

INTRODUCTION

' Men are all inventors sailing
forth on a voyage of discovery.'

- EMERSON

No one will perhaps dispute the fact that man has an innate urge to create. Yet a distinction has to be made between a product of an instinctive urge which is stereotyped, and a novel, unusual product of a unique or distinguished person on its own merit. Similarly, it does not require an elaborate argument to prove that the human being is endowed richly with creative ability as compared to the brutes. Limiting his observation to the human beings Ghiselin has commented :

It is improbable that any human being is so constituted that creative action of some sort and in some degree has never been within his capacity. Yet not many show much ability to act creatively in any distinctly recognizable degree.¹

There may be no denying the fact that the advanced countries of the world have entered into a competition to prove their own scientific and technological supremacy

¹ Brewster Ghiselin, " Ultimate Criteria for Two Levels of Creativity ", in Calvin W. Taylor and Frank Barron (eds.), Scientific Creativity : Its Recognition and Development (New York : John Wiley & Sons, Inc., 1963), p. 43.

over the others. The space-race between the United States of America and the Union of Soviet Socialist Republics at fabulous costs and with tremendous resource organization and national effort, is an instant example of the supremacy motive of these advanced countries operating constantly to gear up such adventures. Obviously this competition for supremacy had germinated in these successful opponent countries of World War II.

Since educational goals are determined by national ends, the national consciousness for competition and urge for supremacy could not remain confined to the space-race but they have permeated into the life of the competing people and have stricken roots into all walks of life viz. science, technology, art, philosophy, education, culture and almost everything which may be called a component of life itself.

In the United States of America, the need for researches in psychology and education in the intriguing field of creativity was realised around 1950. The competition motive seems to have been at the core of such realization when the nation began feeling the need for identifying the nature of creative talent, particularly the scientific creativity, to begin with. It was then hoped that once the basic nature of creativity was known further efforts could be made to find out the means of

developing and ~~nurturing~~ creative talent in all the areas of life for the sake of national supremacy. Before World War II there was very scanty research work conducted in America on originality and creative imagination.

L.L. Thurstone, C.W. Taylor, J.P. Guilford and their associates have been the pioneers in stimulating research in the field of creativity following the Second World War. At the national level a series of three national conferences held at the University of Utah with financial support from the National Science Foundation in 1955, 1957 and 1959 may be regarded as the precursor to further researches in this field in increasing magnitude.

Soon this massive movement influenced the educators so much that by 1960 education for creativity became a most important goal throughout America. Since then considerable amount of research work has been done there in the field of creativity by individual researchers as well as teams of them in specialised research agencies. Evidently enough the impact of all the labour and cost involved in this kind of exploration has begun yielding fruitful dividends and new education is being fashioned after the relevant findings of the research. Nevertheless, institutional researches of great magnitude are still being conducted in this hithertofore elusive field and it may not be out of place to mention that notable private and

governmental agencies like the Carnegie Corporation of New York; the Institute of Personality Assessment and Research of the University of California at Berkeley; the U.S. Office of Education; the Educational Testing Service of Princeton, New Jersey; the University of Southern California; the Creative Education Foundation in New York and numerous such important institutions and agencies soon became involved in supporting and fostering large scale research in this field.

In a developing country like India there can be no denying the great utility and urgency of taking up research in creativity, and yet it is an irony of fate that no researches of comparable dimensions have been taken up at the institutional level in India, obviously for lack of resources and, presumably, motivation also. Some sporadic individual researches have, however, been done in recent years and some others are continuing now in some universities of our country on certain limited aspects of creativity. The harbinger of this disposition was perhaps the doctoral dissertation of Manas Ray-Chaudhuri submitted in the Calcutta University in 1962 on the subject "An Investigation into the Personality Structure of Musicians". Ray-Chaudhuri has subsequently pursued studies in Artistic Creativity and related field and published papers on them in Indian and foreign journals. Recent doctoral works in this field are either of the type of

adaptation and standardization of available tests of creativity such as the one designed by E. Paul Torrance, or they seek to explore the personality and environmental correlates of creativity such as those of Paramesh of Madras University and Raina of Rajasthan. These are simply a few illustrations. A review of such works is being given in Chapter II ahead. It is noteworthy that E. Paul Torrance (See Barron, 1969) had conducted an extensive cross-cultural study on the stability of creative thinking abilities on children of ages 3 to 12 years involving more than 6000 children of seven countries including India.

Guilford is again a great name in pioneering research in this elusive area. As Barron points out -

... he (Guilford) launched much of this new effort with his address as retiring president of the American Psychological Association in September, 1950. In that address he systematically surveyed the gaps in knowledge in the domain of intellectual abilities and listed dozens of new tests he and his colleagues in the Psychological Laboratory of the University of Southern California were then developing. He addressed himself to the topic with certain amount of diffidence, beginning with these words: " I discuss the subject of creativity with considerable hesitation, for it represents an area in which psychologists, whether they be angels or not, have feared to tread."²

Invoking to do a little soul-searching Maslow(1957)

² Frank Barron, Creative Person and Creative Process, (New York: Holt, Rinehart and Winston, Inc., 1969), p. 5

makes a fervent appeal to American Psychologists and addresses them in the following words :

We must pay special attention to the synoptic thinkers, the producers of theories of the whole man in his whole world. It is easy enough to develop a sound theory of the learning of nonsense syllables, or of rate running in mazes, or of the conditioning of the dog's salivary reflex. To integrate these miniature theories into the whole fabric of psychology is another matter. To relate them to love and hate, to growing and regressing, to happiness and pain, to courage and anxiety, exposes the weakness of nibbling away at the edges of reality, instead of making reconnaissance flights over the whole of it.³

Thus, after emphasizing the need for integration of miniature systems and theories of learning, Maslow addresses himself to the topic of creativity and continues in these words :

American Psychology should be bolder, more creative; it should try to discover, not only to be cautious and careful in avoiding mistakes.

Why is it that there has never been a great, creative American Psychologist? Our best men have been excellent scholars, systematizers and experimenters, but not great discoverers. All the great break throughs have come from Europe: all the brands of psychoanalysis, Freud, Adler, Jung, Rank, Fromm, Horney; all the Gestalt psychologists, Wertheimer, Koffka,

³ A. H. Maslow, " A Philosophy of Psychology : The Need for a Mature Science of Human Nature" in Main Currents in Modern Thought, 1957, 13, 27-32. Reprinted in Humanistic Viewpoints in Psychology, ed. Frank T. Severin, (New York : McGraw-Hill Book Company, 1965), p. 24.

Kohler, Lewin; the Rorschach test, Goldstein's organismic psychology. Even behaviourism, so specifically American, began with Pavlov.

I have been told that something very similar is true for the other sciences. In atomic physics, for example, Einstein, Bohr, Fermi and Szilard were all Europeans.

Why is American science so essentially conventional, so hostile to creativeness, to innovation, to unorthodoxy, to new ideas? Why are American psychologists characteristically appliers of other people's ideas? Why do they despise and attack the innovator for years, and then at last, when his idea has become more accustomed, seize upon it, make it conventional, and work it out in hundreds of experiments? As Picasso said, "First you invent something, and then they make it pretty".

I remember how saddened and irritated I was by an official report of a major Committee of American Psychological Association on the future of psychological science. The recommendations were principally methodological: how to be cautious, how to check, how to discover mistakes, how to validate, how to be accurate and precise. Hardly a word was mentioned about the need for creativeness, for new ideas, breaking out of the rut, taking a chance, encouraging uncertainty and exploration. It was all so much like the road maps given out at a gas station, that tell us how to make our way from known place to place. Not a word is given about the no-man's land⁴

Needless to say how very appropriately the foregoing remarks apply to India also. It is so very depressing that Maslow has not been able to add a single Indian name in his array of master thinkers and innovative psychologists even though there is an impressive bunch taken from Europe. The sad story of America is equally applicable to India- the largest

⁴ et seq., pp. 25-26

democracy of the world. Is it that democracy engenders conformity and tendency to imitate ? One wonders whether we really have the courage to test things against those perennial values which we have been cherishing over generations and against the glittering gifts of our cultural heritage.

When conformity or stereotypy guarantees a relatively comfortable position in a culturebound community, why hanker after creativity ? To this question Carl Rogers (1959) has provided a most sensible and fascinating answer in the following words :

In a time when knowledge, constructive and destructive, is advancing by the most incredible leaps and bounds into a fantastic atomic age, genuinely creative adaptation seems to represent the only possibility that man can keep abreast of the kaleidoscopic change in his world Unless man can make new and original adaptations to his environment as rapidly as his science can change the environment, our culture will perish. Not only individual maladjustment and group tensions but international annihilation will be the price we pay for a lack of creativity.⁵

⁵ Carl C. Rogers, "Toward a Theory of Creativity", reprinted in Harold H. Anderson (ed.), Creativity and its Cultivation. (New York : Harper & Row, Publishers, 1959), p. 70

CHAPTER ONE

THE NATURE OF THE PROBLEM AND THE BASIC ISSUES

Creativity at its highest level
has probably been as important as
any human quality in changing
history and in reshaping the world.

- Calvin W. Taylor

Galton had made a study of the lives of genius and had found them to be notable for 'freedom and fluency of their associations'. Later, Burt and Spearman were interested in identifying a factor which they called 'imagination' but in 1930 Spearman declared that there was no single distinguishable factor which could be labelled 'creativity'.⁶

Frank Barron (1969) has referred to the monumental work 'The Act of Creation' of Arthur Koestler in which he (Koestler) has collected a lot of evidence to substantiate the following view :

⁶ Charles Spearman., The Creative Mind (Nisbet, 1930)

... Great insights, results of what he (Koestler) calls the "bisociative process", occur only in minds that are amply prepared, through saturation in the relevant scholarly or artistic disciplines, to see hidden connections. You have to know a lot about the old to see the new. Although one's education may be unconventional and certainly in our own studies we have seen that creative individuals frequently reject the schools and teach themselves - it remains true that hard work and dedicated practice are the almost invariable precursors of original and distinctive achievement.⁷

At one place Guilford (1965) observes :

" Creativity ", like " love", is a many-splendored thing. Small wonder that few have ventured to define it. At a conference on creativity a few months ago, each of the thirty- odd members was asked to write a list of his free associations to the word " creativity". The results were almost as varied as the personalities of those present.⁸

Agreeing substantially with Guilford, MacKinnon explains in the following words how creativity is a multifaceted phenomenon :

Many are the meanings of creativity. Perhaps for most it denotes the ability to bring something new into existence, while for others it is not an ability but the psychological processes by which novel and valuable products are fashioned. For still others, creativity is not the process but

7 Frank Barron, op. cit., p. 3.

8 J.P. Guilford, " Potentiality for Creativity and its Measurement" in Reading for Introductory Psychology, eds. Richard C. Teevan and Robert C. Birney (New York: Harcourt, Brace & World, Inc., 1965) p. 439.

the product. Definitions of creativity range all the way from the notion that creativity is simple problem - solving to conceiving it as the full realization and expression of all of an individual's unique potentialities. One would be ill advised to seek to choose from among these several meanings the best single definition of creativity, since creativity properly carries all of these meanings and many more besides. Creativity is, indeed, a multi-faceted phenomenon.⁹

For this reason there is a multiplicity of the definitions of creativity. Guilford has actually described a real instance to support the ' मुड मुड मतीमिन्नाः ' episode in respect of the definition of creativity. Some of the much prevailing definitions of creativity in psychological and educational literature are given below :

- (1) By creative effort I mean the initiation and execution of some work of literature, art, music or science which is essentially new to its author.¹⁰
- (2) Creativity is energy being put to work in a constructive fashion.¹¹

⁹ Donald W. MacKinnon, ' Creativity : A Multi-faceted Phenomenon' in Creativity ed. John D. Roslansky (Amsterdam: North-Holland Publishing Company, 1970) p.19

¹⁰ E.D.Hutchinson, How to Think Creatively (Nashville: Abingdon Press, 1949) p. 97.

Note:- This definition is supplied by the author in his questionnaire administered on eminent people during his investigation which he carried out under the guidance of Mac-Dougall and Bartlett in the Cambridge University.

¹¹ Frank Barron, op. cit., p. 8

- (3) Creativity may be defined, quite simply, as the ability to bring something new into existence.¹²
- (4) The creative act is a free and independent force, immanently inherent only in a person, a personality. Only something arising in original substance and possessing the power to increase power in the world can be true creativity Creativity ... is an original act of personalities in the world.¹³
- (5) ... Mednick (1962, p. 221) defines creative thinking as 'the forming of associative elements into new combinations which either meet specified requirements or are in some way useful'. Wallach and Kogan (1965, p.14) suggest a basically similar notion : '... greater creativity should be indicated by the ability to produce more associations and to produce more that are unique'.¹⁴

Thompson and Debold have commented in this context in the following words :

A key qualification that is made by both Mednick and by Wallach and Kogan -- and for that matter, most people working in this field -- is that the above definitions hold only under a condition of relaxed time limits. Speed tests favour the intelligent person, perhaps, but not the creative individual ... Eastern religious thought, for example Buddhism or Taoism, whose main thrust is the identification of the individual with God as the Creator, also stresses an escape from, or transcendence over, the strictures of time.¹⁵

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- 12 Ibid., p. 10
- 13 Berdyaev, The Meaning of the Creative Act, p. 135 quoted in *ibid.*, p. 154.
- 14 William R. Thompson and Richard C. Debold, Psychology : A Systematic Introduction (Tokyo : McGraw-Hill Book Company, International Student Edition, 1971), p. 414.
- 15 et seq.

- (6) According to Torrance (1969) creative thinking is :

the process of sensing gaps or disturbing, missing elements, forming ideas or hypotheses; and communicating the results, possibly modifying and retesting the hypotheses. 16

Torrance further claims that :

Under this definition it is possible to subsume the major elements of most other definitions. 17

Thus, it would be seen that numerous meanings are attached to the word 'creativity'. Some authorities look at it as a super energy which produces unusual things, while the others tend to define creativity in terms of the process involved in making a novel contribution. Depending upon their choice, creativity has been defined by various authors in the way they approach the problem of measuring creativity. Commenting upon this aspect Stephen P. Klein observes :

* One meaningful way of organizing these definitions,

- 16 E. Paul Torrance, Guiding Creative Talent, (New Delhi: Prentice Hall of India Pvt. Ltd., 1969) p. 16
- 17 E. Paul Torrance, Creativity, (What Research Says to the Teacher Series, Pamphlet No. 28 of the Department of Classroom Teachers, American Educational Research Association, 1963), p. 4

Note: The definition given by Torrance as cited here is slightly different from what it reads in the Creativity pamphlet. The definition of creativity given by him in that pamphlet is an older one (i.e. of 1963) in which he had chosen to define creativity 'as the process of sensing problems or gaps in information, forming ideas or hypotheses, testing and modifying these hypotheses and communicating the results'.

however, is in terms of their approach to assessing creativity. A review of literature in this area reveals that there are three major measurement strategies viz. focusing on the characteristic of : (1) the creative process, (2) the creative person and (3) the creative product. In other words, the three approaches are :

- i) the 'process' approach,
- ii) the 'person' approach, and
- iii) the product approach ".¹⁸

He further comments that while adopting the product approach, it is also necessary to consider the following kinds of questions, viz. :

- (1) " Should we be concerned primarily with the quantity or quality of these achievements ?";and
- (2) " What are the properties of these achievements that make them creative ? "

Some authors(Rhodes, 1961; Mooney, 1963; Holland,1964; Guilford, 1967) have suggested a fourth approach -- "press" approach -- that is the role of environment in creativity.

Commenting upon the relationship between creative potential and creative production, Guilford observes :

We gain a little bit if we take a first step toward discrimination namely, the distinction

18 Stephen P. Klein, " Creativity Tests ", Journal of Art Education, Vol. XX, No. 8(1967), p. 23

between creative potential and creative production. Creative production, in the popular sense, is the aspect that catches general public fancy because the creative person's output is so frequently in the form of tangible products, such as poem, a novel, a musical composition, an invention, a painting, a scientific theory, or a philosophical system.

To a psychologist who is interested in the mental operations that lead up to the emergence of the creator's product, the criteria of creative production must be of a different kind. There is agreement that the tangible product must have some novel aspects. The thinking that leads to that product also (conceivably) had novel aspects. In either case, it is these novel aspects that justify the label "creative". We are not concerned here with the operational criteria by which novelty can be gauged. What I wish to point out is that on the way to his final, public product, the creative thinker arrives at numerous psychological products. In focusing attention on the public product, we overlook the numerous ideas that the inventor had and discarded. From the psychological point of view, those generated ideas also have many chances of being novel.

In (the) simplest terms, an individual's potential for being creative is his readiness to produce novel ideas or psychological products. In this, we should include the production of old ideas in new connections. His readiness depends upon many things. An essential part of his preparation is in the form of specific items of information that are available to him from his memory storage. But, as we know, having the information is not sufficient. It is what the person does with the information that is important. When we speak of creative potential, we usually have in mind the dispositions that enable a person to use his information in new ways. Some of these dispositions are abilities or aptitudes while others are traits of interest, needs, attitudes, and of temperament. 19

Commenting further upon the limited area of dependence

of creative performance upon aptitudes Guilford observes the following on the basis of extensive researches carried out by him and his colleagues in the Psychological Laboratory of the University of Southern California :

... Thus, we have the important general inference that successful creative performance, to the extent that it depends upon aptitudes, is not equally promising in all fields of information. Potential for creative production in the arts is not the same thing as that in mathematics or that in writing, to say nothing of potential for creative handling of problems involving human relations. ²⁰

Now digressing a little let us examine the following accounts of certain trifling incidents which have been instrumental in some startling innovations.

" Only the little man sees no great possibilities in trifles.

" The creation of a thousand forests is in one acorn, said Emerson. He but echoed the thought of Laotse, the ancient Chinese philosopher, who said that ' the journey of a thousand miles begins with one pace.'

" The jerking of a pan full of dressed frogs' legs when touched by a knife led to the discovery of dynamic electricity.

" The trembling lid of a tea kettle boiling over the fire was the beginning of the steam engine.

" A wet shirt hanging on a clothesline inflated by the wind, suggested the balloon.

" A spider's web strung across the corner of a garden inspired the idea of a suspension bridge.

" A lantern swinging from the dome of a cathedral revealed the principle of the pendulum by which for many centuries time has been accurately measured.

" An apple falling from a tree led to the discovery and formulation of the laws of gravitation.

" Wise old Dr. Johnson truly said: ' There is nothing too little for so little a creature as man. It is by studying little things that we attain the great art of having as little misery and as much happiness as possible.' 21

On a quick comparison it would be apparent that while Guilford emphasises the role of divergent thinking abilities in bringing out a creative product, historical accounts of scientific innovations are replete with examples where an invention was perhaps very much due to convergent thinking abilities or due to a sudden leap of ideas as pointed out in the foregoing paragraphs.

Commenting upon the accidental nature of creativity Guilford has commented elsewhere as follows :

A practical criterion of creativity is difficult to establish because creative acts of an unquestioned order of excellence are

21 Jacob M. Brande, Speaker's Desk Book.

extremely rare. In this respect, the situation is much like that of a criterion for accident proneness which calls for the actual occurrence of accidents. The accidental nature of many discoveries and inventions is well recognized. This is partly due to the inequality of stimulus or opportunity, which is largely a function of the environment rather than of individuals. But if environmental occasions were equal, there would still be great differences in creative productivity among individuals.²²

Participating in the Utah Conferences on Creativity, Thomas S. Kuhn, a physicist-historian, addressed the psychologists who had assembled there :

If a person of my background and interests has anything relevant to suggest to this conference, it will not be about your central concerns, the creative potentiality and its early identification. But implicit in the numerous working papers distributed to participants in this conference is an image of the scientific process and of the scientist; that image almost certainly conditions many of the experiments you try as well as you draw; and about it the physicist-historian may well have something to say. I shall restrict my attention to one aspect of this image - an aspect summarized in one of the working papers by the sentence, ' (the basic scientist) must lack prejudice to a degree where he can look at the most 'self-evident' facts or concepts without necessarily accepting them, and, conversely, allow his imagination to play with the most unlikely possibilities' (Seyle,1959).

22 J.P. Guilford, Intelligence, Creativity and Their Educational Implications, (San Diego, California: Robert R. Knapp,1968), p. 47. This excerpt is taken from Guilford's paper on " Creativity " presented as his Presidential Address to the American Psychological Association on Sept. 5, 1950 (see p.5^{Supra}).

In the more technical language supplied by other working papers (Getzels and Jackson), this aspect of the image recurs as an emphasis upon 'divergent thinking, ... rejecting the old solution and striking out in some new direction.'

I do not at all doubt that this description of "divergent thinking" and the concomitant search for those able to do it are entirely proper. Some divergence characterizes all scientific work, and gigantic divergences lie at the core of the most significant episodes in scientific development. But both my own experience in scientific research and my reading of the history of sciences lead me to wonder whether flexibility and open-mindedness have not been too exclusively emphasized as the characteristics requisite for basic research. I shall, therefore, suggest ... that something like "convergent thinking" is as essential to scientific advance as is divergent. Since these two modes of thought are inevitably in conflict, it will follow that the ability to support a tension that can occasionally become almost unbearable is one of the prime requisites for the very best sort of scientific research. ²³

Kuhn has further elaborated and established this view in his paper by citing concrete examples.

Evidently, therefore, there appear to be equally strong claims in support of both the views that creativity depends upon divergent thinking as well as convergent.

It is now no longer disputable that intelligence tests do not measure that important ability of the mind

23 Thomas S. Kuhn of University of California, Berkeley, "The Essential Tension: Tradition and Innovation in Scientific Research", in Calvin W. Taylor and Frank Barron (eds.), Report of the First Three Utah Conferences on the Identification of Creative Scientific Talent: Scientific Creativity (New York: John Wiley & Sons, Inc., 1963), pp. 341-42

which is known as creativity. Even the Wechsler Adult Intelligence Scale, which is widely used in individual intelligence testing and which is considered to be the most valid, factorially variegated and comprehensive individually administered Intelligence Test, fails to measure those aspects of the mind which constitute creative potential. In this regard, E. Paul Torrance comments :

Perhaps one of the most important consequences thus far of the development and research use of measures of creative thinking has been an expanded concept of the human mind and its functioning. For many years, most people's concept of the human mind and its functioning was limited largely by the concepts embodied in intelligence tests. Developers of intelligence tests have not claimed that such tests assess all of a person's intellectual functioning. Yet, an intelligence or scholastic aptitude test has almost always been used by schools and clinics as the sole index of a person's intellectual potential. If this achievement in some area fell below the level which would be expected from his IQ, he was said to be under-achieving. If he achieved at an age level higher than would be expected from his IQ, he was somehow supposed to be over-achieving. Curriculums and methods of teaching generally have been designed to bring about the kinds of growth or achievement related to the mental abilities involved in intelligence or scholastic aptitude tests. Tests of educational achievement likewise have been constructed along the same lines. This narrow concept of the human mind and its functioning has produced a kind of education which falls far short of our ideal of a human education which will give all children a chance to realize their potentialities.²⁴

24 E. Paul Torrance, Creativity, Pamphlet No. 28 of the What Research Says to the Teacher Series, op. cit., pp. 9 and 10.

L. L. Thurstone carried out one large-scale investigation to find out the exact nature of intelligence. In that investigation he found out, by his factor-analytic procedure, that there are atleast seven primary mental abilities which constitute what is known as 'intelligence'. Briefly these are :

- (1) Verbal Ability: The ability to understand and utilize verbal ideas effectively.
- (2) Number: The ability to carry out the fundamental arithmetic operations of addition, subtraction, multiplication and division.
- (3) Spatial: The ability to deal with objects in space and spatial relationships such as is demanded in geometric problems.
- (4) Perceptual: The ability to identify objects quickly and accurately such as is required in reading, map work, and the like.
- (5) Memory: The ability to learn and retain information.
- (6) Reasoning: The ability to perceive and utilize abstract relationships; to be able to put together

past experiences in the solution of new problems.

(7) Word Fluency: The ability to think of words rapidly. Word fluency may be related to personality variables as well as to intellectual factors.²⁵

Frank Barron has made the following observation at one place :

The suspicion that in most of the standardized intelligence tests the very important domain of intellectual ability, creativity, was being neglected has existed for some time. In 1898 G.V. Dearborn published in the 'American Journal of Psychology' an article titled, "A Study of Imagination", in which he reported the responses of Harvard students and faculty to a series of ink blots; one of his observations was that some of his more "intellectual" subjects were least imaginative. The same sort of observation was made sporadically by a variety of experimenters in the ensuing 20 years. R.M. Simpson, in an article in the "American Journal of Psychology" (1922) several years after the development of the psychometrically sophisticated Stanford-Binet Intelligence Test, was perspicuous enough to write : 'Tests to ascertain either native intelligence or acquired knowledge (have) no elements in them to extract from the mind of the individual his powers of creative productivity and his tendencies toward originality'.²⁶

25 J.P. Chaplin and T.S. Krawiec, Systems and Theories of Psychology (New York: Holt, Rinehart and Winston, Inc., Second Ed., 1968), p. 525, Chap. 14.

26 Frank Barron, op. cit., p. 43, Chap. 4

These observations point out that I.Q. tests do not seek to measure creativity. However, it is equally wrong to suppose that those who are very low in I.Q. measure, e.g. morons and idiots, may plausibly be expected to be creative geniuses.

At the Institute of Personality Assessment and Research of the University of California (IPAR) at Berkeley an intensive study of architects made by MacKinnon and Hall in 1968 actually revealed :

(It)is not that intelligence is unrelated to creativity, but rather that individuals of varying degrees of creativity in profession intrinsically creative in character are of quite high measured intelligence but their degree of creativity does not covary significantly with their intelligence test scores.

Another way of putting this is to say that for certain intrinsically creative activities a specifiable minimum IQ is probably necessary in order to engage in the activity at all, but that beyond the minimum, which often is surprisingly low, creativity has little correlation with scores on IQ tests. 27

In that investigation, the Wechsler Adult Intelligence Scale was employed to measure the I. Q.

27 Ibid., p. 42

Note 1 : MacKinnon has called the studies of creativity conducted by Torrance(1959) and Getzels and Jackson (1962) with the help of the so-called creativity tests as "a highly questionable procedure" on the ground of lack of validity. (D.W.MacKinnon in Davis and Scott,p. 196)

Note 2 : Robert L. Thorndike has criticised the validity of the creativity tests devised by Getzels and Jackson, by Torrance, and by Guilford and his associates(R.L.Thorndike on "The Measurement of Creativity" in the Teachers College Record, Vol. 64, No.5, Feb.,1963. 422-24).

Turning back to Guilford for a factor analytic approach to clarify this dichotomy between 'intelligence' and 'creativity' we find him commenting as follows :

Standard tests and scales of intelligence have practically nothing to contribute to assessment of divergent - production abilities. For example, factor analyses of the Wechsler Scales have thus far failed to show any such relationship. Recently, I indulged in some arm-chair analysis of the 140 tests in the latest Stanford revision of the Binet scales, from which comes the impression that, inspite of the great surface variety of the tests, there is an overwhelming weighting with tests of cognitive abilities, with some attention to a few of the factors of memory, convergent production and evaluation. Only five of the 140 tests appear to offer any appreciable divergent-production variable. 28

Stephen P. Klein (1967) has pointed out that the available tests of creativity are no more highly related to each other than they are to intelligence tests. It is, however, agreed that creative ability belongs as much to human mind as does intelligence. But whereas intelligence has a growth pattern of its own and a measure like the IQ is possible, it is yet to be explored whether creativity has also any such growth-pattern and whether any creativity quotient can be found out. So far the studies have not been able to establish whether individual creators have any cycles of creative work during their lifetime, having

28 J.P. Guilford in Richard C. Teevan and Robert C. Birney (eds.), op. cit., p. 441.

some definite peak periods of creative work with intervening period of (creative) stagnation. Lehman, who has conducted considerable research in this field, however, claims to establish that in every field of human endeavour the best productions occur most frequently between thirty and forty years of age. His findings are, however, not so very conclusive as the findings in respect of growth and decay of intelligence are.²⁹ It also remains to be established as to the dependence of creative excellence or quality of creative production upon concomitant factors.

As pointed out by Kneller (1965), Guilford has made an outstanding contribution to the study of creative thinking. According to him, the mind, or intellect, consists of 120 different factors or abilities, of which nearly 50 are known. These may be classified into memory and thinking abilities. Thinking abilities may further be subdivided into the cognitive, the productive and the evaluative. Then productive abilities may be of two kinds: convergent and divergent. Guilford believes that it is the divergent productive thinking abilities which are primarily responsible for creative work. This can be represented in the form of the following chart.³⁰

29 For complete account see Chap. IX. " Age of Productivity" in What is Creative Thinking by Catherine Patrick (Bombay: Jaico Publishing House, 1956) pp. 109-29

30 Summarized from George F. Kneller, The Art and Science of Creativity, (New York: Holt, Rinehart and Winston Inc., 1965), pp. 39-41

Creativity is marked by unconventionality and it is a common observation that creative individuals are non-conforming. There is a common belief that a creative person may have strange looks and manners. Commenting upon this MacKinnon, Director of the Institute of Personality Assessment and Research at the University of California, Berkeley has observed :

Working under a grant by the Carnegie Corporation of New York, the researchers were faced with the usual stereotypes that picture the highly creative person as a genius with an I.Q. far above average, an eccentric not only in thinking but in appearance, dress and behaviour, a Bohemian, an egghead, a longhair. According to these unproved stereotypes, he was not only introverted but a true neurotic, withdrawn from society, inept in his relations with others, totally unable to carry on a conversation with others less gifted than himself. Still others held that the creative person might be profound but that his intelligence was highly one-sided, in a rather narrow channel, and that he was emotionally unstable. Indeed, one of the most commonly held of these images was that he lived just this side of madness.³²

The psychological investigators of the Institute involved some 600 professionals, who were rated as creative by their professional groups, for their close study in what is known eminently as the "living in assessment" method. The members chosen for study were recognized creative writers, architects, research workers in the physical sciences and engineering, and mathematicians. These creative persons lived usually for week-ends or longer periods with the psychologists in one of the fraternity houses near the

32 D. W. MacKinnon, "What Makes a Person Creative" in Contemporary Readings in General Psychology (Boston: Houghton Mifflin Company, Second Ed., 1964), p.153

Berkeley campus.

28

With regard to the unconventionality or eccentricity of creative persons both in thought and behaviour MacKinnon summarizes the findings of the investigation in the following words :

As the study has progressed it has become abundantly clear that creative persons seldom represent fully any of the common stereotypes, and yet in some respects and to some degree there are likenesses. It is not that such images of the creative person are fantastic but that they are caricatures rather than characterizations, heightening and sharpening traits and dispositions so as to yield a picture recognizable, yet still out of accord with reality. There are, of course, some stereotypes that reflect only error, but more often the distortion of the reality would seem to be less complete. 33

At this point, it is interesting to note the remarks of A.J.Cropley which read as follows :

In attempting to say what we mean when we talk about creativity, it is important that one thing be made quite clear, right from the start. Terms like 'creativity' are used far too loosely in everyday conversation, and (when used by some people) have come to mean nothing more than doing whatever you like, or behaving in an undisciplined way. It is quite wrong to suppose that this is what a psychologist means when he talks about creativity. It is true that divergent behaviour often seems to involve impulse expression, but this is far from meaning that expressing impulses is synonymous with being creative. As Kneller (1965) has pointed out, mere uninhibited hipswivelling can scarcely be called creative dancing, nor can hurling splashes of paint at canvas in random arrangement be regarded in itself as artistic creativity.

Similarly, some people mistakenly imagine that mere unconventionality is in itself creative, or that merely to do something differently from most people around you is to be a divergent thinker. On the contrary, if one accepted this notion, madness would be the most prolific source of creativity yet known. It is quite possible that a divergent individual may be unconventional; the point is that it is not the unconventionality which makes him creative. At the most, the unconventionality is an accompaniment to the creative process, and not really part of it.

Often, too, some of the qualities which are helpful in being a creative thinker are mistaken for creativity itself. Thus, creative thinking is often confused with quick-wittedness, or highly developed verbal skill or other such attributes which Kneller(1965, p.2) has called 'pointers to creativity, rather than the thing itself.' This kind of error can be harmful to the individual wrongly labelled 'creative' on the grounds that he displays a few of the fringe qualities of the true divergent thinker, for it may lead him to believe that creativity is mainly a matter of giving oneself cheap satisfactions without careful judgment of one's own behaviour. It is wrong to suppose that creative productions result from the mere scrapping of the conventional and consequent blind unconventionality. ³⁴

Giving the substance of research findings on the personality characteristics of creative persons, Taylor and Holland (1964) have commented as below :

There is some evidence that creative persons are more autonomous than others, more self-sufficient, more independent in judgment (they go against group opinion if they feel

34 A.J.Cropley, Creativity (London: Longmans, Green & Co. Ltd., 1967), pp. 20 and 21.

it is incorrect), more open to the irrational in themselves, more stable, more feminine in interests and characteristics (especially in awareness of their impulses), more dominant and self-assertive, more complex, more self-accepting, more resourceful, and adventurous, more radical (Bohemian), more self-controlled, and possibly more emotionally sensitive, and more introverted but bold. Creative people in different fields may have different personal characteristics. For example, it is commonly believed that the artist, struck by sudden inspiration, must get to his canvas quickly before his feeling vanishes. The special role of the spatial sense and visual imagery in art and of the temporal sense and auditory imagery in music need investigation. Many creative people have stressed the importance of mastering the techniques of expression specific to one's field. ³⁵

Raychaudhuri (1965) has given both the traditional as well as a more sophisticated view of what constitutes creativity. He has summarized the traditional view about creative activity " as the manifestation of some inherent capacity/ability of the individual." ³⁶ " The manifestation", he observes, "generally takes the form of novel, original and unique artistic or scientific-logical work".³⁷ In the same place he has quoted Golann(1963) according to whom " creativity is a normally distributed trait, an aptitude trait, an intrapsychic process and a style of life." ³⁸

35 Calvin W. Taylor and John Holland in (ed.) Calvin W. Taylor, Creativity: Progress and Potential (New York: McGraw Hill Book Inc., U.S.A., 1964), pp.27 and 28, Chap.2

36 Manas Raychaudhuri, "Personality Correlates of Creativity", Samiksha, XIX, No. 3, (1965), 108.

37 Ibid., p. 108

38 Ibid.

Raychaudhuri has further indicated that " the more sophisticated view has located in creativeness, originality, novelty, communication of emotional authenticity, applicability, social acceptance and some sort of combinatorial activity (Bruner, 1962; Guilford, 1959; Hammer, 1961; Stein and Heinze, 1960." 39

An interesting point has been made by Taylor and Holland(1964) in raising a question about the relationship between creativity and accumulation of knowledge. It has been pointed out earlier (p.9, Supra) that Koestler regards the bisociative process as the key-factor to creativity and that the process occurs only in the minds of such persons who have accumulated abundant knowledge saturated in specific disciplines. Contrary to Koestler, Taylor and Holland hold the view that the process of unusual association of ideas responsible for a creative product may not necessarily occur in well-informed and scholarly minds. In this context they make the following observation :

It is easy to cite examples of people in the academic world who are well versed in their fields but who have demonstrated little creativity. One also can name creative and productive persons who are criticized by scholars for not being well read or for not giving due veneration to past knowledge and to the accepted orientations in their field. In other words, sheer mastery of knowledge does not seem to be a sufficient condition for creative performance. A striking illustration of this hypothesis is found in the

life of Pasteur. After he had established a reputation as a researcher, Pasteur was recruited to work on a problem concerning silk-worms. Shortly thereafter a silk-worms expert interviewed Pasteur and was startled by Pasteur's ignorance of silk-worms - he was truly a novice. But it was Pasteur - not the experts - who reached a useful solution. Apparently what the solution required was only a minimum of the most relevant knowledge combined with certain important intellectual and motivational attributes not usually called for in scholarly work. 40

On the face of it the story from Pasteur's life cited by Taylor and Holland as an instant evidence in support of their contention that encyclopaedic knowledge is not a necessary prerequisite for creative production, seems convincing. It, however, remains to be seen whether a systematic study of biographical stories relating to creative productions of eminent persons would lend good support to the supposition of Taylor and Holland. The famous story which goes with the name of Archimedes, or the other one which goes with Newton for his discovery of the law of gravitation may point up that a preoccupation and constant search for the solution of a problem which obsesses the inventor has preponderance over all other attributes which might be responsible for the discovery. Similarly, stories might not be lacking to prove that many creative geniuses have spent practically life-time

40 Calvin W. Taylor and John Holland, op.cit., pp. 17 and 18

for collecting and digesting information or knowledge available in one or many related fields merely to find an answer to one single question, and, surprisingly and accidentally enough, they might have hit upon altogether a new thing - a new creative product - which they themselves might not have contemplated or deliberately desired or purposely pursued. Invention of penicillin is an instant example to support this. It is now a question whether such incidental inventions or discoveries over which an investigator might have luckily stumbled over, should be reckoned under the creative acts of the investigator.

Taylor and Holland (1964) have further mentioned Shockley who had indicated that "creative thinking may require the manipulation of several ideas at a time " and that " we lack a test for determining capacity to manipulate ideas". With regard to creative scientists, Taylor and Holland (1964) have observed that " the more creative scientists rate themselves high in creativity, cognition, discrimination of value, flexibility, academic achievement and intuition". They have further pointed out that "early interest in intellectual activities and above average breadth of interest are characteristic of the more creative physical scientists."

So far as formal education and creativity are concerned Taylor and Holland make the following observations:

So far there is no evidence that the sheer amount of education a person has had is a good indicator of his readiness to take a new step. It is necessary, among the educated, to identify those who can absorb the lessons of the past without being held back by them, who can find new ideas and use them to improve upon the past.⁴¹

At this juncture, it may be of interest to note that Sir Issac Newton made a major contribution in the fields of mathematics and physics by working hard in his laboratory for long years. His dedicated study of mathematics and physics were as much, or even much more, rewarding as his accidental discovery of the law of gravitation. And yet it is doubtful if he would have done a self-rating as high as Taylor and Holland (1964) report about "the more creative scientists' self-rating" in creativity, cognition, discrimination of value, flexibility, academic achievement and intuition even if Newton were available now for consultation. On the contrary, it is a universally known story that Newton was so very modest about his own selfconcept that he described his inventions and discoveries as merely picking pebbles in the shore of knowledge. Newton was not the only exception; numerous eminent persons, both scientists and non-scientists, have been similarly magnanimous in cherishing very modest opinions about themselves. It is disputable, therefore, whether highly creative persons

41 Ibid., p. 23.

should necessarily be highly assertive in seeking to magnify their selfimage. It seems likely that many of them, like Sir Issac Newton, may be highly detached 'Yogis' who remain immersed deeply in their thinking and pursuit so much so that they hardly might have time and desire to contemplate of comparing their own stature with those of others.

Even assuming that profundity of knowledge is a necessary pre-requisite for creative endeavours, it is difficult to reconcile this assumption atleast with such cases where a scholar of one field has invented something extraordinary in a very different field altogether. If Newton's life can be quoted to support the above assumption, Freud, who was originally a physician but who contributed mightily in the field of depth psychology by spelling out abstruse constructs appertaining to mind and its various levels, can be cited to counter the assumption.

Cropley (1967) has pointed out that Mednick (1962) has advanced a theory that creativity involves the formation of unusual and happy associations between the stimuli and responses and for this a special term was coined called 'serendipity'. He believes that normally such happy S-R bonds may not be formed in most people but they do characterize creative persons. It is believed, according to this theory, that creative minds are divergent thinking type and,

therefore, creative individuals are particularly adept in forming very effectively such happy and unusual combinations. As such, this theory tends to support the view that a great fund of variegated knowledge might lead to creativity. In other words, it may be rightly expected that creative persons might be possessing a huge store of information, the items of which they capably manipulate at will and with facility so that creative products emerge automatically in consequence.

The investigator would hazard a guess that it is perhaps this theory of 'serendipity' which has given birth to what is known as 'synectics' - a practice to group together persons belonging to different fields and initiating a problem before them for finding out a creative solution. In other words, this group-method may be called a laboratory method of generating new, creative ideas by collective consultation of experts belonging to different fields, and thus it can be hoped that a community which might be lacking in creative talents may expect to fill the void by adopting this contrivance.

Stressing the point that 'novelty' is a necessary element of creativity, Kneller (1965) has made it clear that if the creative product is new to the creator himself, irrespective of the fact whether the thing might have already been created by someone else also, it is a sufficient

test for novelty of the product. Similarly, to Hutchinson also a creative effort means "... the initiation and execution of some work of literature, art, music or science which is essentially new to its author."‡ Numerous examples can be cited to substantiate what Kneller and Hutchinson want to say. Invention of the wireless transmission system by Marconi and Jagdish Chandra Bose may be quoted as an example in support of Kneller. Both Marconi and Bose invented wireless transmission system independently, quite unaware of each other's work. Similar is the story of the invention of the safety lamp. Both George Stephenson and Sir Humphrey Davy invented the lamp independently and the invention was new to each one of them. 42 In this era of systematic institutional researches in all branches of knowledge, the same or similar inventions are made simultaneously by two or more institutions, and we do read reports in the newspapers and journals about such strikingly similar findings. In the realm of medicine it seems to be particularly so. In space explorations both Russia and America appear to have made similar findings and these countries appear to have invented similar techniques to conquer the space inspite of the fact that they exert to maintain

‡ Supra, p.11.

42 Note:- For details see The Book of Knowledge edited by Gordon Stowell, Vol. 7, p. 173.

secrecy about their space experiments and their technical 'know-how'. Kneller, however, regards the pioneer creative act to be of higher order, and all other similar acts which follow in the time sequence, to be of inferior order. Kneller differs from Margaret Mead on this count and he has argued against Mead's contention that both the pioneer work and the one following in the time-sequence must be regarded as equally creative if the latter one is achieved without any awareness of the first work. Kneller holds the view that the latter case is that of the creative act of a person who has been born in a culture of which the former pioneer work is already a part and, as such, the latter one has some advantages over the former to this extent (See Kneller, 1965, pp. 3 and 4).

It, therefore, appears desirable to think in terms of creativity as having different shades or degrees of excellence depending upon several considerations such as those cited above. A distinction can conceivably be made between two creative products in terms of their kind, the amount of effort involved in producing them, the degree of motivation and dedication of the inventor and numerous such other considerations. In this context, it may be of interest to note that like novelty, 'effectiveness' or 'relevance' or 'propriety' has been mentioned as another important aspect of creativity. What Bruner calls 'effective' is the same quality as what Kneller chooses to call 'relevance'

as another important determinant of creativity (Cropley, 1967). Cropley has made the following interesting observation in this respect :

One of the most important things about creativity is that it should lead to worthwhile results. These results may even have a kind of compelling property about them which identifies them immediately to the knowledgeable observer, sometimes with a distinct shock of recognition. Often this recognition of the obvious power of a truly creative act is accompanied by an experience of the 'Now why didn't I think of that ?' kind, or by a real pleasure and excitement. Even in so staid a situation as a chess match, for instance, spectators in Imperial Russia are supposed to have showered the contestants with gold and even wept for joy when a particularly creative move was made. Kneller (1965, p. 6) refers to this compelling quality as 'relevance', while Bruner (1962) has made the point particularly well by saying that a defining attribute of the creative production is that it is 'effective'. In some creative people, the search for effective end-products is so compelling that it shows up in a sense of complete dedication. 43

A story goes in the name of Wajid Ali Shah, the famous Nawab of Lucknow, that once he was engrossed so very dedicatedly to chess-playing that he could not afford time to think of giving any order to his army to save his kingdom from the perilous attack of the enemy even though he was most anxiously being told by his men that the enemy was almost on the threshold of their fort. It, however,

43 A. J. Cropley, op. cit., p. 21.

seems disputable whether it can be inferred from this story that the king's play can be called 'creative chess-playing' on the ground that it looked ~~so~~ very convincingly dedicated ! The story of chess-playing in Imperial Russia described by Cropley can be cited as an example of emotional involvement of spectators, known as 'empathy'. On the face of it, the story does not make a dent that the chess-playing was 'creative' unless some other desirable tests are applied to justify its label of creativity.

Cole and Bruce, in their *Educational Psychology*, (1958, Indian Edition 1966) have devoted chapter 13 to address itself to the topic 'The Creative Imagination ; The Expressive Person'. Considering the creative process as essentially the same as the expressive process the authors describe it in the following words :

It is not some esoteric, magical performance which only a person filled with some divine afflatus can do. It is something which occurs daily, in the simplest tasks : wherever novelty emerges; wherever two disparate ideas are suddenly fused into a new means to an end ; wherever something in us is given expression in fresh action, whether a gesture, a deed, a dance, a flower arrangement, a story; in any act that is not just an old one redone. 44

They further assert that :

Even to copy an act seen for the first time and suddenly made our own has something of

44 Lawrence E. Cole and William F. Bruce, Educational Psychology (Revised Edition), (Bombay: The Times of India Press, 1966), p. 527, Chap. 13.

the creative about it, and we are aware of how difficult this (imitation) is in early stages of learning when we see how very little can be acquired by imitation. But when we sense its true nature, we shall see that we have been creating all along.⁴⁵

Attempting further to describe the enigmatic nature of the creative (expressive) act the authors say that " one effort to catch this will-o-the-wisp which we call the 'creative process' has been led to the view that our products (acts, poems, plays, bridges, factories, scientific theories) are not creative unless they are expressive. A truly expressive thing, it is argued, is somehow different".⁴⁶ They have, however, realized the limitation of this definition and so they declare that this "definition has proved difficult to clarify, and our language usage helps to muddy the waters".⁴⁷ Hence they have further tried to clarify the concept of rudimentary expressive acts blooming into truly creative expressions in due course of growing and maturing, thus acquiring unique properties.

The following passages from the same chapter make an interesting reading :

When Anthony Trollope read the review of one of his novels in the London Times, he found himself described as a writer with a morbid

45 Ibid., pp. 527 and 528

46 Ibid., p. 528

47 Ibid.

turn of mind who had the poor taste to describe a member of the Times staff, to hold him up to ridicule, to hurt an individual cruelly. That Trollope knew no such man, that his fictional character had been drawn as a kind of composite photo from his own well of memories, left him with mixed feelings. He could not, without compounding his crime, apologize to a man he had never known and never intended to portray. On the other hand, much as he hated to harm the man, he could not help but find a kind of validating delight in the reviewers(s') testimony as to the accuracy of his imagination's aim. Was his art the poorer that his arrow found the mark ? 48

They, however, candidly point out that a creative act is not that accidental always.

Fortunately or unfortunately, the process of creative expression does not always have such easy targets. Indeed, the 'inner something' which the artist labours to express is not open to view by any other window, to any other life. 'How can they live my paintings', Picasso asks, almost with contempt. 'She thought I had painted three musicians', he laughed, as he referred to Gertrude Stein's discovery of 'meaning' in his paintings. 'And it was a still life!'⁴⁹

Thus, creativity seems to be so very subtle and mysterious.

Cole and Bruce hold the view that there can be several purposes which the art form might be fulfilling and expressing. One of these purposes, the authors believe, can be described with facility by using the term 'play'. In support of their contention that under certain conditions

48 Ibid., p. 533.

49 et seq.

an imitative, playful expression may become a creative act, Cole and Bruce concur in imagining the origin of the primitive war-dance. Almost like eye-witnesses, they have drawn a picturesque description to show how the spontaneous, ecstatic expression of a primitive victor might have evolved empathetic joyous expressions of co-primitives, which, ultimately, might have gained the form of the war-dance -- a creative act. Once a creative act has occurred, the authors feel, that it may be utilized for several other purposes also.

The authors wish to point out that the latter uses which the primitive creative 'war-dance' might have acquired in due course of time, were not there ab initio. They say that " it was sheer buoyance of spirits, an outpouring at a time of joyous victory, an act of mutual congratulation, an expression -- one almost wants to say a mere expression -- made first for the sake of getting something out when the heart is too full to contain all that is bottled up within it." 50

They continue further that "the lonely boy who, years later, is to become a novelist, tells himself stories on the way to school. These tales, if put down on paper, certainly will not jibe with social reality. What this art form will match is an inner world churning with deficit-created tensions and discontents and unfulfilled wants. How pleasant, and how very dangerous ! As satisfying an addiction as opium.

" Thus an expressive act can be a 'symptom' of discontent, an upside-down picture of reality, a spontaneous overflow of powerful feelings, a catharsis, a ventilation of bitterness or joy - and, let us add, at its best it can be a penetrating insight, a guide pointing ahead to life, a moment when we become fully conscious of ourselves (or at least more conscious than ever before)." 51

In their theorizing, Cole and Bruce have not mentioned what supporting evidence they have from systematic research findings. In fact, research on creativity was in its infancy when Cole and Bruce wrote. It won't, therefore, be erroneous to suppose that their statements and conclusions are intelligent guesses.

Here it may be of interest to see in the following lines how the fire of frustration and humiliation kindles creativity in a hyper-sensitive soul. With a burning heart and boiling head, it is impressive to see, how a neglected Negro boy grew into an internationally reputed creative, versatile genius viz. Gordon Parkes of America who rose to his grand stature by mere dint of toil. He was born in abject poverty, and that too as one of 15 children of a 'dirt farmer'. Roslansky (1970) writing editorial note to the article 'Creativity to Me' by Gordon Parkes appearing

in 'Creativity', mentions that " in 1967, he (Parkes) was voted, in 53 countries, the photographer - writer who has done the best to promote understanding among the nations of the world. ... Parkes claims he works only 75 per cent of his total capacity. 'Any one who works at 75 per cent of total capacity, if talented, can be successful.' " Parkes has been quoted as having said : " I've taken only one vacation in my life, I stayed home and wrote music." 52

Parkes' introspective story begins like this :

The more I think about creativity the more I realized how little I know about it. I am not being overly modest. It is just a frank admission that in preparing myself for this discussion, I found that I had an awful lot to be modest about. And in the course of re-examining my early experiences, I began to realize how important they were to whatever I have tried to accomplish.

F. Scott Fitzgerald once wrote that ' we have two or three great and moving experiences in our lives — experiences so great and moving that it doesn't seem at the time that anyone else has been caught up and pounded and dazzled and astonished and beaten and broken and rescued and illuminated and rewarded and humbled in just that way ever before.

.....
 Whether it's something that happened twenty years ago or only yesterday, I must start out with an emotion — one that's close to me and that I can understand '.

I would like to push Fitzgerald's philosophy further, to the need of man simply to dream. To dream remarkable and impossible dreams and to have the desire to fulfil those dreams.⁵³

Parkes gives a very vivid account of his childhood experiences in his article. In his most fascinating and superb narration of his early life, he describes how his creativity was kindled for the first time. The story runs :

I was about seven when a peculiar fantasy kindled my love for music. The Kansas day was hot, and I was hunting june bugs in our cornfield when I heard a murmuring in the corn-stalks. The murmuring grew into music, and I stood there, my mouth full of mulberries, puzzled, looking up at the slow-drifting clouds wondering if they were the music's source. The violins, horns and drums were as true to me as the sunlight, and I had a feeling that the music was trapped inside my head, that it would be there even if I had no ears. I covered them with my hands, and the sounds were still there and they continued until all the clouds moved away and there was nothing but pale sky. Then, it was gone as mysteriously as it had come, and I ran towards the house a little frightened, a little joyful. Then, in a frenzy I started banging on our old kimball upright, trying to reproduce the sounds I had heard.....⁵⁴

Was it a divine inspiration in the little Negro child through whom God wanted to fulfil His desire? Or was it the hallucination of a gifted sensitive child that released such frenzy in the little Parkes? Or was it a

53 Gordon Parkes, 'Creativity to Me', in John D. Roslansky, *ibid.*, p. 81.

54 *Ibid.*, pp. 81-82.

47

natural phenomenon which could have happened to any other person in a similar situation? Or was it the first flight of an emancipating soul which had been badly shut into the prison of deep poverty, stinging deprivation and object humiliation for years and, therefore, yearned for some compensation by way of nurturing high ambition and a burning desire to excel all ? Or was it the sprouting of a great talent in its first happy moments? Or was it merely a good omen, a premonition, full of promise for the big days ahead ? Or was it was it was it ? Well, let's see what Parkes has to say all about it. He explains:

I cannot explain this beautiful day-dream, other than that it gave me the initial desire to compose music. But in Venice some thirty odd years later, when I sat petrified in the courtyard of the Doges' palace, listening to a large symphony orchestra perform my first piano concerto, I realized that the performance recalled the deprivation, heartbreak, violence, starvation, prejudice, discrimination and love (underline mine) I had come to know since that childhood fantasy back in Kansas 55

It is hard to guess how 'love' belongs to the array of depressing terms like 'violence' and 'starvation' !

Versatile Parkes continues in his fascinating style explaining about the unity in diversity of all arts :

For me poetry, photography, writing and film-making produce the same mixture of memories. Music comes to my mind as the foremost example because it is the most difficult. I am more in

awe of it and more respectful of it as a truly creative process. It defies me. It beats me, breaks me, and rewards me. It lurks in dark corners dangling elusive notes and themes before me, challenging me to grab hold of what seems like nothing and mold it into something concrete. 56

The investigator wonders whether the author likens creativity to realizing, by concretizing what may be abstract, ghost-like inexplicable existence, haunting the mind of the creator like hallucinations woven from the fabric of intense memories of the past, still lingering in the depository of the sub-conscious, popping up off and on for their fulfilment. Or Parkes might be suggesting that creativity is something like the tremendous episode of converting energy into mass.

This great Negro unerringly confesses how creative act is more or less a compensatory mechanism. He says :

I am often asked why I do so many different things. I used to wonder about this myself, and for a long time I passed it off as a sort of professional restlessness. But, in retrospect, I know that it was a desperate search for security within a society that held me inferior simply because I was black. It was a constant inner rebellion against failure. I was a poor black boy who wanted to be somebody. So I created desires until I was drowning neck deep in them, before I would attempt to swim my way out. It was all the more difficult because I was not technically prepared. Two months before I

was to be graduated from High School, the great depression of the thirties, plus a physical breakdown, forced me to quit school. Penniless, and without a place to live, I struck out, unprepared and frightened, praying to God for help in one breath, questioning and damning Him in the very next, feeling that He alone was responsible for my predicament. 57

This autobiographical sketch is gripping, great, impressive. It narrates the frantic, and yet successful, assertion for survival, and creativity stems out of it naturally as a just dividend for the expended effort. But are His blessings showered from the Heavens at the most opportune moment in all cases when the downtrodden geniuses are toiling equally hard as Gordon Parkes ? This world is more full of the underprivileged, and of them not negligible numbers are struggling hard. And yet they are not able to join the ranks of creative individuals. The statistics is not that satisfactory. What is its mystery ? Many a genius is nipped in the bud. Or maybe, we fail to identify all the creative persons properly.

Commenting how creativity is a many-splendoured unfolding of one's experiences, Parkes says :

... I go on attempting to reveal my experiences, each time in a different way, through a different medium, hoping that, in some small way, they might make a dent -- some mark --- on our times.

If only I could feel that a photograph, a piece of music or a film of mine could help put an end to hatred, a poverty, bigotry or way, the pain of those early years would have been worthwhile. 58

And his following exhortation is no less fascinating :

... One must resist the easy way out, the weakness to settle for what is just acceptable. For many years now I have made it a policy to work beyond the safety limits in photography --- just this side of failure with my exposure, disobeying the rules, denying those properly adjusted little cells in my light meter their right to tell me how to expose my film. If Eastman Kodak cautions not to shoot into the sun, I shoot into the sun. If they say, do not use indoor film outdoors, I disobey to try for an unusual result. When I should be expected to hold my camera steady, there is something rebellious in me that says, twirl it. 59 *

Is it plain playfulness that prompts this celebrated artist to behave in this cute, belligerent, negativistic way, or it is a sublimated (sublime) egoistic rebellion with a vengeance not to obey the dictation of a society which had punished a talented, sensitive, innocent, self-respecting child for nothing? One thing emerges with certainty in the foregoing paragraphs -- that Parkes strikes the melancholy note of his bitter experiences of the past

58 Ibid., p. 84.

59 Ibid., pp. 84 and 85.

* Note : Gandhian obstinacy and civil 'disobedience' were no less crazy; we would see later what Erik H. Erikson has to say about it.

in all his variegated endeavours, and yet the tune of 'unity in diversity' outshines throughout in all his creations, with its benevolent splendour of truth, beauty and goodness, the desire to serve humanity, the craving for alleviating suffering by salving in a creative way. This is highlighting the harmony of life.

It is interesting to read how he concludes his article. It reads as follows :

We cannot be proud of what we did in the decade just finished, what with assassinations, civil violence and war. True, the moon landing was a spectacular, creative achievement. If only we could somehow turn some of that awesome creativity inward, to serve the human heart, then one could be more optimistic about the decade ahead. We must not make the error of limiting the use of creative talents. Words, images and music are in abundance. Placed end to end they could make a path a million times to the moon. But we grow weary of words - because they have grown hollow. We tired to the music of unfilled promises. And we have grown to distrust the images that our present society molds for us. Somehow, in some way, we must bring new meaning to creativity. We must use it fully and in the broadest sense, if we are to inspire men to real brotherhood and a lasting peace.⁶⁰

Erik H. Erikson, the author of Gandhi's Truth : On the Origins of Militant Non-Violence wrote in the American Scholar Journal (Autumn 1966 issue) under the caption

"Gandhi's Autobiography: The Leader as a Child" about the psychoanalytic origin of Gandhi's greatness. Some of his generalizations are given in the following passages :

I have been trying to visualize him(Gandhi) and to "hear" him in his middle years, just before he became the Mahatma. In what I have perceived he stands out almost hauntingly as a man who while small and ascetic was of infectious agility and energy, totally serious and yet of a pervasive gaiety, always himself and yet attuned to each counterplayer, and most of all utterly and always there.

Such a man, of course, can on occasion also be demonstratively tired and desperately sick. And he is by no means always likable 61

61 Erik H. Erikson, Reprinted in 'The American Review' Vol. XIV, (No. 1, Oct., 1969), 7-18

Note-1: Mahatma Gandhi is being mentioned here to indicate that eminence is not always a function of poverty. Unlike Gordon Parkes, Gandhiji was born of a rich home. However, his sensitivity to frustration, humiliation and rational religiosity compare favourably with those of Parkes.

Note-2: Donald W. MacKinnon, Director of Institute of Personality, Assessment and Research, University of California, Berkeley, holds the view that 'creative products are not limited to the realms of art and science and technological invention but include such intangibles as those educational, social, business, and political climates which permit and encourage those who are in them to develop and to express to the full, their creative potentials. In some cases even a person may be thought of as a creative product. These are the persons who have been variously called by Goldstein, and Maslow, the self-actualizing person; by Jung, the individuated person; by Rogers, the fully functioning individual; by Fromm, the productive character; and by Rank, the artist; - the man of will and deed who makes a work of art out of his own life'. This investigator regards Mahatma Gandhi as a self-actualizing, (and so a creative) person.

Commenting upon the childhood case-history of the Mahatma, Erikson asks :

Who can describe, who "analyze" such a young man ? Straight, and yet not stiff; shy, and yet not withdrawn; fearful, and yet determined; intelligent, and yet not bookish, wilful, and yet not stubborn; sensual, and yet not soft; all of which adds upto an integrity that is, in essence, unexplicable, and without which no evaluation holds. 62

Erikson has described Gandhiji as an embodiment of "pity and charity". He has further pointed out how his feeling of guilt for the agonising lapses of youthful days engendered in him the characteristics confessional tendency. Describing the autobiographical repentance of Mahatma Gandhi Erikson writes : "... Among all these confessions, ... (the most outstanding one is) an account of the death of the father whom the boy had nursed passionately. This is (to use Kierkegaard's word) the curse in the story, for the father died in an uncle's arms while Mohandas was lying with his (pregnant) wife."

This investigator has always regarded Gandhiji's confessions as the best purifiers of his soul. Seldom do we see great men confess with the eminent modesty of Gandhiji. In spite of his handicaps and unattractive paraphernalia, Gandhiji's life outshines in nobility perhaps because of his transparent confessions and grand simplicity. His

child-like obstinacy endeared him to his people. But one more thing was remarkable in him, this investigator feels. His sensitivity to insult and injustice, his patient, subtle and planned methods of retaliation were marvellous. One wonders whether the 'Quit India' movement launched by Mahatma Gandhi to expel Britishers from this soil would have taken its shape at all if he were not insulted severely in South Africa and knocked out of the train by the Britishers. A superb retaliation for a benevolent cause !

The famous historical event, relating to the insult of a sensitive brahmin scholar viz. Kautilya's (Chanakya's) ingenious retaliation against his King Emperor Nand leading to complete annihilation of the Nand dynasty, is no less spectacular and exciting.*

Gandhiji was highly assertive even in his childhood. His assertion and attention - seeking tendencies look obvious in the following description :

It was good to get Moniya (little Mohandas) out of the house for when his father was not there he would usurp sacrosanct rights, for example, by removing the image of the ruling Prince from a stool and seating himself in its place.⁶³

* Note : For details one is referred to the highly absorbing Sanskrit drama "मुद्राराक्षस" written by विशाखदत्त supposed to be based on the event.

Teasing was an enduring Gandhian characteristic and so also his playfulness. About this Erikson has to offer the following psychoanalytical explanation :

As one can learn from patients and from everyday failures, teasing is one of those spontaneous ritualizations that wilt when the teaser becomes sadistic or the teasee masochistic. Seasoned playfulness is long in developing, and I think that in Gandhi's life it can be shown to have alleviated his moral precocity and to have added a significant dimension to his evolving personal and political style.⁶⁴

Jackson, Getzels and Xydis (1960) have carried out an interesting research to explore the relationship between psychological health and cognitive functioning and have found that it is revealing enough. In this context they make the following observation, particularly with respect to fantasy :

The relationship shown in this research between pathological fantasy and different types of cognitive performance is quite consistent with both traditional and recent formulations concerning the psychological functioning of the creative people. The suggestion that fantasy plays an important part in the creative act has been a matter of record for centuries. At times irrational fantasy itself has been the subject of artistic effort as in 'Kubla Khan' or the surrealist's landscape. More recently the relationship between fantasy and creativity has become the focus of psychological investigation, and empirical evidence supporting the intuitive insight of artists and poets is steadily increasing. If it can be assumed that the presence of a typical fantasy is also a rough indicator of a general richness of fantasy

life, then the relative decline in the relationship between the Rorschach and cognitive performance as one moves from scholastic performance to tests of creativity becomes more understandable. Since the tests of creativity call for original or unconventional responses, rather than 'right' answers, it would follow that the individual who possesses a rich (and perhaps, at times, bizarre) fantasy life would be at an advantage. Conversely, the absence of an extremely rich fantasy life might be somewhat of a blessing when confronted with cognitive tasks which require intensive and prolonged absorption in a highly rational system. ⁶⁵

This finding is perhaps partly answering the question as to why there does not appear to be high correlation between creativity and intelligence.

It is not unusual to find several definitions of 'creativity' as indicated earlier, and so one comes across the following definition also :

Creativity is the capacity of the individual to avoid the usual routine, conventional ways of thinking and of doing things and to produce a quantity of ideas and/or products which are original, novel, or uncommon and which are workable. It must be purposeful or goal directed. It may involve the forming of new patterns and combinations of information derived from past experience, and the transplanting of old relationships to new situations, or the generation of new relationships.

65 Philip W. Jackson, et al., " Psychological Health and Cognitive Functioning in Adolescence : A Multivariate Analysis," Human Development : Readings in Research, (Bombay : D.B. Taraporewala Sons & Co. Private Ltd., 1970 - Indian Reprint of original edition of 1965), ed. Ira J. Gordon, Art. 56, p. 397.

The above definition was constructed by Ellen V. Piers, Jackeline M. Daniels and John F. Quackenbust (1960) to obtain teachers' ratings of adolescents on its basis. Obviously, as might be expected, teacher ratings of creativity proved to be a not very consistent criterion for validating the Guilford Tests on Originality and Ideational Fluency.

The investigators of the study ascribe that to both the restricted range and vagueness of the concept of creativity. They have also indicated that " validation of the Guilford Tests may have to await longitudinal or follow-up studies in which scores are correlated with actual creative productivity in adult life, unless better methods can be devised of rating present performance or products." 66

Guilford (1950) had indicated " that creativity is more than intelligence, and cannot be accounted for adequately in terms of I.Q." Ellen Piers and his co-researchers (1960)⁶⁷ have authenticated Guilford's above statement and they have also mentioned that Getzels and Jackson (1958)

66 Ellen V. Piers, et al. " The Identification of Creativity in Adolescents. ", Human Development : Readings in Research, ibid., p. 402.

67 Ibid., p. 403.

have also corroborated the same. Burt (1962)⁶⁸ has also pointed out that, in addition to general intelligence, there are other specialised abilities to be taken into account. He believes that these are not the same in each individual and often temperamental characteristics are highly significant.

Trowbridge (1966), while discussing in a seminar the multiplicity of definitions of creativity, remarked :

Many definitions of creativity have been advanced. Some are mainly concerned with the process, some with the product, and others with persons who create. Two basic concepts, however, are evident in most definitions :

1. The creative must be unusual, imaginative, novel, unique, distinctly different.
2. The creative must also be appropriate, apt, worthwhile, more aesthetic, a better solution. ⁶⁹

The author has further observed that " although there are inevitable differences of opinion among researchers, there are large areas of agreement, especially on basic ideas and concepts. There is also basic agreement on three fundamental assumptions concerning creativity." ⁷⁰

68 Cyril Burt, " The Psychology of Creative Ability", British Journal of Educational Psychology, Vol. XXXII (1962)

69 Norma Trowbridge, "Research on Creativity". Education of the Backward and the Gifted Children (Baroda : Centre of Advanced Study in Education, M.S. University, 1966), eds. A.S. Patel, et al., p. 151 (Note: Norma Trowbridge was a Fulbright Professor at the CASE, Baroda, from Iowa State University, U.S.A.)

70 Ibid., p. 152.

Of the three assumptions detailed by her over one and half pages, the first one, which is being quoted below, is of immediate interest to this investigator for the purposes of this chapter. Trowbridge states :

Creative talent is considered multidimensional; this view-point increases the need for a more adequate definition of creative talent. Important aspects of creative performance have been overlooked through difficulties of definition. A search for these additional creative dimensions and the factors related to them is necessary. Finding adequate and appropriate criteria to assess these multidimensions (of creativity) is one of the fundamental problems. ⁷¹

Comparing the contributions of creative and intelligent people, Trowbridge has to offer the following clear-cut remarks :

The creative person can contribute something to society which the intelligent person cannot. Similarly, the intelligent person makes contributions which the creative one cannot. Also, the achievements of a creatively superior individual do not equal the sum of the achievements of any number of less creative people. The definition of a creative person as a 'person who does with relative ease what no one else has done at all' is appropriate here. One cannot evaluate Michelangelo by saying that he is equal to 20 painters of less creative rank, or Einstein by saying that his work approximates the combined production of 30 average physicists. These rare creative individuals are invaluable; they produce something that no other collection of persons can. The same generalization holds true of intelligence ⁷²

71 et seq.

72 Ibid., p. 151.

The foregoing statement does not suggest that Trowbridge believes that there may be no creative intellectuals or, conversely, that there may be no intelligent creatives. The purport of the statement is to highlight the fact similar to the saying that 'hundred fools cannot make a wise man' without hazarding the overtone of sarcasm. It is a simple statement of fact which does not need any extra verification or external criterion to judge its merit. What Trowbridge perhaps wants to say is that even though seemingly creativity and intelligence are dichotomous in nature, they are designed by the Almighty to be complementary, rather than conflicting, in the service of the society. The contribution of each of these entities is undoubtedly for the enrichment of humanity.

Reverting back, once again, to the problem of multiplicity of definitions of creativity, one wonders whether attempting to define an elusive entity like creativity at this stage may lead to a grotesque or awkward situation, if not to a ridiculous absurdity, like the story of blind men describing an elephant, each one differently for lack of vision. Or, maybe, the reason of prevalence of multiple views of creativity- researchers is itself an index of their own capacity or desire to generate new, unusual, original, startling ideas or, in one word, their own creativity.

This investigator would not hazard a solution of the

foregoing dilemma but he would like to make the following submission :

The agricultural science says that the most potent seed interacts with soil in the most fruitful way to germinate and grow into the sturdiest plant, and the science of genetics tells us that qualitatively the best fertilization occurs only when the most powerful of myriad competing sperms wins its swim to reach the egg and produces the best progeny. Similarly, a successful slogan is that which catches the best mass recitation, a powerful thought is that which is able to build consensus and a good shot is one which hits the bull's eye. Borrowing an analogy from these common phenomena, this investigator wonders that if creativity is in resonance or unison with the law of nature, then it won't be absurd perhaps to imagine, that a creative idea is one which reaches a worthwhile new target, tearing the frontiers of all present achievements, and ultimately fruitions into a great, unprecedented piece of contribution to the whole humanity in general and its own native culture in particular. Like life having inherent power to regenerate life, a creative idea has the strength or capacity of automatically unfolding itself and the potential of generating more abundantly creative or, at least productive, worthwhile ideas. Among all ideas a creative idea becomes conspicuous because of this characteristic. Does Guilford's emphasis upon Ideational Fluency coupled with originality

as characterizing creativity not seem to convey nearly the same sense? Surely, no amount of pedantic, complex and drab theorizing by a bunch of professional researchers -- their beating about the bush -- can ever beat a neat, bright, creative idea of a master contemplator which alone has the stamina of carrying the world a stride ahead. Who knows if MacDongall were alive, he would not have called 'creativity' the fifteenth but also the most precious of all instincts, for it is -- more than 'laughter' is -- the most distinguishing and exclusively characteristic propensity of human beings. Other animals are not endowed with this ability at all. Like the musk deer till the first quarter of the twentieth century man had not realised the awareness of his most precious possession. Now, however, the time has come when creativity is a researchable concept, and it may not prove to be so very transient as many mushroom concepts in psychology have been.

It is now commonly accepted that a gifted person may either be highly intelligent or highly creative. Even though a gifted child is generally said to be one whose IQ score is anything higher than 140, a child who may have a lower IQ score but who is, at the same time, exceptional because he is rich in certain attributes like art, music or innovativeness which make him equally conspicuous, is also gifted. In this context Pavri (1966) has observed thus :

There is also the question of children who do not have the stated IQ, but who are obviously talented

in art, music or leadership. Such considerations show the wisdom of a great man who is in the field, Paul Witty's proposal that " a child can be referred to as gifted when his performance in a worthwhile type of human endeavour is consistently remarkable ". According to Nelson, the gifted are the exceptional children, " who deviate from what is supposed to be average in physical, mental, emotional or social characteristics to such an extent that they require special educational services in order to develop to their maximum capacity." 73

The foregoing concept of giftedness described by Pavri agrees with the view expressed by Ruch (1958; Indian Reprint 1970) in the following words :

Persons with high intelligence may be very creative, but they also may not be, if they tend to be critical and analytical. Some brilliant people attack new idea so vigorously and skillfully that they analyse them away and never advance beyond existing traditions. Thus in singling out " gifted children " for special attention it is not wise to go by IQ alone,(underline mine). 74

Some twenty years ago Thurstone (1952) had given a very careful consideration to this important aspect of mind and had outlined the distinction between scholarly achievement and creative achievement. He had also postulated that creative talent might be associated with some temperamental traits which might account for the distinction between the

73 D.M.Pavri, " Curricular Adjustments for the Gifted Pupils in the Elementary Schools" in (eds.) A.S.Patel et al op.cit, p. 207

74 Floyd L.Ruch, Psychology and Life, (Bombay : D.B. Taraporewala Sons & Co. Pvt. Ltd., 1970), p. 367.

scholarly and the creative. In Thurstone's own words :

... we should recognize that high scholastic performance is no guarantee of later productivity with original ideas. In a certain sense there might even be conflict between scholarly achievement and creative work. There are occasional geniuses who can achieve distinction in both domains, but more often it will be found that creative and inventive people are not at the very top in scholarship as judged by college grades. If scholastic performance were a dependable index of creative talent then our problem would already be solved, but unfortunately such is not the case Two men may then be of comparable intellectual abilities and yet differ markedly in inventive talent because of some temperamental characteristics that are associated with their comparable intellects. 75

Thurstone's predictions were later confirmed by numerous research findings such as those of Price, Taylor and Richards (1964), Taylor, Smith and Ghiselin (1963), Taylor (1963) MacKinnon (1962) to mention the most outstanding studies.

Group B of the All India Seminar held at the Centre of Advanced Study in Education, Baroda in December, 1965 on ' Education of the Backward and the Gifted Children' made the following recommendation for the identification of the gifted :

75 L.L. Thurstone, " The Scientific Study of Inventive Talent" in Sidney J. Parnes and Harold F. Harding (eds.), A Source Book for Creative Thinking (New York : Charles Scribner's Sons, 1962), p. 53.

For purpose of this seminar the following functional description of the gifted child was accepted by the group :

The gifted child is one who possesses any of the following characteristics :

He is :

- 1) Productive, has many ideas and solutions ;
- 2) Creative - brings something new in existence within the framework of his environment;
- 3) Ingenuous - invents or discovers a solution to a problem in a neat, clever or surprising way ; and
- 4) Versatile. 76

The group also made recommendations about the method of identification of the gifted. The group says :

The gifted children may be identified on the basis of the following criteria :

- a) Higher mental ability ;
- b) Consistently higher scholastic achievement ;
- c) Teachers' estimates based on intuition, observation, and experience ;

76 A.S.Patel et al.(eds.), op.cit., pp. 235 and 236.

Note:- These pages contain the recommendations of group B of the seminar which was composed of (Miss) D.M.Pavri, G.B.Shah and 10 others. This group was assigned the task of making recommendations about 'Curriculum adjustments for the gifted children in schools' while the other group (Group-A) was concerned with the backward children.

d) Psychometric profiles and other records.⁷⁷

Because of the obvious and commonly experienced difficulties of forging a consensus in such a forum as a seminar, the group seems to have made very guarded recommendations as if they were exclusively meant for the seminar only. Moreover, since tests of creativity were just emerging at that time and the concept of creativity was still very nebulous in nature in those early sixties, the seminar was obviously handicapped, to some extent, in offering a better tailored recommendation. However, the seminar had made an expert guess perhaps very much in the right direction and given most valuable suggestions as would be obvious from the following quotations :

" So much confusion surrounds the term Creativity", says DeCecco (1968), " that it is most difficult to discuss and use it. Ausubel (1963, pp.99-100) believes that we should use it to refer to ' rare and unique talent in a particular field of endeavour'. He further states : 'Creative achievement ... reflects a rare capacity for developing insights, sensitivities, and appreciations in a circumscribed content area of intellectual or artistic activity.' According to Ausubel, the creative individual who embodies this capacity is, by definition, an uncommon individual, much rarer than the intelligent person".⁷⁸

77 et seq.

78 John P. DeCecco, The Psychology of Learning, (New Delhi : Prentice-Hall of India Private Ltd., 1970 : original US edition, 1968), p. 454.

A similar view was expressed by Guilford in 1950 in his presidential address before the American Psychological Association. (See supra, p.5, cf. p.10).

At this juncture it is perhaps necessary to remember that just as it is disputable whether any culture-free intelligence test really exists, it is similarly agreed that culture-free test of creativity may also be a misnomer. It may be pertinent here to examine the following quotation from DeCecco (1968 original, 1970 Indian Reprint) :

According to Getzels and Jackson (1962), divergent thinking tends to be stimulus free, while convergent thinking is stimulus bound. To illustrate this point they asked students to respond to a picture of a man reclining in an airplane seat on his return from a business trip or professional conference. The stimulus-bound student constructed this story (p. 39) :

(Story- I)

Mr. Smith is on his way home from a successful business trip. He is very happy and he is thinking about his wonderful family and how glad he will be to see them again. He can picture it, about an hour from now, his plane landing at the airport and Mrs. Smith and their children all there welcoming him home again. The less inhibited stimulus-free (and presumably more creative) student constructed this story (p. 39) :

(Story-II)

This man is flying back from Reno, where he had just won a divorce from his wife. He could not stand to live with her anymore, he told the judge, because she wore so much cold cream on her face at night that her head would skid across the pillow and hit him in the head. He

is now contemplating a new skidproof face cream.

In both cases the student had four minutes to produce his story. Whereas the first student produced a story of a very conventional family reunion, the second student produced a much more modern story about weird incompatibility and divorce. The latter story shows more divergent thinking than the former story does. 79

It would be seen that both the foregoing stories are so very alien to our (Indian) culture. A highly creative Indian student would perhaps choose to construct a story to want the man to give priority to inventing the new skidproof face cream for his wife to save himself from the crisis of divorce, rather than to hasten to win a divorce case and then to contemplate an invention which could have saved him from breaking the family. Moreover, the second story, or a like of that might be adjudged erratic, unconstructive, lacking sensibility or sensitivity for family affection and cute. It lacks the warmth and affectivity, the balance and maturity which humanity craves for. On this test the first story deserves to be adjudged as constructive (though conforming) and happy. The mention of Reno and a peculiar turn of mind (whimsical) suggests that the story might have been a depiction of some real, known situation. One wonders whether, if that be so, it was really so very stimulus-free. This investigator holds the bias that a piece of art, whether it is a poetry or

a story, should not miss the शिवतत्व (Goodness) and the सुन्दरतत्व (Beauty). Otherwise, it would be void of art; it may even lead to mockery of art. The second story imbibes the कामतत्व (a sheer pleasure) and seems guided by the law of hedonism, beyond which it does not pursue any worthy goal. It would perhaps not be proper (wise) to tear away creativity from its value-orientation. Of course, this investigator would concede that judgment of goodness, or that of the best fit (from creative point of view), is relative. However, creativity, in order to play its role as the preservative medium for humanity should be sacrosanct, virtuous, imbibed with सायुतत्व (benevolence) or प्रसाद (serenity).[‡] In this context it would be relevant to consider the following suggestion of Trowbridge (1966) :

The use of the creativity test as a criterion of creativity seems justified only to the extent that the abilities measured by the test are important and valuable in a culture and judged creative by that culture. Creativity seems to be inseparable from its social and cultural environment. A culture-free creative test, even if it could be constructed, would probably have little meaning. 80

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We have seen that intelligence alone is not enough to identify a creatively gifted individual. This investigator

‡ Note: For a sharp and comprehensive criticism, see C. Burt in the British Journal of Educational Psychology, (Nov. 1962),

80 Norma Trowbridge, op.cit., p. 154.

Note: More about criterion problem in Chapter II.

has to offer the following comments :

Intelligence is supposed to be composed of the Primary Mental Abilities. In terms of verbal tests, it is saturated with verbal ability, and that too concentrating in the cognitive area of the mind. A consistently high score on each of the PMA's would give a high IQ score, because of the cumulative (additive) scores of thought processes in the subscribing areas. As against this, a highly creative product of a genius may simply be a superb performance of a single mental aspect such as originality. It, therefore, seems plausible for this investigator to hypothesize that intelligent, convergent mental behaviour is additive because of the contribution (or co-operation) of the constituting elements of the mind whereas in the case of creative, divergent mental behaviour, the various elements characterizing and generating it actually seem to compete for excellence, rather than contribute merely additively. However, the possibility of interaction and integration of certain creative factors at the deeper levels may not be ruled out. This line of thinking would gain support from the fact that whereas in evaluating performance on an intelligence test the 'right' answer is the fixed and unambiguous one selected in the process of standardization; in the case of the creativity tests, the high scoring answer is not that predetermined and fixed. On the other hand,

the creativity test should include free-response questions to allow for demonstration of divergent, unusual, unique, original, novel or multiple mental behaviour.

In James Drever's Dictionary of Psychology (1964, revised edition) the word 'creative' has been defined as 'producing an essentially new product, constructive (some-what wider); used of imagination where a new combination of ideas or images is constructed (strictly when it is self-initiated, rather than imitated); also of thought synthesis, where the mental product is not a mere summation (underline mine)'. Again the word 'imagination' has been defined in the same dictionary as 'the constructive', though not necessarily creative (underline mine), employment of past perceptual experience, revived as images in a present experience at the ideational level, which is not in its totality a reproduction of a past experience, but a new organization of material derived from past experience: such construction is either creative or imitative, being creative when self-initiated and self-organized, and imitative when following a construction initiated and organized by another.

It will be seen that according to the foregoing definition, novelty alone could not be the test of creativity, but constructivity (in a wider sense) is an equally necessary attribute of creativity. This supports this investigator's contention about the second story quoted at p. 67

(supra) since the mere 'contemplation about a skidproof face cream' can hardly be regarded constructive in a wider sense. At best, the story could be called an intelligent tolerable joke.

Attention is invited also to the other definition of 'creative' (thought) which reads in Drever as 'also of thought synthesis, where the mental product is not a mere summation'. This definition supports this investigator's foregoing (p. 70, supra) suggestion that the mental processes involved in creativity are competitive in character, rather than additive, of course with the reservation that in the deeper levels of the mind or in the initial stages of the process some cerebral integration (or, say, incubation) might also be going on.

'Creative thinking', as defined in Harriman's Handbook of Psychological Terms (1959, Reprint 1963), is 'purposeful imaginative activity which (Wallas) typically proceeds from preparation, incubation, and illumination to verification.' This definition is almost an elaboration of Drever's expression that 'the mental product (in creative thought) is not a mere summation.'*

* Note : Incidentally, this investigator proposes to borrow the term 'fertilization' from genetics to explain a facet of creativity. Since it is not uncommon to borrow terms like 'homeostasis', 'cybernetics', 'taxonomy', 'feedback', 'incubation' for psychology from other disciplines.

The Dictionary of Psychology edited by Howard C. Warren (1933) contains a comparatively old definition of 'creativity'. In that dictionary the term has been defined as "the capacity of certain individuals to produce compositions of any sort (works of art, mechanical devices, etc.) which are essentially novel, or which were previously unknown to the producer." It will be seen that Kneller, Hutchinson and Mead seem to subscribe to this line of thinking since their definitions of 'creativity' agree very closely with the above quoted definition (pp. ~~and~~ 36-38 supra).

A rather more comprehensive definition is available in A Critical Dictionary of Psychoanalysis by Charles Rycroft (Bristol, 1968). It reads as follows :

The capacity to arrive at novel but valid solutions to problems. The capacity to create imaginative products (see IMAGINATION) which are compelling, convincing, significant, etc. From its earliest days, psychoanalysis has been tempted to proffer explanations of creative activity, these being invariably based on demonstration of the similarity between creative activity and some neurotic process. The simplest version of this procedure is to demonstrate that the content of novels and paintings can be interpreted as an OEDIPAL phantasy and then deduce from this that creative activity is a form of neurotic day-dreaming (Freud, 1908). The difficulty with this hypothesis is that it fails to explain why all day-dreams are not creative and it, therefore, involves secondary hypotheses as to how the formal and technical aspects of creative work enable private neurotic 'creations' to be converted into

publicly acceptable and comprehensive works of art. At the end of his life Freud rejected the idea that psychoanalysis had anything to contribute to aesthetics (underline mine). (But see Ehrenzweig(1967) for a contrary view). More recently, and usually under the influence of KLEINIAN ideas, there have been attempts to prove that creative activity is either DEPRESSIVE or SCHIZOID i.e. that it either represents an attempt to make REPARATION for destructive PHANTASIES (Klein, 1948, Sharpe, 1950, Levey, 1939), or is in some way analogous to the delusional system-making of SCHIZOPHRENICS (see also DELUSION). Here again the reason why some people have the capacity to find creative solutions for their depressive or schizoid problems remains unexplained.

Since classical psychoanalysis designates imaginative activity as primitive, INFANTILE, and as a function of the ID, writers such as Hartmann and Kris have been compelled to describe in terms of REGRESSION activities which they clearly in fact regard as creative and progressive. This has led to the use of phrases such as 'regression at the service of the EGO' to describe the 'negative capability' (Keats) of the creative. Since the results of creative activity are, by definition, novel, unexpected, and therefore, unpredictable, creativity is a concept hard to include within a casual - determinist framework (see CAUSALITY and Determinism); hence presumably the AMBIVALENCE of psychoanalysis towards it. The concept also raises problems as to whether it is a general aptitude, in which case everyone could become creative if his INHIBITIONS were removed, or a special gift, in which case psychoanalysis has to admit exceptions to its categories (underline mine). For the former view, see Kubie's Neurotic Distortions of the Creative Process (1958); for the latter, see Phyllis Greenacre's The Childhood of the Artist (1957) where she argues that gifted persons are different from the beginning of life, that

they actively seek objects who will recognize their difference and their gifts, and that, if analysed, they require a different technique than others.*

One of the persistent questions which might be haunting the mind of an investigator working in the field of creativity could be : " Are creatively gifted individuals normal people ?" In other words, it is to ask whether their unusual, creative behaviour could be explained as satisfactorily in the way their usual, conforming behaviour can, with the help of already known and much common psychological theories such as the need-drive theory which seems to account for both physiological and the motivational aspects of human behaviour. Commenting editorially on an article of Charlotte Buhler, Severin (1965) opines that "creativity and value orientation are difficult to integrate into a rigid need-drive theory." 81

Charlotte Buhler, a practising clinical psychologist and a University teacher, has hypothesized four basic life-tendencies enumerated below as a result of her vast experience and empirical findings :

1) Need satisfaction ;

* Note : The author's note says that cross-references are indicated by the use of (small) capitals in the book.

81 Frank T. Severin (ed.), Humanistic Viewpoints in Psychology (New York: McGraw Hill Book Company, 1965), p. 268.

- 2) Self-limiting adaptation ;
- 3) Creative expansion ; and
- 4) Upholding of the internal order.

Buhler (1962) believes that these basic life-tendencies are subservient to the over-all goal which she calls 'fulfilment' in preference to 'self-realization' or 'self-actualization'. Conceiving 'creative expansion' as originating in primary unconscious processes in the infant, Buhler says : " Creative expansion begins in the new-born's experimental movements and becomes a matter of conscious goal-setting and planning of accomplishments from about two to three years on, when the child begins to build playfully with blocks and when he begins to feel like a person equipped with the power to do and to decide things." 82

Explaining her thesis about the role of these four basic life-tendencies Buhler says :

My thesis is that in every individual all of these tendencies are in operation at all times, but to individually varying degrees, and in individually varying patterns, consciously as well as sub-and unconsciously. All

82 Charlotte Buhler, " Some Empirical Approaches to the Study of Life's Basic Tendencies" in L.N. Soloman (ed.), A symposium on human values. J. Humanistic Psychol., 1962, 2, 89-111. Reprinted in Humanistic Viewpoints in Psychology, F.T. Severin (ed.), *ibid.*, p. 270.

of these tendencies are necessary for life and survival. Everybody needs to satisfy his needs; everybody has to adapt; every individual needs to produce or create in the widest sense of planned accomplishments; everybody has to uphold a certain degree to internal order in terms of integrated and co-ordinated functioning, and in terms of consideration of principles of conscience.

However, different individuals seem from the beginning - and with this I refer to infant observations on activity degrees and other primary differences - more inclined to steer themselves in one or the other of these directions. Environmental influences and experiences of life may enhance or also modify these inclinations. Resulting are directional patterns in which more or less one-sided trends become sometimes temporarily, often lastingly predominant.

.....

The primarily 'expansively creative' individual is ... confident of his strength, of his ability to master circumstances and to improve and change the world to suit man's needs. ⁸³

The foregoing thesis advanced by Buhler appears to take into consideration the role of what were formerly known as instincts (perhaps by lumping together some of the instincts described by McDougall to evolve her four broader categories) and also the impact of environmental influences in order to characterize four types of personalities in conformity with her theory of basic tendencies.

83 Ibid., pp. 270-271.

Without getting into an academic debate on this issue, it is gratifying to note that Buhler recognizes a separately, exclusively identifiable personality known as 'creative'. This kind of personality is, according to Buhler, apparently an assertive, self-confident individual whose concern and ambition are to contribute for the universal benefit of humanity. One may have a reason to dispute here whether every creative act is a function of its creator's desire to help humanity. The famous scholar-poet 'Tulsidas' who wrote the epic of Ramayan in Awadhi (Hindi) was a stalwart who caught the attention of millions of people over the past four centuries or so, and who is sung with equal devotion and abiding admiration by both commoners and scholars, has, inspite of the tremendous social value and religious worth, and its outstanding contribution to humanity, unequivocally described his epic as emanating from his desire to please himself. In his own words the motivation for writing the great Hindu epic was merely " स्वान्तः सुखाय तुलसी रघुनाथगाथा ".⁸⁴ The social value or contribution to humanity was an incidental benefit derived from the epic. Who can dispute the verdict of the epic's own author ? This investigator cannot judge whether the said statement of St. Tulsidas was a real projection of his motive or it was merely a modest self-evaluation.

84 Saint Tulsidas, Ramayan (A great Hindu epic), Introduction.

Describing the view point of motivational psychologists, Cole and Bruce (1965) emphasize the central role of needs in creativity in the following words :

First, let it be noted that the expressive process, like every other form of human response, is based upon needs and purposes. A need is a tensional state of the organism brought about by any external threat or internal excess or deficit beyond the range required to maintain it in a state of equilibrium. The self-balancing principle - homeostasis - is basic in expressional as well as other phases of school work. The creative process begins with a vague urge of restlessness to make a statement ; a sense of incompleteness, a mood, an emotion, a feeling. The struggle of the child painter to discover the hidden relationships in what he is trying to say on the canvas, or of the young poet to find the right words, is merely another example of the organism's attempt to find a channel for need-instigated growth. But it is an especially rewarding process when it brings into the open what has been hidden, when it sharpens our self-awareness and insights into the world around us, when it invokes an answering, understanding and acceptance in other human beings. It is the crucial phase in self-realization, and it gives expression to that which would otherwise remain mute pain, dumb tension, inarticulate ache. ⁸⁵

The substance of the foregoing few pages is that creative endeavour is essentially propi-ate striving. It is characterized by its property of maintaining a persisting mood for over a long period of time, keeping

85 Lawrence E. Cole and William W. Bruce, op.cit., p. 547.

the organism (creator) sufficiently highly motivated and perseverating continuously until the need is satiated. But whereas in the problem - solving activity, the behaviour of the organism is goal-directed - whether the organism is an animal or a Homo sapien - in the creative activity, which is exclusively the domain of the Homo sapiens, the behaviour of the organism is more than merely a goal-directed activity. It rises above that plane and is woven round the personal value-system or conceptualization-mechanism or cosmology of the creating person. It is for this reason perhaps that the creative individual seeks, even devoting his whole life-time, for a neat, elegant and robust product which is tempered with the personal finish of its creator and so hard to ape perfectly by anyone else in its entirety and details. This is perhaps precisely the point which an expert on human specificity of the eminence of Jacob Bronowski (1970) has strenuously and repetitiously pleaded in his paper on, 'The Creative Process.'^{*86} The quintessence of his arguments seems contained in these words :

A man becomes creative, whether he is an artist

86 *Note: For details see Jacob Bronowski, "The Creative Process" in Creativity, ed. John D. Roslansky, op.cit., pp. 3-16.

or a scientist, when he finds a new unity in the variety of nature.... The creative mind is a mind that looks for unexpected likenesses (between things of nature). This is not a mechanical procedure, and I believe that it engages the whole personality in science as in arts. 87

The above thesis that creativity reaches beyond mere problem-solving or goal-seeking activity, that it is specific insofar as it is fashioned after the individuality of its creator's personality, and that it is balanced and in perfect harmony with nature and hence transcendental and unique in fusing the dichotomy between arts and science, seems strongly supported also by Donald W. MacKinnon (1970), Director of Institute of Personality Assessment and Research of the University of California, Berkeley in the following words :

The ... highest criterion for a creative product is (that) ... it requires that the product (must) create new conditions of human existence, transcending and transforming the generally accepted experience of man by introducing new principles that defy tradition and radically man's view of the world.

A distinction is frequently made between two kinds of creativity and creative products - artistic and scientific. Artistic creativity, it is said, results in products that are clearly expressions of the creator's inner states, his needs, perceptions, emotions, motivations, and the like. In creating them he has a deeply moving emotional experience or encounter. In scientific creativity, it is argued, the product is unrelated to the creator as a person, who in his creative

work acts mainly as a mediator between externally defined needs and goals, operating on some aspect of his environment so as to produce a novel and appropriate product, but he adds little of himself or of his style as a person to the resultant. Such a description of scientific creativity is, however, more appropriate to technological and inventive activity in which the affective life of the worker plays relatively little role. In the highest reaches of science as well as of art it seems clear that there is a connection, albeit a mysterious one, between affectivity and the creative process. In the arts, the great productions appear to be exquisite attempts to resolve an internal turbulence. In the sciences, the important theoretical efforts seem to be personal cosmologies as much as anything else (witness Einstein, the prime example ; Sherrington, Cannon, Born, Schrodinger, and others). The validity of the creative product thus is almost (but not quite) incidental to the forces driving its expression. And the forces are largely affective. 88

Similarly Hutchinson (1949) comments :

The arts and sciences, I believe, roughly classify themselves from the creative aspect, not on the basis of content and method, as so many aestheticians have mainly tried to show, but rather according to the demands they make upon the intuitive faculty. It is not a question of separating the arts from the sciences because one is imaginative and emotional and the other is logical and technical. Each discipline contains a range of all these elements. It is rather a question of grouping together all forms of either art or science which are created under the same conditions of insight, and then of asking what these have in common. If a careful analysis is made, they will be found to have much. The identity of

88 Donald W. MacKinnon, " Creativity ; A Multi-faceted Phenomenon " in Creativity, ed. John D. Roslansky, op. cit., pp. 25 and 26.

great disciplines of thought has its roots ultimately in the intuitive faculty, no matter how many poles they are apart in superficial content. In the heated imagination of genius philosophy is translated into poetry, and science reaches the heights that music yearns for. A great scientific discovery or experiment, a great piece of music, or of art, or of poetry, forged at an intense level of mental operation - the field makes little difference...

It is no accident that in the greatest minds professions disappear. Special pretense is left behind. Each lays claim to as much of the Beyond as his ambition can surround and his hand defend. The tenacity of these minds is super-human. They almost always die on the mountain top looking over into the next territory. 89

Commenting further upon the emotional involvement of creative minds Hutchinson writes :

And all this is true because these greater men, essentially artists in attitude toward their work, feel intensely, personally their responsibilities. Not that they have more facts, more lore, more materials. The materials are anybody's, brought in any journal or textbook. But they experience more inner necessity, more frustration over wider areas because that felt necessity cannot be wholly satisfied, hence more complete release and with it greater expressive implications of thought. No co-operative research of itself can substitute for this ethical commodity. No grouping of minds can initiate individual creative effort. It may set problems, define issues, criticize results; but in the last analysis the creative act is individual, the achievement of one mind bearing its own exacting duty (underline mine).⁹⁰

89 Eliot Dole Hutchinson, op.cit., p. 150.

90 et seq.

Indicating the hazards of too much schooling and conventional information-mongering against creativity MacKinnon (1970) observes :

In our scientifically and technologically advanced society the well-trained and highly educated professional must possess a large body of expertise. But, as just noted, too much knowledge can be a dangerous thing * for creativity. It is not by chance that most of the major inventions have been made by persons who have not been experts in the field of their inventions. The expert, all too often, 'knows' both on theoretical grounds and on the basis of empirical findings that certain things are not so or just cannot be done. The naive novice ventures what the expert would never attempt, and often enough succeeds ... **91

Bronowski (1970) wants to distinguish, meticulously between 'discovery', 'invention' and 'creation'. He believes that " the most remarkable discovery made by scientists is science itself." As to the distinction between the three terms he says :

There are contexts in which one of these words is more appropriate than the others. Christopher Columbus discovered the West Indies, and Alexander Graham Bell invented the telephone. We do not call their achievements creations because they are not personal enough. The West Indies were there all the time; and as for the telephone, we feel that Bell's ingenious thought was somehow not fundamental. The groundwork was there,

* And not that 'little knowledge is dangerous!' -Investigator.

** cf. pp. 31 and 32, supra

91 Ibid., pp. 22 and 23.

and if not Bell then someone else would have stumbled on the telephone as casually as on the West Indies. 92

Although leading thinkers of behavioural sciences like MacKinnon and Bronowski have eloquently expressed the identity of creativity both in the arts and science, Myron A. Coler, Director of Creative Science Program of New York University holds a contrary view and has written, in the fluent preface to the 'Essays on Creativity in the Sciences' to say that creativity in different areas of human endeavour is as variegated as the discipline of the areas themselves. It reads as follows :

Although we have dealt with creativity as if it had a certain constancy, this too can be misleading. Despite the fact that we may speak of creative artists, writers, and scientists in the same breath, there is no strong evidence that we are necessarily dealing with precisely the same phenomenon. In fact, there are major differences. Thus, for example, mathematics and the natural sciences and technology are cumulative, so that all prior work must be considered, at least in principle. A contemporary creative writer may ignore or may not even be familiar with the works of Sophocles; a scientist cannot even complete his elementary education without utilizing the contributions of Euclid and Archimedes. Again, although science is much more subjective and influenced by emotional and aesthetic factors than is commonly realized, the explicitly dominant role played by feelings, form of expression, and style in the arts results in widely different bases of evaluation and preference. ... These fundamental differen-

-ces result in turn in differences in the types of personalities that are attracted to the several fields of endeavour. 93

Incidentally, it is so very refreshing to read what Coler (1963) has to say about the distinction between productivity and creativity :

Although productivity is often incorrectly confused with creativity, there is perhaps some justification for this error. One cannot have creativity without productivity. Productivity is often used as a measure of creativity. For example, the total number of technical papers published by a scientist and the number of paintings exhibited by an artist are often mentioned in this sense. Sometimes, with prevailing limited knowledge, there may appear to be no better measure. The passage of time may change the evaluation. Insofar as productivity is a measure of drive and motivation -- and highly creative people are, almost by definition, highly motivated - there is a further basis of correlation. Yet, in the final analysis, productivity is not creativity. It appears to be a necessary but insufficient condition. Abundant works permit and even favour but cannot guarantee creativity. 94

Similarly, Coler (1963) holds the opinion also that " the relation of creativity to novelty and originality is again one of necessity rather than sufficiency."

93 Myron A. Coler in the Preface to Essays on Creativity in the Sciences, ed. Myron A. Coler, (New York : New York University Press, 1963), p. xviii.

94 Ibid., p. xvi

Eminence and Abnormality

Earlier in this chapter, we have seen that gifted and creative persons are sometimes described as Bohemian, near-neurotic or abnormal. We have also observed that kinds of frustrations or depressions had stirring effects in the minds of great men like Mahatma Gandhi and Gordon Parkes and how the churning of their inner selves with tremendous motivational force produced the cream of their contribution to humanity.

Gordon was not born with a silver spoon in his mouth. Born in deprivation and squalor, he was thrown by providence into the mid-stream of fate to learn to swim his way. Mahatma Gandhi, though born in a rich home, had had the divine blessing to be sensitive to humiliation and suffering which compelled him to take up cudgels against the atrocities of the British subjugation to alleviate the agony of millions of cosufferers. It would be apparent that fighting one's way through such great odds to surmount them is not merely frittering away one's energy and exhausting oneself; on the contrary, such struggle fashions you from within; it carves your genius. Inertia of psychic creativity may lead to stupidity or even to lunacy.

But the stories of all gifted and eminent personalities cannot be explained with such traumatological simple interpretations. Many stories are extremely complex defying tailored interpretations. Some of them may be simply amazing, or even shocking. They are more dramatic than what one can imagine. Here is an account of how psychosomatic symptoms have been haunting some of the most renowned men who have made history by their unique achievements. ~~Is it~~ merely because they had stronger thyroids ? The picture is not that rosy. Brown (1940) writes in the celebrated text book 'Psychodynamics of Abnormal Behavior ':

Many geniuses have shown signs of having character disorders for all or some of their lives. Edgar Allan Poe was certainly a chronic alcoholic, unable to make "proper marital success with any woman". Christopher Marlowe died of dissolute living at a very early age. Most of Francois Villon's best poetry is about his own life, which was that of a roisterer and "toss-pot" and he too died before thirty. Goethe speaks of his days of 'Wusstes Dasein' (dissolute living) before his journey to Italy. In our own recent literature the poet Hart Crane and the novelist Thomas Wolfe were both severely alcoholic. Poets and wine are a familiar combination. Verlaine and Baudelaire, Swinburne and Ernest Dowson and many others all found drink a problem. Many painters suffer likewise. Toulouse Lautrec and Paul Gauguin had alcoholic episodes. Nor is alcoholism infrequent in musicians. Haydn was said to be sober but infrequently and Brahms often disappeared for days in low saloons and houses of prostitution. The only

personal papers we have of Galileo are notes from a tavern. Everyone knows the widespread taste of swing musicians for alcohol. It would be easy to give many other examples of geniuses with this type of disordered character from all the arts and sciences.

Newton, who was probably the world's greatest scientific genius, was a schizoid character. Charles Darwin had definite schizoid characteristics, also. The great natural scientist Robert Julius Mayer was a cycloid character who actually developed a manic-depressive psychosis. Neurotic characters in the arts and the sciences are likewise very frequent. The great American economist Thorstein Veblen was a mild neurotic character, poets like Poe and Lord Byron were relatively severe types. Mozart's life was made up of a series of tragedies in which the neurotic elements of his character undoubtedly figured.

Undoubtedly sexual perversion is very frequent among geniuses. This does not mean that all the sexually perverse are genial by any means, nor are all the genial sexually perverse. Tchaikowsky was homo-sexual, Wagner was markedly bisexual, neither Beethoven nor Brahms ever married. Brahms we know could establish sexual relationships only with prostitutes. There is good evidence that Leonardo da Vinci was, if not an overt homo-sexual, at least an implicit one. Proust is also in this category. Oscar Wilde's homo-sexuality was, of course, the great scandal of British literary circles in the 1890's. Walt Whitman's bisexuality appears on nearly every page of his work. There is a great deal of evidence that both Carlisle and Ruskin were chronically impotent.

Many geniuses have suffered periods of psychosis and severe neurosis. Nietzsche died of paresis. Robert Schumann had a severe depression with schizophrenic coloring. The Scandinavian playwright Strindberg was

psychotic. Van Gogh suffered a severe schizo-
-phrenia and died in an asylum. The popular
surrealist painter Dali is an admitted
paranoiac and has written entertainingly
although superficially about the theory of
paranoid art. ⁹⁵

It is difficult to imagine how fame and fecundity might be ~~associated~~ with erratic and neurotic behaviours and profanity. The only plausible solution appears to be that the theory of alternating personality i.e. a belief in the story of Dr. Jekyll and Mr. Hyde, be accepted. But such wide characterological fluctuations in the same person pose a highly challenging question before an interpreter. For this reason it seems necessary to delve a little deeper into analytical psychology. In the literary history of India, the famous prodigious Sanskrit poet Kalidasa is said to have been involved in prosti-
-tution. Some more instances of characterological or personality aberrations can perhaps be cited of Indian geniuses also. This investigator would revert to a psychoanalytical approach to it if there is sufficient evidence to suspect high incidence of such disorders in the present investigation which is being confined to India.

If such personality-aberrations are very common

95 J.F.Brown (in collaboration with Karl A.Menninger),
Psychodynamics of Abnormal Behavior, (New York :
McGraw Hill Book Company, Inc., 1940), pp. 415 and 416.

of great men, and if the incidence of abnormality is to be found among them in alarming proportions, it is then a mentally taxing problem for it poses a threat to society howsoever inditely. Should one try to guess that the so-called abnormalities relatively fit into the private value-systems of the super-normal people since they might be seeking to let part of their steam go off to keep them go gay and so their abnormal psychosomatic syndromes are mere contrivances of self-cajolery? They seem to be taking liberties with their personal philosophies at least.

Or it is something like carbon, a cheap black stuff capable of making high grade electrical filament to give the brightest glow! Or even its property to turn into diamond!!

This investigator hypothesizes that in terms of depth-psychological representation of mental functions as arising out of the conscious, sub-conscious and unconscious chambers, it may be assumed that in creative persons the partitioning between these chambers is something like a perforated diaphragm through which the wilt of the creator can peep into one from another; or, it is something like a one way vision-screen, and so depending upon how the creative individual manipulates

the flow of his psychic energy, one or more of the chambers become illuminated to his internal vision at will.

In physiological terms, this investigator is inclined to believe that since the generator of psychic energy resides in the cranial cavity, and since in every creative activity there is a spectrum of both cognitive and affective tones, it might be guessed that the tissues or the structuring of the nerve-cells between the cortex and the hypothalamous (conceivably those of the medulla) should be of special type in the creative persons, and that the contact between the cortex and the hypothalamous should be functioning like a grating or filter or rectifier. However, this investigator is handicapped in expertise to be able to probe into this realm of neuro-physiology. Hence a mere theoretical construct is suggested here. (See C. Anderson, p. 117, infra; limbic and reticular systems, pp. 196-97, infra)

Psychedelic drugs like LSD-25, peyote cactus or specially prepared mixture of oxygen and carbon dioxide may hypothetically, be dilating the perforation of partitions between the various levels of consciousness, or might be internalizing psychic energy more abundantly by diverting some of it which otherwise would be kept

flowing outwards to enable the person to feel the conscious reality. This inner-directed increased flow of energy might be illuminating more of internal self and might be a facilitating factor in delirious creative production. Such may be the case when a celebrated modern artist huris his colours on the canvas in a compulsive mood, but is unable to propose its title because of loss of that mood -- because of an altered state of consciousness - by the time he finishes his splashes.

It appears that under highly strung up emotional state, a person may acquire superior command over his energies both mental as well as physical. It is not unusual to see that persons in the psychedelic state -- either due to ingestion of certain drugs, a hypnotic suggestion, or prolonged fasting -- perform feats which normally they do not seem to be capable of. If mediation of cognition is damned or shutout for some time, and emotion is allowed free-lance play, it can demonstrate how it is capable of gearing up hidden energies and performing uninhibited feats. It seems plausible to assume, that during sleep, when all muscles are relaxing, and cognition(i.e. consciousness) is also shutt out, emotion plays its free role in arousing dreams of unusual events, feats and achievements as if rehearsing at a sub-

-active level all that it wants. And in some cases, it is not surprising to hear how conative subordination to emotion during sleep causes somnambulism or cognitive subordination to it results in a creative product of high degree like derivation of some mathematical formula unawares. Some theory of harnessing and channelizing mental energies should explain these phenomena more adequately.

Drugs and Creative Work

Hutchinson (1949) has considered the question whether it is possible to use drugs artificially to produce a state of relaxation from the problem-generated tensions so that the arrival of insight may be facilitated. Summarising the observations of several writers about the common use of drugs by eminently creative individuals Hutchinson writes :

So much has been written about the use of stimulants as an aid to creative work, and so familiar are certain historical examples, that the casual observer is tempted to conclude that their use is common, if not effective. Coleridge took laudanum; De Quincy, Shadwell, Robert Hall, and Horsly wrote under the influence of opium ; Byron composed with several bottles of port in his head; and Poe, Burns, Dickens, North, Addison, Steele, Hals, Swift, and a host of others resorted to whiskey. Francis Thompson ruined his life by drugs, and Wagner saw more Valkyrie in his heated imagination than he could confine in his score street, wine being his favorite excitant.

Voltaire and Balzac, Anatole France and Maupassant, Gluck, Sheridan, Johnson and Thomas Paine, not to mention that long list of brilliant philosophers, prophets, sibyles, and sages, have used stimulants and narcotics excessively. And many a modern artist - Van Gogh, Gauguin, Modigliani, Derain, Matisse - as well as many a musician has done work of outstanding character when mentally liberated from the bondage of the commonplace. A casual observer, I say, looking over the list of the more successful Bohemians is tempted to attribute to such agents the glory of creation.⁹⁶

Hutchinson has found in his investigation that about 90 percent of his respondents denied the value of, as well as the use of, such stimulants with the exception of coffee and tobacco. And since these in moderate quantities and in habitual use barely fall into our category of drugs, we may dismiss them without comment. The attitudes of many of these men are perhaps best summed up in the words of an artist : " In briefer flights, perhaps; in sustained work, never. "

These drugs might have both integrative and disruptive effects on the nervous system.

Barron (1969) gives a vivid description of the role of certain hallucinogenic drugs and other ancient drug-free Indian methods in inducing an altered state of consciousness, which, in turn, -- with certain reservations of course--may have facilitating effect on

⁹⁶ Eliot Dole Hutchinson, op.cit., pp. 128 and 129.

creativity. He writes :

The ancients, without scientific knowledge of physiological causation, used practices ... such as Yogic breathing exercises (Pranayam) which by way of prolonged suspension of breathing produce high carbon dioxide concentrations in the blood. Hypoxia will produce the same effects, and perhaps some of the mystical qualities attributed to an ascent to mountain heights for meditation are due actually to a decreased proportion of oxygen in the air and hence via decreased oxygen intake to an increase in carbon dioxide concentration. Prolonged rhythmic shouting, singing, and dancing may also produce this effect, and perhaps these have something in common as well with the methods that depend on rhythmic alterations in neural stimulation. Fasting may produce vitamin deficiencies, such disorders as scurvy and pellagra have long been known to generate negative affects of a quasi-mystical sort. Adrenalin metabolism and low blood sugar have also been implicated in accounts of unusual psychic states. And the peyote cactus, of course, is the source of mescaline, one of the more potent hallucinogenic drugs along with psilocybin and LSD-25.⁹⁷

Barron continues that "the hallucinogenic drugs in particular appear to act centrally upon the faculty of conscious attention in such fashion as to render ... perceptual schemata, or constancies — in sum, the normalizing and adaptive apparatus of the ego - temporarily inoperative or at least substantially abrogated.

.....
they can also lead into a wild ride in the deep unconscious"⁹⁸

97 Frank Barron, op.cit., p. 149.

98 Ibid., p. 150.

But, Barron also warns against the hazards of the psychedelic drugs in the following words :

The hallucinogens are unquestionably dangerous, as almost anything so powerful can be. In a certain percentage of cases, perhaps 1 in 100, given unfavourable predisposing circumstances in the individual or in the surrounding circumstances at the time the drug is taken, the hallucinogenic drugs may lead to unconstructive mental imbalance and actual breakdown of ego functions rather than temporary abrogation of them. Control based on understanding is the key to their constructive use, as it is to the use of other energy sources, such as fire or nuclear energy or the rush and pressure of water. (See Barron, Jarvik and Brunnell, 1964).⁹⁹

Summarising a large body of subjective reporting of numerous individuals who have taken mescaline, LSD-25, or psilocybin, the typical effects of these drugs have been given by Barron as listed below :

(1) Intensification of esthetic sensibility :

Of particular significance is the experience of "beautiful synesthesias, in which patterns of association usually confined to a single sense modality may cross over to others: music is 'heard' as coloured light, for example."

(2) Unusual associational patterns are much more frequent.

(3) Intuition in relation to other people is increased : To quote from Barron(1969) " one subject

⁹⁹ Ibid., p. 151.

wrote : the faces of other people became clear and beautiful and open I could look at them without fear or shyness People looked naked, shed of a fog of dissimulations, anxieties, hypocrisies. Everyone was true to his own-self and no one was ashamed."

(4) Higher purposes and the motivation to make one's life philosophically meaningful become very important.

(5) A mystical experience of absolute freedom may occur.*

Barron has given some account of scientific investigations also in this area but, after pointing out their short-comings, he has ended the discussion almost inconclusively. The following remark, however, sounds optimistic enough :

... It must be said that control of hallucinogenic drugs by blanket prohibition is a manifestation of lack of creativity and imagination in legislators. The books are not closed on the question of whether the higher mental faculties may be influenced beneficially by means of chemical agents. It has been found, for example, that a number of substances, such as strychnine in small doses, picrotoxin, physostigmine (an anticholinesterase - a substance which interferes with the destruction of certain transmitter molecules in the brain), if administered before a learning experience seem

* Detailed discussions are given in Frank Barron, *ibid.*, Chapter 14.

to improve the rate of learning of spatial discriminations, for food, and avoidance responses to prevent punishment. Other substances, such as serotonin, seem to interfere with the rate of learning if they are present in increased concentrations. Many of the materials that cause alteration in learning ability share the property of causing changes in the concentration of certain substances in the brain, notably potassium and calcium. In one study, cats who received a small amount of potassium injected directly into the brain before each learning experience learned much more rapidly, while cats who received minute injections of calcium directly into the brain under the same conditions learned very slowly. Thus, minute alterations in the chemical composition of brain fluids, without alteration of the fundamental anatomical structure of the brain, can produce changes in rate of learning.

The implication of all this is that anatomical differences between the brains of animals of the same species may not be the sole or even main cause of differences in intellectual ability. Both amount of stimulation in the environment and variation in the activity of enzyme systems controlling chemical reactions related to nervous excitability may be just as important as anatomical structure. This area of research is one of the most exciting frontiers of behavioral science. 100

Dream as the Source of Creative Act :

Writing about the dreams as the source of intuitive creative act Hutchinson has said :

Dreams may themselves be insights of real value, provided the motivation of them is strongly channelized by source pressing

problem, and provided they are subsequently checked against external realities... 101

Hutchinson has found that about 70 percent of the scientists whom he contacted admitted that they dreamt frequently. He has also cited the evidence from the investigation of Henri Fehr, a well-known French mathematician, according to which fiftyone out of sixty-nine mathematicians who responded, were affirmative about the possibility of solving problems in dreams. Hutchinson has mentioned that numerous psychoanalytic investigations of the dreams of creative people have been made and that the one made by Dr. William Steckel of Vienna about poets is the most outstanding of all such studies. Hutchinson has given several illustrations in support of this phenomenon. He has further written:

Banting's discovery in insulin seems to have taken a similar form. Poincare's development of the functions fuchsiennes in French mathematics came at night in a somewhat parallel form. Thinkers such as Blake, Cowper, Hazlitt, Lamb, Descartes, Goethe, Hebel, and others have been known to find material in dreams. Coleridge's "Rime of the Ancient Mariner" was founded upon a dream by his friend Cruikshank. His "Raven" and "Cristabel", Klopstock's "Messiah," De Quincey's Confessions, Poet's "Ligeia", and Stevenson's Dr. Jekyll and Mr. Hyde also owe their existence to similar sources.

The difficult task, as in all insights, is to arouse one's self sufficiently from such periods of dreaming to catch in consciousness, or

make explicit, the ideas that appear. The effort requires an immediate return to normal awareness that is not always easy to attain. Many men have at their bedside a notebook, as they know that such periods are valuable for the reception of fresh points of view. If not recorded at the moment of their appearance or at the moment of waking, ideas are lost forever. At times the period of sleep is sufficiently dissociative to produce actual automatisms, sleepwalking, note writing, and so forth.... But this experience is, I believe, rare.

The origin of insights in sleep is no guarantee and likewise no disparagement of their value. They may be the veritable debris of the subconscious mind, neurotic manifestations of the deepest sort, symbolic nonsense of little value; or they may be syntheses of real creative power ... depending upon the explicitness and accessibility of their content. There is no telling their significance at the moment of their appearance. They must be connected with wide relations in the field, shared, communicated, checked, and broadcast before their intrinsic worth can be estimated. 102

The Hindu Style of Thinking about Creativity : A Philosophical Excursion.

Existence of God is a most powerful assumption, a sturdy concept, an abiding faith of human beings who have that eye to see, that sensibility to realise. The unending propensity of life, its supreme pursuit, is to seek death. ' जातस्य हि मृत्युर्वैश्वानरं ' . There is no exception to this. Life originates to die, and die only. It is like the irreversible propensity of electric current to flow from the positive terminal to the negative one to exhaust itself in order to seek activity-free, power-bankrupt equilibrium. In the same parlance,

creativity is an anti-activity to keep death going on very much like the anti-universe to keep universe alive and functioning. Creativity, like anti-universe is an opposite concept, yet paradoxically enough, complementary. One cannot exist without the other. It is as simple as saying that it needs two ends to make an axis, two levels to flow a fluid, two terminals - an electron and a positron - to make an atom exist, two sexes to procreate life itself. Both life and matter, and so also both psyche and energy, are governed by the same rule; the rule of their having opposites, their mirror reflections which are their complementaries without which their existence is impossible.

It follows from this armchair reflection, that what energy is to matter, so is the relation of psyche to life. Since the supreme pursuit of life is to seek death, the anti-concept is, by necessity, creativity. Thus, creativity is the element of God - the mirror image of complete death i.e. eternal life - through which He manifests Himself. In other words creative activity is to seek the Eternal -- a frantic effort to live beyond death.* Thus conceived, creativity is a

* Cf. Hindus worship the शिवलिंग the God symbol of divine creation, or eternal procreation even though शिव is the Supreme Liquidator of all existence (संहारकर्ता).

compensatory mechanism.

This excursion into the realm of philosophy is not escapist; its purpose is to show that the law of universe seems to be that all conflict must end in peace, all reasoning in problemlessness and, similarly, creativity, which is characterized by both emotional turbulence (i.e. conflict) and reasoning (i.e.cognitive activity) must end in 'zero', a void i.e. God 'ब्रह्म' in the Hindu concept. Essentially, the reason for worship of God is fear of death, the fear of life's total liquidation into what Creates it. In this view creativity is a sudden, divine inspiration — God (or eternity) shining in His own Image & £ Does Freud not talk of 'love' and 'hate', 'life' and 'death' instincts, Eros and Thanatos in the same breath ? And it resonates

£ Note : The great ancient Sanskrit poet भारवि ,who was famous for his excellance in using words most meaningfully (उपमा कालिवासस्यु भारवे अर्थे गौरवं,दडिनः पद लालित्यं, माये सन्ति त्रयो गुणाः is an oft-quoted verse) describes, in his poetic style perhaps a parallel idea by saying ' एको रसः क रूण एव ... ' meaning there is only one tune in all (elegant) poetry and that is pathos; and all other रसाः (tunes or poetic notes) are mere disguised variations of the supreme gloom. It is curious to realize how gloom could bestow happiness by assuming different artificial forms.

well and perfectly appeals.®

‡ In order to grasp the glory of the supreme void, this investigator recommends that the reader imagine seriously and sensibly what may happen to all existence, all reality when one is dead. Would it all not melt away like a dream? Will anyone plead in vehement negation of the ephemeral nature of life and existence?)

A creative idea comes almost suddenly (the 'a-ha' experience of MacKinnon) like the transit of a meteor in the clear, tranquil sky. Truly a creative idea has all the splendour and glamour of a meteor in the psychic cosmos of the creator. Like the leap of a meteor, the leap of a creative idea seeks to attain some new equilibrium to sustain its cosmos.

That creativity is a divine inspiration, has been supported by eminent old thinkers of the West also like Plato, Socrates and Carlyle (Kneller, 1965). A novel idea has been supplied by Maritain who * declares

© Note: The concept of mutually complementary opposites is not new; constructs like अर्धनारीश्वर in (Hindu) religion, masculinity-femininity protests in psychology and X and Y chromosomes as a biological fact have gained indisputable currency.

Cf. C.G. Jung, Psychological Types, (London: Routledge & Kegan Paul Ltd., 1923) (Translated into English by H. Godwin Baynes) Reprint 1953, pp. 242-264.

that creativity originates in the supernatural. Creative power depends upon the 'recognition of the existence of a spiritual unconscious, or rather, preconscious, of which Plato and the wise men were aware, and the disregard of which in favour of the Freudian unconscious alone is a sign of the dullness of our times' (underline mine). As examples he mentions the religious experiences of St. Paul, Protinus, the disciples in Emmans, and ^②'Indian wise men'." 103

Presenting his paper in the sixth Nobel Conference Lectures at Gustavus Adolphus College in January 1970 MacKinnon struck an optimistic note in these words :

Creativity, although presently much emphasized in psychological research and in the thinking of many intelligent persons, as evidenced by the theme of this conference, has been one of the most neglected topics in the history of mankind. For far too long the creative process was thought of as inherently mysterious and unanalyzable, and the creative person as too sensitive and precious to be subjected to study. Today the creative process is recognized as scientifically researchable, and the creative person as capable of being assessed as any other human being. 104

103 George F. Kneller, op.cit., p. 20.

104 J.D. Roslansky (ed.), Creativity, op.cit., p. 21