without an increasing number of people specialising in cultural concerns and being, relatively speaking, relieved of responsibility for current societal functions. 4

This divorce from the societal, including the economic, forced intellectuals to become dependent for a large part of their sustenance upon religious orders or wealthy patrons. The association of the intellectual and the aristocrat bestowed some measure of prestige and influence on the intellectual but the fact that the intellectual required freedom from societal responsibilities made the actual acquisition of power difficult. The knowledge of intellectuals may have formed a basis for power, but the conversion of this potential into power required social mechanisms from which the intellectuals were largely separated.

As we approach the present, intellectuals have become less dependent upon patron princes and religious orders for their support and have established themselves in universities. As industrial society has developed and technological requirements of the system have increased, the focus of knowledge has been shifting from the symbolic

or cultural areas. The men of knowledge are no longer exclusively concerned with religion, philosophy, law, science, and literature. Engineering, behavioral sciences, and business studies are attracting more and more people, with the net effect that knowledge which concerns society most vitally is no longer symbolic, forcing the intellectuals to deal more intimately with the functioning of society.

To put this another way, the traditional man of knowledge or the intellectual was an expert on the values or ends of the society but the newly arisen man of knowledge or what will be called the technical intelligentsia\(^5\) are experts in the means which are employed by society. It is through the increasing disparity between cultural ends and societal means that the differences between intellectuals and the technical intelligentsia, the traditional and the new men of knowledge, have come about.

Twentieth century society's preoccupation with means, to the extent that means have become ends in themselves, is best exhibited by the impact which technology has had on almost every aspect of life. Many writers,

\(^5\) The term "intelligentsia" originated in Russia and, according to J. P. Nettle, implies an element of group self consciousness ab novo which does not exist amongst intellectuals. In the contemporary setting of advanced industrial society, this self consciousness of what can now be called the technical intelligentsia derives from common backgrounds of primarily technical training, functional interdependence within the organisations of society, and a burgeoning realisation of their importance to society.
including Jaques Ellul, Robert Nisbet and Robert Merton, have commented on the substitution of technological means for culturally designed ends.

Ours is a progressively technical civilization: by this Ellul means that the ever expanding and irreversible rule of technique is extended to all domains of life. It is a civilisation committed to the quest for continually improved means to carelessly examined ends. Indeed, techniques transform ends into means. What was once prized in its own right now becomes worthwhile only if it helps achieve something else. And, conversely, technique turns means into ends. "Know-how" takes ultimate value. 6

The factor which makes technique or the modern ethos of technology distinct is the quest for the most efficient means. This type of approach is reflected in the changes which have faced the traditional intellectual, the changes in education and in the educational institutions themselves, and in the introduction of testing to identify as quickly and effectively as possible those who can most efficiently occupy the important offices of society. Consequently, these changes in the nature of the men of knowledge and in the functions of the men of knowledge have had effects upon the traditional functions of the intellectuals. By being expert on ends, the intellectual of the past was able to either legitimate or criticise the existing order. Although there would be pressure on intellectuals who were under the patronage of those with a vested interest

in the maintenance of the status quo, there is evidence
that even under these conditions he was able to perform his
critical function better than he can today.

It is true, of course, that older systems of
economic support for intellectuals, such as
patronage and direct dependence on the market,
exercised influence over the ideas developed
by professional intellectuals. The varying
impact of all these factors is certainly not
understood in any detail. But it is clear that
in older times patronage and the market did not
succeed in shutting off thought critical of
the existing social order. Under the present
situation the need to be a co-operative member
of a research team may do more to stultify original
and critical thinking that direct economic
pressure. 7

Moore is suggesting that there has been a change
in intellectual life through the shifting of intellectual
activity to organisations, and Galbraith has outlined the
pressures for such a change. Moore is also concerned about
the way in which the features of technology are affecting
even the more purely cultural intellectual pursuits.

In any case, the need for a high degree of
specialisation in all intellectual fields could
in time efface the memory of earlier standards
and ideals with which to criticise the existing
order. 8

What has developed is a bifurcation of the types
and uses of knowledge and accompanying this division there
is an increasing differentiation between the men of know-
ledge. At one end of the continuum exist the vestiges of

7Barrington Moore, Jr., Political Power and Social Theory

8Barrington Moore, Jr., p. 87.
the traditional intellectual who operates at the cultural level and performs his innovative, critical function or investigates universal truths in the physical realm. The critical function of intellectuals is ineluctable. Shils argues that intellectuals are those who probe beyond the obvious and their creativity and originality result from efforts of "elaboration and development" of the existing bodies of knowledge; consequently, there is a necessary rejection in part of the previously accepted knowledge and beliefs.

At the other end of the continuum are the technical intelligentsia - those most involved with organisations and functions of society. Between both extremes would be found those intellectuals who are concerned with the cultural system, but have found places for themselves in organisations, or those of the technical intelligentsia who operate and administer institutions which were concerned primarily with the cultural and symbolic. The university, the usual meeting place for the two factions, is a place where both are blended together in technical function and intellectual pursuit.

What must be done now is to explicitly relate the concepts of intelligence and creativity, with the roles of intellectual and technical intelligentsia, in the context of advanced industrial society. It will be shown how the
intelligent, by nature of the development of his skills and the other aspects of socialisation which are associated with that development are aptly suited for a particular role, how the creative person finds it easier to assume a different role, and how the needs of industrial society serve to distribute these different types of able people.

A valuable beginning is supplied by Getzels and Jackson who summarise the findings of a study comparing several background features of highly intelligent and highly creative adolescents by writing:

We would maintain that the intellectual differences between these groups and the underlying psychological orientations have their source not only in the immediate school experience but in the family environment in which the adolescents grew up. The family environment of these students, at least as portrayed by the mothers' interviews, is consonant with the psychological formulations applied to the groups. The parents of the high I.Q. student tended to recall greater financial difficulties during their own childhood and hence, at least by inference, may be said to have experienced in the past, and perhaps the present, greater real or imagined personal insecurity than is true for the parents of the highly creative students. The high I.Q. parents seem to be more "vigilant" with respect to their children's behavior and their manifest academic performance. As compared with the parents of the highly creative adolescents, the parents of the high I.Q. students tend at once to be more critical of both their children and the school; it is as if their standards were always just one step ahead of attainment. Nor is their vigilance limited to concern for their child's educational progress. They appear equally concerned with the desirable qualities possessed by their children's friends. The qualities they would like to see in their children's friends, which
may in a sense be conceived as projections of the qualities they would like to see in their own children, focus upon such immediately visible virtues as cleanliness, good manners, studiousness. In contrast, the parents of the creative adolescents focus upon less visible qualities such as the child's openness to experience, his values, and his interests and enthusiasms.

When these differences in the parents' attitudes and aspirations are combined with differences in educational specialisation, the age discrepancy between father and mother, and the kind of reading material available in the home, the overall impression of the high I.Q. family is one in which the individual divergence is limited and risks minimised, the overall impression of the high creative family is one in which individual divergence is permitted and risks are accepted. 9

A Profile of the Creative Man

Ideally, the creative man was raised in a relaxed setting not stifled by the usual social trappings. Precocious, but not practical, he managed, in spite of the pressures he faced at school, meeting the demands placed upon him but not enjoying endless prescriptions and regulations. Facing a decision about future occupations, he could abandon the education system for self study or remain within the established channels and be educated in a discipline such as the humanities or theoretical sciences which would allow him some personal autonomy. What the creative man was doing

was becoming the traditional man of letters or the intellectual.

The intellectuals are artists, writers, scientists in the pure rather than the applied fields or natural sciences, scholars in the human sciences not directly involved with the manipulation of behavior. \footnote{10}{Norman Birnbaum, "The Making of a Vanguard", in \textit{Partisan Review}, XXX (No. 2, 1969) p. 227.}

The intellectual exercised his creativity in the cloistered atmosphere of academis and in colonies of other intellectuals. Recognising the components of creativity, Shils note: "...the process of creation itself has always been a process of free choice and adaptation."\footnote{11}{Edward Shils, "The Intellectuals and Power: Some perspectives for Comparative Analysis", in \textit{On Intellectuals}, ed. P. Rieff (New York, Garden City, 1970), p. 36.}

In Jungian terms, those who are creative or whose intellect is paramount over intelligence in the cognitive functions are introverts, bringing the world into themselves for scrutiny and analysis. Using Piaget's components for adaptation, assimilation, and accommodation, the intellectual is not at equilibrium but more likely to assimilate reality analytically or impressionistically rather than accommodate himself to it. The intellectual adapts to the social environment in ways which are unorthodox or inventive. If the intellectual is particularly productive, he can have a great influence upon society, as Marx or Einstein had. Usually, the intellectual does not have
this impact and since his activities are not obviously functional in the day to day survival of the society, the extrinsic rewards are not outstanding. Part of the reason for this may be that intellectuals are educated and not trained. The amorphous nature of education contrasts strongly with the rigid connotations of training. There are impressions of the liberal quality of education compared to the regimented purposeful procedures of training. Ultimately, training is means oriented and is evaluated in terms of the functional requirements of the system and seen as being for the social good. Education, value and ends oriented, with overtones of dilettantism, is more likely equated with individual expansion.

Shils brings together many of the points which concern intellectuals.

Where creativity and originality are emphatically acknowledged and prized, and where innovation is admitted and accepted, this is perceived as a primary obligation of intellectuals. However even in systems where individual creativity is not seen as a positive value, the labour of powerful minds and irrepresible individualities working on what has been received from the past, modifies the heritage of systematisation and rationalisation, and adapts it to new tasks and obstacles. 12

12 Edward Shils, p. 31
Eric Hansen sees the intellectual interested in things in themselves and not the practical aspects of application. Intellectuals are involved with the ends rather than means of achievement. Their less intense socialisation allows them to be flexible and critical of ambient conditions but since some of their socialisations does not allow them to empathise and assume alternate roles, their ability to manipulate others and change situations is retarded.

Intellectuals often feel that they are not valued by society; nonetheless, Lipset reports that intellectuals are on the same prestige footing as business men and professionals. Even if prestige is comparable to that of professionals, remuneration is usually less. Unlike his pre-industrial ancestor, the modern intellectual is not a member of a congealed class. Representing many ethnic backgrounds, no one life style, and a variety of incomes, the intellectuals are a unique social group defying classification by common criteria. The source of this class confusion could be the remoteness of intellectuals from the economic enterprises which absorb the remainder of the population. Although intellectuals have allied themselves with different class movements, they are not really a class themselves. The source of social cohesion suggested by Mannheim is education.
The nature and abilities of the intellectual largely preclude his participation in the technique of advanced industrial society. An examination and elaboration of values and ends no longer seems to have a place in society. Those intellectuals engaged in the theoretical sciences can make contributions if their work can be converted into technological applications but their methods are not consonant with those of conventional organizations; consequently, they must operate on the periphery of industrial society or through mutual compromise take positions in industry or modern universities which allow them to function within organisations but without the usual bureaucratic characteristics or encumbrances.

A Profile of the Intelligent Man

Ideally, the intelligent man came from a socially conscientious home of professionals. His imposing mental potential was developed into skills which are well suited to future adaptation in the principal functional position of this society. This ability was probably born out in a series of tests administered throughout his schooling. As his skills for manipulation of symbols and problem solving developed and he was acknowledged to be intelligent, other personal predispositions were also formed. In terms of Jungian psychology, he was an extrovert, and applied
himself to the social realities which were predominantly related to the productive and administrative fields.

He pursued the professions and went through a long period of training to obtain the required credentials for entry into the occupation of lawyer, doctor, engineer, or accountant. The demands of industry and government are such that highly trained specialists are required in many new capacities. The intelligent man finds himself part of the bureaucratic structure which is typical of modern society. Norman Birnbaum labels this section of the men of knowledge, the "technical intelligentsia."

The regulation of the technical intelligentsia... takes place by the rules governing professional or technical activity, and their autonomy is considerably more restricted than that of the intellectuals: both their skills and the functions to which they are put are determined not by themselves but by their employers. 13

The intelligent man, now one of the technical intelligentsia, has reached the end which was predicted for him years ago by his measure intelligence. Since he was intelligent enough, he was able to benefit from his extended programme of training and has earned a position in society commensurate with his ability, preparation, and the importance of the technical task which he performs. Consequently, he is a professional in the upper middle

13 Norman Birnbaum, p. 226.
class earning a comfortable income, enjoying the prestige of his position, and quite satisfied with himself and the system to which he has so adequately adapted. In appropriate functionalist terminology, Birnbaum writes:

The intelligentsia, educated (or rather, trained) and rewarded for tasks within the system, generally have been extremely resistant to critiques of the system—except, of course, insofar as the criticisms have demanded a more ample role and larger rewards for them. 14

This transformation of men of knowledge has come about because of the practical use to which knowledge can be put in today's production and administrative operations. In contrast to the knowledge of the past, which was largely limited to the abstract, modern knowledge has tangible value and is not being ignored. Complex technology and division of labour have opened many occupations to those who possess knowledge and create an active market for those with the ability to adapt to this type of environment, i.e. intelligence, coupled with sufficient training. Interestingly, intelligence, or the ability to adapt in the established mode, also provides an indication of how likely one is to procure the proper training and whether or not they will successfully fill the position they seek.

14 Norman Birnbaum, p. 229.
As mentioned, the intellectuals and intelligentsia represent opposing end-points on a continuum and in the middle can be found intellectuals who have found a comfortable place in the industrial hierarchy. Shils points out:

...the absorption of intellectuals into executive - "line and staff" posts within large corporate organizations concerned, not with intellectual matters, but with the exercise of authority, the production and sale of material objects, consumption goods, capital equipment, weapons of war, etc. - has greatly increased. 15

rather than a distinct separation between intellectual and intelligentsia, there are definite points of overlap. Although there has been borrowing from the pool of intellectuals, the refinement of techniques for the identification and training of the intelligent will minimise the need to bring intellectuals into societal functions.

Power and the Men of Knowledge

The intellectuals and the technical intelligentsia assume different postures to the power structure in our technological society.

Knowledge and power are not truly united inside the ruling circles; and when men of knowledge do come to a point of contact with the circles of powerful men, they come

15Edward Shils, p. 39
not as peers but as hired men. 16

The modern intelligentsia operate within the larger politico-economic system of our society. To survive, the intelligentsia must sell its skills to either industry, government, or the public and exist in either a bureaucratic or market atmosphere. Any power which the intelligentsia might possess is proportionate to its importance to the organization, and is probably confined largely to the organization.

For, as we have learned, though technological and social processes are crescive, the crucial turning points in a society are political events. It is not the technocrat who ultimately holds power, but the politician. 17

The intellectuals are further removed from power for the most part. The men of knowledge of antiquity were traditionally associated with the aristocracy or the wealthy and more recently intellectuals have been linked with revolution and social ferment. Presently in Western society, the technical intelligentsia actively support and participate in the established social structure and the intellectuals confine most of their invectives within the academic arena.

Indirectly, the intellectual group does not have contact with power. In Canada and Europe, largely due to


to the size and proximity of the intellectual group and
the willingness of governments to include intellectuals
in advisory commissions, intellectuals do have an oppor-
tunity for direct participation in decision making. Parsons
sees intellectuals exhibiting influence rather than power.
He sums up the relationship between the intellectual and
the sources of power in the following way:

...it is natural that the intellectual groups
should tend to feel a growing sense of concern
for the state of society in which they live,
a concern that is expressed both in a sense of
responsibility, and in the assertion of a "right
to be heard", to exert "influence". In their
own right, however, intellectuals, the more
so the "purer" in our sense their cultural spe-
cialisation, are necessarily not among the primary
holders of political power or controllers of
economic resources. Some to be sure seek posi-
tions of power in the large operative organisa-
tions, both private and governmental, though
even here the main role of the applied intel-
lectual expert is more in the "staff" than the
"line" connection, and exercising power is
generally not their primary role.

It is through assertion of commitments to
values on the one hand and the exertion of
influences through the prestige of individual,
institutional, disciplinary and other sources
of "reputation" in the other that the intelli-
lectual in so far as he does not control the
more "material" means of having an impact must
try to exercise his responsibility and his
right to be heard. Considerations such as these
seem to have something to do with the pré-eminence
of "ideologies" in our time.

I am arguing that ideology has become the
primary instrument of the modern secular intel-
lectual classes in their bid to be considered
generally important, to have an impact on
the affairs of the society commensurate with,
or perhaps running somewhat ahead of, their
actual position of strategic importance in it. Ideological propaganda as a way of exercising influence in a technical sense is for them the functional equivalent of power for the political and executive groups and of wealth for the "propertied" groups, which are now to a high degree corporate rather than individual. 18

There is a general trend in society which is affecting both the intelligentsia and the intellectuals. Increasing rationalisation and centralisation have reduced many academic endeavours to bureaucratised professions and brought them under the control of fewer and fewer organisations. Increasing technical rationalisation of industrial society is making the intelligentsia more crucial to continued proliferation of existing goals. Realising their importance and their residual security, the intelligentsia is beginning to question its exclusion from power. Its anxiety is especially acute when it is in contact with incompetent, untrained superiors.

...the upper reaches of the technical intelligentsia (higher civil servants, private managers, directors of the communication and knowledge industries) do manifest a technocratic consciousness, based in part on a proper sense of their role in industrial society, but in part also on an ideology designed to advance their interests as a group. 19

As with the intellectuals, the intelligentsia has developed an ideology which reinterprets its position, but the intellectual seems to be more dependent upon his

18 Talcott Parsons pp. 22-24
19 Norman Birnbaum, p. 221.
ideology for the continuation of the positions in industrial society.

Growing rationalisation has brought about an ethos which Birnbaum refers to as "Functionalisation". Through functionalisation, all aspects of society are streamlined to meet the specific functional exigencies of the technological state. One of the most apparent concomitants is the increasing professionalisation of the academic disciplines and the growing emphasis on training in the universities. Universities, being the centres for the storing and generation of knowledge for society, reflect in their structures the trends operating in industrial society as a whole. Since most intellectuals depend upon universities for their income, the intellectual population is necessarily exposed to the increasing interdependence of university organisations and other economic and political organisations of society.

If it has not already happened, this combination of strategically important factors is rapidly bringing the university to the position of the centrally important social organization of our society, not, of course, totally displacing the big business corporation or the big trade union, and certainly not big government, but acquiring a previously unknown importance relative to them. None of these could now function effectively without a highly developed university system. The universities are in turn dependent on these agencies for many things, not only the elementary protection of academic freedom, but above all financial support and general approval; the point is that they are also highly and increasingly dependent on the
universities. The contribution of the University is neither wealth nor political power, though it contributes heavily to the factors that are ingredients of both. It is, rather, a main fountainhead of the "non-material" factors of effective social action, normative ideas and standards, philosophical and scientific knowledge and understanding, and the types of competence based on these. These contributions are so significant that it becomes worthwhile, in the system of societal interchanges, to pay for them with considerable and a great deal of wealth. 20

The university atmosphere is not as unencumbered as it once was, as the professionalisation continues and members of the technical intelligentsia trained in management at the universities return to administer it. Since universities are finding it necessary to become increasingly responsive to their industrial public, they must re-work their internal structure to meet specific demands of society and not continue to be the exclusive domains of the scholarly intellectual. The university's task has become as an instructor in means rather than as an elaboration or values and ends. Witness the boom in social research, the emphasis on statistics and methodology in graduate schools in social and behavioral sciences, the growth of industrial psychology, engineering and business administration. Disciplines become more conscious of technique and organization. Economic requisites exert

20 Talcott Parsons, p. 21
pressure on the intellectual to mix with or become one of the intelligentsia.

Since the programme of functionalisation is not yet complete, universities still retain vestiges of liberal education which does not prepare graduates to function in society - universities, in effect, are mal-adaptive for many people. Even if the creative are able to find the liberal program which they seek in university, they must face the realities subsequent to graduation. University disorders are caused largely by the students in the arts and humanities whose needs are not met by the present system. Regarding participation in university dissent, Birnbaum writes: "...it can be said that the most consistently radical students in the movement have been those not facing imminent induction into the administrative and productive forces."21

The process of rationalisation is making the university a type of brain trust which is being drawn closer to the power structure. Not all of the expertise which the power structure utilises is inducted directly into the system, but some remain in the universities to form a knowledge elite. Not only are intellectuals being replaced in the university, but they are in danger of being co-opted.

21 Norman Birnbaum, p. 226.
As the symbiosis of political and intellectual institutions advances, so does the eventuality of intellect speaking for rather than to power. The social problem now seems to become not so much keeping the alienation of intellectuals within the scope of utility, but rather of keeping the intellectuals alienated. 22

Intellectuals face not only the possibility of being absorbed by the dominant sectors of society, and losing their critical character, as feared by Hansen and Moore, but of becoming practically extinct. Organisations no longer have to bring intellectuals into their ranks, because the rationalisation of the education system, from the technique of I.Q. measurement to the functionalising of the university structure and curriculum, is providing a sufficient number of men of knowledge with ability and expertise to meet their requirements. If society continues along its present course, the man of ideas, faced with ineluctable association with increasingly bureaucratised organisations and growing demands for facility with means rather than values and ends will become a difficult product to market. The continuation of a viable ideology and the continued need for controlled innovation could reverse these tendencies.

Definitions of intelligence which stress adaptiveness and rationality also tacitly define these qualities. The ideal of technically rational society are such that

the universities are actively participating in the identification of intelligent individuals as soon after birth as possible. The direction of research is toward more microscopic investigation, taking the rationalisation of society to the biological level. Creativity, as a variable in this process of rationalisation varies, of course, from intelligence. As demonstrated above, the creative person is innovatively adaptive and more likely to violate the boundaries of what is considered reasonable. It is the creative person, or the intellectual, who has been able to provide the impetus for change in both the societal and cultural spheres. The present drought of cultural concerns, and the functional structuring of societal processes, tend to make him an anomaly. The member of the technical intelligentsia appears to be ascendent, embodying the skills and abilities which are called for and increasingly consciously called for by advanced industrial society.

The questions of intelligence and creativity are not isolated in an area of research which concern only children or minorities. By their definition, the techniques which have been developed to measure and cultivate them, and the ramifications which they hold for the social roles of intellectuals or intelligentsia, and for the continued functioning of organisations, they are integral components of advanced industrial society.
CHAPTER IV

CONCLUSIONS

The use of the concept of intelligence and intelligence testing as part of the rationalisation of the education process in conjunction with the direction being taken by advanced industrial society has consequences comparable to those which exist for the population under the influence of the ideal concept of "sponsored" mobility as described by Ralph Turner. In Turner's model, there is early selection of those who are to be advanced, and the rational objective to "make the best use of the talents in society by sorting each person into his proper niche"\textsuperscript{1} obtains.

The organising norm of sponsored mobility is carried to its logical conclusion by Michael Young in the \textit{Rise of the Meritocracy} in which he discusses the possibility of basing status entirely upon measured ability. The score which a person records on an aptitude test decides for him and society what type of training and occupation the person shall receive. Improvement on subsequent tests is the only means of mobility. The argument is that it is functional for society to assign positions to the most competent individual and reward them accordingly and it is

beneficial for each individual to be placed in the position which best meets his abilities. I.Q. testing is taken to be the most expedient means of achieving this situation.

It would be argued that the experts have accurately delineated the skills which are sought and needed by middle-class Western society (the potential for success) and I.Q. tests certainly appear to be valid devices for the measurement of skills; therefore, I.Q. tests should continue to be administered and the results used to select people for training with the ultimate goal of placing them in the appropriate occupations. The flaw which renders argument specious is the tacit assumption that intelligence or adaptive ability is a raw mental component. But, as explained, intelligence is relative to social circumstance and the tests do not measure a mental potential but measure the developed skills within a limited social medium.

The white, middle-class Western community, like any moderately isolated social group, has created over the years a specialised vocabulary, reservoir of information, and style of problem solving summarised under the concept "intelligence". 2

This means that I.Q. tests do their appointed job of selecting the intelligent from a limited population -

those who have the social opportunity to develop intel-
legence. Social class and ethnicity are significant
impediments to the development of intelligence.

Children who have access to different speech-
systems (i.e. learn different roles by virtue of
their status position in a given social
structure) may adopt quite different social
and intellectual procedures despite a common
potential. 3

Classes differ with respect to the concepts they
employ in the socialisation of children. The middle-class
uses language for disciplinary purposes and emphasises the
universalistic nature of its prescriptions. The lower
class, not as language conscious, is more particularis-
tic in its verbal admonishments; and consequently the
meaning of the prescriptions is tied to the contest— they
are less able to extrapolate to cover other similar
situations.

Although all mothers in the Bernstein-Henderson
study (middle and working class) found it difficult to
socialise a child without language, middle class mothers
found it more difficult in the personal relationships
and the working class mothers found it more difficult in
the skill learning areas.

3 Basil Bernstein and Dorothy Henderson, "An Approach to
the study of Language and Socialisation" in The Ecology
of Human Intelligence, ed. Liam Hudson (Middlesex, 1970),
p. 151.
There appears to be a basic discrepancy in the view which middle and working class mothers hold of the learning process. "Working class mothers see the receiver as being passive and the process to be one which requires the didactic transmission of particulars to the child. The middle class mother sees the child as being active and is inclined to explain in terms of principles.

There are, then, indications that different approaches to socialisation and learning processes by different classes would limit the segments of the population which could be made mobile by tests constructed at specific levels of the social structure. David McClelland succinctly states the latent implications of such a system.

There has always been a tendency on the part of certain people who are good at manipulating symbols to use this capacity to exclude other people from positions of power in society. 4

Increased use of the I.Q. tests is part of the functionalising of society and the education process in particular. Such a programme is also a threat to the intellectual who cannot receive adequate recognition for his peculiar skills on an I.Q. test.

The correlations between I.Q. and scholastic

success and social status are now sociologically understandable. I.Q. scores are not measures of intrinsic ability, but rather a measure of intelligence which in our society means the skills developed to adapt in middle-class society. It is therefore not surprising but to be expected that I.Q. should correlate with social status. I.Q. is not only an indicator of social status but in many respects it is also a product of social status. Home environment, child rearing practices, parents' aspirations for their children and other pertinent factors are all class conditioned and their effects are read in the child's ability to demonstrate his skills on aptitude tests. Social class further functions to limit those who will be trained to perform the highly valued occupations.

**Future Prospects**

Some attention should be given to the possible results of the current tendencies toward rationalisation in society and the possibilities for future concepts of intelligence tests, valuations of creativity, and the possible functions of both the technical intelligentsia and the intellectuals.

In the future, as with the present, the macro-societal structure and its concomitant requirements provide the proper setting for examination.
As existing processes continue, Daniel Bell sees the advent of a post-industrial society. Bell believes that the new social structure will have significant consequences for the individuals who have been labelled intelligent and who have been properly trained.

To speak rashly: If the dominant figures of the past hundred years have been the entrepreneur, the businessman, and the industrial executive, the "new men" are the scientists, the mathematicians, the economists, and the engineers of the new computer technology. And the dominant institutions of the new society — in the sense that they will provide the most creative challenges and enlist the richest talents — will be the intellectual institutions. The leadership of the new society will rest, not with business men or corporations as we know them (for a good deal of production will have been routinised), but with the research corporation, the industrial laboratories, the experimental stations, and the universities. In fact, the skeletal structure of the new society is already visible. 5

It appears, then that knowledge and innovation will be valuable commodities in the post-industrial society, thus placing the technical intelligentsia and a few of the theoretical physical and behavioral scientists who can accommodate to relatively organised existences in positions of influence and power. To this Olsen adds:

A fully developed "post-industrial" society would undoubtedly contain a wide variety of important new power resources, including

administrative and managerial abilities in operating complex organisations, scientific and technological expertise, teaching and mass communication skills, and perhaps even artistic and aesthetic talents. The common element in all these kinds of resources is knowledge, since the fundamental functional requirement in such a society would be expert knowledge and accompanying skills. The scientific-educational-informational network would replace the economy as the major sphere of power in society, and those individuals and organisations who performed such activities would be able - because of their functional dominance - to control numerous resources and exert intensive social power. In addition, the basis of most authority would also tend to shift from occupancy of formal positions to possession of critical knowledge and skills. Thus officials responsible for leading collective activities - in both public and private organisations, from national government to local enterprises - would be granted legitimate authority over others because of their expert abilities, not their formal offices.

In sum, one crucial trend in post-industrial societies is a shift from economically based power, with its emphasis on the use of force, to authority based on expert knowledge and skills that command functional dominance in society. 6

Olsen suggests that those intellectuals concerned with the cultural or the aesthetic will be in demand, and it is also conceivable that there will be a greater call for consumable culture which would provide positions for even more intellectuals.

Keeping with the trends of rationalisation, there is no evidence to support the belief that there will be any significant change in the approach to the definition and measurement of intelligence. In fact, if the demand for culture as part of leisure does arise, it seems reasonable to assume that the identification of creative individuals and the subsequent rationalised education of intellectuals could result alongside rationalised training of the technical intelligentsia.

The nature of intellectuals' association to organisations impairs his ability to function critically as pointed out by Hansen and Moore. To this, Ralf Dahrendorf adds:

The power of the fool lies in his freedom with respect to the hierarchy of the social order, that is, he speaks from outside as well as inside it. The fool belongs to the social order and yet does not commit himself to it; he can without fear speak uncomfortable truths about it... But the fool of modern society of whom I am speaking here... are the intellectuals, now again must despised. 7

As the intellectual becomes less despised and more useful to production and consumption in the post-industrial society, his involvement in the markets and organisations of the society will probably further compromise his critical functions.

**Summary**

In response to Dr. Morton Deutsch who feels that intelligence does not really exist, it must be said that intelligence does exist but it is not the type of entity which people have been looking for. The relativity of intelligence is the key to understanding it and to realise the relative nature of the concept it must be examined at the societal level. Seeing intelligence in this light, the conflicts between studies dealing with black intelligence are resolved through class considerations and the possible uses of I.Q. tests can be discussed while conscious of the underlying ties between intelligence and success. Also, I.Q. tests can be constructed giving explicit emphasis to skills which are to be replicated in employment. Probably, aptitude tests would be a more suitable term for these instruments because there are no nuances attached to this term which automatically apply to intelligence tests.

No doubt some of the raw mental potential with which each individual initially confronts the world is
initially inherited, but his potential is not intelligence or creativity. This potential will place the limits upon the quality and quantity of the skill abilities which can be developed but still it is not intelligence. The skills which are developed can be measured, but this score can not be extrapolated to evaluate the mental potential which is mistakenly confused with intelligence. The development and the measurement of abilities is contingent upon the social milieu. If the skills are developed, and they are adaptive, they constitute intelligence; if the skills are novel as well as adaptive, they constitute creativity.

Possession of either standard or novel skills is indicative of one's biography and leads to preferences for certain social situations in which the skills can be used and appreciated.

Finally, the macroscopic context of industrial society is essential for the understanding of the problems of intelligence, I.Q. testing, and creativity. Also, within this context, the connection between the intelligent and the technical intelligentsia, and the creative individual and the intellectual can be made though examination of the processes manifested by technically rational industrial society.
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